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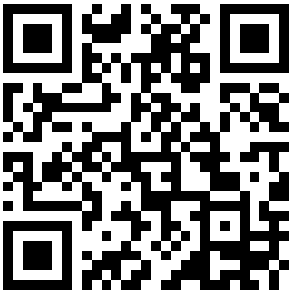

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JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

VOLUME 5, part 2
JULY-DECEMBER
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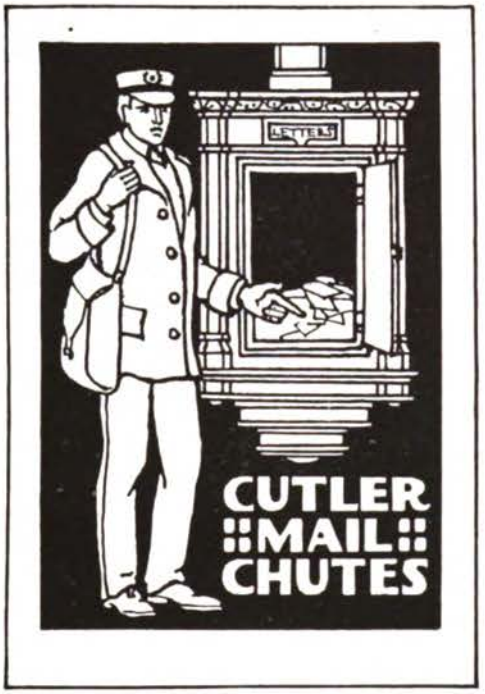

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JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V JULY, 1917 Number 7

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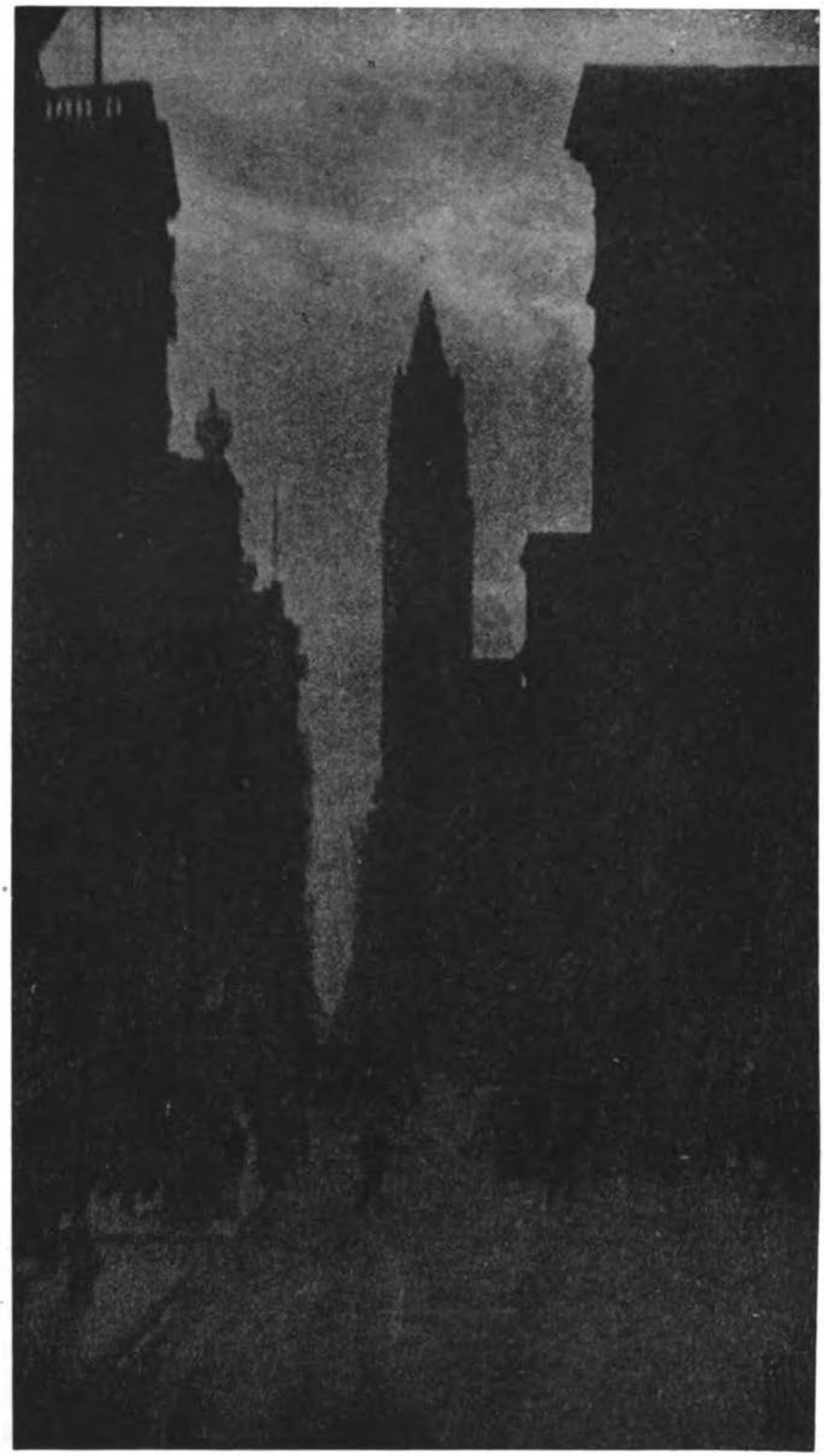

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JOURNAL OF THE
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Vol. V JULY, 1917 No. 7

Shadows and Straws

TO THOSE WHO SEEK in terms of common understanding the relation of life to art, and, more especially of the relation of architecture to things social, economic, political; to those who would penetrate that ceaseless interplay of evolutionary forces and reach the source of that perpetual unrest which makes us wonder in what manner there shall be born an architectural development in this country such as shall justify our hopes and reward our labors; to those who can see beyond our crude democracy, vision the ultimate ripening of its liberative forces, and their reaction upon art in all forms; to those—and only to those—there may lie some precious clues in the following paragraphs from an address by Felix Adler, recently published in *The Standard:*

"To be free is to express power. To be free in the highest sense is to express the highest kind of power. The highest kind is that which is exercised in such a way as to bring to the birth unlike yet cognate power in others. The teacher is spiritually free, not when he transmits a certain stock of knowledge, or a hard and fast system of ideas, but when he quickens in his hearers new thought, gives them the incentive to extend their intellectual horizon beyond his own.

"The captain of industry is free in the best sense not when he organizes processes, but when he organizes his human relations to his workers. He is free when he educates them, infinitely patient with their shortcomings, remembering out of what black pits of poverty many of them have come. He is free when he, the captain of industry, becomes himself a labor leader, instead of leaving the function of leadership to the walking delegate. He is free when he not only shares his profits with the workers, but does his utmost so to change the conditions of work as to encourage the exercise of independent thinking on the part of the tool-user. Above all when he liberates the moral will of the worker by giving him a share in the direction of the industry, in the shaping of policies, in the enactment of rules. For as long as the worker is compelled to obey the arbitrary commands of a superior, he is to that extent in a state of moral servitude. Political democracy and industrial autocracy cannot permanently exist side by side. A house thus divided against itself cannot in the long run stand.

"And you, American artist, when are you free? Is it when you produce the things that give pleasure to the beholder? Is pleasure the be all and end all of your art? Or is it when you shall so penetrate the mind of the American people as to express their artistic response to life so distinctively and articulately that they will acknowledge your creation as their very own?

"And a people is a free people when all the different social groups or vocational groups of which it is the integrated whole express themselves in this manner, mutually reacting upon one another, and when in each group every member of it shall realize some mental gift unlike the rest. A free people is not one which is released from the incubus of autocrats. That is only the first step. A free people is not one in which strong individuals thrive parasitically at the expense of the weak. It is not one in which merely equal opportunity is afforded to all in the race for material well-being. A free people is one in which the inmost gifts, even of the lowliest, are released, in which the deepest, noblest energies of all circulate unhindered enriching as they go out, enriched as they return,—the life of each swelling the surrounding tide of life, and lifted up by the refluence of the tide. This, as I conceive it, is liberty, the liberation of what is best in each. This is freedom, the free flow of life into life. This is ideal democracy."

THE INTERNATIONAL CONGRESS of Architects was to have been held in Petrograd in the spring of 1915. It gave great promise of being the most interesting of events, when the war intervened and ended all plans.

In December, 1916, a small group of Institute members addressed a message to Monsieur J. M. Poupinel, the able and devoted Secretary of the Permanent Committee of the International Congress, at Paris, in which they

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expressed their appreciation of the enjoyment they had derived from the several congresses held during the past, and in which they also ventured the hope that a speedy termination of the war might clear the way for another reunion of the delegates representing the component parts of the Congress.

In reply to this message there has been received through Mr. George Oakley Totten, Jr., Secretary of the American Section of the Congress, the letter which here follows:

Paris, le 31 Mars, 1917.

*Messieurs et éminents Confrères,

Nous avons éprouvé une réelle émotion en lisant dans votre lettre du 6 Décembre 1916 votre satisfaction lorsque vous évoquez les souvenirs de vos différents séjours en Europe et de l'accueil que vous avez toujours reçu de vos confrères et amis de France, la République-Sœur.

Votre juste appréciation des efforts de la France, de ses sanglants sacrifices et de son énergie à défendre la Civilisation et l'Humanité contre la barbarie nous touche profondément; elle nous encourage dans notre lutte pour le Droit et la Justice égale pour les grandes comme pour les petites nations.

Les Etats-Unis d'Amérique devaient comprendre ces nobles sentiments; ils l'ont prouvé dès le début par l'ampleur de leur beau geste en faveur des innocentes victimes de cette guerre cruelle et perverse, par leur persévérante générosité pour les humbles en détresse.

De cela nous vous garderons une gratitude éternelle.

Mais quand avec la Victoire triompheront le Droit, la Justice, la Loyauté; lorsque nous serons à la veille de reprendre nos paisibles travaux, n'aurons-nous pas à juger si ceux qui ont transformé tant de merveilles en des monceaux de ruines sont dignes de rester parmi nous qui nous sommes donné la tâche d'entretenir avec un soin jaloux et d'accroitre le Patrimoine artistique de l'Humanité?

*The letter was addressed to those who signed the letter of December 6, 1916, as follows: Messrs. J. L. Mauran, I. K. Pond, W. B. Ittner, R. Philipp, A. D. F. Hamlin, Albert Kelsey, B. F. Willis, G. D. Mason, W. L. Plack, F. A. Russell, E. W. Donn, Jr., G. O. Totten, Jr. A translation is appended:

"We have felt a real emotion in reading in your letter of December 6, 1916, the satisfaction with which you evoke the memories of your different sojourns in Europe and the reception you have always enjoyed at the hands of your confrères and friends in France, the Sister Republic.

"Your just appreciation of the efforts of France, of her bloody sacrifices and of her energy in defending Civilization and Humanity against barbarism touch us profoundly; it encourages us in our struggle for Right and Justice equally for the large as for the small nations.

"The United States of America should understand these sentiments; they have proved that by the amplitude of their sympathy toward the innocent victims of this cruel and perverse war, by their persevering generosity to the humble in distress.

"Of these things we cherish an eternal gratitude.

"But when Victory shall have triumphed with Right, Justice, Loyalty; when we shall again resume our peaceful labors, shall we not have to judge whether those who have transformed so many marvels of beauty into the fragments of ruins are still worthy of a place among us who have set ourselves the task of jealously guarding and increasing Humanity's patrimony of art?

"May we, as you hope, soon reunite and, as friends understanding civilization in the same manner, study together in an effort to solve the problems of our art which has been so cruelly outraged by our enemies and so nobly and passionately loved by your friends and companions signing this letter."

Puissions-nous, comme vous le souhaitez, nous réunir encore bientôt et entre amis comprenant la Civilisation de la même façon, pour étudier et résoudre ensemble les problèmes de notre Art si cruellement outragé par nos ennemis mais si noblement et passionément aimé de vos amis et compagnons de travail soussignés.

CHARLES GIRAULT, Membre de l'Institut, Membre du Conseil Supérieur des Beaux-Arts, Membre du Conseil général des Batiments civils, Membre de la Commission des Monuments historiques, Inspecteur général des Batiments civils et Palais nationaux, Professeur libre d'Architecture.

JEAN LOUIS PASCAL, Membre de l'Institut [1890], Vice-Président du Conseil général des Batiments civils, Membre de la Commission des Monuments historiques, Membre du Conseil Supérieur de l'Ecole des Beaux-Arts, Inspecteur général des Batiments civils et Palais nationaux, Professeur libre d'Architecture.

LOUIS BONNIER, Inspecteur général des Services techniques et de l'esthétique de la Prefecture de la Seine, Membre du Conseil d'Hygiène publique de la Prefecture de Police.

J. MAURICE POUPINEL, Vice-Président de l'Association littéraire et artistique internationale, Secrétaire général du Congrés internationale d'Architectes, 1897–1900–1904–1906–1911.

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ALFRED BESNARD, Expert au Tribunal de la Seine, Maire de XVIIIe Arrondissement de Paris.

IN THE STUDY OF city planning from a very elementary standpoint the members of a New York City high school class were asked to write a brief article on their city. Of those submitted, the following strikes such a human note that we think it could be accepted as evidence that students of educational methods might gain some valuable insight by encouraging a fearless expression of opinion from those who form the subject of their experiments. It also offers stout support for the theory that a knowledge of what does or does not produce good architecture is more closely related to the questionings of youthful minds than to the endeavor later to engraft the missing bud by means of a lecture-course at college.

"I have tried to reëstablish New York City in the most practical way I could, but I see now that I am, as most high school students are, quite ignorant of the vital construction of the city. We know high and impressive buildings of offices are in lower Manhattan; we know quite a good deal about the man-made palisades on our side of the river, along the rural Riverside Drive (nature manifests itself in fits and starts in our town) and also we know where Central Park and Houston Street are, but there our puny knowledge ends.

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"How can anyone who has spent one's life being present in an English class, riding three subways, eating, reading monotonous Shakespearian plays, and attending birthday parties occasionally—how can they be expected to say anything about the construction of a tremendous institution that has them crawling on it in one little corner, like so many fleas behind the ear of a dog.

"So far I need no apologies, for it is facts that I state. But what I need to apologize for is our neglect of being fit to talk about the construction of this tremendous institution which is composed of many millions of people who attend birthday parties.

"What logic is there in a department of a school giving a bunch of ——— a problem for which they have never been prepared? Do you think there will be a response worthy of even the poorest sort of factory hand, or the "runtiest" little bartender in the most filthy saloon past the bridge? Believe me, there won't. We're a group of the most unoriginal liars, though we don't mean to be. All we can say about our city, outside of a few quotations from some socialistic novel we read, or an economic essay in a newspaper, is a lot of drivel——— we're students.

"Why aren't we sent on errands to the offices, why aren't we encouraged to go down to the Bowery or the East Side and have some duty to perform there, why haven't we ever stayed all night in some shack by the docks, where we can see the loneliness of our city at night and the almost inhuman vigor in the daytime? Why don't those people who are controlling us, if they must control, make us boys and girls of heart and guts and soul? Until this is done, don't give us municipal problems (to be answered) about which we know nothing; it annoys us very much."

The War Department's Cantonment Plans

There will be sixteen cantonments constructed in various parts of the country.

These camps will each consist of one division, plus certain additional units, and will aggregate from 35,000 to 45,000 men in each case. A division consists of 9 infantry regiments, divided into 3 brigades, 1 brigade of light artillery, consisting of 3 regiments, 1 regiment of cavalry which will be organized like an infantry regiment, 1 regiment of engineers, 1 aëro squadron and 1 field signal battalion. The additional units will vary at the different camps and will consist of heavy artillery regiments, additional infantry regiments, balloon companies and field telegraph battalions. Infantry regiments are composed of 12 companies at 200 men each, 1 machine gun company of 200 men, and smaller organizations, known as headquarters and supply companies and medical detachments, attached to the regiments. Artillery regiments are made up of 6 batteries, each with headquarters and supply companies, and engineer regiments are made of 6 companies with headquarters and supply companies. The battery consists of 190 men. The engineer company consists of 164 men.

The barracks for companies and batteries will be two stories in height, with the mess hall and kitchen located on the first floor, and with dormitories on the balance of the first floor and the second floor. Small detachments will be housed in one-story barracks, as will the officers. The officers for a regiment are housed in groups, depending on the size of the organization, which means that from 8 to 15 officers will be in each building.

It is the intention of the Government to erect, as soon as funds become available, a post exchange building for the use of each regiment, which will contain a small restaurant and a small store for the sale of small wares, soda-water, ice-cream, etc.

The Y. M. C. A. is providing for the use of each regiment an assembly building, where men will be provided with writing materials, magazines and books, and where religious meetings, entertainments, and lectures will be given. The Y. M. C. A. is also planning to provide in connection with each division cantonment a large auditorium or assembly hall where more extensive entertainments, religious services, etc., can be held.

The construction of stables for the requisite horses and mules will be started as soon as the construction of the necessary buildings for housing the men has been completed. Stables are, in general, placed in the rear of the living quarters, and, so far as possible, in the direction away from the prevailing summer winds, so that such flies as may develop will be blown away from and not into the quarters of the men.

The Quartermaster's Department in providing quarters for troops on the Mexican border had worked up a system of houses consisting entirely of one-story buildings. In completing plans for the present cantonments the fact developed that this arrangement would require too much ground-space, and, coupled with the fact that the various units had been largely increased in size, made it necessary to adopt the two-story barracks in the interest of economy.

Lavatories will be provided for each organization, fitted with shower-baths and other necessary fixtures. The shower-baths will be provided with hot and cold water, and, in general, the toilet facilities will be practically as good as would be provided in connection with permanent barracks at army posts.

The hospital plant in each case will be placed to the best advantage under the conditions of each group, and the location is not determined by the typical layouts.

The buildings are all constructed substantially with frames of wooden studding and covered with boards. The windows are of good size and ample in number.

It is difficult to grasp the great scale of these cantonments. They will occupy from 900 to 1,200 acres each, and when the units are arranged in one straight line, as

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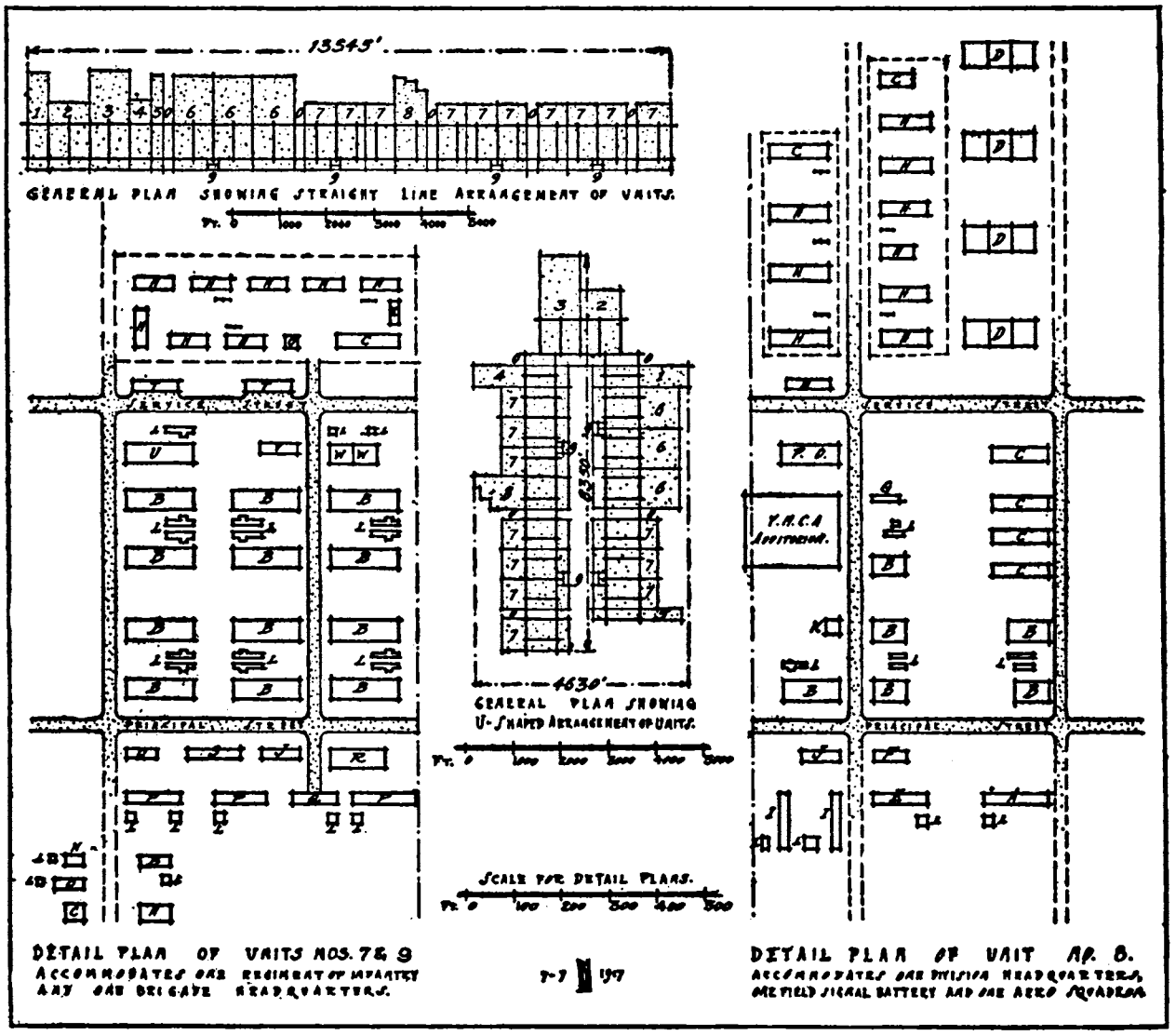

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they will be in some localities, they occupy a strip of ground about one-third of a mile wide and nearly 2½ miles long! Owing to the different topography of the various sites, the units will be arranged in different ways, varying from the straight-line plan and the U-shaped plan, as shown in the illustration, to the S-shaped and figure 8-shaped plans, it being essential that the principal street and parallel service street, on both of which the units are "threaded," have as easy a grade as possible. The sites for all have now been made public.

Messrs. George B. Ford, Charles Butler, J. Otis Post, Woodruff Leeming and other members of the American Institute of Architects acted as advisors in the planning of the cantonments and the individual buildings of which they are composed.

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The Organization of the Architectural Profession

By SIDNEY WEBB, LL.B.
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(*Continued from the last issue*)

The Development of the Educational Problem

THE R.I.B.A. refused for many years to take the responsibility of awarding any diploma in architecture, with the question—which at that time seemed to many of the leaders of the profession an irresistible argument—how *could* there be an examination in architecture? In 1863, indeed, the Institute began to hold examinations in certain professional subjects, on the distinct understanding that to submit to them was to be and to remain an entirely voluntary work of supererogation on the part of the youthful aspirant, and that no diploma would ever be awarded. So discouraging were the conditions that no candidates presented themselves. Not for another quarter of a century, when a new generation of members had to deal with new conditions, did the official attitude change. Meanwhile the lectures and classes of the Architectural Association, long given gratuitously by zealous missionaries of architectural education, had gradually developed into systematically planned day and evening schools; and a certain amount of distinctly useful instruction for young architects was being provided, not only in the Royal Academy school but also by lectures at University and King's Colleges; by classes in building construction and various sciences in evening classes and technical institutes, and by several of the provincial universities. In 1877, after much pressure, the Council so far gave way to the desire for some distinct recognition of the need for professional training as to accept by-laws which provided that candidates for the Associateship might hereafter be subjected to the test of an examination. Not for five years were these by-laws acted upon and the necessary examinations held—not even then as a matter of course—whilst the Fellowship was still awarded freely without any such condition. In 1886, after renewed discussion and agitation, the Council referred to a Special Committee the consideration of the vexed question of whether or not the Institute should definitely place itself upon an examination basis and henceforth require the passing of prescribed tests as a condition of admission to the Fellowship as well as to the Associateship. That Special Committee found itself still faced with the poser, How *can* anyone examine in art? The modern tendency, and especially the influence in this direction of the allied societies in the provincial towns, was, however, by this time too strong to be resisted. After continued agitation a supplementary charter was obtained in 1887, expressly conferring the power to subject candidates to examination and to issue certificates or diplomas. A formal conference between the Institute and the allied provincial societies in May, 1887, resulted in resolutions emphatically calling upon the Institute to take into its hands the guidance and direction of architectural education, and to establish a complete series of examinations, qualifying for the stages of Probationers, Students and Associates respectively. It was provided by the new charter that, after five years from its date, it should be within the power of the Council to resolve that the Fellowship should be conferred only upon those who had already become Associates. It was the intention of a large part of the members that this power to restrict admissions to the Fellowship to the Associate class, and thus eventually to those who had passed the examination for the Associateship, should be really put in force. But the Council, representing, as it believed, the majority of the members, clung to the Institute's freedom to elect and admit to the Fellowship any practising architect, even if he had not passed through the grade of Associateship. This attitude of the Council led to some tension and to determined resistance by a minority, which was shown at different meetings in 1907 and 1908, by the failure of those candidates for the Fellowship who were not already Associates to secure the necessary three-fourths majority for election. The dis-

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pute was settled by the supplementary charter of 1909, which definitely provided that the Fellows should normally be elected at a members' meeting from among the Associates, whilst allowing the Council, in exceptional cases, to elect and admit as a Fellow a practising architect of at least thirty years of age and over seven years' standing.* This systematic adoption of public examination for the Associateship, intended as the only future means of entry to the Institute, whilst it evoked some disapproval from those who clung to the conception of architecture as one of the "fine arts" for which examination tests seemed inappropriate, greatly stimulated the provision of professional instruction and incidentally proved most successful in attracting members to the Institute. Already in 1891 it could be reported that, since the examination was made compulsory for the Associateship, the average number of persons elected to that grade had more than doubled. During the past ten years the total membership of the Institute has again increased by fifty per cent. Even the objectors came gradually to recognize the utility of this systematic instruction. During the past decade the contending parties have, in fact, silently dropped the old controversy and applied themselves to developing the systematic professional instruction which should supplement the experience gained as pupil or assistant. The Institute now appoints a Board of Architectural Education, which includes advisory members representing the Architectural Association and the various universities of the British Empire having schools or professors of architecture. It distributes every year something like a thousand pounds worth of prizes and studentships. At great expense it maintains and opens freely to all comers the finest architectural library in the Kingdom. The Architectural Association, the universities and other teaching institutions throughout the country have become "recognized schools," working on a syllabus issued by the Board of Architectural Education and appointing External Examiners approved by the Board. Their examinations are thereupon accepted as alternatives to the R.I.B.A. Intermediate. The recognized schools also supervise the design work of students for the R.I.B.A. Final. Thus, the whole architectural education of the country has been coördinated and directed by the body representing the profession. The traveling scholarships awarded by the Institute, enabling several students annually to start on one or two years' study in other countries, may, it is hoped, be developed into a fully organized center of advanced architectural instruction, in London or elsewhere, in order to equip the most promising of the aspirants with the most comprehensive and the most advanced training.

*For the whole controversy, see the *Journal* of the R.I.B.A., and especially the volume entitled "Architecture a Profession or an Art," edited by Norman Shaw and T. G. Jackson (London, 1892, xxxv+244 pp.), in which thirteen distinguished architects expound the artistic view. See a more balanced judgment in the article "Architects," by Alfred Waterhouse, in "Unwritten Laws and Ideals," edited by Miss E. H. Pitcairn (London, 1899).

Registration of Architects

The adoption of a system of public examinations as the portal to membership of the Institute has been throughout mixed up with the different question of the formation of a public register of the profession. The demand for some authoritative registration of persons qualified to be architects, with some protection for registered practitioners against the competition of the unqualified, is more than half a century old. Already in 1854, it is said, expression was given to the need of the qualified practitioner—especially in the provincial towns—for some such protection. Not only was (and is) every estate agent and every little builder free to put up whatever monstrosities in the way of colleges or villas that he chose, but any carpenter or contractor, even any auctioneer or house agent, was (and still is) free to style himself an architect, without knowledge or qualification of any kind, and to obtain commissions to put up buildings of all sorts from clients unaware of his professional incompetence, commissions which he may execute partly by making use of the published drawings and details and model forms of specification to be found in easily accessible technical works and partly by using the services as "ghost" of a youthful pupil or a salaried architectural assistant. There are cases in which the false pretenses of the self-styled architect amount actually to fraud on the public.

The Council of the Institute for a whole generation ignored the growing demand to which the profession was gradually becoming converted. Down to 1887, indeed, the subject

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seems not to have cropped up in any official proceedings. "The leading lights of the Institute," it has been somewhat bitterly said of the men of these years, "comprising the greater number of the most eminent men in the profession, looked upon registration with disgust, as an attempt to trammel and hamper a calling the chief aim of which was not the exercise of professional or administrative functions but the expression of artistic ideals in brick and stone. Theoretically they were absolutely right, but they were the leaders of the profession in London, the largest practitioners, and some, be it noted, were remarkably good business men in the handling of their affairs. They never really felt the pinch of unqualified competition as did their humbler surburban and provincial brethren. Then was born the Society of Architects composed of men who felt the need for and demanded registration."* In fact, finding the R.I.B.A. refusing to move definitely for statutory registration, a number of architects, partly metropolitan, partly provincial, resolved to form a separate organization primarily devoted to these objects.

The Founding of the Society of Architects

Partly on the initiative of Mr. E. J. Kibblewhite, the Editor of the *Building News*, there was formed in 1884 the Society of Architects,† at first registered under the Literary and Philosophical Institutions Act, and subsequently (in 1893) incorporated under the Joint Stock Companies Act. For the first few years the new Society remained as small in membership as the Institute itself had been in its earliest decade. But the Society threw itself vigorously into the organization of an Architectural and Building Trades Exhibition, and by circularizing the very large number of practising architects all over the country, enrolled, from 1887 onward, a membership which grew into hundreds. In 1886 there had come together, independently of any society, out of a public conference of architects to discuss the position, an Architects Registration Committee, which the Society of Architects subsidized and supported. Inquiries made by post of 5,000 architects in practice in England and Wales produced over 1,300 favorable replies and only three objections. A Registration Bill was accordingly prepared and a public conference of architects urged upon the Institute the importance of giving some consideration to the subject. Thereupon Mr. Arthur Cates, F.R.I.B.A., expressed what was apparently the view of a majority of the members of the Institute when he urged that no further organization was required, and all would be well if architects who were really architects would, by the new examination, become Associates of the Institute, and thus mark themselves off from unqualified outsiders.* This satisfied neither the Architects Registration Committee, nor the Society of Architects. The Architects Registration Bill which had been drafted was accordingly introduced into Parliament in 1887 but failed to gain a day. A similar fate attended the Bill in 1888—when it was formally opposed by petition by the Institute and the allied societies—and in 1889, and again in 1891, 1893 and 1895, the Institute always formally petitioning against the measure, as its members, in effect, decided. A motion in favor of statutory registration was lost by three to one at a general meeting of the Institute in 1890, and this decision was confirmed on referendum by 520 to 164. In 1894 the Society of Architects laid it down that admission to its membership should thenceforth be normally only after examination, and—though leading to the resignation of some of the leading members—in 1898 a system of examinations was begun to which it was proposed that candidates below thirty-five years of age (subsequently altered to

**The Irish Builder and Engineer*, quoted in *Journal of the Society of Architects*, Feb. 7, 1914. It does not seem to be true, as alleged, that "the whole stir about registration began with a series of letters in a building paper about the lack of professional status which prevented architects from taking their proper position in society," on a level with lawyers, doctors and clergymen! ("Architecture a Profession or an Art," edited by R. Norman Shaw and T. G. Jackson, 1892, p. 219.)

†The Society of Architects now has commodious premises of its own at 28 Bedford Square, and a total enrollment of 1,185 (including 960 Members—including one lady now practising in Bombay, 31 Honorary Members, 18 Retired Members, 2 graduates and 174 students). It has a branch at Johannesburg in the Transvaal and scattered members all over the world. It was open at first to anyone who satisfied its Council of architectural competence and experience, and it includes therefore members, not only of the R.I.B.A. and its allied societies, but also of the Surveyors' Institution, the Sanitary Institute and the Institution of Civil Engineers. Admission to the membership is now restricted to practising architects of not less than thiry years of age, of seven years' standing as Principals, or of ten years' practice as Assistants and Principals, who pass the membership examination, or produce other sufficient evidence of training, ability and professional standing. Only a small proportion of the membership has, in fact, entered by examination. The annual subscription is two guineas. The Society publishes a monthly *Journal*. The Society has sought to establish a Professional Defence Fund, for assisting its members in legal proceedings, raising questions of principle affecting the profession, and has promoted a "Beaux Arts Committee" for the establishment of architectural ateliers after the model of those of Paris. But its main characteristic is its persistent agitation for statutory registration of the profession. See "Some Notes on the Work of the Society of Architects, 1884–1914," by C. McArthur Butler, in *Journal of the Society of Architects*, February, 1914.

*See article by Mr. Arthur Cates, F.R.I.B.A. in R.I.B.A. *Journal*, Nov. 10, 1887.

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twenty-eight and then to thirty) should be subjected. Meanwhile the propaganda of the policy of statutory registration was maintained, and the Bill was introduced in the House of Commons again in 1900 but failed once more to secure a day. In 1903 the Architects Registration Committee merged itself in the Society of Architects, which thereupon carried through another elaborate plebiscite of the profession within the British Isles upon the issue of registration. Out of nearly 6,000 architects individually appealed to, two-thirds replied, and of these only 170 voted against registration. It is interesting to record that the Council of the Institute, which still looked upon the movement with scant favor, issued a counter-statement arguing against statutory registration, and appealed to their allied societies in the provinces to express their opinions on the subject. But a majority of the allied societies expressed themselves more or less forcibly in its favor. The election of the Council of the Institute in 1904, perhaps owing to superior organization of what was, in fact, only a minority of the membership, also went in favor of the candidates who supported the policy of registration, and the old attitude of absolute resistance may be said to have been then silently abandoned. On the one side, under the influence of the late John Belcher, who was president of the Institute in 1904–6, and was awarded its Royal Gold Medal in 1907, a considerable number of artistic and otherwise distinguished architects, who had hitherto held aloof from the Institute, were induced to throw in their lot with what had indubitably become the responsible professional organization for the whole Empire. On the other side, in the same year, the rival Society of Architects entered into friendly communications with the Institute with a view to arriving at a common policy. A Committee of the Institute, which had been appointed in 1904 to consider the whole subject, was emboldened to get drafted a new registration bill. Meanwhile, however, the situation was confused in May, 1905, by the rejection of the Institute's "Registrationist Council" and the election to the Council of members who stood on the old lines. The bill already drafted was published, but at the same time negotiations were set on foot with a view to uniting, not so much the divergent voices of the profession, as both sections of the Institute's members. This led to the submission to a general meeting, in April, 1906, of what was intended to be a compromise report. It was proposed that the Institute's Registration Bill should be dropped, and that the Institute should, for the present, "confine itself to attempting to obtain Parliamentary recognition for its membership." A supplementary charter was to be obtained, with new by-laws definitely restricting admission to the Fellowship to Associates, but widening the scope of the Institute by the admission of a new class of Licentiates, who might, under careful restrictions, for a limited period proceed to the Fellowship. These proposals secured the general approval of the members during 1906 and 1907, but the supplementary charter and new by-laws were not obtained until 1909 and 1910 respectively.

The Growing Support of the Registration Principle

Meanwhile the idea of an authoritative registration of the whole profession, protected by penalities on unqualified practitioners, obtained an ever-widening support. The Society of Architects again pressed forward its scheme, securing for its bill at the General Election of 1906 the support of many Parliamentary candidates. It was not without influence that the International Congress of Architects, held in London in 1906, had passed a resolution in favor of every country adopting a statutory qualification for architects. Another plebiscite of the profession in the British Isles, carried out by *The Builder* in the same year, showed a majority of eight to one in favor of registration. The tide was now too strong to be resisted. In 1911 the Institute appointed a Parliamentary Bill Committee to draft the limited measure contemplated in the "compromise" proposals of 1906. It became, however, apparent that the opposition of the Society of Architects, added to that of the unorganized practitioners, would be fatal to any Parliamentary proceedings. Negotiations were accordingly opened between the Institute and the Society, on the basis of the fusion of the two bodies, and the promotion of a bill for the registration of all actually practising architects, protected by penalties on unregistered practitioners. The basis of such

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an amalgamation was agreed to by the two Councils, and even by meetings of the members of both societies, but at the last moment it was discovered that the charter of the Institute did not empower it to enter into a binding agreement on the subject. The completion of the fusion was thereupon adjourned until the Institute could obtain a supplementary charter. When, however, this supplementary charter was drafted and presented to the members of the Institute in 1912, it was referred back for further consideration of the whole subject.

The Establishment of the Licentiate Class in the R.I.B.A.

The somewhat bewildering uncertainty and vacillation of the Institute with regard to registration may be attributed partly to its own internal difficulties of constitution,—the method of election sometimes producing a Council out of sympathy with the majority of the members,—partly to an ever-shifting cleavage of opinion among the members themselves, not now so much about the desirability of some sort of registration as about the method and machinery to be adopted. In 1908–10, when the Institute could count in its membership probably fewer than a fifth of the architects of the British Isles, the Fellows and Associates agreed, as we have mentioned, to open its doors so far as to admit, at a subscription of a guinea a year, during a strictly limited period (March, 1910, to June, 1912), any reputable architect over thirty, not engaged in any other avocation than that of architect and surveyor, who had been either five years in practice as a principal, or ten years practising or studying architecture in any capacity, and who could get recommended by three Fellows or Associates for election by a two-thirds majority of the Council. He was not admitted as a Fellow, nor even as an Associate, but only to the new grade of Licentiate, and it was provided that Licentiates should have no right to vote and should not even become corporate members of the Institute. They were, however, given the privilege of proceeding by examination direct to the Fellowship, if otherwise eligible, up to the year 1920 only. No fewer than 2,221 Licentiates of the Institute were thus elected, and the number of architects within the range of its influence was thereby greatly increased. This great accession of numerical strength to the Institute encouraged those who, whilst convinced of the advantage of an authoritative registration of architects, doubted either the wisdom or the practicability of statutory registration, to which the Society of Architects pinned its faith, and who preferred to advocate registration by charter. Let the Institute, it was urged, obtain yet another supplementary charter, creating a new class of "chartered architects," analogous to the "chartered accountants," to whom official positions and public engagements could gradually be restricted. When, however, such a proposal came to be discussed it was found that many of the leading Fellows and Associates of the Institute were indisposed to admit to the privileged rank of chartered member either the members of the allied societies or the members of the Society of Architects, or even the Licentiates who had just been attracted to the Institute itself. These might, it was suggested, content themselves with the lower title of "registered architects." The Registration Committee, which had been appointed after the defeat of the fusion scheme in January, 1912, produced in 1913 a further scheme on these lines, leaving to the Council to decide whether to recommend a Bill on the lines of the "compromise" of 1906 or the policy of "registration by charter," without penal provisions against outside unregistered practitioners. The Council recommended the members to adopt the latter proposal—thus reverting substantially to the Institute's position of a quarter of a century before. Proposals for the necessary supplementary charter, carried by more than two to one at the biggest members' meeting ever held at the R.I.B.A., were still under consideration—the Society of Architects meanwhile once more getting its Bill introduced, this time in the House of Lords*—when the out-

*The Bill promoted by the Society of Architects in 1914 proposed the establishment of a Council of Architectural Education and Registration of the United Kingdom, constituted partly of nominees of the Crown and the various professional bodies, partly of representatives directly elected by the registered practitioners. The register is to consist, at the outset, of all members of all architectural societies, all persons actually practising in the United Kingdom, and all who have been for five years students or assistants. In future, admission is to be only on examination, after a prescribed period of training, either in an architect's office or at a school of architecture. The registered practitioners alone may use the term architect, and penalties are provided for any infringement. But the rights are safeguarded of members of the Institution of Civil Engineers, the Institution of Municipal and County Engineers, the Society of Engineers, the Institute of Civil Engineers of Ireland, the Surveyors' Institution, and the Quantity Surveyors' Association.

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break of the war in 1914 threw the whole question into abeyance.

Some of the Prime Factors Involved in the Registration Controversy

Looking back on the whole controversy, it must be said in fairness to the early opponents of registration that, whilst the genuine advantages offered by the establishment of a register, notably in the way of securing thereby a higher standard of education throughout the profession, have gradually made themselves manifest, with the result of winning over to the idea the great majority of the profession, yet it has not always been for these public benefits that the registrationists have contended. Those who, in the earlier years of the controversy, took their stand against registration could not fail to be impressed by the fact that the movement drew much (though not all) of its strength from the desire of professional architects of no great competence or skill for protection against the competition of men who, often without regular professional qualifications, nevertheless succeeded in putting up buildings which were sometimes superior, rather than inferior, to those erected by their professionally qualified rivals. Not every Associate of the Institute, not even every Fellow, turns out better cottages and farm buildings than does the estate agent equipped with the best plans; streets of shops and dwelling houses less ugly and monotonous than does the speculative builder of practical experience; schools and municipal offices more adapted to their purpose and artistically less monstrous than does the borough engineer or surveyor. It was not until the case for registration was put on the broader and more tenable ground of its effect in improving the educational qualifications of the architects themselves—in the promotion of which those who talked most about registration have often taken least part—that it won its way, in so far as it could be shown to be practicable, to the hearts of the majority of the profession.

Moreover, many ardent registrationists who complain that so little has been done do not realize the obstacles with which those who have the actual carriage of the business find themselves faced. Great indeed are the difficulties in this country in the way of any authoritative registration which is to confer anything in the nature of monopoly privileges. The number of persons practising as architects in the United Kingdom, either as principals or as salaried assistants—to say nothing of the students in the schools and the pupils in the offices*—has been lately officially estimated at about 12,000, of whom perhaps 3,000 are in London, 8,000 in English provincial towns, 500 in Scotland, and as many more in Ireland and Wales together. Of these (allowing for members retired, or in other professions, or practising outside the British Isles) possible 750 are Fellows, and 1,400 are Associates of the R.I.B.A., being only one-fifth of the whole, and only a part of these have themselves been subjected to any examination test. About 1,750 are Licentiates, including some men of undoubted distinction (allowing for the same deduction), who have all come in without examination. The rival organization, the Society of Architects, has among its 1,000 members (allowing in the same way for members retired, or in other professions, or practising outside the British Isles, and deducting also those who are likewise Fellows, Associates, and Licentiates of the Institute), possibly 600 additional members, hardly any of whom have come in by examination, but whom the Institute was, in 1913, prepared to accept as Licentiates on the projected amalgamation of the two bodies. We have yet to add those members of the local societies allied to the Institute, who are, as principals or as assistants, actually in practice within the British Isles, but are not themselves Fellows, Associates, or Licentiates of the Institute or members of the Society of Architects. These may be estimated at about 700. There is also to be reckoned the Ulster Society, which is, since 1906, no longer connected with the Royal Institute of Architects in Ireland; there are three small societies of architects in England not allied to the Institute; and there is also in the same case the Bradford Society of Architects and Surveyors.† These together may contribute a few score. Thus, the number of Architects actually practising within the British Isles, either as prin-

*The R.I.B.A. has registered about 1,100 students who have passed its intermediate examination, and about 3,000 probationers who have passed its preliminary examination.

†The only societies of architects in the United Kindgom not at present in alliance with the Institute—apart from the Society of Architects—appear to be the Preston Society of Architects, the Gloucestershire Architectural Association, the Wolverhampton Society of Architects, and the Bradford Society of Architects and Surveyors, together with the Ulster Society of Architects.

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cipals or as assistants, and members of one or other professional associations, may be put at between five and six thousand, or probably not quite one-half of the whole. How many of these are practising on their account as principals, how many are salaried heads of the architectural departments of public authorities,* and how many are merely architects' assistants cannot easily be ascertained. It is suggested by many that, if the Institute would but agree to admit to a common registered membership at the outset all the existing members of all the existing societies—or such among them as are actually practising within the British Isles—and if proper conditions for subsequent accessions to the register were agreed upon, voluntary registration, which might be ratified subsequently by an unopposed charter, ought not to be impracticable. The position is simplified by the term "in practice" being confined to those in general practice *as principals*, in accordance with the usage of the Institute of Chartered Accountants, and the task might be lightened if principals alone were made eligible for registration.

It is, however, objected that the establishment, by agreement among the societies, of a register of architects in practice—perhaps with four separate columns for principals carrying on general practice, the salaried heads of public architectural departments, salaried assistants actually engaged in architectural work, and duly enrolled students—whilst it would probably promote the amalgamation of the different societies and consolidate their influence upon the profession, would not achieve the object of preventing unregistered persons from posing as architects or from holding public appointments, or from obtaining architectural commissions from public authorities. To secure, whether by charter or by statute, any such monopoly privileges in this country will, it is said in reply, never be practicable. There are still not a few architects of acknowledged competence, and even high repute, outside the membership of any society—men who have passed no examination in architecture and are in possession of no paper qualification whatever. It would clearly be necessary to admit, at the outset, to any register conferring exclusive privileges, not only all the practising members of all the societies, but also all non-members actually practising the profession. Moreover what is an architect? This is a question which has led to much scornful controversy. "Perhaps no other profession in England comprehends within legitimate limits so great a diversity of recognized business." In law, as in common parlance, "every man is entitled to call himself an architect who undertakes the direction of building work."* Among the practising architects in the British Isles, some, it has been said, "are enthusiastic artists or exquisite draughtsmen while others make no such pretension. Some are careful scientific constructors and others nothing of the kind. Some are the most prosaic of building directors in the beaten track of commercial agency, and no more. Others are surveyors, valuers, negotiators, advocates, property agents, accountants, financiers, managers of estates, collectors of rents and what not, in the greatest variety."† The various societies of architects include, in fact, in their membership men who may or may not have some architectural competence, but who are actually practising mainly, or even exclusively, as surveyors, quantity surveyors, valuers, civil engineers, or sanitary engineers, if not also as estate agents, house-agents or auctioneers—in some cases even holding full-time salaried appointments unconnected with architecture. The Institute itself has dropped its express prohibition of its Fellows and Associates practising as quantity surveyors; and though the new class of Licentiates in 1910–12 were required to declare that they were engaged in "no other avocation," the combination of "architect and surveyor" was expressly permitted to them.‡ It is clear that

*It has been estimated that a couple of thousand architects are holding salaried appointments, otherwise than as assistants to architects in general practice—an estimate the accuracy of which is doubted by other authorities.

*"The Consulting Architect," by Robert Kerr, F.R.I.B.A., Professor of Architecture at Kings College, London, p. 170.

†*Ibid.*

‡"Out of about 1,100 persons in the London Directory under the heading "architects," of whom about 480 belong to the Institute, about 550 describe themselves as "surveyors," of whom about 230 are members of the Institute" ("Architecture a Profession or an Art," by R. Norman Shaw and T. G. Jackson, 1892, p. 91). It is interesting to give the corresponding figures twenty-three years later. Curiously enough, the total of architects and the number of these who are Fellows or Associates of the Institute is almost identically the same in 1915 as in 1892, viz., about 1,100 and 480 respectively, a very striking indication of the extent to which architectural business has been dispersed among the provincial towns or "localized." But only about 400 (as compared with 550) of these architects describe themselves also as surveyors, and of these only about 150 (as compared with 230) are Fellows or Associates of the Institute. It may be remarked that a surveyor is at least as difficult to define as an architect. "A surveyor," it has been said, "may be a land surveyor, a developer of building estates, an arbitrator or expert on matters of building law, or a quantity surveyor." (*Ibid*, p. 94.)

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neither the Surveyors' Institution nor the Quantity Surveyors' Association would consent, any more than would the Institution of Civil Engineers, or the Institution of Municipal and County Engineers, to any enforcement of an exclusive right of architects to do work which is, in fact, now often performed by members of these societies.* It is said, in reply, that an Act of Parliament, or a Royal charter might at any rate confer the exclusive right to use the designation of architect, or registered architect, or chartered architect, with initials corresponding thereto; and that such laws are in force in many of the United States, in several provinces of the Dominion of Canada, in New Zealand, and in the province of the Transvaal. It is, however, a moot point whether any such new title, even with its corresponding initial letters, however legally protected, would be worth more in the eyes of the public than the old established F.R.I.B.A. and A.R.I.B.A. Nor is it clear that, even where statutory registration is in force, any great progress has been made, otherwise than on paper, in clearing away unqualified practitioners. Of the Transvaal registration, then over five years old, it was said in 1913 that, whilst, at some cost to the profession in fees, it had conferred a legal monopoly of the title of architect, this had been found to be nugatory. There was nothing to prevent all sorts of unregistered persons from doing what was essentially architects' work and pressing their services on the public. Advertisements appeared in the newspapers from estate agents and contractors, from civil engineers and land and building companies, even from persons calling themselves "structural experts," offering to supply plans and specifications and to put up every kind of building at fees having no relation to those customary in the profession.* On the other hand, it is frequently asked that it should be provided that no public authority or institution aided from public funds should entrust its architectural work to any but a registered architect†—a requirement which would be most strenuously opposed by the Municipal Corporations Association, the County Councils Association, and other representatives of local authorities, as well as by the various professional associations of engineers and surveyors, notably by the Association of County and Municipal Engineers. Finally, it must be said that, since the organized resistance made by the medical practitioners to the Government proposals under the National Insurance Act, the feeling of the House of Commons has become perceptibly more adverse toward professional organizations of any sort; and all expert Parliamentary advisers declare that the present House will not so much as look at proposals savoring of professional monopoly.

*Half a dozen architects—among them Fellows and Associates of the R.I.B.A.—describe themselves in the London Directory for 1915 as being also civil engineers. A small number of Fellows and Associates of the R.I.B.A. are also associates or members of the Institution of Civil Engineers or the Institution of Mechanical Engineers, and more of them are Fellows of the Surveyors' Institution.

It is to be noted, too, that joint stock companies, such as the gigantic London "stores," are now practising as architects to no small extent, as well as carrying on the businesses of house agency, valuing, surveying, and building—all in conjunction with each other!

*Letter from a Transvaal architect, in *Journal of the Society of Architects*, January, 1914.

†At the instance of Mr. (now Viscount) Bryce, a provision was inserted in the Laborers' Cottages Act for Ireland that any person whom the local authority wished to employ as architect should satisfy the Local Government Board of his competence.

(*To be continued*)

Important Court Decision on the Districting Law of New York City

A court decision having an important bearing on the districting law adopted by New York City in 1916 was recently rendered by the Appellate Division of the Supreme Court of New York City. The case involved the validity of a contract for the purchase of property lying within a residential district, as determined by the districting plan. Prior to the enactment of the law, a manufacturing firm contracted to purchase the property in question with the intention of using the same for industrial purposes. The passage of the law restricted this property to residential purposes only. The original owner of the property sued the manufacturing concern to force them to carry out their contract, but the Appellate Division of the Supreme Court held that the restriction imposed on the property by the districting plan was an incumbrance on the property and therefore invalidated the original contract in which no reference was made to such incumbrance.

Part of the opinion relieving the defendants of the contract reads:

"There can be on doubt that such a restriction (the zone resolution) upon the uses to which the property may be put would, if imposed by a covenant found in the chain of title and running with the land, constitute an incumbrance and absolve defendant fron his contract to purchase it. This is conceded by the plaintiff-respondent. But it is said that such a restriction upon the use to which the property may be put, if imposed by legislative or municipal authority, while it may operate as an incum-

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brance on the property and affect its marketability, is not such an incumbrance as may be availed of by a vendee to avoid his agreement to purchase it.

"Undoubtedly, if a person contracts to purchase a building, such as a tenement house or a factory, which is restricted as to the manner of its use by laws and ordinances existing when the contract is made, he will be chargeable with a knowledge of these restrictions and will be deemed to have contracted to purchase the property subject to them."

The final report of the Commission on Building Districts and Restrictions of New York City has now been made public. It will be found invaluable to students of zoning, districting and city planning generally, and may be had for $1 from the Committee on City Plan, Board of Estimate and Apportionment, New York City.

Charles Butler, Architect

Military Unit Hospital Built by The Rockefeller Institute for Medical Research, in New York City

On June 1 last there was begun by the Rockefeller Institute of Medical Research, on its grounds at 66th Street and Avenue A, New York City, a military unit hospital. The object of this enterprise is to make available to patients an improved method of treatment; to demonstrate and teach to American surgeons who may be enrolled for military service measures for the treatment of infected wounds, especially by the Carrel-Dakin method; and to test the feasibility of a unit portable military hospital designed by Mr. Charles Butler, of New York City, who worked under the French War Department in making a thorough study of the military hospital units which have been developed for use in France and England. The hospital has now been completed, and while its erection was at least expedited by the war, it is expected that it will be of great benefit in the treatment of industrial accidents of all kinds where infected wounds are of frequent occurrence. Successive groups of surgeons will be assigned to the hospital as a means of familiarizing the Army Medical Department with the treatment invented by Drs. Carrel and Dakin. The results, both from the medical and from the hospital points of view, will be watched with keen interest by all who are interested in seeing the war hospitals of the United States brought to the highest standard through the utilization of the knowledge and experience which has been so dearly bought by our allies. The buildings in the above unit have double walls, roofs and floors, since the experience in France has proven that single walls, roofs and floors are not suitable to extremes of heat or cold. It is reported that men have been frozen to death in hospital buildings of the single-wall type.

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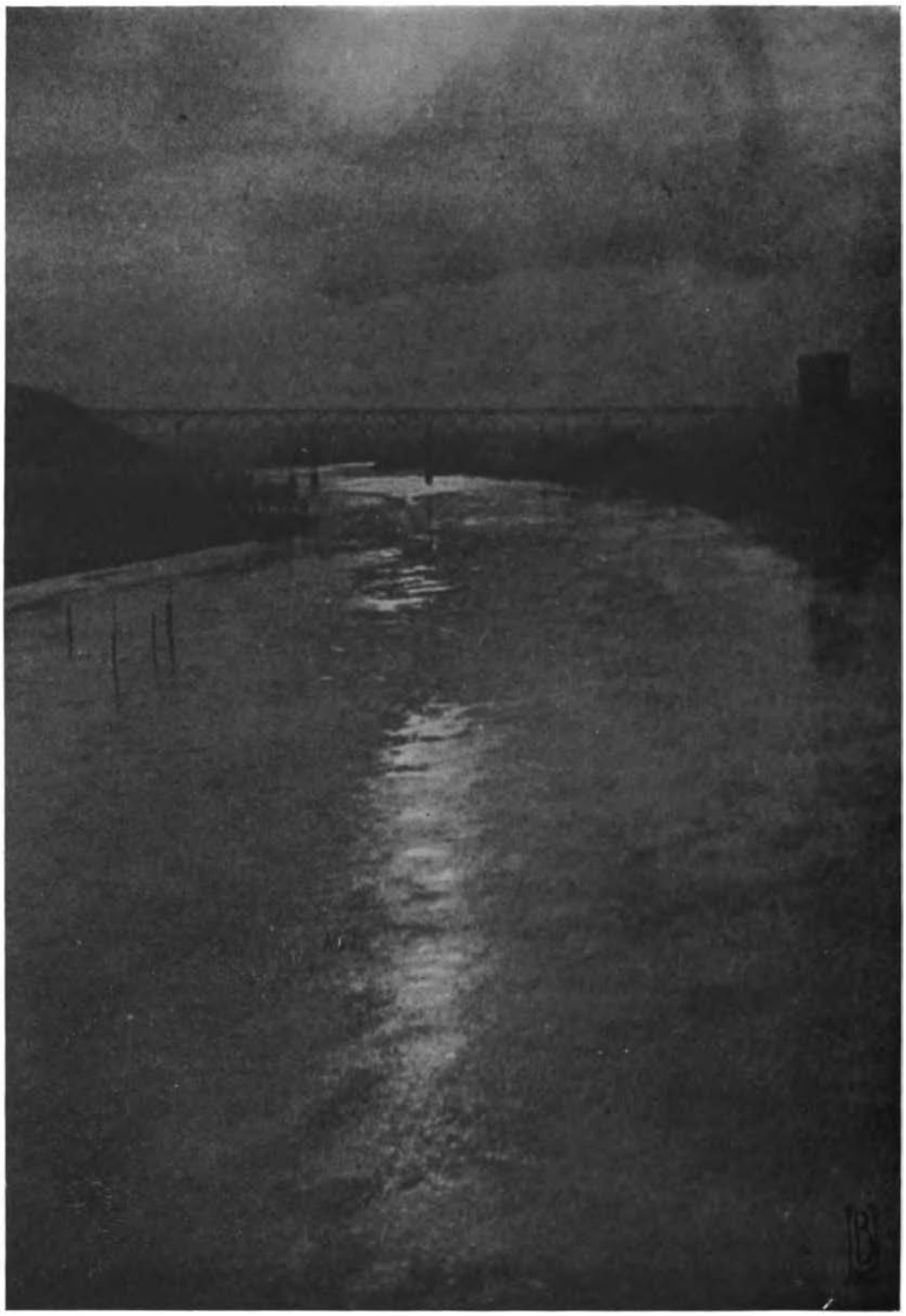

EVENING ON THE UPPER MISSISSIPPI

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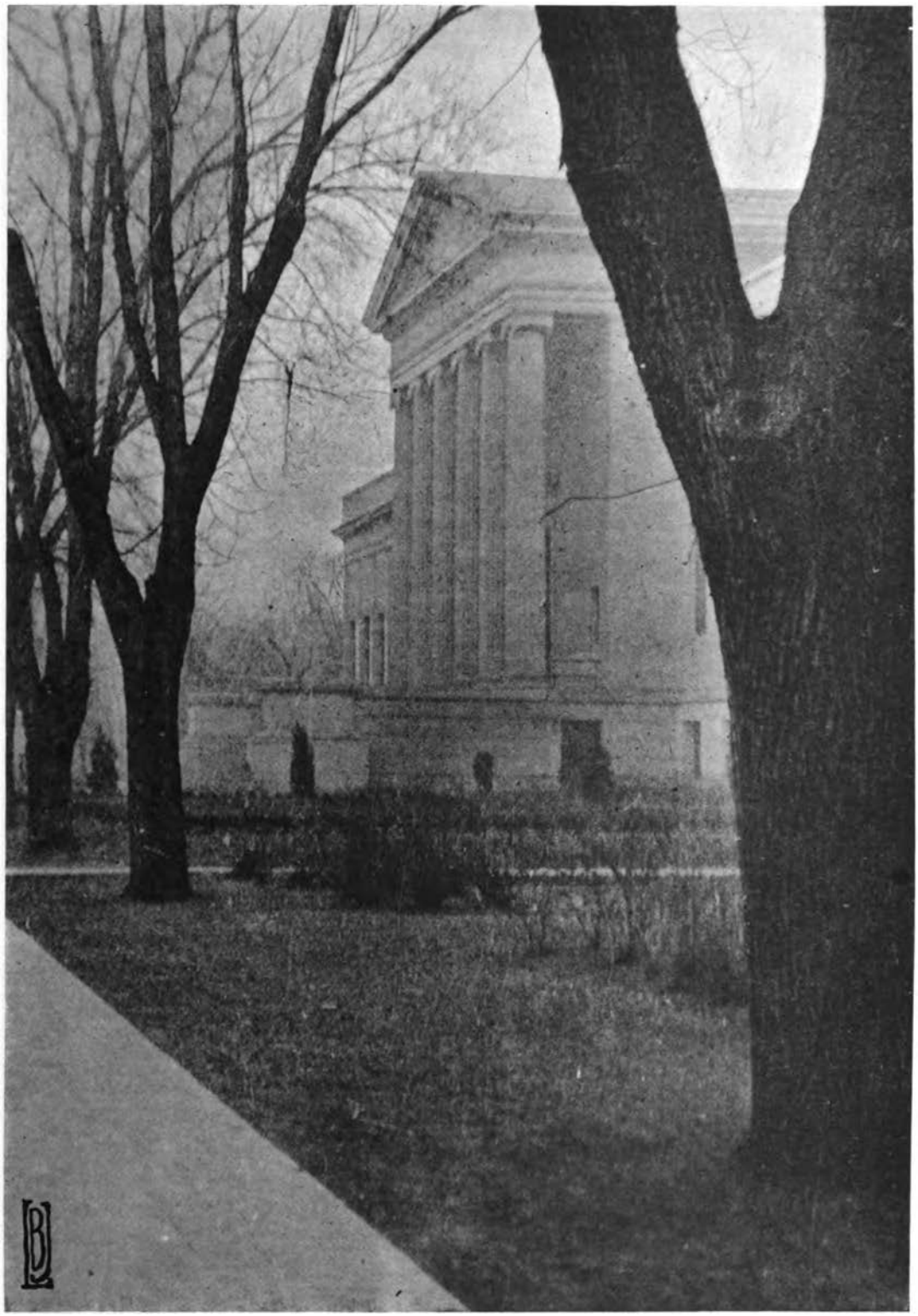

THE MUSEUM, MINNEAPOLIS

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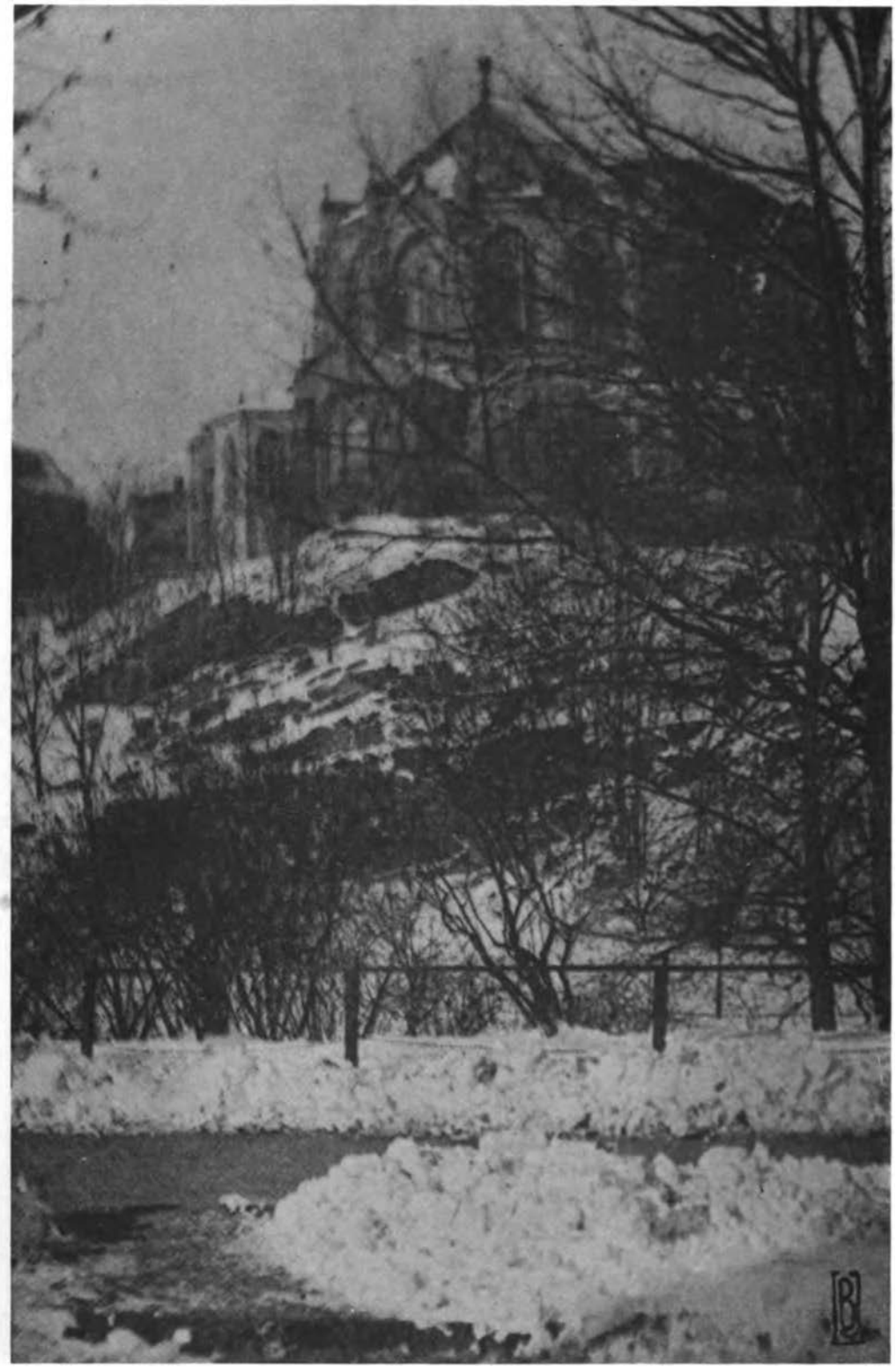

CATHEDRAL HEIGHTS
NEW YORK CITY

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Beaux-Arts Institute of Design

Official Notification of Awards—Judgments of May 22, and June 5, 1917

Class "B," Fifth Analytique

Jury of Award.—F. H. Haskell, C. L. Lawrance, A. L. Noel, A. Ware, J. H. Adams, H. P. Pennington, F. B. Chapman, J. F. Harbeson.

Program.—A Niche. *Drawings submitted, 77.*

Awards.—First Mention Placed, R. A. Fischer, Carnegie Institute of Technology; S. Meyer, Columbia University; L. Konvalinka, Atelier Hirons, New York City; F. Monhof, Los Angeles Architectural Club; W. J. Rankin and B. Laub, T-Square Club, Philadelphia; W. P. Moyle, Atelier Wynkoop, New York City.

First Mention, R. DeGhetto, Boston Architectural Club; P. Binger, Jr., and R. H. Bickel, Columbia University; H. R. Leicht and M. Capobianco, T-Square Club, Philadelphia; N. O'Toole, University of Louisville; R. S. McCauley, Atelier Wynkoop, New York City.

Class "B," Fifth Projet

Jury of Award.—F. A. Godley, L. Warren, F. H. Bosworth, Jr., F. C. Hirons, W. L. Bottomley, H. McGoodwin, H. W. Corbett, Prof. Burnham, B. Hoyt, A. Crisp, H. R. Sedgwick, L. F. Peck, H. M. Woolsey.

Program.—A County Courthouse. *Drawings submitted, 77.*

Awards.—First Mention Placed, A. E. Middlehurst, Cornell University; O. Blomstergren, P. A. Tischler and H. G. Marceau, Columbia University.

First Mention, W. K. Norton and E. J. Truthan, Cornell University; A. B. Lincoln, Atelier Hirons, New York City; J. Regan and R. F. McClelland, Atelier Wynkoop, New York City.

Special Prize Competition

Class "A," Sixth Projet

Jury of Award.—F. A. Godley, W. Emerson, W. L. Bottomley, L. Ayers, R. H. Dana, Jr., C. H. Aldrich, H. W. Corbett, W. Lamb, J. Wynkoop, G. A. Licht, D. D. Ellington.

Jury of Award for awarding of prizes.—F. A. Godley, W. Emerson, W. L. Bottomley, L. Ayers, R. H. Dana, Jr., C. H. Aldrich, W. Lamb, L. Warren, H. R. Sedgwick, J. H. Freedlander, F. H. Bosworth, Jr., R. Bolles.

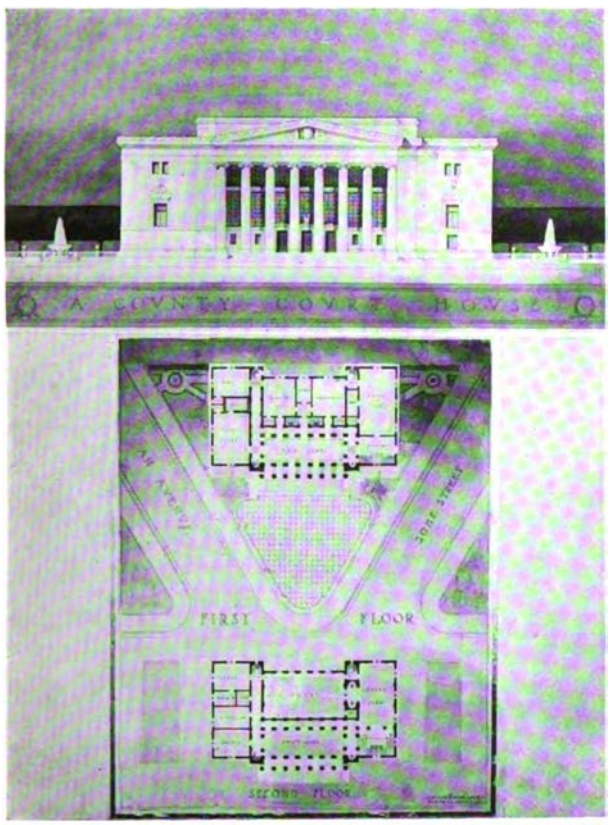
Program.—A Courtroom for the United States Supreme Court. *Drawings submitted, 31.*

Awards.—First Prize, Architectural Books to the value of $200 and First Medal, L. C. Licht, University of Pennsylvania.

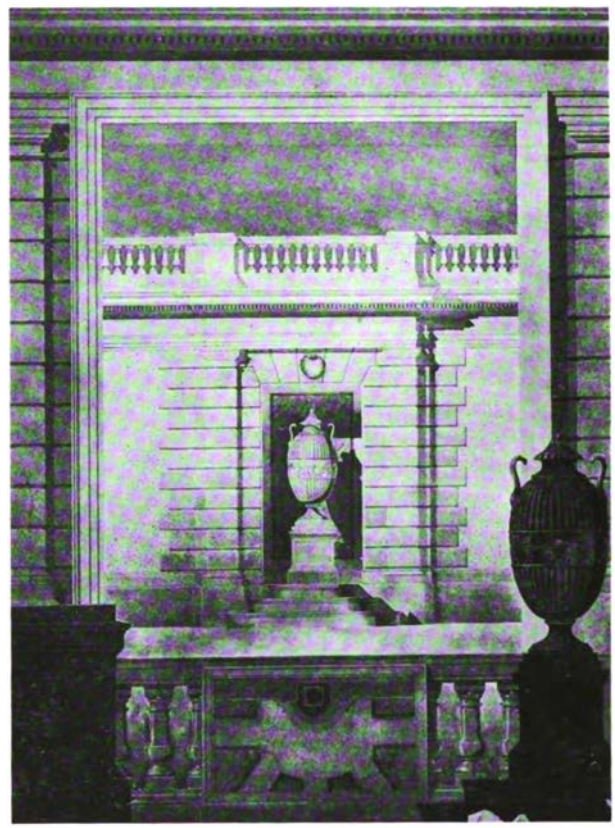
Third Prize, Architectural Books to the value of $50 and First Medal, A. F. Skogse, Atelier Hirons, New York City.

The Second Prize was not awarded.

Second Medal, L. V. Lacy, Cornell University; M. C. Beebe, Atelier Hirons, New York City.



CLASS B.—V PROJECT.—A COUNTY COURT HOUSE
First Mention Placed, A. E. Middlehurst



CLASS B.—V ANALYTIQUE.—A NICHE
First Mention Placed, W. J. Rankin

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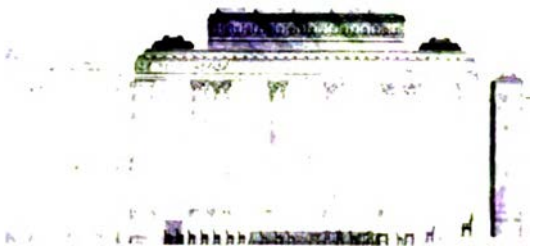

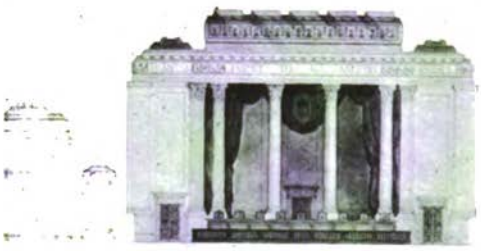

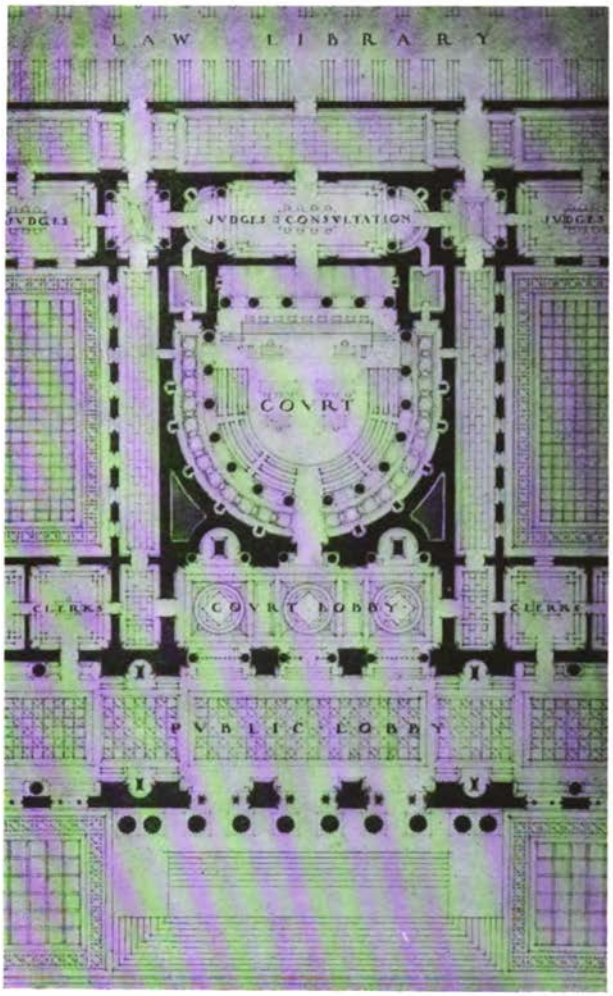

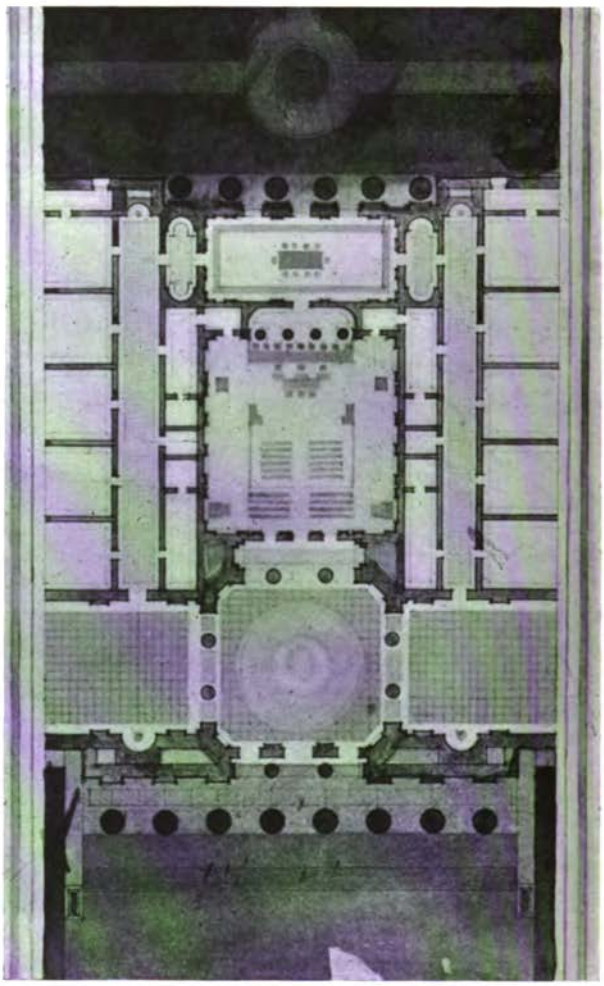

First Prize and First Medal, L. C. Licht

Third Prize and First Medal, A. F. Skogse

Special Class Competition and Class A.—VI Projet.—A Court Room for the United States Supreme Court

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WASHINGTON, D. C., SOUTH SIDE OF DUPONT CIRCLE. Mounting Height of Lights, 12 Feet

Street Lighting in the National Capital

By WALTER C. ALLEN
Electrical Engineer for the District of Columbia

ABOUT eight years ago, the importance of adopting a comprehensive plan for lighting the streets of Washington was recognized, and to that end an extensive series of tests was conducted to ascertain the possibilities of the various forms of lighting and their adaptability to the several classes of streets. These tests (Trans. Ill. Eng. Soc., Vol. 4, No. 3, March, 1909) were followed by trial installations on the street of lamps of various sizes, spacings, and mounting heights, and from the data obtained the present plan of lighting was adopted.

For the residential boulevards, avenues, and streets having (generally) a roadway width of 50 feet, the posts are arranged on the "staggered" plan with a spacing of 60 feet measured along the axis of the street (see Figure 1). Gas-filled incandescent lamps of 100 candlepower are used, mounted 10 feet 3 inches above the pavement in opalescent globes 14 inches in diameter (see Figure 2). The present rates for these is $23 per lamp per annum, which gives a cost of approximately 39 cents per foot of street per annum. For other residential streets where the roadway width averages 35 feet, a spacing of from 75 to 80 feet is employed, with the "staggered" arrangement, and with the same size and kind of lamp. Illustrated descriptions of this form of lighting appeared in the "Illuminating Engineer" for October, 1910 and January, 1912. Several typical views are given here (Figures 3 to 13), showing how admirably the posts harmonize with the surrounding improvements.

For the important streets outside of the congested business area, where traffic considerations require a higher intensity of illumination and where the roadway widths vary from 70 to 85 feet, 100-candlepower lamps are placed on the parallel arrangement (that is, opposite each other), with an average spacing of from 75 to 80 feet (see Figure 14). In this instance the posts are twelve feet in height to the center of a 16-inch opalescent globe. The annual cost per foot of street in these cases varies from 57 to 62 cents.

For the streets in the congested business area an ornamental arc lighting system has been adopted, using the 6.6-ampere luminous lamp giving approximately 1,500 candlepower at an angle of 15 degrees below the horizontal. These lamps are set on the top of the posts, inside especially designed spherical ribbed globes, having twelve panels of cased opal glass (see Figures 15 and 16). The light source is placed 15 feet above the pavement, and the glare from it is entirely eliminated by the perfect diffusion obtained through this cased glass, with an absorption of about 30 per cent of the light. The posts are "staggered" at an average spacing of 100 feet, measured along the axis of the street. The rate per lamp per annum is $97.50, which gives an average maintenance cost of 97½ cents per foot of street.

That portion of Pennsylvania Avenue from the Capitol to the Treasury Building, famous as the scene of the quadrennial inaugural processions, has been especially treated. The same type of post and arc lamp is used as in the congested area; the spacing, however, averages 50 feet along the axis of the street, which is 109 feet wide between curbs (see Figure 17). In this particular instance, 123 lamps are used along 6,356 feet of street, giving an annual cost of $1.886 per foot. These posts are so designed as to be readily adapted to the use of high-candlepower gas-filled incandescent lamps, should the substitution of such lamps for the present arc lamps be desirable. The results of a series of tests made by the Bureau of Standards to

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FIGURE 6. EAST CAPITOL STREET. LAMPS STAGGERED: 50 FOOT ROADWAY. Mounting Height of Lights, 10′ 3″

FIG. 7. MASSACHUSETTS AVENUE, ORNAMENTAL INCANDESCENT LIGHTING. 50-foot Roadway

determine the illumination on the surface of the roadway are shown in Figure 18. The decimal figures adjacent to each test station represent the average foot candles obtained by two different observers using separate photometers. A well-illustrated description of this installation will be found in the *General Electric Review* for March, 1914.

Architects will be interested in the opinions of the Federal Commission of Fine Arts on a plan suggested by the writer (see Report of Commissioners of the District of Columbia, 1909, Vol. I, p. 159, and *Illuminating Engineer*, January, 1909, to light this avenue from centrally located posts.

"Members of the Commission are personally familiar with a large number of the instances, both abroad and in this country, illustrated in the paper accompanying the report on the plan, and each of the members has independently reached the opinion that in every case of long, straight avenues the appearance of the streets has suffered materially from the presence of the posts in the midst of the street. Therefore, in spite of the fact that such a method of lighting has been tried in many important thoroughfares, it is believed that lamps on tall posts, with isles of safety in connection, near the middle of the roadway, would confuse and seriously injure the appearance

FIGURES 3-4. WASHINGTON, D. C. ORNAMENTAL INCANDESCENT ELECTRIC LIGHT POSTS

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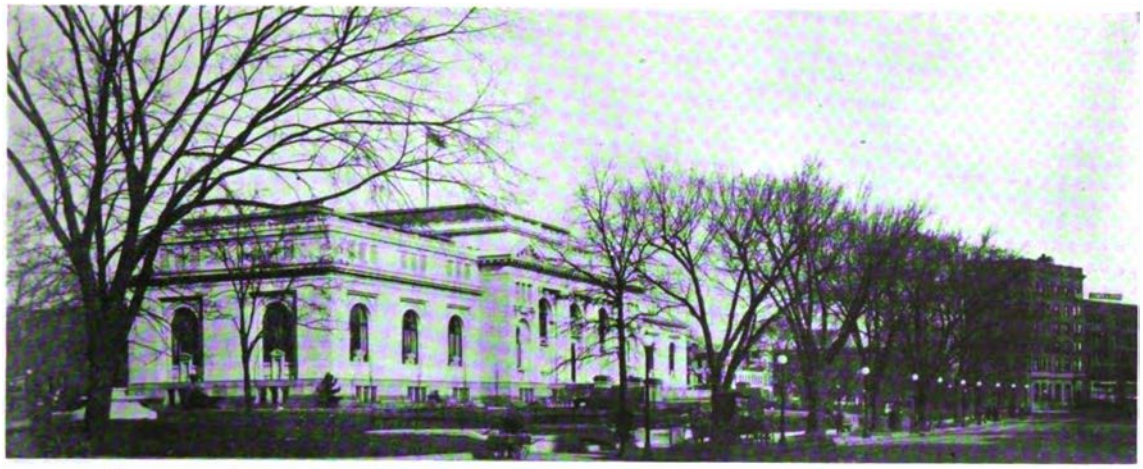

FIGURE 13. SOUTH SIDE OF WASHINGTON PUBLIC LIBRARY. Mounting Height of Lights, 12 Feet

FIGURES 8-9. PENNSYLVANIA AVENUE AT THE WHITE HOUSE. LAMPS IN PAIRS (PARALLEL ARRANGEMENT). Mounting Height of Lights, 12 Feet, Roadway 80 Feet

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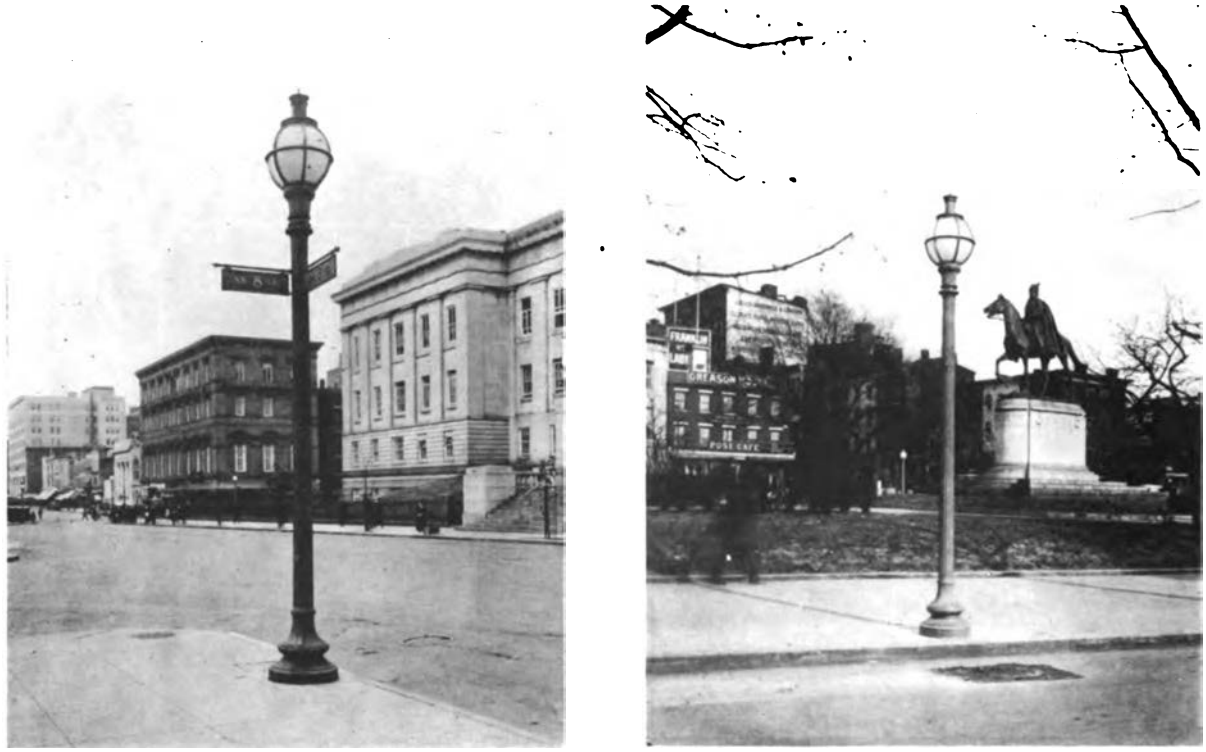

WASHINGTON, D. C. ORNAMENTAL ARC LIGHTING. FIGURES 15-16

of Pennsylvania Avenue, the most important vista in the Capital. Another consideration, which is both practical and esthetic, is that the presence of these posts and islands in the roadway would interfere with the best handling of parades."—See Report of Commission of Fine Arts for 1912, Senate Document 960, 62nd Congress, 3rd Session.

So-called "White Way" effects have not been sought in any of the plans for the illumination of the streets of the National Capital. With the possible exception of the Pennsylvania Avenue installation, the illumination is of a low intensity compared with that in vogue in many of the large cities of this country.

FIGURE 12. SEVENTEENTH STREET. MEMORIAL HALL OF THE DAUGHTERS OF THE AMERICAN REVOLUTION IN FOREGROUND. Lamps Staggered, 60 Feet Spacing, Mounting Height 12 Feet, Roadway 50 Feet

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Town-Planning and Housing

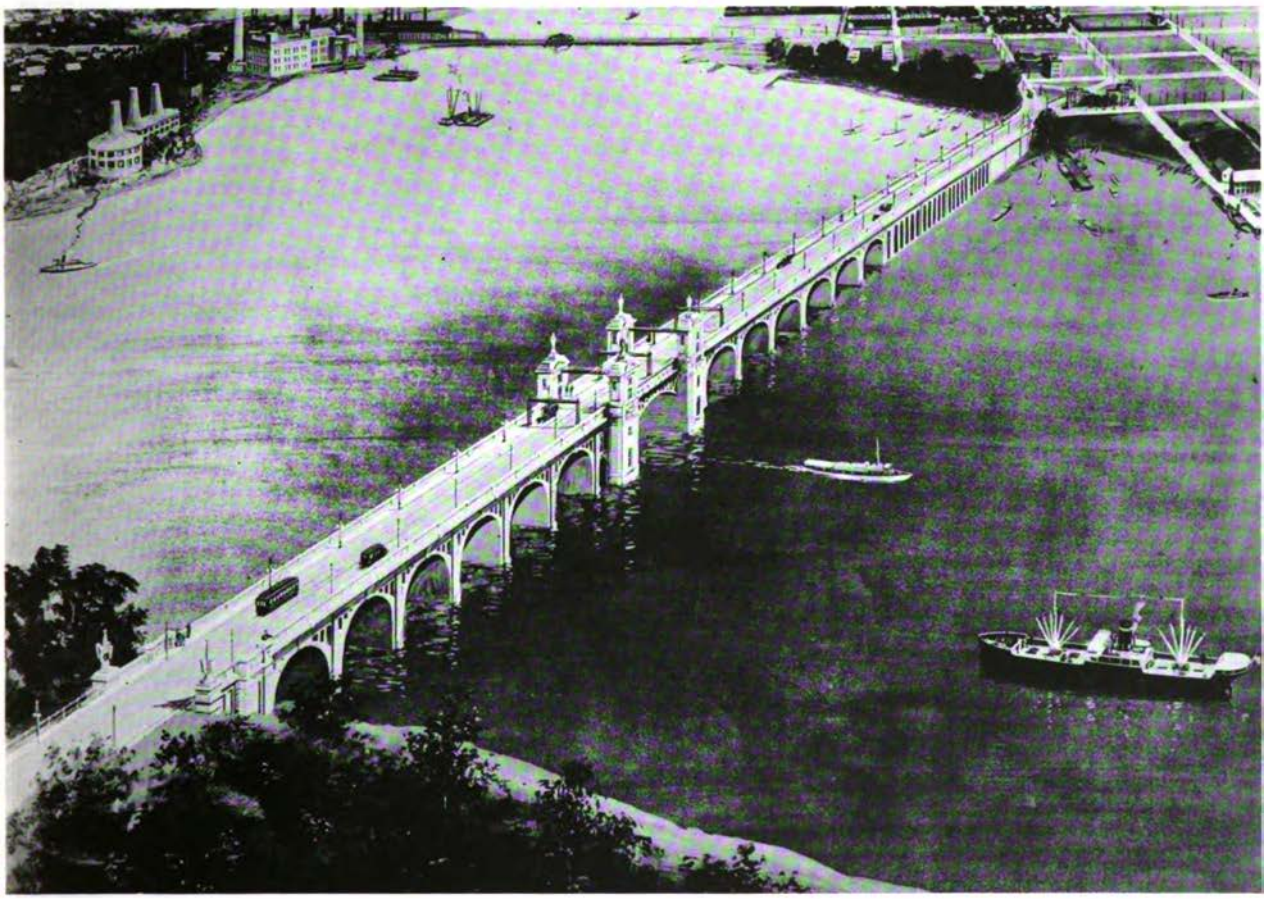
GEORGE B. FORD, Associate Editor

Progress in the Development of Baltimore's Civic Center

The civic-center plan for Baltimore prepared for the Municipal Art Society in 1910 by John M. Carrere, Arnold W. Brunner, and Frederick Law Olmsted, was given a new lease of life recently when the Mayor proposed a vote by the people of a $3,000,000 bond issue for carrying out the project. This bond issue was authorized by the Legislature in 1908 but was never submitted to the voters for ratification. Since the Mayor's suggestion was made public, the City Planning Commission, the Park Board, the Municipal Art Society, and the Committee on Housing have devised a plan to facilitate the financial accomplishment of the plan.

The scheme involved the immediate acquisition of three city blocks lying between the City Hall and Fallsway, the latter a recently completed highway constructed above what was formerly an open creek called Jones Falls. The Courthouse, Post-Office and City Hall form the nucleus of the civic center.

The plan proposed and the method of financing it has met with general approval, but the whole scheme has been set back temporarily by a court action recently instituted by owners of the property to be taken. An existing ordinance under which it is proposed to condemn this land was deemed insufficient to enable the city to take title. When legal difficulties are removed, it is proposed that the civic-center scheme should proceed as originally planned.



New Baltimore Harbor Bridge

Among the extensive plans for the development of the harbor and contiguous industrial districts in southern Baltimore, one of the most important projects is the Hanover Street bridge across the Patapsco River at Light Street. It is of concrete construction and interesting architecturally. The bridge was erected from designs by J. F. Greiner, consulting engineer, with W. W. Emmart, of Elicott and Emmart, as consultant on architectural details.

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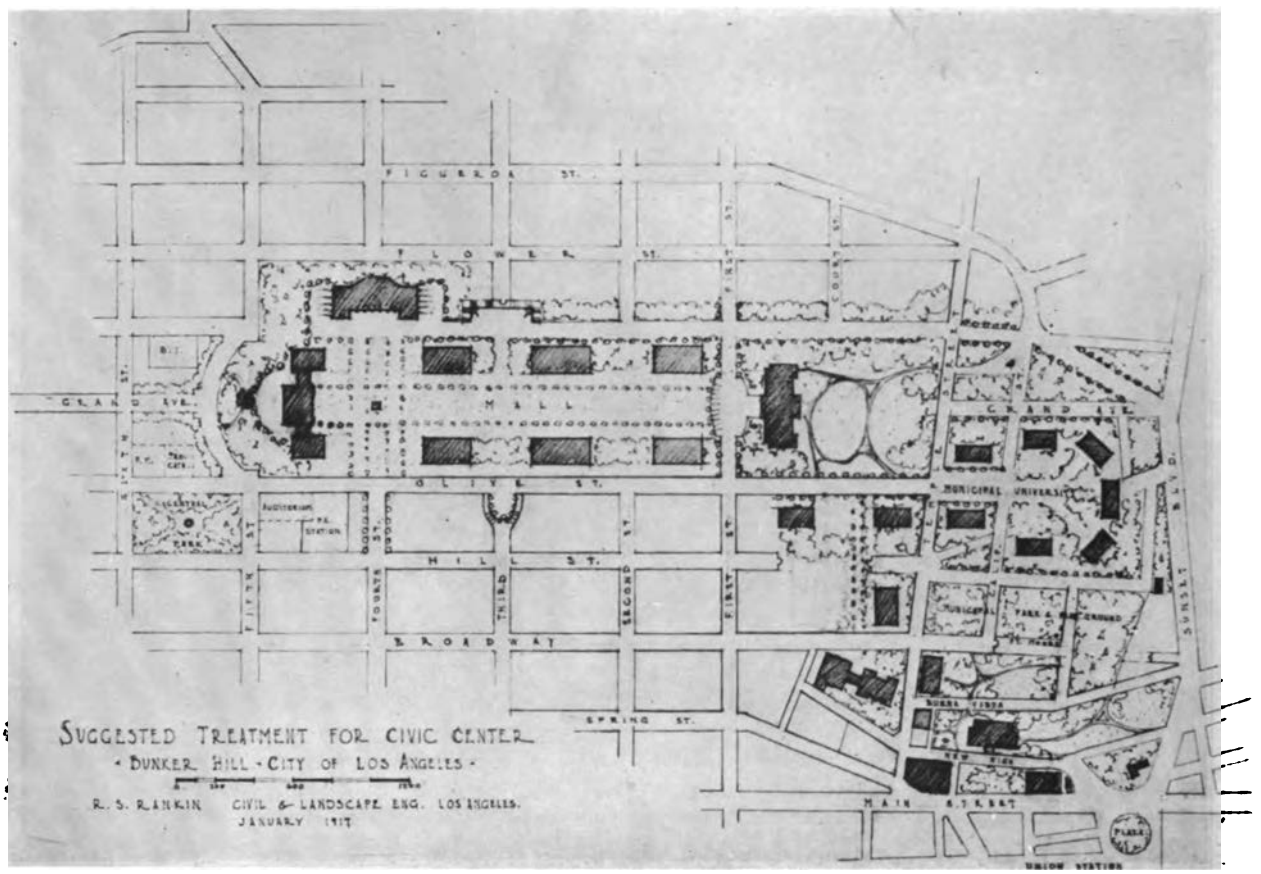
Proposed Civic Center Scheme for Los Angeles

A civic-center scheme for Los Angeles has been proposed by R. S. Rankin, landscape architect, and a member of the City Plan Association of that city. The plan involves the acquisition by the city of what is termed Bunker Hill, and provides for the erection of several municipal buildings. It is believed that the site proposed presents an opportunity for the construction of a centrally located monumental group surpassing any other similar development in the country. In addition, the cost of the land is surprisingly low, location and size considered.

The civic center for Los Angeles has been under discussion for a number of years. A plan for a central development of this sort was proposed by Charles Mulford Robinson in his report to the Municipal Art Commission in 1907. This plan, however, was invalidated by the erection of a county building on a portion of the site without relation to the general scheme as proposed. Mr. Rankin's plan provides for a new city hall, one of the immediate needs of the city, and allots sites for a state building, a music hall, a museum of fine arts, a municipal theatre, post-office, courthouse, and hall of records. It also includes a related educational group or municipal university. The chief feature of the scheme is a formal quadrangle about which the buildings will be grouped.



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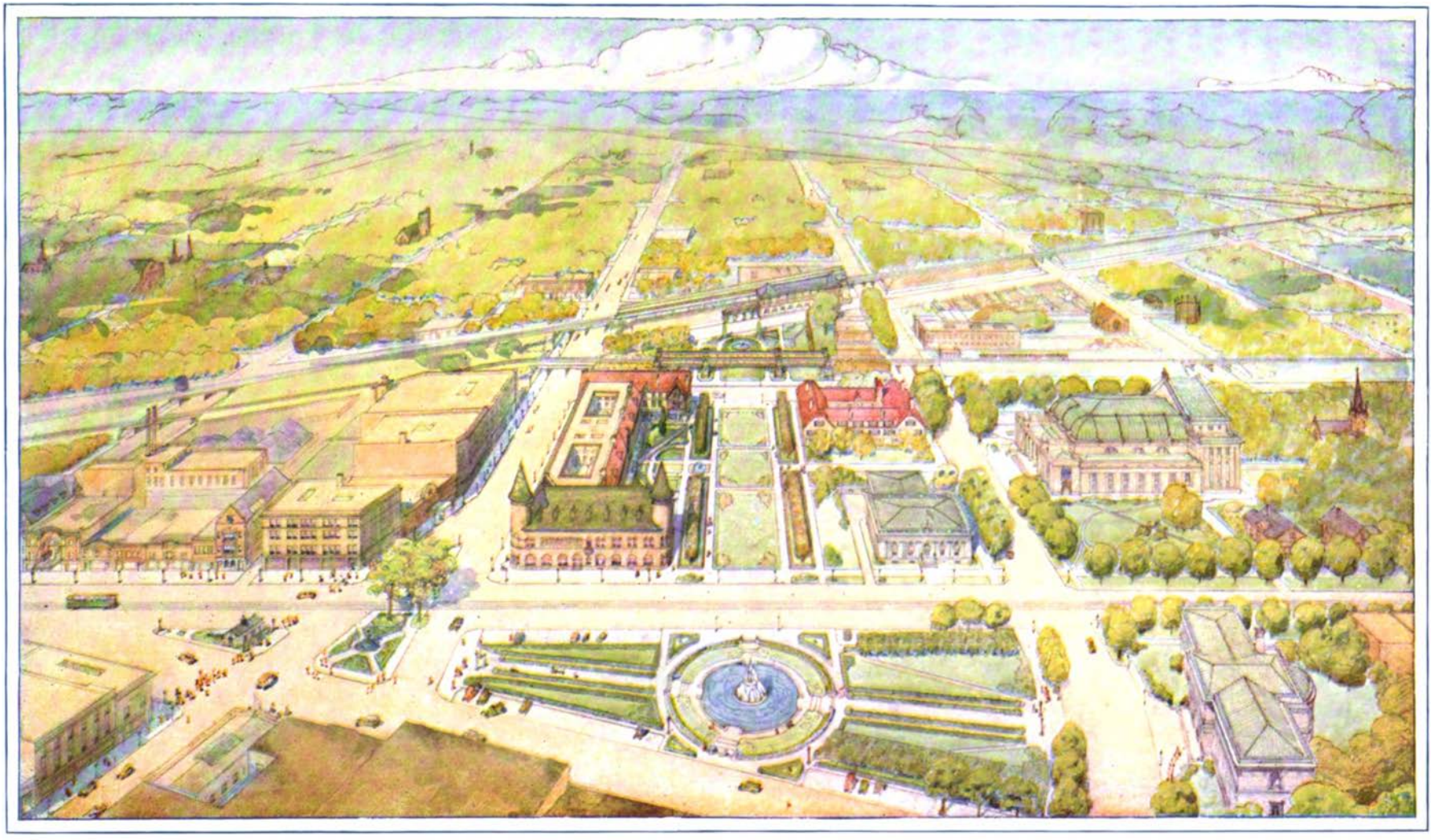

THE PROPOSED CIVIC CENTER FOR EVANSTON, ILLINOIS

As shown by the plan reproduced above, the civic center scheme consists of three major areas: Commercial Park; the central square with public mall (on which the existing city hall and post office are located); and an area known as Railroad Park, lying between the Chicago and Northwestern depot and the elevated railway. The plan involves the removal of business buildings now located on a portion of Commercial Park, the clearance of the areas (shown in green) on the central square, the removal of the embankment below the elevated railway tracks in Railroad Park, and the development of the latter area on formal lines, with a dignified bridge of three spans to carry the elevated railway tracks. The whole scheme gives a fine vista from Commercial Park along the public mall to the railway entrance to the city.

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Plan of Evanston

The city of Evanston, Ill., has recently been presented with a valuable city-planning report by the City Plan Committee of the Small Parks and Playgrounds Association, an unofficial organization formed in 1909. The Plan Committee was appointed in 1916. Its members are Daniel H. Burnham, II, chairman, Dwight H. Perkins, Thomas E. Tallmadge and Hubert Burnham, all members of the Institute. The "Plan of Evanston" is the result of nearly a year's study by the Committee, with the coöperation of public-spirited citizens who contributed funds for the drafting and printing of the report, which is a real addition to the literature of city planning, both in respect to its form and makeup, and particularly with respect to the appeal which it is certain to make to the people of Evanston. It illustrates a happy combination of graphic material supported by sound facts presented in simple and attractive form.

The Committee has based its recommendations on knowledge gained from daily acquaintance with the city and its life and has been unusually successful in proposing changes and improvements in the plan that are manifestly reasonable and comparatively inexpensive.

For fully over half a century Evanston had the reputation of being a place distinct in some ways from the other suburbs of Chicago; a place where many advantages were to be enjoyed. Yet there are unmistakable evidences today of a growth which menaces the permanence of the original advantages of the town, and which the Plan Committee seeks to remedy by wise provision for future planning work.

The major portion of the "Plan of Evanston" is given over to the typical problems of a residential city, namely, pleasure drives and traffic ways, the civic and educational center, and the recreational system. The first group of problems, relating to commercial and pleasure traffic, is treated in three sections. The Committee lays special emphasis on that phase of city planning which is steadily increasing in importance, and which is of peculiar significance to Evanston, namely, the separation of commercial traffic from pleasure vehicles by the provision of traffic ways peculiarly adapted, by reason of their grade, alignment, and direction, to the needs of local business. Closely related to this problem is that treating of the diversion of commercial traffic not originating in or destined for Evanston, to by-pass roads and county thoroughfares radiating from Chicago to the north and northwest. This and the other problem dealing with traffic of various kinds are treated in accordance with the best modern practice and are so reasonable and practical as to commend them to the city authorities.

The second group of problems hinges about the improvement of the city center. Today, a visitor entering Evanston at either of the Davis Street stations would find little promise of what the city holds in store for him. The city gate and city center are inadequate and utterly unworthy. The Plan Committee's recommendations which are illustrated in the perspective view reproduced herewith, have the merit of being inexpensive, favorable to traffic movement, architecturally pleasing and sufficiently restrained to make possible their gradual realization. The scheme will benefit business in the city center, increase taxable values, and stimulate civic pride. The cost of the property required for the city center would not exceed $120,000, including land to be purchased and buildings to be removed.

The third important group of problems is the extension of the park system and the provision of adequate recreational facilities, with a proposed island in the lake, parallel to and about 600 feet from the shore-line. The greatest physical asset of Evanston is its lake frontage, and the plan proposes to develop this to the fullest possible extent for park and recreation purposes. This is the most important and expensive project recommended by the Committee. The cost of construction for the island park would be slightly over a million and a half dollars. Evanston's present park assets, amounting to one acre for each one thousand of population, fall far short of the standards set by other progressive American cities. The Committee proposes an extension and improvement of parks and playgrounds that will provide comprehensively for all classes and ages of the population. Briefly, the Committee recommends the provision of playgrounds under private initiative in the center of blocks; the acquisition by the city of large and well-designed play-spaces about school buildings and of athletic fields for games and sports, and a municipal golf-course.

The importance of districting or zoning is emphasized and strong recommendations are made for early action by the city in this direction. The well-deserved distinction of Evanston as a city of trees is discussed and measures proposed for scientific planting and culture. The Committee very wisely includes a chapter on steps for realizing the improvements proposed, and, as a necessary incident to the financing of a large part of their program, strongly urges the creation of a park district for the whole of Evanston, as affording much more ample powers and opportunities to realize some of the proposed improvements at an early date.

News Notes

Perhaps the architects of Pennsylvania did not realize why their proposed registration bill died a natural death. The following letter from Mr. Albert Kelsey, the President of the Pennsylvania State Association of the American Institute of Architects, may shed some light on the subject:

July 13, 1917.

C. Emlen Urban,
President of the Southern Pennsylvania Chapter, A.I.A.,
Lancaster, Pa.

Dear Sir: I have just learned from State Senator Jenkins, a member of the Judiciary General Committee, why our bill to license architects was never reported out of Committee. He naively told me that it was thought to be a hindrance in the way of poor boys, adding apologetically, that the music teachers and barbers of Pennsylvania had each advanced similar bills, and further that the music teachers' bill was never reported out of Committee any more than ours, but that the barbers' was, only to be voted down by the House.

Very truly yours,
(Signed) Albert Kelsey, *President.*

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The Architect's Service*

By A. F. WICKES

The purpose of this meeting of the Indiana Society of Architects and those architects of the state who are not members, is to have an afternoon of study. We are not here to discuss prices; we are not here to discuss the recompense that we are to get from the public; we are here to discuss our service to the public. We want to study our personal efficiency, our office efficiency, and our business efficiency toward our clients.

Sometimes we decry the fact that we are not appreciated. I wonder how much you and I appreciate other professions. Perhaps we are part of the common public when it comes to appreciation of the law or appreciation of medicine. Now, do we expect the lawyer or physician to exert an unusual appreciation of what our work is when that is the case? And isn't that about the public's attitude?

I think we have seen this from the small point of the telescope. I think we should begin to appreciate the public before we can ask the public to appreciate us in our work. Let us appreciate what the needs of the public are; let us participate in public work; let us be the thinkers of our community; then we shall be deserving of appreciation from the public.

We have asked for recognition at the hands of the public a great many times. I think all art has asked for recognition at the hands of the public, to be disappointed for centuries, in many cases. We have been disappointed for four years in the endeavor to get a license law passed.

But this meeting is not to discuss fees nor rewards, it is to discuss our relationship with and what we may give to the public at large, serving as professional men. Discussion of fees is the very least important thing of our whole problem.

If we stop to ask whether we are appreciated or not, why, we are lost. The man who stops to admire his own work is lost. The man who does not keep going on, stepping upward and higher and better and improving and changing his ways is lost; he is standing still. I don't know of any great physician who stands and asks the public if he is appreciated. I don't know of any really great artist who stands and hangs around the institute doors and asks if he is appreciated by the public. That's none of his business: it's a small concern of his. It is his duty to go on and do the best he can.

If we have chosen a life's work which entails a service to the public, then we are on a par with the soldier who enlists and surrenders his life to his country. It is no further will of his what shall be done with it. And if we go into our service to the public in the beginning looking only for compensation we are looking at the wrong end.

There is no reason why if a man makes good plans and good specifications—and it goes without saying that the architect should perform that kind of service—that the public should not be called upon to check him up. And to say that this man is a good architect and that man is a poor architect should not be necessary.

The public is interested in service, and if we had rendered the right kind of service there would never be any question as to whether the architect is holding his place as he should.

A great many times I believe it would be a pretty good thing to have an exhibition of what an architect's service to a community is constituted. We all of us think we make good drawings. Some of us do: I venture to say some of us don't.

I think I know what I ought to give for service. I give all I can. I don't think there is any stopping.

Another thing that endears us, I think, to our clients is that we may make an inquiry at least once or twice a year about a building we erected. Let's retain a little interest in that building. Let's let the client know that we are interested in the service that we rendered him some time ago.

We can make ourselves indispensable to the community in which we live if we will go at it in the right way and if you can make the client believe, the public believe, that the architect is indispensable to all building operations you may be certain that he is going to use you, because you have convinced him of the fact that he needs you.

At the meeting where the above quoted address was delivered, the discussion showed some diversity of opinion. We quote from Mr. Snader's remarks:

"I hardly agree with the idea that has been put forth (Mr. Wickes' address). I think that the idea is very desirable but it seems to me there is another side from which to look at the thing. It seems to me we are not appreciated on the part of the public because they do not know, because they lack something in their education, and it seems to me that in some way a campaign of education might be carried out."

Yes, as Mr. Snader suggests, the public should be educated, but we must not forget that the people will learn to expect good service and good architecture if it is given them regularly, will learn it just as easily as they have learned to expect gratuitous service and questionable practice among architects in those localities where such practices have been rather common. Most people can appreciate good service when it is given whether they know one architectural style from another or not. The client's respect gained by such service opens the way for his architect to influence him in the matter of good taste and good architecture. So after all the thing reverts to service and higher standards of architectural practice.

*Extracts from an address at a meeting of the Indiana Society of Architects, Indianapolis, June 23, 1917.

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Architectural Education in England

THE THIRD ANNUAL CONFERENCE OF THE R.I.B.A.

AT A TIME when we are bending our energies toward the moblization of all of our resources for the prosecution of the war, when we are considering what contribution each of us can make and while we are thinking of how the life of England and the nations of the continent is directed alone toward the accomplishment of a single purpose, it is interesting and most significant to read two such closely related articles as "The Organization of the Architectural Profession" (in the British Empire), by Sidney Webb, L.L.B. and a copy of the *Journal of the Royal Institute of British Architects* for May, 1917, containing "The Education of the Architect" (a discussion at the Third Annual Conference in February, 1917).

These articles are not only interesting because of the pertinent material which they contain, but they are even more interesting as showing that it is quite possible during such a time of stress to consider seriously the state of things as they exist and also at the same time to formulate a constructive program for future action.

Mr. Webb's article began in the Journal of June, and I will refrain from comment. Certain ideas expressed at the Conference, however, are well worth noting. In opening the Conference, Mr. H. B. Lanchester stated the educational problem very clearly. In part he said:

"In one sense the education of the architect cannot begin too early. It has been claimed that the faculty of observation essential in every branch of art must be encouraged as soon as it appears. It frequently is, only to be smothered by ill-devised educational methods at a later stage. The appreciation and comprehension of the facts by which we are surrounded, and their relationship measured in time and space, is the true object of education, and the observation necessary to acquire this should be in play throughout. Book studies are only useful in so far as they facilitate and quicken this. The substitution of book studies for the actual factors of life is disastrous to mental development, but this is too often the effect of the conventional type of education. Of course, specialised training may come comparatively late, but if the previous instruction has been on sound lines not only will the special studies be more easily assimilated but the bent of mind will be much more obvious when it comes to the choice of an occupation. Apart from the cases when a youth is for extraneous reasons drawn into a profession for which he is unsuited there are far too many in which this occurs through lack of the means of knowing what his natural qualifications are, these having been obscured by a false system of education.

"Educationalists have begun to realise the deficiencies of the methods still too general and to grasp the fact that where learning is a drudgery the method of imparting it is to blame. Real education, adapted to the age of the pupil, is always interesting to him, and as he advances he is most anxious to arrive at the point at which he is taking part in useful work. This point need not be postponed until the definite adoption of a life occupation. The advocates of Regional Survey have shown that many useful things can be done in school, while the Boy Scout movement owes its growth to a popular rendering of the same ideal. Such a programme introduces contacts with life and work which are of the greatest value in developing initiative and in encouraging a point of view, so that the young no longer feel their future careers to be things remote and apart from the educational stage of life. They know more of the world at large and are better prepared to assist in the choice of their future work."

Particularly significant and rational is the thought suggested in these paragraphs:

"I am indebted to Professor Fleure for the suggestion that there should be a period of State service according to capacity, on no account necessarily military, in order that the functions of citizenship, in its broadest sense, should be appreciated. Whether this be practicable or not, in some way or other the sense of communal life as qualifying individual aggrandisement should be acquired. In regard to this, the altruistic aspect, one must not be thought to undervalue the teachings of religion when one affirms that they have not, as a rule, been able to dominate social relationships.

"To pass from the general to the particular—namely, the consideration of our profession and its educational needs—much as one would like to assume as a basis the type of preparatory education previously hinted at, this is at the present moment so rare that such an assumption will detract from the utility of our proposals. It is only practicable to start from the existing average, noting by the way the broader variations in antecedent training. Now this antecedent training usually falls short in affording no real knowledge of life and its realities, both material and social, so that professional education must endeavour to supply these deficiencies.

"Knowledge of actual and material conditions, as the simpler of these two aspects, comes earliest, and some of our technical schools deal fairly comprehensively with this, though there are still many districts where such preliminary training is inadequately provided for; while our examinations are deplorably defective as tests of this kind of knowledge. I am not exaggerating when I say that it might be possible to pass the Institute Examinations without being able to distinguish between a lump of lime and a piece of plaster, or a malleable casting and a wrought scroll.

"When we come to the question of design as an aspect of social economy the business becomes more difficult. The factors that influence the standard of beauty, a complex of traditional method and logical expression, are not easily balanced, and even our leading schools of thought are not altogether at one. Then again, even among the best archi-

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tects but a few are capable of imparting the skill they possess in a comprehensible way, and it follows, therefore, that the ultimate point at which knowledge can be imparted will be reached by only a proportion of those who have qualified to join the ranks of the profession. Briefly, out of the many legitimately engaged in architectural work, the architects will always be few.

"Thus we see the necessity for a grading of the schools where studies leading up to architectural practice are dealt with. The principle of classification in schools is generally recognised, but the duty is imposed on us of examining the credentials of all schools where architecture is taught and of deciding to what stage they are competent to bring their pupils. If necessary we could advise such schools as to how they may best raise their standard of qualification. At the same time it is also incumbent on us to study our own examination with a view to bringing it into accord with the general principles we lay down, bearing in mind that there are aspects with which the ordinary forms of examination cannot adequately deal."

Mr. A. E. Richardson's paper was devoted primarily to a consideration of "concept" in building, and while suggestive, it fails, it seems to me, to convince. One may grant the truth of his statement as regards what has actually occurred in America, but it is quite another thing to accept his conclusion, particularly if considered as the basis for an educational program in America.

"If it is true that education on the mechanic side needs careful revision and adjustment, it is more than urgent that the higher branches of training—namely, investigation of history bearing on design, and the sphere of design proper—should receive increased attention, for English architects have a reputation in the one branch and not in the other.

"We have at this juncture unique opportunities of studying the latest modern expression in building in France and America. What do we find?—a new system of building arising out of new methods of construction? No! Contrary to expectation, we find the reverse to be the case. The trained and scholarly builders of both countries have realised that construction is subordinate to conception, and are content, in all humility, to compete with the masterpieces of tradition, and to fashion the bodies of their buildings according to the taste and judgment of centuries, while employing recent discoveries in materials and science to the making of the skeleton. Does this not clearly show that a new system of architectural expression is beyond the scope of the individual, and that the underlying laws of architectural composition, call it the scientific ordering of parts if you like, are immutable?"

To say that what we have accomplished here in America proves that the laws of architectural composition are immutable, makes one doubt those laws. There is, however, definition and constructive suggestion in the statement:

"Concept and power to reason, together with the logical apportioning of the factors determined by diverse problems, is the basis of building. Here it is that the trained and specialised mind comes into action. Of what value are the bricks, stones, iron beams and concrete rafts to the man who remains inarticulate, and incapable of creating?

"In the encouragement of architectural training it is essential that renewed attention should be given to the appreciation of the conditions of modern life. Following the custom of the French, students should be taken by their professors to great modern buildings, there to observe the mysteries and working in being. They should examine a railway station, note the crowds to be accommodated, the volume of traffic and goods arriving by rail, the offices and business arrangements, the conveniences, the roads for vehicular traffic ancillary to the railway tracks, the thousand-and-one details. They should inspect the Parliament Houses, the cathedrals, the public offices and Government departments, the clubs, the staging of an opera as well as the design of the auditorium, the shopping centers, life in hotels, flats, and private houses. What does a measured drawing teach other than the scenic arrangement of doors and windows, with perhaps the application of column or pilaster? What can be gained by laboriously measuring the bay of a cathedral if the ulterior purpose of the building is ignored?"

One would like to see the following paragraph turned into a definite educational program:

"Construction in these days is really simpler than it was in the past. We can dare more, build lighter, span greater openings and perform divers tricks of conjuring; but such performances do not prepare the way for our reception in good society. Neither will our audience applaud such actions if these antics are not part of a pithy plot. The Romans were the great constructors of the antique world, but their buildings in conception are unique, and they took care to present them decently. The skeleton of the human frame is not a beautiful thing, but the vigorous body in full development is, and Mother Nature wisely guards against incongruities by providing cartilage for ornament. The simpler the construction the greater the realisation of the idea; and whereas construction is variable, concept is always constant."

From the standpoint of education, one is jolted by this last statement. Does this suggest the proper basis for our teaching?

"In conclusion, gentlemen, perhaps it will not be inopportune for you to glance at the monograph of the New Pennsylvania Railway Station, which is familar, but which illustrates my points more effectively than lengthy arguments. Here will be seen that combination of science and art in which the engineer humbly performs his part and interprets the Piranesian rhetoric of the chief builder."

Mr. Beresford Pite, who spoke after Mr. Richardson, stated frankly that he could not "derive very much from the Chairman's address or Mr. Richardson's" (which proves that it was a real educational conference). He deals with a fundamental when he says:

"At the present moment architectural education is run with a constructive side and with an artistic side. This is mainly through the syllabus of the Board of Education and the educational scheme of the R. I. B. A. It is easy to rave at it, for it is hopelessly bad in theory. The construction and the art of the subject ought never to be separated. But, as a matter of fact, I think I am right in saying that there are no books that deal with these

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subjects as a unity. There is an abundance of books which deal with construction and which make the learning of construction simple, from the earliest to the advanced stage, and which follow the art of the builder and the art of the engineer progressively. There are a number of books also which deal with the external aspects of buildings, ancient and modern, which are themselves interesting and important. And it is with these two sources of supply that the teacher has to work. These books provide the text-books for the elementary and technical classes, they provide the text-books for the elementary art classes, and for the architect's office book-case. It is with the material of these works that the work of education is done."

Prof. F. M. Simpson discussed the possibilities of applying a system modeled upon lines parallel with the Beaux Arts Society in America and discussed its application to conditions surrounding the present English system of training.

Mr. Robert W. S. Wier read a paper, much of which was related to the subject of examinations and the registration of architects. It may be of interest to quote at length from his paper, since the subject of registration is now interesting many Chapters of the Institute.

"What I am principally concerned with is the fact that, in spite of all that has happened, in spite of the influx of the large body of protestants, examination appears to be more firmly established than ever. Blomfield has been your President, Newton is now, Lethaby is an active member, but what impression have they made on this question. Are they now agreed that it is the best way, perhaps to them the only way; if not, why did they not strenuously set out to alter the system radically?

"The other day I asked a friend, who is one of the examiners, and who himself passed in by examination about the time of the great controversy, whether the examinations went on much on the old lines. Yes, he replied, but they are much stiffer.

"These essays of twenty-five years ago argued against the *principle* of examination. The following are a few quotations from various essays in the book by different authors, now all members of the Institute:—

Blomfield:

(1) "'The Institute examination as a means for the advancement of architecture is a farce and a sham.'

(2) *Again:* "'I have heard architects, whose experience entitles them to speak, say distinctly that this examination does not qualify young men to be competent assistants, much less competent architects.'

Lethaby:

(3) "'The so-called training of architects at the present time consists not in being taught their art but in learning more or less by rote out of books some facts about it *when their art was an art.*'

(4) *Again:* "'When the arts of building are all of them killed out finally, and the memory of their doing dead, who shall build them up again? Will being examined in architectural history, practising a mechanical system of drawing and acquiring the completest equipment of all the routine of the profession give back to us the skill and delight of the craftsmen?'

"I could quote many others did time permit.

"And now we come to the point that I have been endeavouring to lead up to.

"To my mind practically the whole of the architectural training in this country is affected by the act that these qualifying examinations exist and that most of the young students are working with the avowed intention of trying to pass them.

"This is one of the greatest faults in the present system, and until it is remedied—and it can be remedied— there seems little chance of real progress.

"Sir Thomas Jackson has never wavered from the principles he laid down twenty-five years ago. The following views he expressed then are, as far as I know, still his to-day. He and Mr. Basil Champneys are, I believe, the only living representatives of that memorable company that signed the protest who are outside the Institute still.

"He says (p. xxiv.):

"'It is difficult to overrate the mischief that is done to the architectural student by misleading him in his studies and making the passing of examinations his aim, instead of the acquisition of a sound knowledge of his craft. He studies not to know, but to pass; he thinks he can learn from books and drawings of things what he can learn only from things themselves; he mistakes archeology for art, and imitation for design: he is forced to push aside things he really cares for because they may not pay with the examiners, and to leave half-mastered subjects that interest him because it is time to cram up something else that is sure to be asked. These evil influences affect the teacher as well as the student. 'The highest kind of teaching,' says one great authority on education, 'which aims at formation of mind, cannot find free play for itself under a system which subordinates the teacher to the examiner. Such a system has a perpetual tendency to give a mechanical character both to the teaching and its results. Originality and freshness in the teaching is killed by the perpetual necessity of paying regard not to the subject that is to be taught, but to the examination that has to be passed.'

"It is quite possible, however, that so long as architecture maintains its present position *as a profession*, so long will examination in some shape or form continue to exist, and more so if registration becomes a *fait accompli*, which Heaven forbid!

"Further, the regulation and control of such examinations are likely to remain in the keeping of this Institute, acting in collaboration with other kindred bodies, but so long will the real and efficient training of young architects be cramped and ineffective.

"But there are other forces rising up, backed by a public opinion slowly but surely being enlightened on essentials.

"In various large provincial cities we now find flourishing municipal schools of art and craft in which the teaching of architecture takes an honourable place in association with the crafts.

"The London County Council are giving serious consideration to the question of training in architecture in association with the crafts of building. A fully equipped and wonderfully efficient school of building has been in existence for some time in South London, of which Mr. H. W. Richards is Principal and Professor Beresford Pite is Director of Architecture. A course of higher training might follow on either in connection with the universities

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or otherwise, and young architects passing through these schools would have the opportunity of working for a definite aim which will be attained through the merit of their work, and not by artificially set examination papers.

"Already the London County Council awards its Scholarships not on the results of examination papers, but on a careful consideration of the quality of the work of the term. It was my privilege a year and a half ago to act as an adviser and report on the work of candidates for L. C. C. Art Scholarships in this connection, and I was much impressed with the simplicity and efficiency of the system through which awards were given.

"Further, school work must go on in conjunction with practical training; by this I mean training in actual contact with real work, training under a competent practising architect, who will be required to allow time off in working hours for the student to attend classes and lectures, or engage in craftwork of one form or another.

"To again quote Sir Thomas Jackson (p. xxviii.):—

"'Our proper field is not confined to the office; we are, or should be, still more at home in the workshop or the building sheds; our brethren are not the lawyer and the doctor, but the craftsman and the artisan; and if the architect should choose to be his own builder or craftsman, and carry out personally the works he designed, he would but be doing what was done by his predecessors, whose handiwork we now take for our model. If architecture is ever to live again amongst us the professional idea must disappear.'

"When I was very young and at the start of my training, I had to go at 8 o'clock to the old Drawing School at Edinburgh and do an hour's work before proceeding to the office. In Scottish universities the lectures begin at 8 a.m. summer and winter, and students of Law, for instance, go to lectures before office hours much as we used to do. I fancy a similar system pertains in France. Why should it not be possible here? We shall have to lead a more strenuous life, work harder and start earlier, after the war.

"But what will happen to this Institute under such new external conditions. It may have to revert to its old pre-examination times position, referred to by Mr. Reginald Blomfield in one of the essays. He says:—

"'The old position of the Institute was safer. It had its fine library, its Royal Charter, its considerable financial resources. It had all that was necessary to make it a center of scholarly discussion and research on questions of architecture, and an official headquarters of reference on points of professional procedure. . . . But it has stepped outside this useful and honourable position: in its solicitude for architects, it has aimed a dangerous and insidious blow at architecture itself.'

"In conclusion, I should just like to read you a further quotation from Sir Thomas Jackson (pp. 230–232) on the possibilities of the future. Some of you may perhaps call the idea verging on the Utopian; for my own part I believe in its thorough practicability and efficiency.

"'Imagine, for instance, some National School of Architecture, to which anyone connected with building could have access, whether he intended to be an architect, or a builder, or a craftsman in one of the arts connected with building. Let there be no conventional distinction of profession, no barriers of etiquette to divide the students. Furnish the school with competent teachers and appliances for study in every branch of the art. Let it be possible to learn all the mystery of good construction, but let construction never be taught except in connection with design, nor design except in connection with the proper and natural use of material. Let the school be regularly visited by those who are recognised as masters of the art, to whom the paid teachers should be subordinated, and to whom the students could look for direction, advice, and correction of their taste. Let the students have every opportunity given them of seeing work actually done, and of themselves putting their hand to it. For those who have no workshops at home, which the young builders would naturally have, let there be attached to the school, workshops where the process of every handicraft could be demonstrated, where masonry, carpentry, joinery could be practically taught, and a forge where iron could be wrought. Drawing of a practical kind should, of course, be taught, so that every student might be able to set out and explain his ideas to the workmen or himself. Here those who mean to be ordinary builders might, if they please, stop. The school would, of course, be graduated, and it would not be necessary or desirable that everyone should go through the whole course of artistic training. We do not want our finer tools to do our rougher work, and we do not employ our most accomplished artists on ordinary occasions. The great thing would be that up to this point all should have been trained alike without distinction, and that the builders should have associated with those who aimed at higher flights, and should have shared in the same training under the best masters of the art. In this way we might hope to introduce into the building craft good taste, knowledge of design, restraint, and appreciation of simplicity; and with these qualifications, which would in time become traditional, we might hope for better things in the ordinary class of buildings for which no great architectural effort is needed. We might, in fact, hope to raise our ordinary street architecture to the level of that of the last century, when, without any affectation of architectural effect, the sober brickwork and graceful joinery, full of pleasant fancy and quiet imaginings, combined to make some of the most lovable homes in England. Above all, let there be no folly of certificating or labelling the student as proficient at any period of his career. Let him remain a humble learner all his life; and let the school be open to him at any future part of his history whenever he wants instruction or advice, or desires to freshen his interest by contact with younger aspirants.'"

The last speaker, Mr. H. DeCollerville, touched upon a phase of the subject which is particularly pertinent here in America; in part he said:

"Might I suggest that before settling on any definite scheme of education it is important that the duties to be undertaken or accepted by the profession as its legitimate share of service to the community should be defined. From my own point of view I should like to see taken up as part of our profession all professional subjects both of art and science as usually applied to controlling the builder.

"We should strive to show the public that the architectural profession is capable of exercising all the professional functions connected with building operations with-

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out recourse to outside professions and gain their respect and confidence by that method.

"Collaboration among various architects, all experts in various branches of an intricate profession, would be in accordance with modern requirements and need not necessitate that those connected with the scientific side of the subject should be termed 'engineers.' We lose confidence in ourselves by the adoption of this term, while by allowing the educational side of such subjects as reinforced concrete to pass into other hands, we invite encroachment on our legitimate province of work. We have seen in connection with the present crisis that the Government have been inclined to discount the services of architects, and it is a regrettable thing that at the present moment, when so much building work is required for Government purposes, the Professional Employment Committee should have to find relief work for apparently unwanted architects, by placing them in temporary positions in other callings. If the Institute could be induced to interest itself in all the problems connected with building, including the engineering sciences which are developing on all sides, the educational bodies would be bound to reflect the views of the main body on this matter, and considerable scope could eventually be offered to young architects whose inclinations invite them to specialise in such subjects as reinforced concrete; and this would relieve congestion and thereby better the lot of those who are more gifted for planning and design, while at the same time it would shut out competition from commerical firms encroaching on professional work."

What Messrs. Blomfield, Lethaby, and Jackson have said regarding the incompleteness or inconclusiveness of examinations may be perfectly true in general—we may admit that a set system of examinations tends directly towards developing a superficial sort of preparation—yet it does not necessarily follow that a system of examinations which follows a system of prepartion is doomed to complete failure. We should not confuse this question by the introduction of a false assumption. All depends upon the nature of the preparation and the nature of the test. Both may be narrow, cramped and academic, or both may be broad, liberal and humanizing. Just now tests and examinations are looked upon by many with a certain degree of disfavor. I am not inclined, however, to condemn the test utterly. I merely condemn the relative value which has been assigned to it. When a subject has been made sufficiently vivid and interesting, when it has become a matter of personal interest with the student, it matters little whether or not a test follows such preparation. In the final analysis all depends upon the scope and the content of the courses and not upon the test itself.

The test in itself may provide but meager evidence of a man's ability; surely it will neither by itself develop architects or an architecture; but it may be argued with reason that a well-organized examination may play an important part in the development of education.

The test of education is found in experience, and therefore if we approximate in our preparation and in our tests the conditions of experience in which a worthy ideal is made vivid as a goal of endeavor, we shall provide for the student the conditions for his certain advancement.

The practical value of registration lies not so much in the usual conception of its value (the granting of a license) as it does in the condition that by such an act we focus the attention of all those who intend to practise upon the entire range or scope of the interests which lie within the architect's field of work.

A very large proportion of those who are practising as architects today, and in a way are preforming the functions of the profession, possess but a comparatively limited knowledge. Some are versed in matters relating to "design," others in "construction," others in subjects of a technical or mechanical nature; but there are comparatively few who could stand a test in the entire field of the architect's activities.

Now the reason for this is that education in architecture has been limited in its scope and certain phases have been omitted, while others have been overemphasized. If a set of examinations can be developed which will approximate conditions of practice, it will have the value of indicating to the student more accurately than do our present methods of education precisely what is the nature of his chosen calling.

To look upon technical education or upon registration as the sole means whereby through the architect an adequate architectural expression may be achieved, is to greatly overemphasize these factors. Registration, with its accompanying preparation and its test of ability, is I repeat, but a method of indicating more clearly to those who intend to practise architecture that they must be prepared to cope with certain conditions which obtain in the modern practice of their profession. In the same way it is a formal method of saying to the public that a working knowledge of a certain definite kind is deemed by the profession itself to be essential in the practice of architecture.

Our methods of technical education in architecture are comparatively new: surely it is an experiment and it is conceivably all wrong. Our tests and our methods of examination and registration may be crude and faulty, and they may fail utterly to define the nature of the architect's work, yet there is a saving clause: In this age of specialization any attempt, however crude, which looks toward the development of knowledge in a broader field of related interests, which tends to widen the student's horizon, which brings him into closer contact with experience may be the means of bringing about that integration of expression which is essential to indigenous art.

F. L. Ackerman.

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Obituary

Henry Vaughan

Fellow of the Institute, 1891
Died June 30, 1917

Further notice later

Emmanuel Louis Masqueray

Elected to the Institute, 1906.

Mr. Masqueray was born in Dieppe, France, in the year 1861. He was a pupil of Laisne and Ginain, and entered the Beaux-Arts School in 1879. In the year 1880 he was awarded the Deschaumes prize, and again in the following year the Chausedaigues prize, and to him we owe one of the first Beaux-Arts ateliers in New York City, which he founded in 1893.

It was at the suggestion of Mr. Carrére, who remembered him as a fellow student at the Beaux-Arts, that he came to this country. He was in our office from 1890 to 1892, so that my personal recollection of him goes back to the days when we were both young men, a quarter of a century ago.

As a young man he was ambitious and full of enthusiasm, and this youthful enthusiasm never left him in his later days. From our office he went to Richard M. Hunt, where he was held in the highest esteem. He was also in association with D. Everett Waid. He became prominent in connection with the Exposition of St. Louis in 1904, where he executed most of the garden and landscape work, cascades, decorative bridges, etc., also the Horticultural Building.

It was at this World's Fair that he was discovered by Archbishop Ireland, through whose influence he settled in St. Paul. While in St. Paul he designed their Cathedral, also the Pro-Cathedral of Minneapolis, the Church of the Incarnation of Minneapolis, and the new Cathedral of Sioux Falls. St. Paul abounds in examples of his work. He was honored by the state of Iowa, whose official authorities invited him to make designs for the beautification of the state capitol at Des Moines.

Mr. Masqueray never married. I can always remember his devotion to his mother, the only member of his family. My early recollection of him is as a comrade and fellow worker. The friends of his later life tell me he never lost his kindly and charitable manner, anxious to please, careful never to offend, and that one feature in his life, well known to all who were acquainted with him, was his continuous and kindly bearing toward his aged mother. He was to her the most unselfish and most devoted of sons.

The entrance of French culture into American life as a dominating influence began, of course, with the work of Richard M. Hunt, who was followed to this country by the men who were the first members of the modern Beaux-Arts group. Among these men, most of whose names have become famous in the history of American architecture, Masqueray's is one of importance. He was one of those who brought the academic training and culture of the Beaux-Arts to the fertile soil of America, and as we now contemplate the varied and rapid development of architectural ornament in this country, we must ascribe to this early group the influence that is second only to the powerful movement of the Georgian group in the pre-revolutionary days of the then narrower American community.

Looking at the period when Mr. Masqueray came to this country, from our present viewpoint, it is difficult to measure adequately the influence of that enthusiastic coterie of young men, either of French birth or French training, who were pioneers in what is now recognized as the modern school of American architecture.

After Mr. Masqueray left New York he carried into the upper Mississippi Valley the force and influence of his firmly held academic culture, and it is difficult to measure the effect of his trained art upon the communities of the Valley. In communities which were not always sympathetic he maintained with a splendid persistence his well-founded ideals of the architectural art and has left in enduring materials the indications of his true culture.

On May 26, 1917, ended the life of our friend and fellow worker, Emmanuel Louis Masqueray.

THOMAS HASTINGS.

Herbert Langford Warren

Fellow of the American Institute of Architects, 1891.
Died, June 27, 1917.

Herbert Langford Warren, professor of architecture at the Department of Architecture at Harvard University, died suddenly, June 27, at his home in Cambridge at the age of sixty years. He was born in Manchester, England, March 29, 1857. The first nineteen years of his life were spent in England and on the Continent, his schooling being obtained in England, at Gymnasia of Gotha and Dresden, and at Owens College, Manchester. His family returned to America in 1876, and after two years' study at the Massachusetts Institute of Technology, and four or five years in the office of H. H. Richardson, he again went abroad for a year's travel, after which he returned to open an office in Boston, and later, in Troy, N. Y., where he built the Orphans' Asylum and other buildings. In 1893 he was appointed instructor in architecture at Harvard, assistant professor in 1894, and professor in 1899. He has been continuously directing head of the School at Harvard, the beginning of which was marked by his first appointment as assistant professor.

On November 8, 1887, he married Catherine Clark Reed, daughter of the Rev. James Reed, of Boston, and is survived by his widow and their four children. He was a Fellow, and one time a Director of the American Institute of Architects, and for several years Secretary of the Boston Chapter. Throughout his connection with the Department of Architecture at Harvard he has kept in touch with active practice as a member, in earlier days, of the firm of Warren, Smith & Biscoe, in recent years Warren & Smith.

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OBITUARY

No one has more truly given his life in the great war for freedom and justice than H. Langford Warren, whose strength gave way under the strain of service to this cause. Into a life already filled with the most arduous and exacting work, the work of a great teacher, he crowded innumerable activities directly connected with the war. It was he who was largely responsible for the fine address of five hundred representative citizens, the first public expression of the position now definitely taken by the United States. He was one of those who formed the American Rights League, which organized and conducted the mass meetings, at one of which Professor Royce's now well-known address was given.

Anyone who has worked on the inner controlling circles of such activities knows what a demand they make on a man's concentrated attention. All this came in addition to his normal work, and it is little wonder that his frail body failed under the strain. As truly, then, as if he had died in the trenches, has he given his life that freedom, truth, and justice should prevail.

Of the many things that testify to his architectural knowledge and skill the truest and greatest is that which is unseen. The refining influence he exerted on the many men who have had the benefit of his instruction during his twenty-five years of service to Harvard is his permanent and lasting memorial. The spirit of a true-minded gentleman ran through all he did. He set constantly before himself the high ideals which governed his life. No one could come into any relation with him without feeling the crystal sincerity and truth of the man. In days when political, business, and social life all put a premium on insincerity, when all applauded the smooth-spoken utterance of high-sounding phrases, it was refreshing to find a man like Warren who was utterly and entirely true.

To the Harvard School of Architecture his loss is almost irreparable. During all his years there he has lectured on the History of Architecture, and as he grew and matured, more and more did these lectures come to be perfect in form, accurate in knowledge, and of vital importance, instinct with the spirit of the artist who loved beauty in all its varied expression.

Without this spirit all teaching is valueless, and it is especially true of the teaching of the arts. If it is a choice between accurate knowledge and the spirit, one would unhesitatingly choose the latter, but Warren was one of those rare teachers who had both.

His absorption in his teaching left him but little time for active practice, but he was able in that little time to put his own fine stamp on the work which came from his office. He had a catholic appreciation of all that was beautiful and instinctively avoided the popular and passing fashions of the day for the enduring styles which have passed the test of time. Although brought up in Richardson's office, no Romanesque or pseudo-Romanesque came from his hand. He worked freely and with sympathetic knowledge in the various phases of medieval architecture, leaning naturally toward the English of his birthplace, and with equal insight he loved and interpreted Lombard and Tuscan work.

Besides his family, he leaves a host of friends, his contemporaries, and his pupils, and in the hearts and lives of these is his best and greatest monument.

R. Clipston Sturgis.

THE professional work and achievements of Herbert Langford Warren are known to his brother architects, but only those few who were closely associated with him know how much of his time and strength and his talents he gave, since this war began, to the work of awakening the conscience of the American people to the justice of the cause of the Allies. From the very beginning of the war Herbert Warren saw clearly the moral issues involved, and that these concerned not only the interests of America but the very "future of civilization," to quote his words. Holding such a belief, he could not remain passive. He joined a small group which primarily had for its object the dissemination of literature throughout the country, by articles in the press and pamphlets and in other ways that would create a knowledge of the issues of the war and awaken the American conscience. Warren himself contributed many articles and helped by counsel and in other ways. To understand his activities and personality it is necessary to say something of the work that was done.

In the early months of 1915 this group of men felt that inasmuch as the sentiment of Americans was not correctly represented by the official attitude of neutrality which our Government felt constrained to adopt, the American conscience should not remain silent when such great moral issues were at stake, but should speak out and give some public formulated expression of its belief. At this late date, when we are at war and when the whole psychological setting is changed, this seems a simple and natural thing to have done. But at that time there was a great diversity of opinion regarding the wisdom and even justification of this course, and many leading men who later became outspoken hesitated and held back. It is difficult now to understand this hesitation. But we must remember that though it was then generally recognized that the vast majority of unhyphenated Americans were in sympathy with the Allies, the Government was neutral. This fact had a dominating moral influence with many.

Conferences were held with a number of prominent men in Boston and New York, all strong pro-ally in their sympathy. Opinion was about evenly divided. For one reason or another some thought that individuals should remain silent so long as our government was neutral. With many I have always believed it was a case of "cold feet." Warren never wavered in his conviction that Americans ought no longer to remain silent, that we owed it to ourselves to tell the peoples of the allied nations what our real sentiments were, thus answering the appeal of the "German professors."

Finally, after much consultation, an "Address to the People of the Allied Nations" was drawn up. The signatures were to be limited in number and so far as possible to representative Americans in every state of the Union. It came to be known as the "Address of the 500." Warren brought all his enthusiasm and energy to this task which for many reasons was no easy one. While the argument and matter of the "Address" were a composite of several minds and underwent, as must always be the case in such circumstances, several revisions, the phraseology and composition were Warren's. He wrote it. I think anyone who reads it will agree that in simplicity of style, purity of English, felicity of expression, and logical

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exposition of facts it is a very remarkable document. The forcible presentation of the argument, the crushing condemnation of Germany, and the expression of lofty ideals which it breathes were all enhanced by restraint of statement. These characteristics were much commented upon by the foreign press. As a contribution to the literature of the war it is one which is of more than ephemeral value. The task of mere presentation of the brief for Americans and the Allies was difficult because it was necessary to avoid all criticism of our government and every expression which might invite dissent or criticism from expected signers and the public, and at the same time, to incorporate strength. In consequence of the skill with which he drafted the address Warren was later frequently called upon by his associates to write other statements and resolutions for publication. His command of English and power of exposition were seen to be quite unusual and were accordingly appreciated and used.

The final history of the "Address" would make an interesting story in itself, if this were the place to give it. I wish here merely to point out Warren's connection with the work which in itself was formidable, more so than one who has not attempted such things in times of public excitement, when opinions are divided, can imagine. The task of obtaining signatures of men prominent in and representative of their several communities throughout the United States was no light one. Some who were in whole-hearted accord with the "Address" hesitated to sign it on grounds of expediency or for other practical reasons, as they averred. Some distinguished men, known as representative Americans—our "first citizens"—throughout the United States, were unwilling to sign although they were known to be strongly pro-ally in their real sympathy. Since then I have often been unable to restrain a smile when some of these men, at a later period, have received great public applause because of their outspoken advocacy of an anti-German policy. But it requires little courage to follow. The presidents of our important universities and colleges were particularly desired to endorse the movement with their signatures. Most of them responded with alacrity, but the names of others are conspicuous by their absence. A study of the signatures is interesting from the names which such an examination shows to be absent, although, of course, it should not be forgotten that in some instances, by inadvertence, the sending of an invitation was overlooked.

On the whole, however, the "Address of the 500" met with an enthusiastic response from nearly everyone invited. It was the exceptions that were conspicuous.

Securing simultaneous publication in England, France, and throughout the United States in face of the refusal of the Associated Press to handle it was also a difficult task and involved much time, labor, and persistent endeavor. The "Address" was later extensively published in Russia, Italy, and Japan. Its effect in France and England, in particular, in causing a realization of the existing American sympathy for the cause of the Allies, was most happy. A grateful reply by 500 French Intellectuals was one response.

When at a later date the American Rights League was formed, Warren was one of the original founders and became one of the executive committee. The Boston Branch, originally under the name of the Citizens' League, was the first league of this kind to be formed, I think, in the United States. Warren was one of its most earnest and ablest counsellors and took an active part in its work. As will be remembered, a number of public meetings were held in Tremont Temple in support of the cause of the Allies—the first public meetings held for this purpose in this country.

Later he was chosen as one of the Boston representatives on the executive committee of a larger national organization, known as the "National Committee for America," to carry on similar educational work throughout the country. Considerable preliminary work in which Warren took an active part was done, but the breaking off of diplomatic relations with Germany made further work superfluous and brought the movement to an end. Looking back now it is surprising how diffident most of our public men were in taking part in this movement.

I mention all this to bring to mind certain fine traits in Herbert Warren's personality as they were manifested outside his professional calling in work which otherwise would be known to only a few. It was in this work that I was privileged to be brought into close touch with him. Indeed I learned to know him intimately only during these three years of war. But no one could be closely associated with him in common interests and sympathies without becoming strongly attracted by his lovable qualities and without admiring the simplicity, loyalty, and intellectual honesty of his nature. He was always ready not only to say "yes" when asked to take upon himself some extra burden, but to fulfil conscientiously the obligations which he assumed. If he undertook to do a thing you could feel assured that he would do it, and promptly and efficiently. He always could find the time and the strength to make the sacrifice. The secret was his loyalty to his ideals, his generosity and the spirit of self-sacrifice—qualities which the Nation is calling upon us all now to put forth.

It was the same sense of obligation assumed and which therefore had to be carried through at any cost which held him firm to his duties at Harvard. He would attend meetings without stint, even going for this purpose to New York as a matter of duty and returning the same day by a midnight train so that he would not have to "cut" a lecture to his students.

Another characteristic which impressed me was his charitableness and lack of resentment when men who professed great feeling and sympathy for the cause of the Allies and who since have received great praise for their espousal of the cause of civilization, refused their open, public support in these early days. Though some of us, less tolerant and forgiving, including myself, I fear, attributed this refusal to lack of courage, Warren never condemned but was always ready to find palliating reasons. His own courage and readiness to persist in the course he had mapped out for himself, regardless of lack of support where expected never wavered.

I have referred to his remarkable command of the English language. To me it was always a delight to listen to what was to my ears and, I believe, to others, his beautifully composed diction and well-formulated ideas accentuated by a clear and rarely precise enunciation. Whether he spoke or wrote, his English was, I think, of

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unusual purity. He certainly had the faculty of expressing his views in the numerous conferences that were held where lively discussions of debatable questions sprang up, with remarkable clearness and force.

Notwithstanding all the disappointments and rebuffs, the friction and inefficiency bound to be experienced in the course of work of this kind, I never knew him to show impatience, or irritability, or discouragement, or uncharitableness toward those who did not come up to his standard. It was a delight to be associated with him, it was an object lesson to work with him, it was a privilege to have known him. "Forsan haec olim meminisse juvabit."

One cannot help feeling regret that he could not have lived to see the end of this great world struggle for righteousness and civilization by which his heart was so deeply moved and for the success of which he so fervently hoped and prayed—gave all of himself that he could give.

It is impossible to determine the influence of his personality or of his activities in the field I have sketched. But that it has been of large measure no one can doubt. And so remembering him, I reverently take off my hat to the memory of Herbert Langford Warren.

MORTON PRINCE.

Book Reviews

Color and Its Applications. Light and Shade and Their Applications.

By M. Lukiesh. Published by D. Van Nostrand Co., 25 Park Place, New York City. $3 each or $5 for both volumes.

A superficial examination of this book of 350 pages of highly technical discussion may not reveal much of seeming interest or importance to the colorist or architect, but one soon finds on more intimate acquaintance and, despite such formidable words as "spectrophotometer" and worse, much information of great value and intense interest. To quote Mr. Lukiesh:

"The artist has often shown an antipathy toward science, apparently under the impression that art goes further than the mere mixture and grouping of colors and shadows and produces effects beyond scientific explanation. By no means is it contended here that art can be produced by 'rule of thumb' or by scientific formulæ. Nevertheless, facts are the basis of all art and, while scientific investigation has not yet revealed all its hidden secrets, scientific explanations can be presented for many supposedly mysterious effects."

Except for the assumption that "art" and "painting" are synonymous, this is quite true; Mr. Lukiesh often succeeds in making it quite obvious, and anything that robs any art of its mystery is very much worth while!

Color discussion is often befogged by ambiguous terminology, and the chapter on "Color Terminology" clears up many points. The chapters on "Color Mixture" and "The Effect of Environment on Color" should be of much help to color workers. The chapter on "Color in Lighting" is of distinct value to architects and decorators, while the discussion of "Color Effects for the Stage and Displays" points the way into a field which has as yet been explored only on the edges. "Color Photography" is a clear exposition of the various processes of photography in colors; "Color Phenomena in Painting" and "Color Matching" contain useful information, while those interested in the alleged relation between color and sound will be interested in "The Art of Mobile Color." A description of the various colored media obtainable for experiments closes this rather formidable but interesting volume.

The companion volume on "Light and Shade" is neither as interesting nor as convincing as the first on "Color." Although some of the illustrations are valuable, much of the material in the second book has been more interestingly treated in the first. It is difficult to see how the chapters on "Light and Shade in Sculpture; in Architecture; in Painting; in Stage-Craft," can be very helpful in a constructive way to either the sculptor, the architect, the painter, or the designer of stage settings. The author's use of "shadow" and "cast shadow" is hardly an improvement over the more familiar use of "shade" and "shadow" as commonly understood by draughtsmen. The chapter on the application of light and shade in architecture convinces the reader that the customary method of designing for shadows cast by rays of light parallel to the diagonal of a cube is by far the nearest approach to average conditions in nature, but Mr. Lukiesh does not mention this custom. The last chapter, "Light and Shade in Lighting," shows the need of very careful study of this subject by and the value of thorough coöperation between architect and illuminating engineer, and contains some good advice and suggestions.—B. J. L.

The Livable House, Its Plan and Design.

By Aymar Embury II. Published by Moffat, Yard and Company, 120 West 32nd Street, New York. $2.50.

In this book of four chapters Mr. Embury speaks sensibly, logically and interestingly about the building of the livable house of moderate size. First, he discusses the necessary preliminaries involved, then styles and the choice of a style, next, the requirements of the plan, and, finally, materials and their comparative good and bad qualities. All this discussion is practical, very readable, and not in the least dry! The volume contains nearly a hundred illustrations, for the most part delightful full-page photographs of pleasing, successful houses, both old and new. Mr. Embury's discussions of the why and wherefore of certain styles and their characteristics, and of materials and methods, are both interesting and illuminating. Altogether, this book of 200 pages offers much information and inspiration to the prospective home builder and to his architect, to whom the small-house problem is perhaps the least remunerative but one of the most fascinating in his practice.—B. J. L.

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The Situation in the Building Industry

AT its last meeting, the Kansas City Chapter adopted a resolution to request the Government to investigate the present high cost of building. Attached to the resolution was a summary of prices of certain materials during the three-year war period, the rising costs of which have been accelerated by our own entrance into the struggle.

Accepting the mounting price of steel as a conspicuous reflection of the many factors which the war has injected into the whole industrial situation—profit-taking through unusual opportunity, transportation congestion, labor cost and labor shortage—we may await the result of the Federal Trade Commission's investigation of steel prices with confidence that it will throw much light upon a situation which is now so obscure as to engender and nourish suspicions. The President, in his statement of July 12, frankly stated that profiteering is not only crippling the prosecution of the war but, in many lines, is materially restraining industrial activities, the successful continuance of which is just as essential in providing the money to pay for the war. As in every calamity the profit-takers are busy rifling the pockets of those who are helpless to prevent it.

But the general condition is well summed up in the current *Altantic* by Mr. Sidney Webb, for we may accept his narrative of the economic evolution in England as closely resembling what is bound to happen—part of it has already happened—in the United States.

The great problem in war-making, as in war-prevention, is to so distribute the cost that none shall profit but each shall pay according to his means and thus share inexorably in what is no longer disputed as a great national waste. Arrayed against any such solution is a pretty large element—an element which has so long regarded business as a profit-making rather than a service-giving function—that it is idle to expect any instant reversal to a truly patriotic spirit. To that element, profits take precedence over all things—even national peril! Let us recognize these things and not seek to cover them up as the weaknesses they are—but let us also admit that we shall not be able to correct them, except in a partial degree, by governmental investigation and restriction.

The building situation is clear: No work should be done which would hamper the work of war preparation and prosecution. On the other hand, it is, as the President plainly states, of the utmost importance that all industry be kept moving in close parallel to the true demand for legitimate needs. The country needs buildings of all kinds. How shall it proceed in order to meet that need in the fullest measure with no impairment of the production of war material? The solution of that question depends, first, upon the final calculations of the Government's present and future needs for war as a basis upon which to compute the price, kind and quantity of building materials, labor and transportation available for building, and, second, upon that form of patriotism such as will inspire all those in control of the manufacture and distribution of building materials with a desire to make a healthful building program possible. Given that desire, the question can be handled without any governmental investigation. It would be far better if, instead of tempting and incurring a price-regulative fiat, which has not worked out in other countries, manufacturers and distributors could meet and agree upon a patriotic basis.

All forms of production in this country are represented by well-organized associations. Why cannot these highly systematized forces be put at the service of the Nation instead of remaining either inactive or selfishly occupied with their own particular affairs? While it is no doubt true that some organizations of the kind described have studied the question from the unselfish point of view, the amount of activity of that kind seems lamentably small in the fact of the President's urgent request for coöperation. Here is an opportunity to make such a demonstration of patriotism as the President has asked for.

Our suggestion is this: That every such organization meet and consider in what manner the industries it represents can be put wholly at the service of the Nation—and by wholly we mean just what the President means. We now know that the war will be won, not by the heroism of men but by the perfection of organization. Who can contribute more to such an end than those who have spent years in organizing the industries of our country into the strong group associations which now so widely obtain? It would seem pathetic if we cannot profit from England's example! Why wait for the Government? Why not meet it more than half way?

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Structural Service Department

In connection with professional societies and organized bodies working toward the improvement of building materials and methods, and the following Committees of the Institute:

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(Each Chapter has a corresponding member who is chairman of the Chapter Subcommittee)

July, 1917. Serial No. 7

A part of the service of this Department will be to furnish inquirers with additional information, titles of books, names of authors or publishers, copies of articles, or in any way to afford help to architects wishing to ascertain the latest data available in connection with any material or method. For this service, address the Journal of the A.I.A., the Octagon, Washington, D. C. The service is free, except where clerical expense is involved, in which case a small fee will be charged to cover actual cost. The inquirer will be advised of the amount of the fee before any research work is undertaken.

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Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

GAS ISSUE

CONTENTS

This, the second of the Mechanical Equipment group of four issues, is devoted to the utilization of gases and vapors in and around buildings. The various gas interests of the country and architects and owners as well are, in this connection, greatly concerned with the proper installation of piping to make available the manifold uses to which gas may be put. These are potential as well as actual, and emphasis has been laid in this presentation on: first, the feature of supplying buildings with gas for all purposes; and, second, the proper piping to secure adequate service throughout.

In the existing dearth of consulting engineers on gas equipment for buildings, the national associations mentioned and the local organizations, of which there are many, may be relied upon to supplement the information given and to coöperate in carrying forward the various recommendations described.

The next issue will treat of "Plumbing," and the following issue of "Heating and Ventilation."

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7A1 Gas Societies and Associations

7A2 *American Gas Institute.*

Secretary: George G. Ramsdell, 29 W. 39th St., New York City.

(See also "Other Gas Organizations" (7B) for those affiliated.)

Publications:

(*a*) "Proceedings," published annually.
(*b*) Certain committee Reports of an exhaustive nature are published separately, especially those relating to standardization of methods or materials.
(*c*) Of this class the "Gas Chemists' Handbook" is a notable example.
(*d*) "Standard Specifications for Cast Iron Pipe and Special Castings." These embrace the results of work which covered a great many years and was first started by the Society of Gas Lighting about 1890. The American Gas Light Association reported a new standard in 1906, and the American Gas Institute in 1911 and 1913 adopted these standards. (See 7E3*f*.)
(*e*) Monthly bulletin entitled "Gas Institute News." Contains: an educational article in each issue, which articles when completed will form a textbook on the manufacture and distribution of both coal and water gas.
The "Proceedings" and "Gas Institute News" are furnished free to members.
(*f*) "Bulletin of Abstracts." A classified record of the best technical articles appearing in the domestic and foreign journals, arranged for filing in card-index form.
(*g*) Report of the Committee on Refractory Materials.
(*h*) "Bibliography of Refractory Materials."
(*j*) "The Installation of Cast Iron Street Mains."
(*k*) Report of the Committee on Supplying Large Buildings with Gas or Piping Large Buildings. Reports of 1914–16.
(*l*) Committee Reports on Housepiping. 1915–16. (7E2, 3 and 4.)
(*m*) "Proper Specifications for and Inspection of Interior Piping," Turner (7E1*b* and 7E3*c*).
(*n*) Reports of Committee on Utilization of Gas Fuel Appliances.

The Institute is the national technical gas association, its membership embracing the prominent gas engineers and managers of the country. The technical work is handled through committees which also secure papers and submit the results of their work in the form of reports for presentation at the annual convention. These are published later in the "Proceedings" each year.

In addition to its technical activities, the Institute has also taken a leading part in matters of importance pertaining to the relations of the gas industry to the public, working through its committees in coöperation with various public service commissions and regulatory bodies.

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7A3 *National Commercial Gas Association.*

Secretary: Louis Stotz, 61 Broadway, New York City.

Publications:

(*a*) "Proceedings" of annual meetings.
(*b*) "Monthly Bulletin." Contains papers, discussions, and general information. One department is devoted to "Gas Literature for the Busy Man," and gives a list of journals which will be found valuable if kept for reference. Subscription, 50 cents per year. Furnished free to members.
(*c*) "Industrial Fuel Reference Books." A series of pamphlets issued during 1916 and 1917, dealing with the "Application of Gas" to various needs in the industries and within buildings. Prices, from 20 cents to 50 cents each.
(*d*) "Utilization of Gas Appliances." A series of eleven pamphlets, covering in a most thorough manner the development, construction, and installation of all domestic fuel appliances. Price of complete set $2.50.
There is available only a limited number of copies of these books, which are especially valuable as reference works.
(*e*) Pamphlets entitled "Lessons," which accompany the "Practical Gas Education Course" elsewhere referred to. Subscription rates given on application.
(*f*) "The Gas Equipment of the Home." 48-page illustrated booklet giving information on the many uses of gas in the home. It treats of the following:
1. Plan of House Showing Piping Outlets.
2. Gas Appliances for Each Room in the House.
3. Hygiene of Gas; Its Aid in Ventilation.
4. Modern Gas-Lighting; Treatment of Different Rooms.
5. Plan of an Ideal Kitchen; The Modern Gas-Kitchen.
6. Water-Heating by Gas; The Most Rapid System of Heating Water.
7. Outdoor Residence Lighting.
8. Flue Connections.
9. Gas-Furnace Heating and Room-Heating.
10. Gas Laundry Equipment.
11. Sterilizing Water by Gas.
12. Refuse Destroyer.
13. Garage-Heating by Gas.
14. Vacuum Cleaning by Gas.
15. Refrigeration by Gas.
16. Heating of Kitchen from Cellar Furnace.
17. Room-Heating Calculations.
18. Gas for Domestic Science Equipments.
19. Gas Piping, Piping Schedule, Meters.

(*g*) Certain committee reports are also issued separately, such as Report of the 1916 Committee on Standardization of Gas Appliance Specifications.
(*h*) Standard Gas Range Specification.
(*i*) Standard Gas Fixture Specification.
(*k*) Miscellaneous publications, which will be referred to under other subdivisions.

Any of the above, except the "Proceedings" and those publications with prices affixed, may be had without charge by a practising architect or other qualified inquirer upon application to the Secretary.

This Association was organized in 1905 to act as a clearing-house of commercial information in the gas industry, to develop the use of gas, to promulgate methods for its sale, and to encourage the manufacture of efficient and suitable appliances for the use of gas for light, heat, power, or whatever proper purpose intended.

7A4 *International Acetylene Association.*

Secretary: A. Cressy Morrison, 42d St. Building, New York City.

Publications:

Beginning with August, 1917, the *Acetylene Journal*, established in 1899, and the official organ of this Association, will be published in two separate editions monthly:

(*a*) *Journal of Acetylene Lighting.*
(*b*) *Journal of Acetylene Welding.*

These contain articles concerning the generation and ultilization of this product and (*c*) a list of textbooks and other publications relating to acetylene and oxy-acetylene subjects.

The organization is composed of manufacturers of apparatus for the use of acetylene, manufacturers of carbide and oxygen, and all interested in the advancement of the acetylene industry. Its activities are devoted to the broader questions of the use of acetylene with the greatest possible safety.

7B Other Gas Organizations

The National Commercial Gas Association and the Society of Gas Lighting have no affiliated associations. The following associations are affiliated with the American Gas Institute: Illinois Gas Association, Horace H. Clark, Secretary, 1325 West Adams St., Chicago, Ill.; Indiana Gas Association, James W. Dunbar, Secretary, New Albany, Ind.; Iowa District Gas Association, T. B. Genay, Secretary, Des Moines Gas Company, Des Moines, Iowa; Michigan Gas Association, Clark R. Graves, Secretary, Lansing, Mich.; New England Association of Gas Engineers, N. W. Gifford, Secretary, East Boston, Mass.; New Jersey State Gas Association, O. F. Potter, Secretary, Public Service Gas Company, Newark, N. J.; Pennsylvania Gas Association, L. R. Dutton, Secretary, Wyncote, Pa.; Wisconsin Gas Association, Henry Harman, Secretary, Milwaukee Gas Light Company, Milwaukee, Wis.; Southern Gas Association, E. D. Brewer, Secretary, General Gas Light Company, Atlanta, Ga.

There is also the Society of Gas Lighting, which was instituted December 1, 1875, and therefore is one of the oldest of the gas associations, but is more of a social organization than a technical one. George S. Ramsdell of New York is secretary.

There is also the Natural Gas Association which devotes its activities to considerations affecting the distribution and utilization of this product of nature.

7C Supplying Buildings with Gas

Dismissing from present consideration the properties, manufacture, and distribution of natural and artificial gases (which will be elsewhere referred to), the matter of supplying all buildings with gas for the fullest utilization thereof, whether for illumination, fuel, power, or heat, is of the utmost importance to architects, builders, and all occupants.

(For data on materials and methods of piping buildings for gas see 7E1, 2, and 3.)

1. A committee of the American Gas Institute, then called the Committee on Piping Large Buildings for Gas, presented at the annual meeting in 1914 a report of much interest. This report is incorporated in the Proceedings (7A2*a*) for 1914, and is separately printed (7A2*k*).

The following extracts are given for their suggestive value:

"As a purely financial investment it cannot be denied that the more complete the service that can be offered the more valuable as a rental proposition the building will become."

"Unless, therefore, the building is piped throughout on erection, this lack of provision may become a serious handicap in so far as the rental feature is concerned and may become a cause of loss of revenue."

"The use of gas is constantly being extended to new applications, and this development may be logically expected to continue indefinitely."

"Development in the application of gas to space-heating, by direct radiation, promises much, and this method, . . . is sufficiently advanced to warrant the belief that in time it will come into general use, and such a possibility alone should have weight in planning the gas-supply systems for new buildings at the time of erection."

"Nevertheless, it is a fact that the too general practice at the present time is to erect the modern large building without making any provision for the utilization of gas as a source of light, fuel, and power. This lamentable condition can only be due to the lack of information on the part of the architect, owner, or builder of the many advantages of gas as an agent for light, fuel, and power, as well as the failure to have properly emphasized the considerable financial expenditure and inconveniences necessary to remedy this defect after the building is completed."

2. Desiring to emphasize the necessity for a standardized method of procedure in the matter of proper piping of buildings for gas, the first essential in any utilization of gas-supply, the Editor of the Structural

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Service Department, previous to the inauguration of same, took advantage of an invitation to prepare a paper for the Mid-Year Conference of the National Commercial Gas Association, in June, 1916. Therein, the following reference to the subject was made:

"The first and most necessary step in our coöperation is that you furnish architects with information as to methods of installation for the piping of gas in all buildings. What form can this information take?"

"I would place at the very head of the list a 'National Electrical Code' in the gas industry. That is a misnomer, of course, but it will illustrate to you what I mean; namely, one dominant controlling factor in the installation of the arteries of service."

"A National Basic Code, with a piping schedule of minimum standards for sizes, lengths, and weights would, therefore, work to the great advantage of all good master plumbers and contractors who would be enabled to estimate under stable and equable conditions and to install their work without being at the mercy of varying individual judgment as to 'proper sizes,' etc."

"The piping schedule which your Association has this year adopted is an important step in the right direction. I feel much honored to have had, as the Consulting Architect on Sweet's Catalogue Service, a hand in its preparation, and I hope that it may be taken up and criticized by the American Gas Institute, the American Institute of Architects, and all other interested bodies, and later adopted. But even as it is, if put to use by all architects and others to whom it is in this manner made available, it will be of incalculable assistance and value, for it may now be written into specifications."

3. See various sections of "Gas Equipment of the Home," the titles of which are given under 7A3*f*.

4. See Monthly Bulletin of the N. C. G. A. (7A3*b*) for April, 1917, in which is reprinted an article from the "Real Estate Bulletin" for January, 1917, recognizing the importance of supplying all buildings with gas by means of adequate piping for full equipment. In same is quoted data on this subject from *The Valve World* for April, 1916.

5. See "The Record and Guide," January 27, 1917. Article by Robert B. Mahn on "Coal Situation—Should Owners Install Gas Piping Much Possible expense might be Avoided."

7D1 The Proposed National Gas Safety Code

(Note.—The following information concerning the Code has been especially prepared for the Journal by the U. S. Bureau of Standards.)

(*a*) For some time the U. S. Bureau of Standards has had in preparation a National Gas Safety Code which shall cover a corresponding range of subjects and accomplish the same ends in safety to life and property as both the National Electrical (Fire) Code, which has for many years been the recognized authority as to standards of construction for electrical utilization installations within buildings, and the National Electrical Safety Code which the Bureau of Standards developed through an unprecedented coöperation of the electrical industry, and has recently published. The Gas Safety Code will thus have a double function, namely, fire-prevention and protection to life. The hazards which result from the manufacture, distribution, and utilization of gas are of such nature that generally the fire-hazard and the life-hazard cannot logically be separated. It is desirable, therefore, that, in discussing any phase of the general subject, both the fire-risk and the hazard of life should be recognized by the Code, and that rules be drawn to minimize both in so far as is practicable.

(*b*) The Bureau of Standards is carrying out this investigation and in the preparation of the Code desires to serve as a national coördinating agency to the end that the resulting Code will be acceptable and adequate, not only from the standpoint of the user of gas, but also for the casualty and fire insurance interests, the gas companies and their employees, and the gas appliance manufacturing and selling interests. Because of the wide variety of problems which arise in the work in different parts of the manufacture, distribution, and utilization of gas, and also because of the varied nature of the gases in commercial use, it has seemed desirable to arrange the Code so that each part will, in so far as is practicable, be addressed to a particular interest or group of interests and be convenient for their use. The Code is therefore divided into ten parts as follows:

1. Manufacture. 2. Distribution. 3. Appliance Design. 4. Gas Fitting. 5. Appliance Installation. 6. Natural Gas Wells and Field-Stations. 7. Acetylene. 8. Bottled-Gas Systems. 9. Blast-furnace, Producer, and Gasolene Gas. 10. Utilization—Information for Users.

(*c*) Parts 1 and 2 deal respectively with the production of manufactured gas and its distribution to the premises of the customer. They are therefore primarily of interest to the gas companies and their employees. Part 3, having to do with the design and construction of gas-consuming appliances, is addressed to the makers of such apparatus and to those handling it either in a wholesale or a retail way. Part 4 deals with gas-fitting and is primarily addressed to the gas-fitter or plumber who is engaged in the installation of the piping, but is also of importance to the architect and builder. Part 5 deals with the installation and adjustment of appliance and is addressed to the same interests as Part 4. Part 6 has to do with the production of natural gas at the wells and its transmission through field pumping stations and high-pressure mains to the limits of the municipality. Part 7 is of primary interest to the users of acetylene and is addressed to the manufacturer of generating and other equipment, the distributer and the users of the gas. Part 8 deals with bottled-gas systems (Pintsch, Blau, Gasing-head gas, etc.). Part 9 is of interest both to the steel industry and to industrial plants since it deals with blast-furnace and producer gas, and also refers to the use of gasolene gas. Part 10 is addressed to the user of domestic and industrial gas-consuming appliances, and is largely non-technical in its nature.

(*d*)The two parts of the Code of especial interest to the American Institute of Architects are Parts 4 and 5, which deal particularly with installations on the gas consumers' premises. In brief they are as follows:

(*e*) Part 4 of the Code includes all regulations as to gas-fitting and the piping of buildings beyond the service meter. This part is addressed to gas-fitters, plumbers, and others who install piping on the consumers' premises, and its enforcement is a matter of piping or building inspection. It properly belongs under the jurisdiction of those municipal departments which should have ample jurisdiction to forbid the use of dangerous equipment and require removal of such equipment or discontinuance of gas service until proper alterations have been made to render the installation safe for the users from the standpoint of fire-prevention. The responsibility for new work being properly done, should, however, rest upon the fitter.

(*f*) Part 5 covers the subject of the installation and adjustment of gas-consuming appliances, gas-lighting fixtures and their accessories. These rules are addressed to gas-fitters, plumbers, appliance dealers, and others who make such installations on the consumers' premises. The enforcement of this part is a matter of appliance and building inspection and, like Part 4, properly belongs under the jurisdiction of municipal departments. Although the fitter should be entirely responsible for the work being properly done, the choice of appliances to be installed can be placed upon him to a limited degree. Where improper appliances are selected by an owner or architect and given to the fitter for installation, he should, if aware of the fact, advise the owner or architect as to the local regulation or desirable procedure to be followed in respect to these appliances, but if the owner or architect insists

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upon the installation of such improper equipment they should be held responsible. The same authority covering the installation of dangerous appliances should be exercised by the municipal authorities as in the case of Part 4.

(*g*) Part 4 is approaching completion, and it is to be hoped that it and Part 5 will be in the hands of those interested for trial use within a short time. After such thorough trial, the Code will be amended where necessary before final recommendation by the Bureau and its conferees, in order to render it of greatest practicability, and it is the intention to keep the Code up to date whenever additional matter is deemed necessary or as good practice demands.

(*h*) The Bureau has been fortunate in having associated with it in this work representatives of the various professions and industries involved. The American Institute of Architects has designated Messrs. D. Everett Waid and Julius Franke as advisors. The American Gas Institute, the National Commercial Gas Association, the Natural Gas Association, the National Fire Protection Association, the National Safety Council, the Public Health Service, and National Association of Master Plumbers have likewise coöperated, and the Bureau is glad to acknowledge its indebtedness to all of these various organizations for their assistance.

(*j*) It is hoped that when the Code is completed it will have the approval and sanction of all interested branches of the Industry so that it may be adopted by state and municipal authorities throughout the country as a reasonable working standard and thus will make unnecessary many diverse sectional specifications, such as preceded the National Electrical (Fire) Code, and have been more or less delaying the universal adoption of the National Electrical Safety Code.

7E Piping Buildings—Materials, Methods, and Cost

See, also, the publications mentioned under supplying Buildings with Gas 7C in all of which piping is treated.

7E1 *Information Obtainable*

(*a*) "Mechanical Equipment of Federal Buildings" (6L1*e*). Chapter V, "Gas Piping," contains a sample specification such as is used by the office of the Supervising Architect of the U. S. Treasury Department for a new building. Pp. 193–196.

(*b*) See "Proper Specifications for, and Inspection of, Interior Gas Piping" (7A2*m*). Written for the Distribution Section of the ninth annual meeting of the American Gas Institute, October, 1914, by A. E. Turner.

This paper is printed in the "Proceedings" (7A2*a*) and may be separately obtained from the Secretary.

It includes "Necessity for Standard Specifications," "Present Practice in Some Large Cities," "Suggested Specifications," "Piping Schedules," and concludes with a table of "Comparison of Actual Sizes of Wrought Iron Pipe with the Theoretical Size."

(*c*) "Architects' and Builders' Pocket Book," 1916, F. E. Kidder, pp. 1345–1350; Section on "Illuminating Gas and Gas-Piping" contains information on varieties of gas and gives General Principles and Requirements for Piping a House for Gas, with Rules and Table for Proportioning Sizes and a diagram piping.

(*d*) "I. C. S. Handbook for Plumbers and Fitters." See section on Gas Fitting which contains data on size of pipes, installation and testing, and acetylene gas-fitting.

(*e*) See "I. C. S. Building Trades' Handbook," p. 376, for information on cost of gas-fitting.

(*f*) See N. F. P. A. "Index" (3A3*h*5) for reference to information on "Gas Mains."

(*g*) See "The Installation of Cast Iron Street Mains" (7A2*j*).

(*h*) In "Proceedings" of the N. C. G. A., 1916, is a paper entitled "Adequate Piping of Buildings," by W. T. Rasch, with discussions which followed it.

(*j*) *Piping Symbols.* No standard set of symbols for marking gas outlets seems to have been developed.

1. Gas outlets in combination with electric are, however, shown by the "Standard Symbols for Wiring Plans" mentioned under 6E4*a*.
2. A "Key" to the symbols indicating gas outlets throughout a typical two-floor plan of modern dwelling is shown on p. 6 of "Gas Equipment of the Home" (7A3*f*1).
3. "Standard Symbols for Gas-piping Plans" are shown on p. 1359 of "Kidder's Pocket Book" as referred to under 7M2.

7E2 *Practice Recommended or Suggested by*

(*a*) American Gas Institute:

1. See extracted comments from the Report of the Committee on Piping Large Buildings for Gas, under 7C1.
2. This report also contained the following:

Piping Necessary.—The Committee realizes that a detailed table showing the size of risers, size of branch piping, number and size of fuel power and lighting outlets for various classes and size of buildings and for various spaces in them would be a great aid to the gas manager in working out his problems. However, the compiling of such a table would involve so many variables, and such a table would have to be in such great detail, in order to satisfactorily meet all conditions, that it has been thought advisable to endeavor only to give a few general suggestions which it is believed can be followed with satisfactory results. For this purpose the space in large buildings has been divided into four main classes and the outlets necessary for each class given in a general way.

Classes of Space.—(1) Large areas in loft buildings used for storage or manufacturing purposes. (2) Large rooms in public or office buildings used as assembly halls, courtrooms, large offices and for miscellaneous purposes. (3) Rooms in office buildings used as offices. (4) Rooms in hotels and apartments used as reception-rooms, living-rooms, bedrooms, etc.

Outlets to be Installed.—(1) This is generally a case of exposed piping. Baseboard outlets (not less than 1¼ inches) should be installed at reasonable distances or to suit occupancy. Proper outlets should be installed for the lighting system. (2) One ample baseboard outlet (not less than 1¼ inches) should be installed for any possible future supply for gaseous fuel. Proper outlets should be installed for the lighting system, and modern attractive gas fixtures or combination gas and electric fixtures so designed that modern gas burners may be as easily and attractively used on them as may electric lights. (3) Usually one baseboard outlet (not less than ¾-inch) should be installed for connection of portable light or possible use of gaseous fuel. One or more ceiling outlets for the lighting sysem with fixtures as outlined in (2). (4) The larger rooms should be provided as in (2). The lighting system should also be as outlined in (2). The larger living-rooms and bedrooms should preferably have more than one baseboard outlet.

Cost of Piping.—The Committee has analyzed the cost of piping many buildings brought to their attention, from the simple case of piping a loft building, where the number of outlets is few, due to undivided space, and therefore the branch lines on each floor few in number, to the case of the complete piping of large office buildings for lighting outlets, baseboard outlets, fuel, and power requirements.

(A list of buildings and comparative prices is then given in the report. These figures, both for the cost of the buildings and for gas installations would have to be proportionately increased to compare with prices now obtaining.)

From these typical, practical examples it can be seen that the gas-piping installation in a modern building, if put in at the time of erection, amounts to an extremely small figure, varying from 0.128 per cent to 1 per cent of the total cost of the structure for buildings varying from a loft building with its small number of outlets to the most elaborate piping of a modern office building.

3. Report of the Committee on Gas House-piping, as submitted to 1915 annual meeting of the A. G. I. (7A2*l*).

"The rules are divided for convenience into general specifications, building services, riser locations, outlets, fastening pipe, running of pipe in connection with walls, floors, etc., and the testing and inspection of piping."

A section is also devoted to rules and tables with explanations.

4. Report of the Committee on Gas House-piping, as submitted 1916.

This is an extension of, and elaboration upon, the previous report with General Specifications, Rules, and Tables, so formulated that they would be applicable, with very minor changes, to any situation, the final decision in any doubtful case resting with the gas company.

While it expressly stated that it is a tentative specification only, and not endorsed by the American Gas Institute, it may well be looked upon, pending the final issuance of the National Gas Safety Code, as a standard to be followed in writing specifications for gas installations, where local building codes do not contain specific requirements, or for incorporation in specifications as the present standard to be followed with respect to all matters of workmanship and procedure.

(*b*) National Commercial Gas Association:

1. See "Piping Schedule" referred to under 7C2 and printed on p.

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1296 of "Sweet's Architectural Catalogue," 1917, followed by "Explanation of and Directions for Using the Piping Schedule," and suggestions for outlets to be installed, appliances which may be used, and information on the general use of gas.

This is also issued as a reprint obtainable upon application to the Secretary.

(*c*) National Board of Fire Underwriters:

1. "Building Code" 1915, recommended by the N. B. F. U. (3A4*d*1). Sections 259 and 260 relate to Installations of Gas Pipes and Gas Appliances and contain valuable recommendations to be followed.
2. "Dwelling Houses" (3A4*d*3). Another Code by the N. B. F. U. In Section 50 contains similar recommendations.

(*d*) Proposed National Gas Safety Code. Read paragraphs (*e*) and (*g*) under 7*d*1 for informative data and recommendations shortly to be issued by the U. S. Bureau of Standards looking toward an eventual standardization of piping and fittings.

7E3 *Standards to be Followed*

(*a*) By the Treasury Department, U. S. A. (Office of Supervising Architect):

1. In "Mechanical Equipment of Federal Buildings" (6I.), under "General Instructions Issued to Draftsmen," p. 365, it is stated: "All buildings must be piped for gas, even though there are no local gas works. This is a special departmental requirement."

(*b*) The building codes of such cities as prescribe any regulations for gas-piping will naturally govern installations within the municipal jurisdiction. Some cities leave the matter entirely in the hands of the local gas companies, and in all cases where gas-supply is available inspection is made to determine the tightness of the supply-pipes before gas will be turned into the buildings. There remains, however, the installation beyond or in advance of service mains to be taken care of, and in order that the piping may be adequate and that equable conditions may prevail in the estimating specifications, should always provide that the selected requirements and schedules referred to under "Practice Recommended or Suggested by" (7E2) should be followed and the completed installation be tested out as therein provided before any plastering is done.

(*c*) "Present Practice in Some Large Cities" will be found covered in "Proper Specifications for and Inspection of Interior Gas Piping" (7A2*m* and 7E1*b*).

(*d*) While the requirements before mentioned cover quite fully methods of installation and the manner of workmanship, there appears to be a lack of exact definition as to the standards of quality for the steel or iron pipe to be used inside of buildings.

1. In report of the Committee on Gas House-piping (A. G. I., 1915) occurs the following:
   Pipe and Fittings.—All pipe used should be of the best quality full-weight wrought iron or steel and free from defects. All fittings (except stop-cocks or valves) should be of full-weight malleable iron. Galvanized fittings are preferable.
2. In the 1916 report of above Committee declares as follows:
   Pipe and Fittings.—All pipe used shall be standard, full weight, of the best quality wrought iron or steel, and free from defect. All fittings (except stop-cocks or valves) shall be of best quality malleable iron. Galvanized fittings will be permitted and fittings galvanized on exterior only are preferred.

(*e*) With respect to "Standards" for wrought or steel pipe used inside buildings, and for certain information on the subject of pipe, see April Journal 4F1, 4F2, and 4F3, especially 4F1*f*, which states that pipe will be more fully treated under later Serial numbers.

(*f*) The "Standards" for cast-iron gas-pipe used outside of buildings are, however, quite definite.

1. "Standard Specifications for Cast Iron Pipe and Special Castings," American Gas Institute (7A2*d*); "Bell and Spigot Pipe and Special Castings," adopted 1911; "Flanged Pipe and Special Castings," adopted 1913. (These are quite independent of other standards for cast-iron pipe which will be referred to in next Serial number.)

(*g*) For notes on electrolysis in connection with pipes, see 6N.

7F Gas and Its Utilization in Buildings

On the properties of the various gases and on the methods of production and use there is a vast amount of lierature which lies outside our province to describe.

Reference will be made to certain publications, however, wherein these subjects are covered in connection with the general application of gases to industries connected with building construction or to their utilization within or adjacent to buildings.

For convenient reference see Gas Appliances in General 7H, included in which some of the applications have been placed under separate subdivisions such as for heating of space, heating of water, cooking, and illumination.

Other sources of information giving descriptions of products, their storage, distribution, and utilization, will be listed under the following main heading entitled:

7G Properties, Power Equipment, and General Uses

1. The various bureaus of the United States Government at Washington issue circulars, bulletins, technical papers and other publications which contain authoritative information of the widest range, all of which may be obtained from the Superintendent of Documents, Washington, D. C. A list of the most important of these, as concerns gas investigations and data, mostly of interest to the producer rather than the consumer, is given in the Monthly Bulletin of the N. C. G. A. (7A3*b*), May, 1917, p. 291, and June, p. 342.
2. The "Gas Chemists' Handbook" (7A2*c*) and other publications of the American Gas Institute, including the "Bulletin of Abstracts," a classified record of technical articles (7A2*f*).
3. "Industrial Fuel Reference Books" (7A3*c*) and other publications of the National Commercial Gas Association, including "Gas Equipment of the Home" (7A3*f*3).
4. Also, "Utilization of Gas Appliances" (7A3*d*), No. 10, entitled "Principles of Industrial Fuel."
5. Various periodicals and current publications covering subjects under this general heading are listed in each issue of the "Monthly Bulletin" of the N. C. G. A., as mentioned under 7A3*b*.
6. "Mechanical Engineers' Handbook," 1916, Lionel S. Marks, Editor-in-Chief. Read Index to same for references to properties of all gases and gas equipment of all kinds, including gas engines, gasolene engines, and power plants.
7. "American Civil Engineers' Pocket Book," 1916, Mansfield Merriman, Editor-in-Chief. Read Index to same for references to information on gas, gas-producers, and gas equipment for power and other purposes.
8. "Mechanical Engineers' Pocket Book," 1916, Wm. Kent. Read Index to same and refer to Gas, Fuel-Gas, Water-Gas, Producer Gas, Illuminating Gas, Acetylene and Calcium Carbide, and other information including that on gas engines.
9. "Architects' and Builders' Pocket Book," 1916, F. E. Kidder; Thomas Nolan, Editor-in-Chief; pp. 1345–1350: Section on "Illuminating Gas and Gas-Piping" contains succinct information on five varieties of gas, namely: Coal-Gas, Water-Gas, Natural Gas, Acetylene-Gas, and Gasoline-Gas, and gives General Principles and Requirements for Piping a House, as mentioned under 7E1*c*.
10. "Lefax Data Sheets," issued under the branches Mechanical and Chemical, for extracts from articles in scientific, technical and governmental publications on the subjects covered by this heading.
11. In "I. C. S. Handbook for Plumbers and Fitters" will be found a section on Gas and Gas-Fitting which treats of the different kinds of gas, pressure, measurement of flow, meters and regulators, and gives data on piping, acetylene generators, etc., as mentioned under 7E1*d* and 7L.
12. The above Handbook is independent of four volumes on "Steam and Gas Engineering" and two volumes on "Plumbing and Gas-Fitting" in the extensive International Library of Technology, each of which treats the subject exhaustively.
13. "Universal Safety Standards" (6F3*f*), pp. 25 and 74–79, contains information on gas engines, with illustrations showing how various types of engines should be guarded.
14. N. F. P. A. "Index" (3A3*h*5) contains reference to information on "Coal-Gas," "Gas Engines for Fire Pumps Supplying High Pressure Service at Philadelphia," "Physical Properties of Gas," and references throughout to information concerning all kinds of gases, their production, and proper means to follow in installing and utilizing.
15. "Field Practice" (3A3*d*1). Chapter III on "Power Hazards" contains Section 3 on "Gas and Gasolene Engines," giving information on the installation and inspection of these devices,

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pp. 77–79. Other information in this publication is elsewhere referred to, including 7L.

16. "Standard Regulations for Fire-Protection and the Safeguarding of Hazards" (3A3*a*), adopted by the N. F. P. A. and the N. B. F. U.
    (*a*) Acetylene-Gas Machines, Oxy-Acetylene Heating and Welding Apparatus and Storage of Calcium Carbide.
    (*b*) Fuel Oil, Storage and Use, and Construction and Installation of Oil-burning Equipments.
    (*c*) Gas Shut-off Valves.
    (*d*) Gasolene Vapor Gas-Lighting Machines, Lamps and Systems.
    (*e*) Internal Combustion Engines (Gas, Gasolene, Kerosene, Fuel-oil) and Coal-Gas Producers (Pressure and Suction Systems).
17. See publications of the Underwriters' Laboratories for mechanical appliances and materials inspected and labeled or approved with names of the articles and manufacturers:
    (*a*) "List of Inspected Mechanical Appliances" (3A6*b*).
    (*b*) "List of Appliances Inspected for Accident Hazard" (5G3*j*).
18. For publications relating to "Oxy-Acetylene Welding Practice," see list which can be obtained as mentioned 7A4*c*.

7H Gas Appliances in General

The appliances chiefly used in buildings, outside of the industries, will be referred to under the separate subdivisions which follow:

This main heading is provided in order to refer to a few suggestions or requirements common to the utilizations of appliances in general. These are independent of those to be covered eventually by the National Gas Safety Code, the purpose of which with respect to appliances is well set forth in paragraphs (*f*) and (*g*) under 7D1.

1. Standards along the line of manufacture and installation are being developed by a Committee of the American Gas Institute on Utilization of Gas Fuel Appliances and a Committee of the National Commercial Gas Association on Standardization of Gas Appliance Specifications, the latter of which has already issued two standard specifications elsewhere referred to. These Committees are also developing a standard for flexible gas tubing, the safe manufacture and proper precautions in the sale of which are to be greatly encouraged.
2. The Manufacturers' Section of the N. C. G. A., under its separate organization, is coöperating in the development of other standards.
3. "Utilization of Gas Appliances" (7A3*d*).
    (*a*) No. 3 Supplement.—Elementary Principles of Construction and Utilization of Energy.
    (*b*) No. 6.—Hotel and Restaurant Appliances.
    (*c*) No. 9.—Miscellaneous (Domestic) Gas Appliances.
4. Industrial Fuel Reference Books (7A3*c*).
5. The "Gas Equipment of the Home" contains several sections applicable to this subdivision. (Note the contents listed under 7A3*f*.)
6. In 5 as well as in the information referred to under 7E2*b* and some others is illustrated and described a gas receptacle the installation of which at frequent intervals makes possible the attachment and use of any desired appliance and by affording choice in the location of same subsequent to the piping gives extreme mobility to the furniture, fittings, and fixtures in any room or space.
7. "Building Code Recommended by The National Board of Fire Underwriters" (3A4*d*1), Section 260, relates to Installation of Gas Pipes and Gas Appliances and contains valuable recommendations to be followed in locating and connecting the latter.
8. The same Code on p. 175 gives recommendations for the construction and use of flues for gas-burning appliances. The important subject of flues is also treated under "Gas Equipment of the Home" and is especially covered in the publications relating to various appliances referred to under some of the subdivisions, especially 7K5*a* and *b*.
9. "Dwelling Houses" another code of the N. B. F. U. (3A4*d*3), in Section 50, contains similar recommendations.
10. Much valuable information on the subject of installations will be found in "Field Practice" published by the N. F. P. A. (3A3*d*1). Consult Index to same.
11. Other information in the publications of the N. F. P. A. may be ascertained through the "Index to Subjects" (3A3*h*5).
12. Some gas companies maintain an architects' service department, those with which the Editor is familiar being within the Consolidated Gas Company of New York, the New Haven Gas Light Company, and the United Gas Improvement Co. of Philadelphia, the latter of which distributes data sheets, of Institute standard 8½ by 11 size, intended for the files of architects. These include detailed drawings as well as other data on all kinds of appliances.

7J Space-Heating by Gas

This subject is engaging more and more attention, and developments are continually taking place. The Committee of the A.G.I. reporting in 1914 (see 7C1), referred to gas heating, especially individual space units, as in time coming into general use, which possibility it stated should have weight in arranging for gas supply at the time of erecting all buildings.

The means of accomplishment are varied, running from gas-grates, gas-logs, fireplace burners, wall-heaters, and portable heaters, to gas-fired furnaces, boilers, and radiators. The results, according to the systems used, are attained through hot air, steam or hot-water direct radiation, or hot-air radiation.

1. Reference to some of these methods is made in "Gas Equipment in the Home," 7A3 (*f*), for which read the contents there printed.
2. The Committee on the A. G. I. on Utilization of Gas Fuel Appliances made a very complete report to the 1916 Convention, which is fully printed and illustrated on pp. 956–988 of Part II of the "Proceedings," 1916, (7A2*a*). This included illustrations of various types of blue- and luminous-flame heaters, with results of tests on distribution and quantity of radiant heat, diagrammatically expressed and much data on appliances in general and on flexible tubing.
3. A committee of the N. C. G. A. exists for the investigation and development of heating by gas. This is known as the Committee on Auxiliary Heating, George S. Barrows, Chairman. This Committee at the 1916 Convention made a most interesting and very complete report, which is printed and fully illustrated in the "Proceedings" for that year (7A3*a*), pp. 330–396.
4. "Utilization of Gas Appliances" (7A3*d*), Pamphlet No. 8, entitled "House-Heating Appliances."
5. The Consolidated Gas, Electric Light and Power Co. of Baltimore has issued a 23-page booklet on various phases of this subject, entitled "House-Heating with Gas in Baltimore a Success."
6. Concerning a system of space-heating by gas see the information published in the Industrial Section by the Hugo Mfg. Company on the Hawks System, p. xi.

7K Water-Heating by Gas

1. This subject will be found treated in but few of the pocket books and handbooks referred to elsewhere. Precise information has frequently been difficult to acquire, even the manufacturers themselves not furnishing it in the form required by architects to assure in advance the most satisfactory service through the best and most economical use of each appliance. A realization of this has led some manufacturers to prepare handbooks and data sheets quite independent of the usual catalogues, and some gas companies have prepared data sheets for the especial use of architects as mentioned under 7H12.
2. This subject is, in coöperation with the Manufacturers' Section, receiving the attention of a committee in the National Commercial Gas Association on Standardization of Gas Appliance Specifications, also referred to under 7H1.
3. In "Gas Equipment of the Home," 7H3*f*, will be found (6) Water-Heating by Gas; the Most Rapid System of Heating Water.
4. Very complete information may be found in the "Lessons" referred to under 7A3*e*, which cover the subject of water-heaters, from a historical review through operation, methods of use, principles

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of water circulation, sizes of heaters, connections and flues, to care, efficiency, and maintenance.

(*a*) Lesson No. 3, 1916, is entitled "Water-Heating—Circulating Types."

(*b*) Lesson No. 10, 1916, is entitled "Water-Heating—Automatic Types."

5. For most complete and exhaustive data on water-heaters in general, see the series of pamphlets 7A3*d* "Utilization of Gas Appliances." These are fully illustrated and contain diagrams, tables, calculations, descriptions, and recommendations of the greatest usefulness.

(*a*) No. 4 is entitled "Circulating Water-Heaters for Domestic Purposes," and is divided into sections on: Evolution of the Heater; Combustion; Efficiency; Water-Circulation; Types of Circulating Water-Heater; Combination Boiler and Gas Water-Heater; Gas-Cock; Flues; Boilers and Connections; Causes of Rusty Water; Comparison with other methods of Heating Water; Comparative Costs—Coal and Gas; A Practical Method of Making Efficiency Tests.

(*b*) No. 5 is Entitled "Instantaneous Automatic Water-Heaters; Multi-Coil Storage Systems and Instantaneous Bath-Water Heaters" and is divided as follows:

1. Historical Review.
2. Construction: Gas burners, heating surfaces, shell, water-valve, gas-valves, thermostat, draft-hood.
3. Operation.
4. Installation: Flue conditions, water and gas supply, location, reheating or supplementary system, installation specifications, drawings and data.
5. Care and Maintenance.
6. Selection of type and size; special uses.
7. Comparative costs of gas and coal.

6. For informative data on gas water-heaters see the pp. XII-XIII in the Industrial Section, of the Humphrey Co., division of Ruud Mfg. Co., also, see various catalogues of the Humphrey Co., and the very complete Handbook of the Ruud Manufacturing Co., entitled Gas Water Heaters, copyright 1915.

7L Cooking and Hotel and Domestic Appliances

Aside from the illustrated literature of the gas associations and companies, the publications in connection with gas for cooking and other domestic conveniences are chiefly those of the manufacturers of the appliances, whether they be used for home, hotel or laundry—club, cantonment or other permanent or temporary use. There will, however, frequently be found articles of suggestive value and usefulness in the many periodicals, lists of which have been mentioned, and in the many popular magazines.

1. Attention is directed to the Section on Gas Appliances in General and to the work of the Committees on Standardization of Gas Appliance Specifications referred to therein under 7H1.
2. The Gas Equipment of the Home (7A3*f*) takes up the use of gas for cooking and for other forms of domestic utilization separately. It shows the plan of an "Ideal Kitchen" and contains illustrations and suggestions relating to the manifold uses of gas throughout the home, treats of hoods and canopies and other accessories and contains subdivisions which cannot be fully described in the contents listed. It also mentions Domestic Science Equipment in Schools.
3. Under the "Lessons" referred to in 7A3*e* are those relating to various domestic equipments.
4. See especially "Utilization of Gas Appliances" (7A3*d*).
   (*a*) No. 1, is entitled "Domestic Cooking Appliances."
   (*b*) No. 6 is entitled "Hotel and Restaurant Equipment."
5. See also the very complete Industrial Fuel Reference Book (7A3*c*) No. 6, which is entitled "The Application of Gas to Hotel and Restaurant Equipment."
6. See article on "How to Secure All-Gas Kitchens in old Houses" by H. K. Dodson, reprinted from "Proceedings" of the N. C. G. A.
7. See the sections of Field Practice (mentioned under 7H) applicable to the installation of the appliances alluded to under this subdivision.
8. Building Code recommended by the National Board of Fire Underwriters (3A3*d*1) has a Section No. 260 relating to installations of gas-pipes and appliances and contains recommendations to be followed in installing various domestic appliances.
9. "Dwelling Houses," another Code by the N. B. F. U. (3A3*d*4) in Section 50, contains similar recommendations.
10. See publications of Underwriters' Laboratories referred to under 7G17.
11. Read paragraphs (*f*) and (*g*) of 7D1 describing the proposed National Gas Safety Code.
12. Of interest as affording the standards to be followed in manufacture, see Standard Gas Range Specifications adopted by the National Commercial Gas Association, 1914.

7M Illumination—Fixtures, Equipment and Ignition

On the general subject of illumination and the modern science of illuminating engineering read the interesting account of the Illuminating Engineering Society under 7N1 prepared for the Journal through the courtesy of Wm. J. Serrill, President.

See, also, the various publications referred to under 6H, most of which treat of illumination by gas as well as by electricity.

1. No more fitting introduction to the subject of illumination by gas could be printed than the following excerpts from the Report of the Committee of the American Gas Institute referred to under 7A2*k* as they treat of developments in fixtures, mantles, and ignition to suit all modern requirements.

(*a*)

"With the latest developments in both inverted and upright incandescent mantle burners, gas can be applied to all forms of illumination—direct, semi-indirect, or indirect. These units, made in several sizes, giving a light from the smallest intensity commercially used to a light of as high intensity as needed for any indoor work, with the great variety of glassware which it is possible to use, are made up in fixtures varying from the plain, simple, inornate fixture suitable for purely commercial lighting, to the rich, heavily ornamented fixture for use in the handsomest surroundings."

"This is not only true of the direct lighting units but especially true of the semi-indirect units where we find gas peculiarly adapted for use with the large variety of beautiful glassware that has been developed for this system of illumination. This attractiveness applies equally well to the numberless portable lamps with their rich shades of many styles and designs, suitable for the living-room, library, bedroom, den or boudoir."

(*b*) *Ignition.*

"Directly connected with the consideration of appearance comes the question of flexibility. Gas units are now placed on the market in varying sizes. Allied closely with this question of flexibility comes that of control of the units themselves. This means the method of lighting and extinguishing. Before the advent of the incandescent mantle light, gas-lighting usually required the use of matches and the manual lighting of each and every lamp."

"Simultaneously with the development of the mantle unit, however, came the invention of several methods for lighting and extinguishing lamps, and several methods of control, from a distance, until at the present time no installation can lay any claim to being modern or complete that requires the use of matches for ignition. We now have available these distance-control systems, and also local control, with single pendent switch or chain, similar in all respects to the electric local control. Here the ignition is accomplished by a pilot light. This system has been in operation for many years and gives entire satisfaction.

(*c*) *Distance Control.*

From the many distance-control systems available, there are several which have been used in actual service and have proved reliable and dependable. These are the magnet cock with pilot ignition, the magnet cock with jump-spark ignition, a system using the gas pressure for control and igniting by pilot light, and the hot-wire, or filament, ignition in combination with the magnet cock. In actual operation in various installations these have given satisfactory service. Gas, therefore, has all the features of convenience of any of the commercial illuminants. (In the Appendix, Section D of the Report (7A2*k*) will be found a short description of each of these systems with diagrams indicating their method of operation.)

2. See "Architects' & Builders' Pocket Book," 1916, F. E. Kidder, pp. 1351-1370: Section on "Lighting and Illumination of

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Buildings," by W. H. Timbie, contains portion devoted to Illumination of Gas and gives general information, tables, and diagrams; Table V, being a chart of "Standard Symbols for Gas-Piping Plans" as developed by the Illuminating Engineering Laboratories of the Welsbach Company.

3. For a list of "Reference Books on Illumination," including those of some manufacturers, see p. 1370 of Kidder's "Pocket Book."
4. "Mechanical Equipment of Federal Buildings" (6L1*g*), Chapter VII, "Lighting Fixtures." This gives "Basic Data in Connection with Design and Installation of Lighting Fixtures" and data for estimating the cost of same. It also includes a "typical lighting fixture specification prepared by the office," which covers various types of fixtures, glassware, reflectors, metals, gas-piping, and finish, and gives a schedule of fixtures and notes on inspection and tests.
5. In the "I. C. S. Handbook for Plumber and Fitters" is a section on gas-fitting in which are given data on illumination and piping, including piping for acetylene gas-lighting with the requirements of the New York Board of Fire Underwriters for the installation of acetylene-gas generators and recommendations as to the location of gas fixtures. The subject of "electric gas lighting" is also covered.
6. "Residence Lighting," by W. A. Morris. A 14-page illustrated booklet which contains information on what constitutes satisfactory domestic lighting for the various rooms of the average residence and what units are available.
7. "Some Phases of the Illumination of Interiors," by Preston S. Millar. A paper and demonstration presented at the eighth annual meeting of the American Gas Institute (joint session I. E.S. and A.G.I.), October, 1913. Treats of "Lighting Effects." 28 pp., illustrated. (Printed in "Transactions" of I.E.S., Vol. VIII, p. 99, 7A1*a*.)
8. See pamphlets of the National Commercial Gas Association "Utilization of Gas Appliances," 7A3*d*.
   (*a*) No. 2 is entitled "The Production of Light."
   (*b*) No. 3 is entitled "Planning Lighting Installations."
9. "Gas—The Modern Home Light," 1916. 34-page illustrated booklet issued by the N.C.G.A. (7A3*g*), being a guide in selecting gas-lighting for each room. Contains "Ten Rules of Gas Light."
10. "The Gas Equipment of the Home." Various sections described in the contents given under 7A3*f*.
11. "The Hygienic Value of Gas Lighting," by R. F. Pierce. 20-page booklet reprinted from the *Illuminating Engineer;* treats of the beneficial effect of gas light upon the air, and its hygienic effect upon the eyes.
12. "Gas Lights for all Purposes." 63-page illustrated booklet issued by the United Gas Improvement Company of Philadelphia; illustrates and gives cost data on direct and indirect lighting fixtures of every description, portable lamps and floor standards, as well as mantles and glassware for lighting fixtures.
13. "Mechanical Engineers' Pocket Book," 1916, William Kent, pp. 1468–1477: Section on "Illumination–Electric and Gas Lighting" contains general information and tables in connection with the use of gas for lighting purposes.
14. "Crosby-Fiske-Foster Handbook of Fire Protection" (fifth edition), pp. 122–126: Section on "Lighting" contains recommendations covering illumination by various kinds of gas.
15. For specific information in relation to the use of acetylene gas for illumination see publications of the International Acetylene Association and list referred to under 7A4*a*.
16. In "Mechanical Engineers' Handbook," by Lionel S. Marks, the section on "Prevention of Accidents" by D. S. Beyer contains a division on "Lighting," which treats of the importance of adequate lighting in relation to the prevention of accidents.
17. The Committee of the National Commercial Gas Association on Standardization of Gas Appliance Specifications (7H1) developed:
   (*a*) Standard Gas Fixture Specification (7A3*g*) which was adopted by the Association, December, 1914.
18. "Field Practice," Inspection Manual of the N.F.P.A., 1914, pp. 23–32, contains sections on "Lighting Hazards" with subdivisions on "Gas: Public Supply, Artificial and Natural," "Acetylene Gas," "Compressed or Liquid Gases," "Kerosene and Kerosene Vapor," "Gasolene Vapor."
   These give succinctly the processes of manufacture, applications for use and observations relating to installations and maintenance which should receive attention.
19. N.F.P.A. "Index" (3A3*i*5) contains reference to information on "Illuminating Gas," Gas Arc Lamps," "Gas Mantles," and other subjects of interest indicated by the contents.
20. See the two Codes of the National Board of Fire Underwriters—the Sections referred to under 7E2*c*1 and 2 contain recommendations also as to location and kind of gas fixtures.
21. Read paragraphs (*f*) and (*g*) under 7D1 relating to the proposed National Gas Safety Code.
22. Standard Regulations for Fire Protection and the Safeguarding of Hazards (3A3*a*) adopted by the N.F.P.A. and the N.B.F.U., obtain with respect to generators for independent lighting systems, as follows:
   (*a*) "Acetylene-Gas Machines, Oxy-Acetylene Heating and Welding Apparatus and Storage of Calcium Carbide" (7G16*a*).
   (*b*) "Gasolene Vapor Gas Lighting Machines, Lamps and Systems" (7G16*d*).

7N Illumination in General

7N1 *Illuminating Engineering Society.*

General Secretary, G. H. Stickney, 29 W. 39th Street, New York City.

[EDITOR'S NOTE.—The activities of this Society are concerned with all forms of illumination whether artificial or daylight.]

Public Information:

(*a*) Publication of a periodical called the "Transactions," in which are printed papers dealing with all phases of the art and science of illumination.
The "Transactions" are free to all members. To other individuals, $5 per year; to libraries, $4; foreign subscriptions, 50 cents additional.
Single copies of current numbers, 55 cents to members and 75 cents to others. The Society will be glad to furnish sample copies, if available, to practising architects.

(*b*) Publication of special pamphlets dealing with the particular phases of illumination. Among these may be mentioned the pamphlets entitled "Light: Its Use and Misuse," a "Code of Lighting Factories, Mills and Other Work Places," and a number of reports of committees of the Society.

(*c*) The conducting in the year 1910 of an elaborate lecture course on illuminating engineering, jointly with the Johns Hopkins University, and the subsequent publication of reprints of the lectures. At the present time there is in course of publication a similar volume dealing with a second course of lectures on illuminating engineering jointly conducted in the year 1917 by the Society and the University of Pennsylvania. This treatise, the latest word on illuminating engineering, will be available after July 1.

(*d*) A committee has completed popular lectures on "Store Lighting" and "Residence Lighting" with accompanying lantern-slides. It is proposed to circulate these lectures among those who wish to present them before organizations interested in these phases of lighting. Three other lectures—on industrial lighting, office lighting, and elementary principles of lighting—are in course of preparation.

The Illuminating Engineering Society was organized in the year 1906 by a group of engineers in New York City who were interested in the subject of illumination.

At that date the profession of illuminating engineering was in its infancy. While the principles of light distribution, as a branch of physics, had been published, but little progress had been made in translating those principles into practice.

The public had not been educated so as to create a demand for proper illumination, and the manufacturers of lighting equipment, in the absence of such a demand, were groping in the dark as to the proper character of their equipment. The knowledge that there were such things as bad lighting, which is harmful to the eyes, and good lighting, which is not only harmless but a factor in conserving eyesight, was not widespread. That illumination is a factor in interior decoration and possesses a distinct esthetic value practically entered not into the conception of architects and interior decorators. That illumination is an important element in workshops, by increasing output, by reducing accidents, and by bettering the morals of workers, was not generally realized.

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During the ten years of its existence the Illuminating Engineering Society has wrought a wonderful change in the conditions of lighting. A formless mass of principles, theories, and practices has been coördinated so as to constitute a definite branch of engineering; questions of nomenclature and standards, which form the basis of any orderly engineering practice, have been solved and standardized; researches in the domains of both physics and physiology have been fruitfully stimulated; educational courses have been inaugurated; legislation has been, and is now actively being, guided along intelligent lines.

To the home-lover it has been shown that his evenings may be made more cheerful through proper lighting. Conservation of eyesight, increased decorative value of furnishings, an atmosphere of hospitality and warmth are among the things that good illumination secures. The lighting of work places—offices, stores and factories—has been improved, and the advantages of correct illumination have been demonstrated. Increased output, welfare of the worker, and a general betterment of the morals of the employees has resulted. Public halls, theatres, auditoriums, churches and all meeting-places required interior illumination—natural and artificial—which would give an atmosphere appropriate to the functions of the place, as well as the necessary illumination. Highway illumination demands more than the ability to see an approaching vehicle or pedestrian. The contour and architectural features of buildings may be so lighted that their esthetic value is retained during the hours of darkness. The parking and landscapes adjacent to the roadway may be seen by night as well as by day. Municipalities have been thus encouraged to improve the grounds surrounding public buildings and adjacent to highways. Studios, museums, and galleries of art afford a field for the development of illumination which is destined to awake a new enthusiasm in the artist and a new appreciation in the connoisseur. Intensity, color, and direction of light may be adjusted to give the effects which are so necessary to this class of illumination. The architect and artist need no longer leave out fine shades of color and delicate contours because of inadequate lighting.

With all these lines of endeavor clearly defined, the Society organized its members, sections, and committees. It received the hearty coöperation of the scientist, manufacturer, the fixture designer, and the gas and electric central station men. The coöperation of all users was represented in the demand for improved installations. Many other professions became interested and offered support to the movement—the architect, ophthalmologist, optician, and those interested in civic and municipal improvements.

During nearly eleven years of activity the Society has aided materially in the present high development of lighting. The indirect and semi-indirect systems of illumination, the use of "daylight" illuminants and special color devices, the effective distribution of light from the modern lamps and shades, the development of flood-lighting and spectacular illumination are some of the things fostered by the Society. It should be emphasized that the Society stands for illumination and is strictly neutral and impartial as between the various artificial illuminants.

Among important investigations carried on by technical committees of the Society may be mentioned those of the Committees on Nomenclature and Standards, Glare, Research, Lighting Legislation and Education.

Through the coöperation of the Committee on Lighting Legislation, modeled on a code prepared by this Committee, several states have enacted legislation on this subject.

At the present time the Society has committees preparing reports on the following subjects: Automobile Headlamps, Railway Vehicle Headlamps, Street Lighting, Diffusing Media, School Lighting, Lectures to Architectural Students.

There are five sectional organizations of the Society. These sections hold regular meetings in their respective localities—New York, Philadelphia, Pittsburgh, New England, and Chicago. The membership of the Society numbers 1,300.

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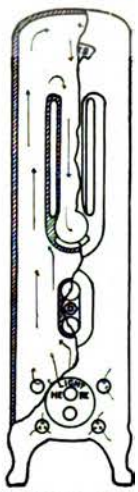
Ventilating Gas Radiators—
—Hawks System

A flexible system of individually gas-fired radiators, trim in appearance, resembling a steam installation. Use iron pipe or tile vents. Draw fresh air continually into the room like a fireplace. Advantages: clean fuel; quick, economical, convenient heat, always ready. Construction simple, with no parts to get out of order. Efficiency high because of long circulation path for vented gases (see cut). Burner enclosed within radiator. Operate by natural draft, without fans. No water, steam, valves or gauges. Types in heavy cast iron, or 22-gauge, Rust-Resisting Armco Iron. See page 1318 Sweet's catalogue 1917, or drop us a card for further particulars.

6-Section No. 52, Cast Iron, 30 feet radiation



Section to show long circulation path

THE HAWKS LINE OF INDUSTRIAL APPLIANCES

HUGO MFG. CO.

DULUTH - - - MINN.

Hydrated LIME PLASTER

Quiet and Sanitation

Two important subjects for consideration in nearly every type of building construction are quiet and sanitation. Interior plastering is a great factor in each.

QUIET: It is the interior plastering which largely determines the noises due to the reflection and transmission of sound. Recognized authorities on acoustics agree that material containing a large number of fine pores has a higher coefficient of sound absorption than one which is dense and brittle. *Hydrated Lime Plaster* is porous in its hardened state and makes an ideal sound-deadening material.

SANITATION: *Hydrated Lime* is a slow-setting plaster, which gives the mechanic sufficient time to straighten and trowel the wall to a true and even surface. The true and even finish permits the interior trim to rest on a surface free from unevenness, doing away with cracks and crevices which collect dust and vermin.

Many high-class architects are using *Hydrated Lime Plaster* as their standard plaster for scratch and brown coats.

Complete information concerning the application of *Hydrated Lime Plaster* will be sent upon request.

Hydrated Lime Bureau

of the National Lime Manufacturers' Association

Arrott Building, Pittsburgh, Pennsylvania

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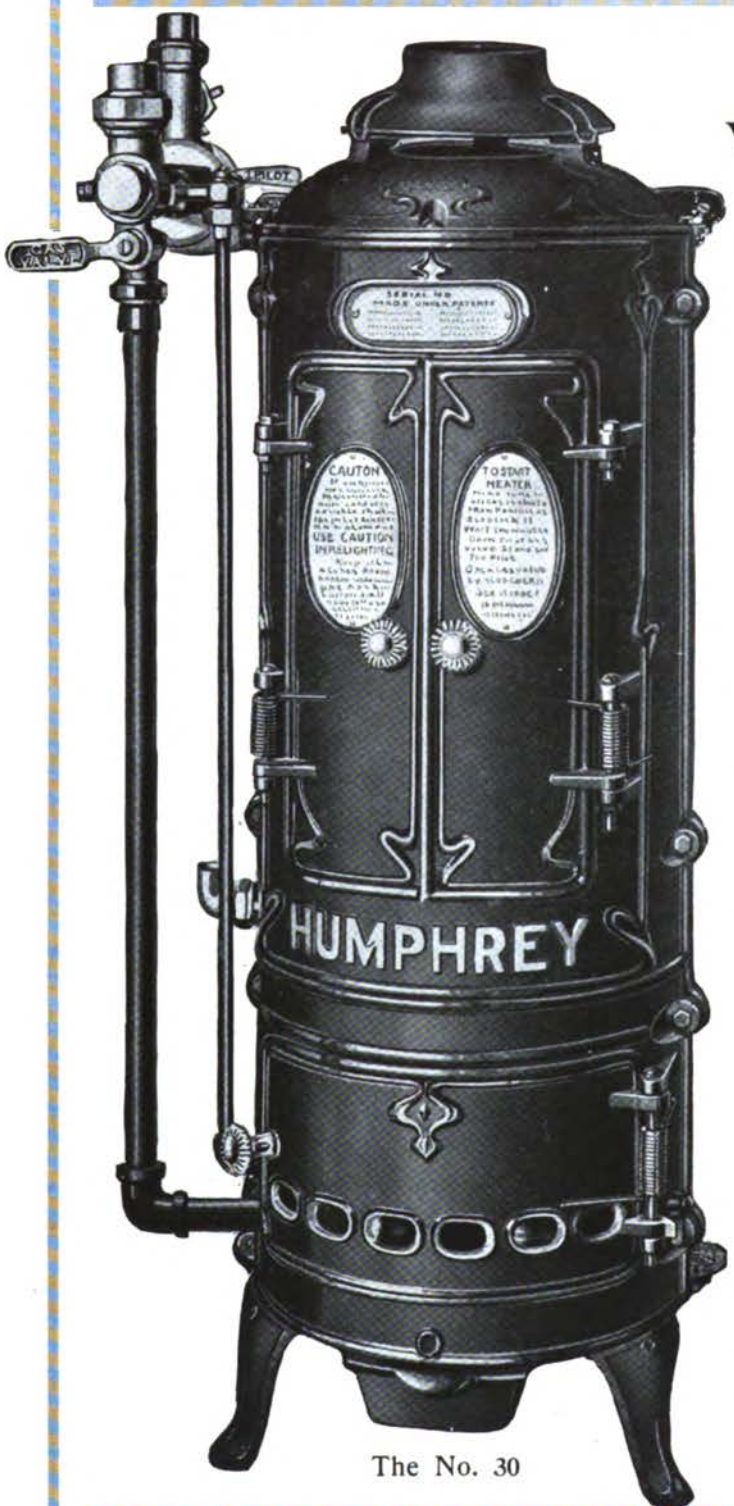
HUMPHREY



The No. 30

Pressure Valve Type Without Thermal Control

For Cottages, Bungalows, and other places of average demand

This heater should be specified where the cost of our A-type heater would be beyond the price limit of a prospect. It has every good feature of the A-type, except the thermal control.

This lack, however, is made up to a great extent by the Humphrey patented two-point suspension piston in the water valve—which eliminates "valve sticking," and the patented, adjustable, automatic by-pass temperature control which prevents excessive temperature in a very small flowing stream.

Details of the Humphrey No. 30

Height	40 inches
Diameter including valve	21 inches
Diameter Copper Coil	¾ inch
Length Copper Coil	63 feet
Size Flue Pipe	5 inches
Number of Burners	12
Gas Supply from Meter	1 inch
Size Gas Meter	20 feet
Burns Gas Per Minute	3 cu. ft.
Heats per minute 63° rise	3 gallons
Supply residences not more than	3 faucets

GAS WATER

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AUTOMATIC

Constructional and Installation Information Pertaining to the Humphrey

SIZES, DIMENSIONS, AND CAPACITIES OF THE TYPE A

Heater No.	Height in Inches	Diameter Shell only	Diameter Shell including Valve	Diameter Copper Coils, inches	Length Copper Coils, feet	Size Flue Pipe, inches	Number of Burners	Gas Supply from Meter, inches	Size Gas Meter, Lights	Gas Consumed per min., cu. ft.	Heats per min. 63° raise, gals.	Will supply home with not more than
2A	39	15	16	5/8	60	4	9	3/4	10	2	2	2 Faucets
3A	43	19	25 1/2	3/4	74	5	12	1	20	3	3	3 Faucets
4A	46	20	28 1/2	3/4	100	6	16	1	30	4	4	8 Faucets
6A	52	22	30 1/2	1	124	6 1/2	24	1 1/2	45	6	6	14 Faucets
8A	56	26 1/2	35 1/2	1	156	8	32	2	60	8	8	22 Faucets

We recommend use as follows:

No. 2A. Capacity, 2 gallons hot water per minute. Suitable only for places of very light demand. With only one or two faucets to be supplied. No. 2A can be used only with city water pressure or compression tank pressure.

No. 3A. Capacity, 3 gallons hot water per minute. Suitable for small dwellings, having only bathroom and kitchen connections for hot water.

No. 4A. Capacity, 4 gallons hot water per minute. This is the standard size, and is the heater we recommend for the modern home, having bathroom, kitchen and laundry.

No. 6A. Capacity, 6 gallons hot water per minute. This size is adapted for dwellings having two or three bathrooms, butler's pantry, and one or more hall or bedroom lavatories.

No. 8A. Capacity, 8 gallons hot water per minute. This size is suitable for large dwellings having three to six bathrooms, butler's pantry, several hall or bedroom lavatories, etc. Is also well adapted for small hotels, restaurants, small apartment houses.

INSTALLATION

Size. Capacity to meet the maximum demand.

Location. Close as possible to the most frequently used faucet. Avoid long runs of hot water piping. Insulate the hot water riser and hot water lines from heater. This reduces gas cost of operation and improves service.

Water Pressure. Twenty pounds pressure at the highest faucet.

Cold Water Supply. Larger than the inlet connection of heater and taken direct from the cold water main.

Gas Supply. Direct from meter to heater and should be large enough to supply the amount required by the size of heater used.

Hot Water Outlet. Should connect heater outlet with nearest point in hot water line.

Flue Connection. An independent connection to a chimney with a good draft should be made.

Complete information on any specific feature or installation problem furnished immediately upon request.

HUMPHREY CO. (Div. Ruud Mfg. Co.), KALAMAZOO, MICH.

HEATERS

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Institute Publications

(*Of a Permanent Nature*)

The Journal of the American Institute of Architects. Monthly, 50 cents, $3.50 yearly.

The Monograph on the Octagon. $12.50.

The Standard Contract Documents.

The Standard Form of Agreement between Owner and Architect (Percentage Basis).

Circular Relative to the Size and Character of Advertising Matter.

A Circular of Advice Relative to Principles of Professional Practice. The Canons of Ethics.
A. I. A. Document, Series A, No. 107

A Circular of Advice and Information Relative to the Conduct of Architectural Competitions.
A. I. A. Document, Series A, No. 114

Standard Form of Competition Program.
A. I. A. Document, Series A, No. 115

Proceedings of the Fiftieth Convention (1916).
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Annuary (1917). A. I. A. Document, Series A, No. 122

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Schedule of Proper Minimum Charges.
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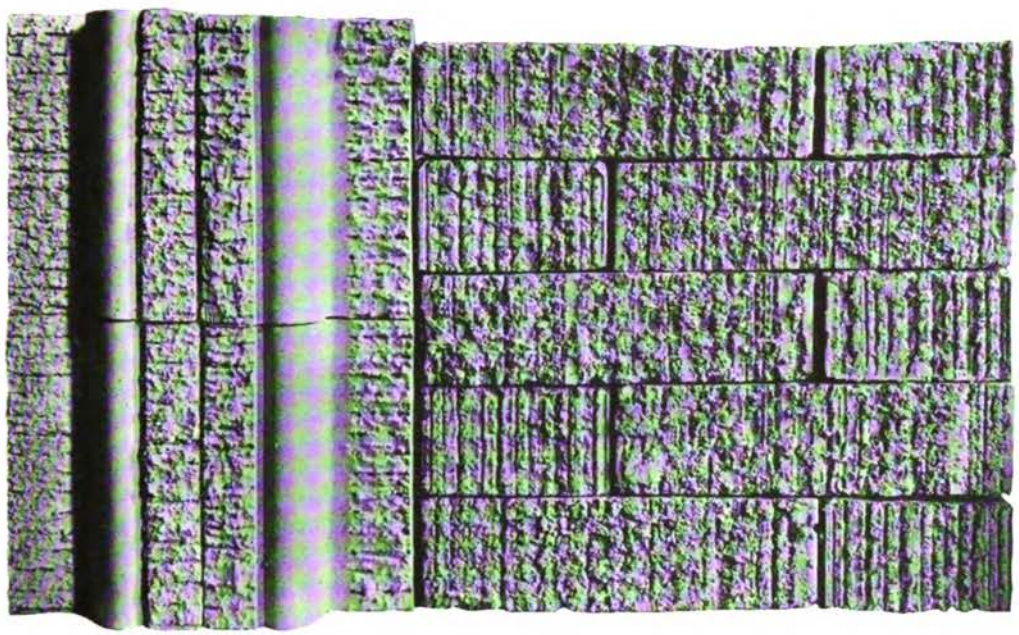

Architectural Terra Cotta of New Colors and Textures

With the wide use of Texture Bricks why should we not have ARCHITECTURAL TERRA COTTA of like color and finish?

Recently I have been called upon to produce work of this nature. The result was so pleasing that I forthwith decided to introduce a new line of colors and finishes. The illustration before you is only one of the many textures that I will offer to the trade in the very near future.

Fortunately, as a dealer in BRICKS, having at my disposal plants that produce all the shades and textures, and, as a manufacturer of ARCHITECTURAL TERRA COTTA, I am enabled to furnish without delay the bricks and ARCHITECTURAL TERRA COTTA, from my own plants. This assures, without experiment, a monotone or combination of colors such as has never before been presented with these materials.

This is to announce that these new finishes now being produced will be shown in color and texture in plate form as soon as they can be received from the press. Pending the issue of these plates in pamphlet form a call to any of the offices will bring due response.

O. W. KETCHAM

Manufacturer of

Architectural Terra Cotta—Brick—Roofing Tile

Master Builders Exchange, 24 South 7th St., Philadelphia

WASHINGTON
Home Life Building

BALTIMORE
Baltimore American Building

NEW YORK
1170 Broadway

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there is a suitable KOHLER Bath Tub, Lavatory and Sink. You are sure to meet the needs of your client by specifying

KOHLER WARE

always of one quality—the highest

The beauty of the enamel, the hygienic designs and the excellence of construction are notable features of the plumbing ware produced by KOHLER OF KOHLER.

The attractiveness of any home is enhanced by the "Viceroy," America's foremost built-in bath.

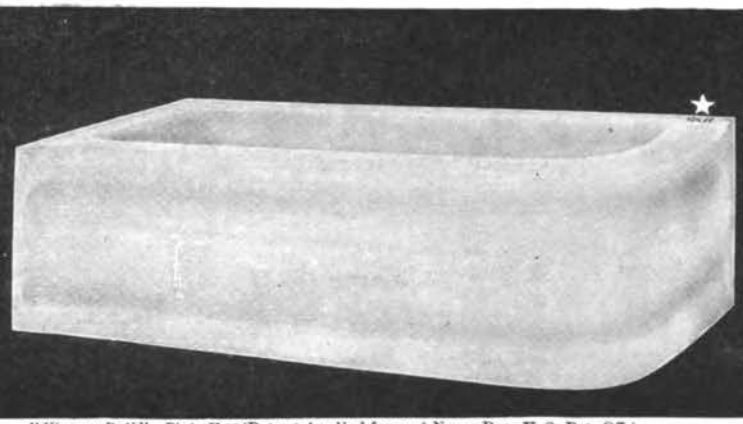
It is of genuine *one-piece* construction, easily installed and suitable in price for all classes of houses and apartments.

Our illustrated booklet, "KOHLER OF KOHLER," sent free upon request, should be in the working library of every architect.

KOHLER CO. *Founded 1873* Kohler, Wis.

Boston New York Philadelphia Pittsburgh Detroit Indianapolis Chicago St. Paul St. Louis
Houston San Francisco Los Angeles Seattle London

★ *The stars indicate the location of the KOHLER permanent trade-mark in faint blue.*



"Viceroy Bath"—Plate V-14 (Patent Applied for and Name Reg. U. S. Pat. Off.)

"Columbia" Lavatory—Plate K-305-A

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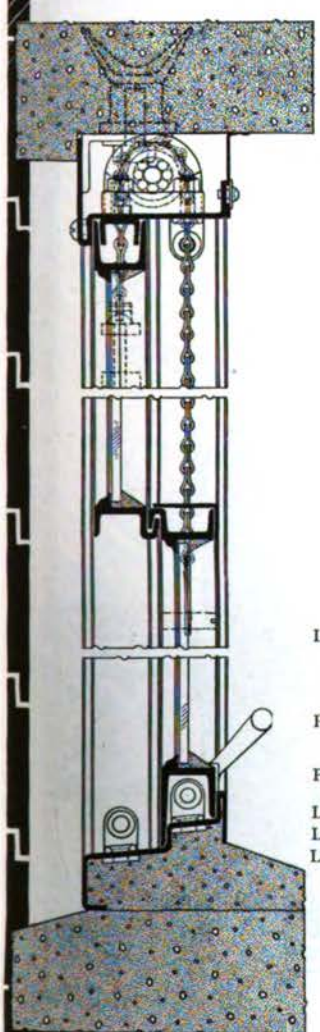


One way to design a thing is to make a separate part for each function, and patch them together.

The other way is to design each part to perform several functions. For example—

LUPTON STEEL SASH
COUNTERBALANCED TYPE

is made up of ***only five*** sections, yet is the tightest and most durable sash of its kind made.

The sill has a ***double*** rise to exclude weather, and the bottom sash is rolled to fit it.

The interlocking meeting rails require no weather strips.

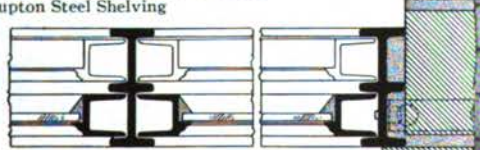
Finally, each sash is made into a single unit by *welding* the joints.

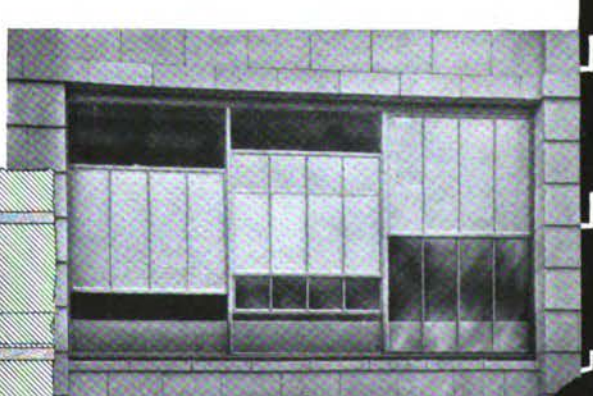
This ability to make a ***few*** specially-designed parts do the work of ***many*** is the acid test of Lupton quality.

Our new Catalog No. 9 describes fully this and other Lupton Products.

David Lupton's Sons Company
Westmoreland and Trenton Ave., Philadelphia, Penna.

Lupton Steel Sash
Pivoted Factory Type
Counterbalanced Type for Factories
Counterweighted Type for Offices
Power House Type
Pond Continuous Sash
For Pond Truss, Sawtooths, Monitors and Side Walls
Pond Operating Device
For long lines of Sash
Lupton Rolled Steel Skylight
Lupton Steel Partition and Doors
Lupton Steel Shelving





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Your needs—our study

In finishing wood, you use varnish to get depth of tone, an exquisite finish and to preserve the wood—its beauty; its very life.

To satisfy your critical eye and your desire to preserve your work is our two-fold aim. To this end, we gather raw materials from the ends of the earth and our chemists work out the problem of fitting them for their work of preservation.

Murphy Varnish

"the varnish that lasts longest"

is made by slow and painstaking processes which are carried forward with scientific accuracy. In this way only, can we produce varnish that will intensify all the natural beauty of the wood, give it the refinement of effect you expect, and at the same time protect it from moisture, dampness and hard knocks for many years.

Our principal architectural products are

Murphy Transparent Interior
Murphy Transparent Floor
Murphy Transparent Spar
Murphy Nogloss Interior
Murphy Semi-Gloss Interior
Murphy Univernish
Murphy White Enamel
Murphy Enamel Undercoating

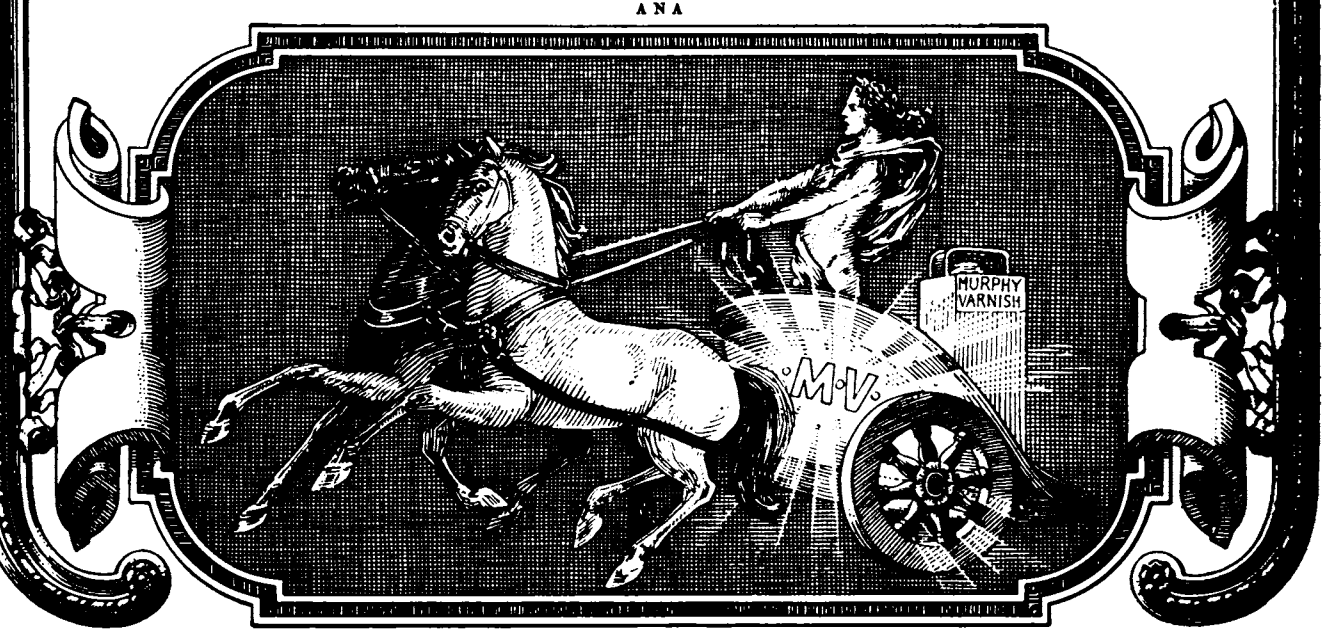
Murphy Varnish Company

Franklin Murphy, jr., President

Newark New Jersey Chicago Illinois

Dougall Varnish Company, Ltd., Montreal, Canadian Associate

ANA



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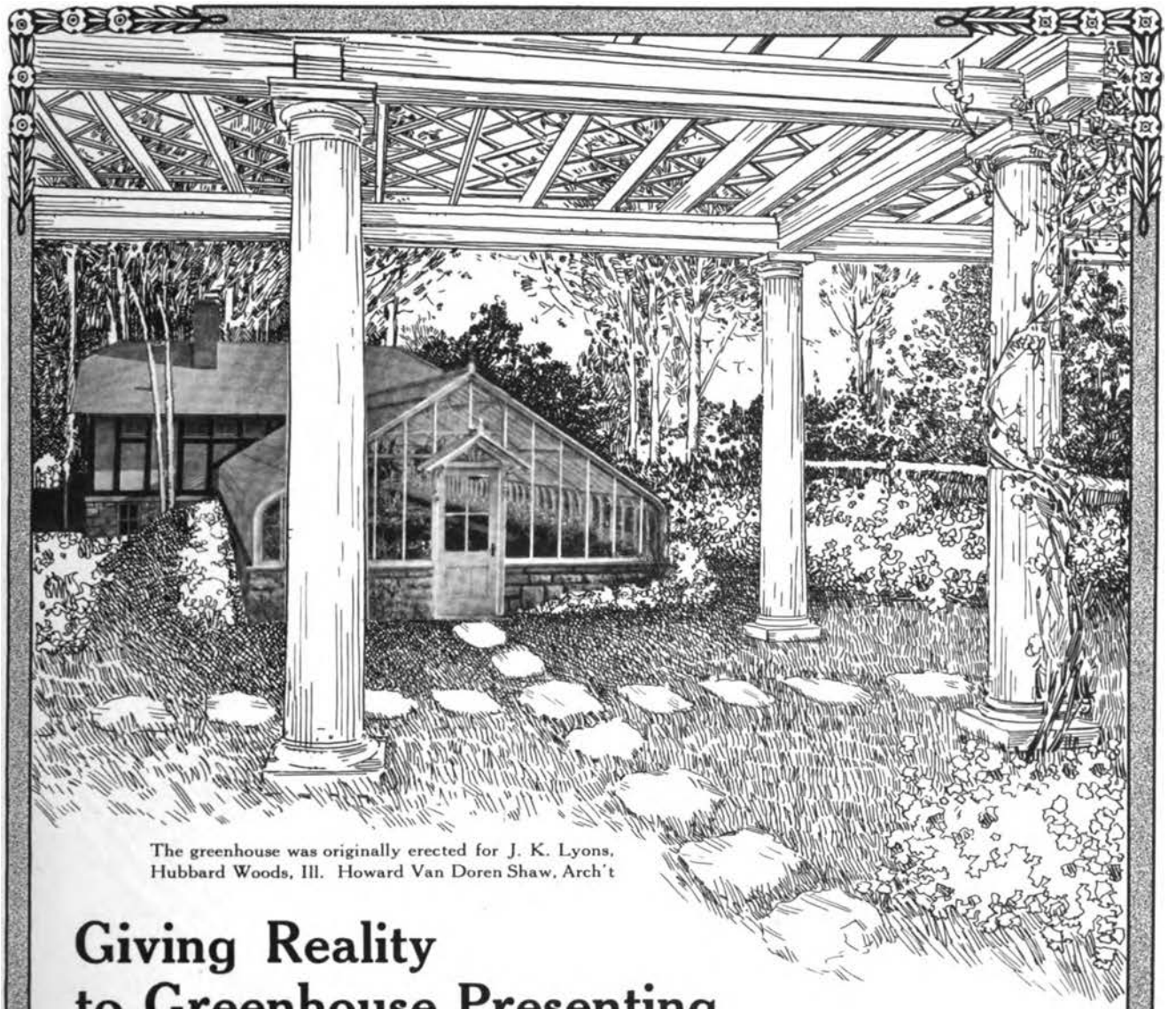

The greenhouse was originally erected for J. K. Lyons, Hubbard Woods, Ill. Howard Van Doren Shaw, Arch't

Giving Reality to Greenhouse Presenting How We Can be of Distinct Service to You

AMONG your clients you may have some lacking imagination, who find it difficult to picture in their minds how a certain greenhouse will look on their grounds.

As a possible solution, the following instance may interest you: Looking through our catalog, a prospect selected the house above, but was not sure it would look well in relation with the pergola selected location.

By way of convincement, we took a cut-out photo print, and pasting it on white drawing bristol, sketched in the pergola as you see it.

Mayhap we can be of similar service to you.

Our Special Architects' Service Department is always cordially at your service.

Lord & Burnham Co.

Builders of Greenhouses and Conservatories

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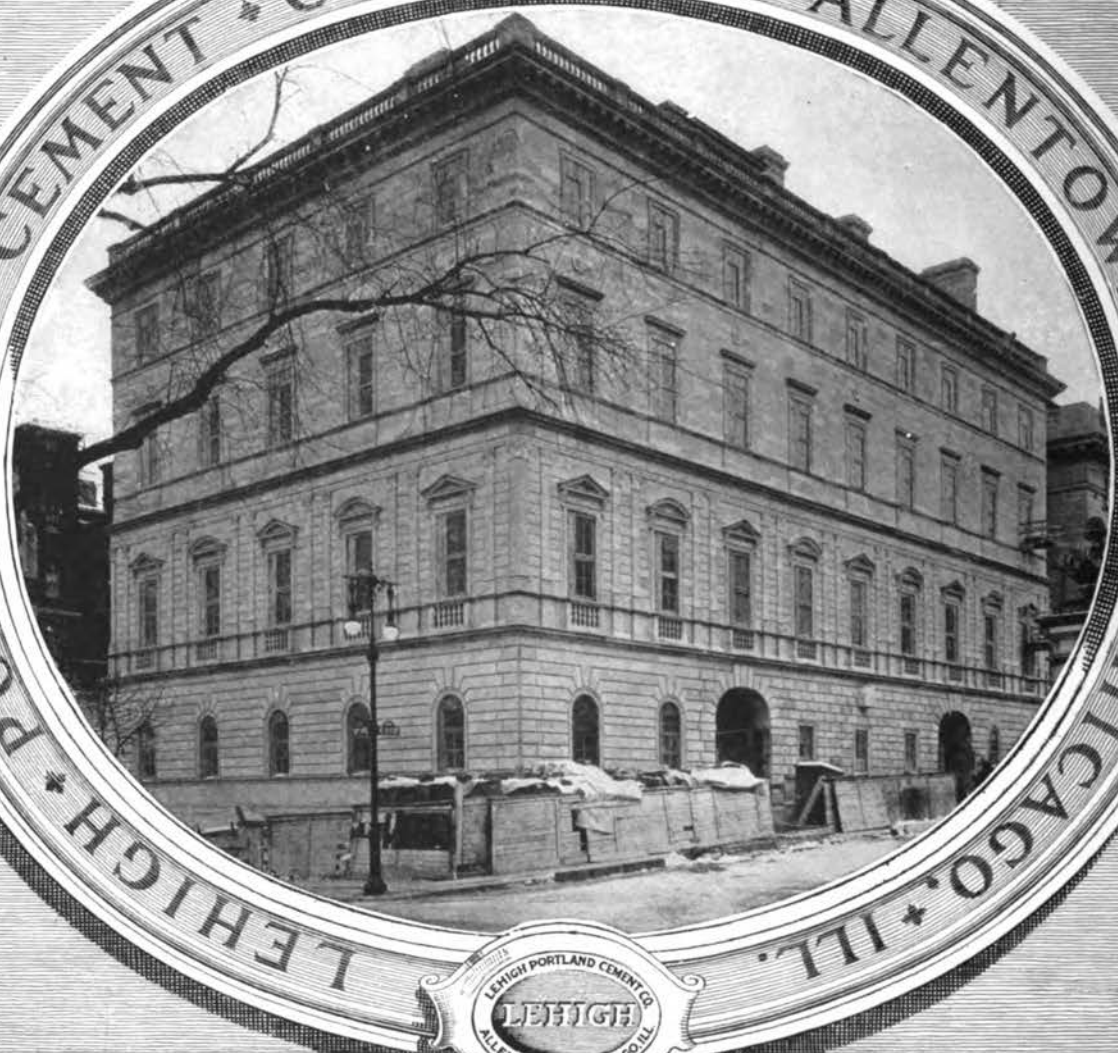

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OTTO KAHN RESIDENCE, NEW YORK CITY

C. P. H. GILBERT ARCHITECT THOMPSON-STARRETT COMPANY, CONTRACTORS LEHIGH CEMENT USED

LEHIGH CEMENT

The use of concrete in residence construction, either by itself or in combination with other facing material, offers many striking advantages. Its non-conductivity and its water-proofness make for comfort; its fire-safeness makes it desirable in the humblest as well as the most magnificent house.

LEHIGH PORTLAND CEMENT COMPANY

Member of the Portland Cement Association

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The

PFAUDLER

Glass Enameled Steel LAUNDRY CHUTE

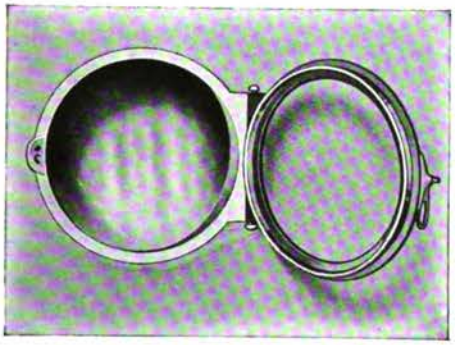
***emits no foul odors;* for it can be thoroughly cleansed.**

Soiled linen in a hospital usually infects its conveyor, and often deposits foul matter.

That these may be quickly removed, the Pfaudler Chute is lined with glossy, non-absorptive, fused-in Glass Enamel, and is equipped with a flushing ring at the top which washes infections into the sewer whenever necessary.

Architecturally and Sanitarily Correct.

Let us send you Details of Construction and Operation.



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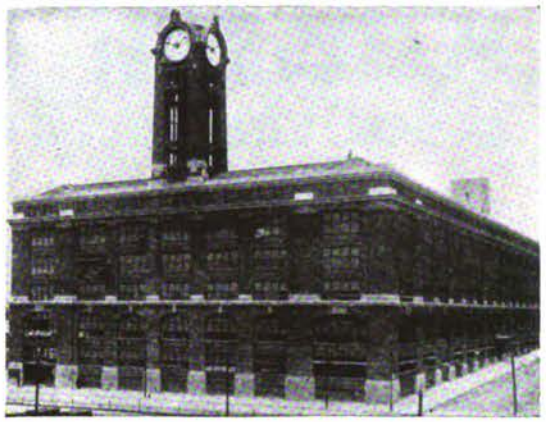

Brewster Automobile Plant
Floors protected with R. I. W. Cement Filler and Floor Paint

Detail!

THOSE six letters spell the most important word in the architect's lexicon! To the architect, it means his reputation—to the owner, it determines whether his building shall be a profitable investment or a costly white elephant.

R.I.W. CEMENT FILLER & CEMENT FLOOR PAINT

REMEMBER IT'S WATERPROOF — REG. U.S. PAT. OFF. — PATENTED AS TO PORTLAND CEMENT FLOOR

effectively take care of one detail. Their use assures both architect and owner that the floors will never be a source of complaint—that oil, water, and acids cannot soak into the cement, and that the pores will be scientifically sealed.

Dusting, too, is prevented. A surface treated with R. I. W. Cement Filler and Cement Floor Paint will not wear away in the fine grit that ruins stock and machinery, and which loses tenants. Supplied in a wide range of colors, these preparations make cement floors look better, wear better, and give more satisfactory service all around.

Write for descriptive literature, Dept. F-1

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Technical and Scientific Paint Makers Since 1848
320 Fifth Avenue, New York
Works: New York London, Eng. Toronto, Canada

R.I.W.
REMEMBER IT'S WATERPROOF
REG. U.S. PAT. OFF.
STEEL NEED NOT RUST!
WOOD NEED NOT ROT!
NOR CONCRETE DUST!

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IN HOUSE DRAINAGE

CAST IRON VENT LINES — CAST IRON HOUSE DRAINS — CAST IRON HOUSE SEWERS

The Cast Iron Soil Pipe in this composite group of New York Buildings—hotels, apartment houses, office buildings, and loft buildings—will last longer than the buildings themselves

Why CAST IRON Soil Pipe should be used in the Building

Wrought Iron and Steel Pipe, even though coated with tar, paint, or cement—or galvanized, cannot resist rust action.

Wherever other than Cast Iron Soil Pipe drains and vents are used, the dangerous menace of leaking sewage and drain air is bound to exist

Why CAST IRON Sewers are Best

Vitrified pipe is easily broken by shock and strain. Tree roots attracted by moisture choke vitrified sewers causing stoppage and pollution

CAST IRON SOIL PIPE is made in long lengths. Where a sanitary test is made, it is installed in less time and at less cost than pipe made in two-foot sections.

CAST IRON SOIL PIPE—underground—is permanently tight and lasts for centuries.

A-1025

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There are various materials used in construction which, because of the important uses to which they are to be put, require extended tests and careful analyses by experienced workmen with highly specialized equipment.

Robert W. Hunt & Company maintain Cement, Physical and Chemical Laboratories with specially trained chemists and testers at each of their main offices, also experienced inspectors at the principal cement producing centers to secure for their clients the best data regarding the merits of building materials as well as of a variety of other materials of interest for all engineering purposes.

CEMENT LABORATORIES

For all users of cement Robert W. Hunt & Company offer their services.

The inspection and testing of cement should be made at the mills or in warehouses and the strongest argument substantiating the need of testing and inspection of cement is the unconditional requirement of the standard specifications for Portland cement adopted by the American Society for Testing Materials and approved by the American Society of Civil Engineers which says: "All cement shall be inspected."

Such a recommendation or requirement would not be adopted by two such authoritative bodies of engineers and cement chemists without adequate basis therefor and it may be said that practical experience in the use of Portland cement had taught them that such a specification was necessary.

Of the value of Portland cement when "up to specifications" too much cannot be said. Of the danger of its use when unfit, also, too much cannot be said, and whether it is fit and therefore of great value or unfit, and therefore of infinitely less value than nothing, can only be determined by the tests prescribed.

The testing of the aggregate, also of prime importance, should be made to determine suitability; the general character of the material, the grading and the cleanness are most important. Determinations can also be made to obtain the best possible and most economical mixtures.

PHYSICAL TESTING LABORATORIES

The physical testing laboratories contain all standard testing equipment including tensile and compression testing machines of capacity from 200 pounds to 300,000 pounds, vibration testing machines, abrasion testing machines, complete metallographic apparatus, etc.

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CHEMICAL LABORATORIES

At each chemical laboratory the equipment is complete for varied lines of materials, and for research work. The chemists are selected with great care and each laboratory is in charge of a chemical engineer of wide experience. Thoroughness, accuracy, and promptness are assured.

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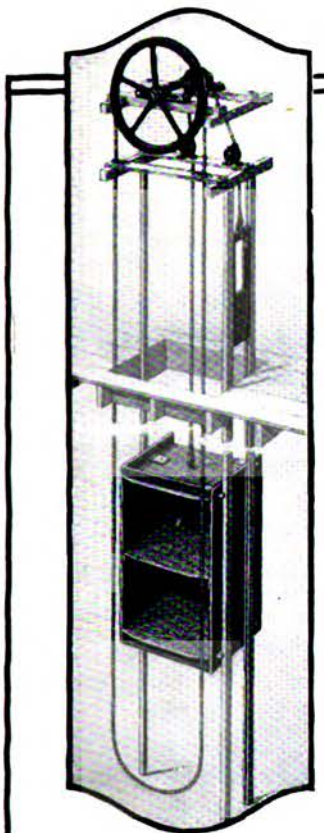

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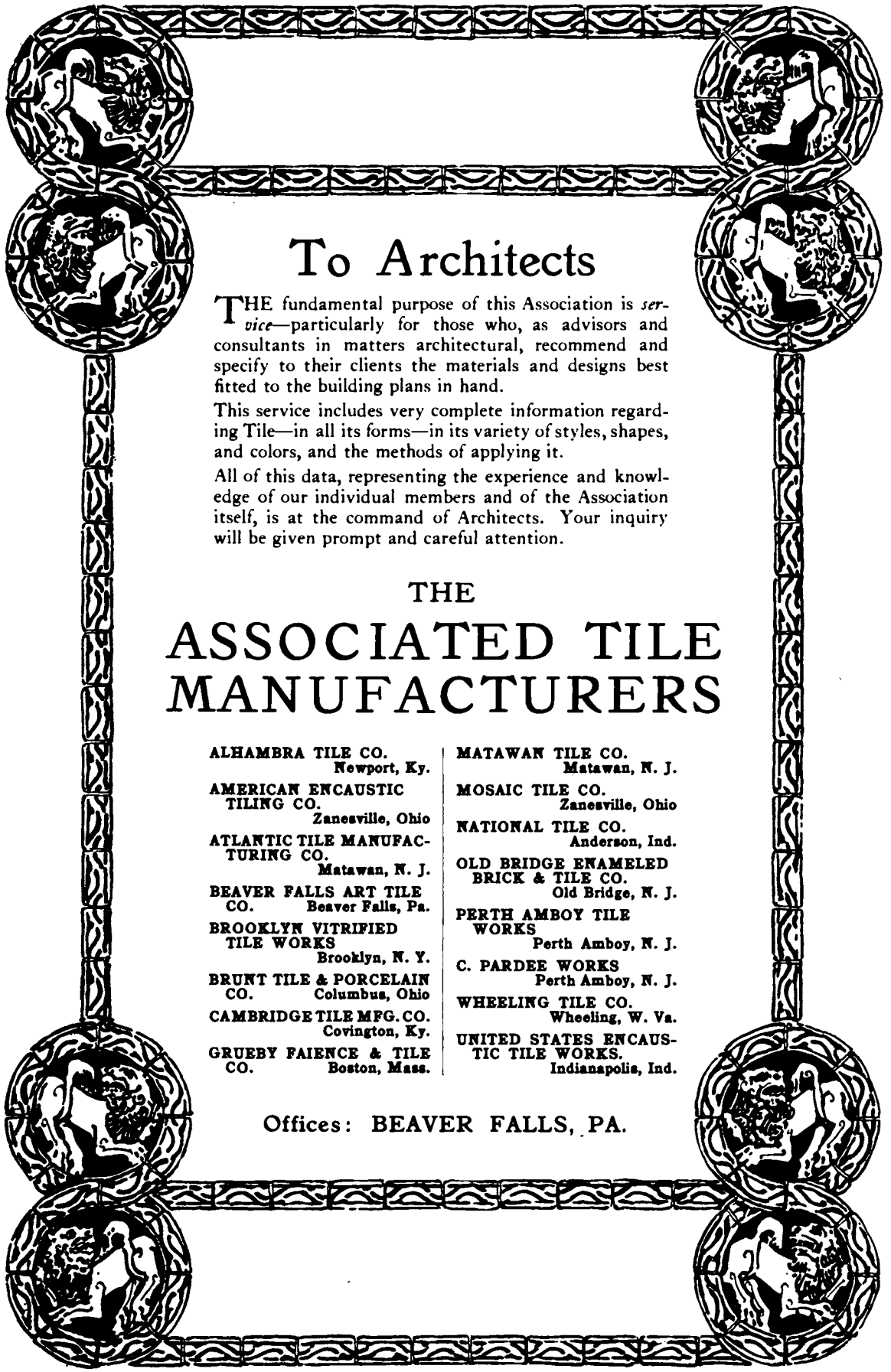

To Architects

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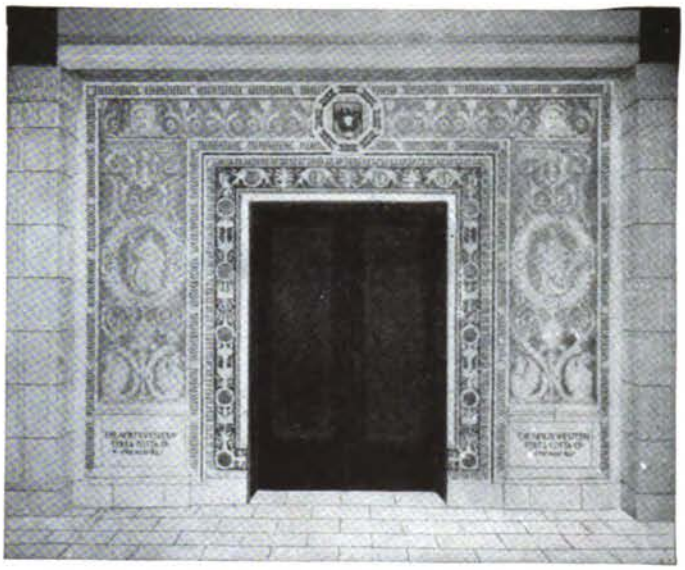

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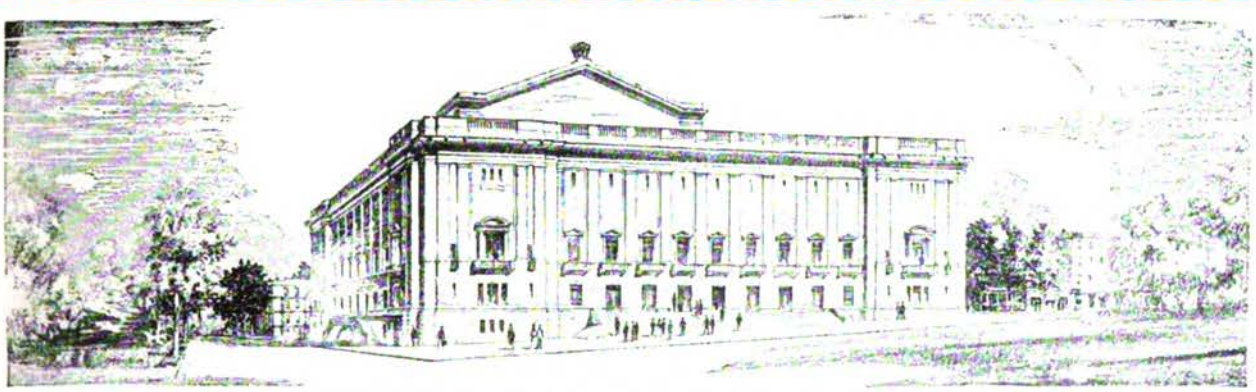

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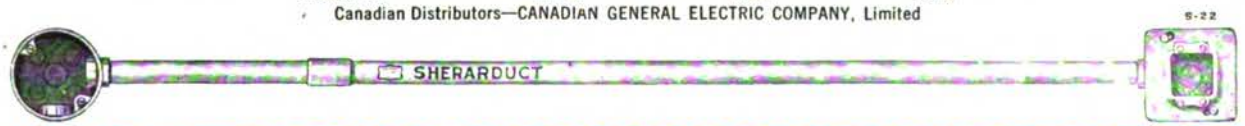

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slates

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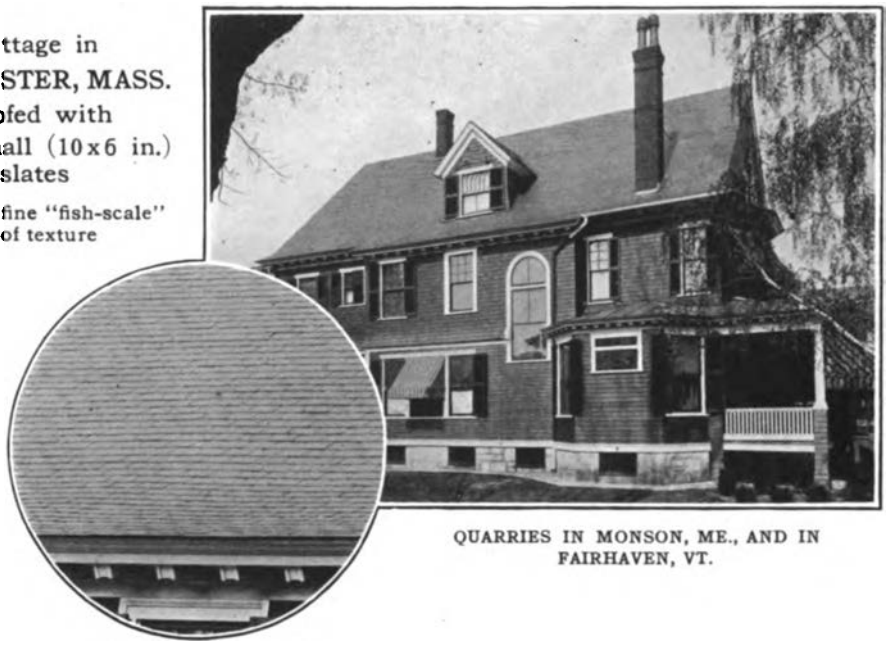

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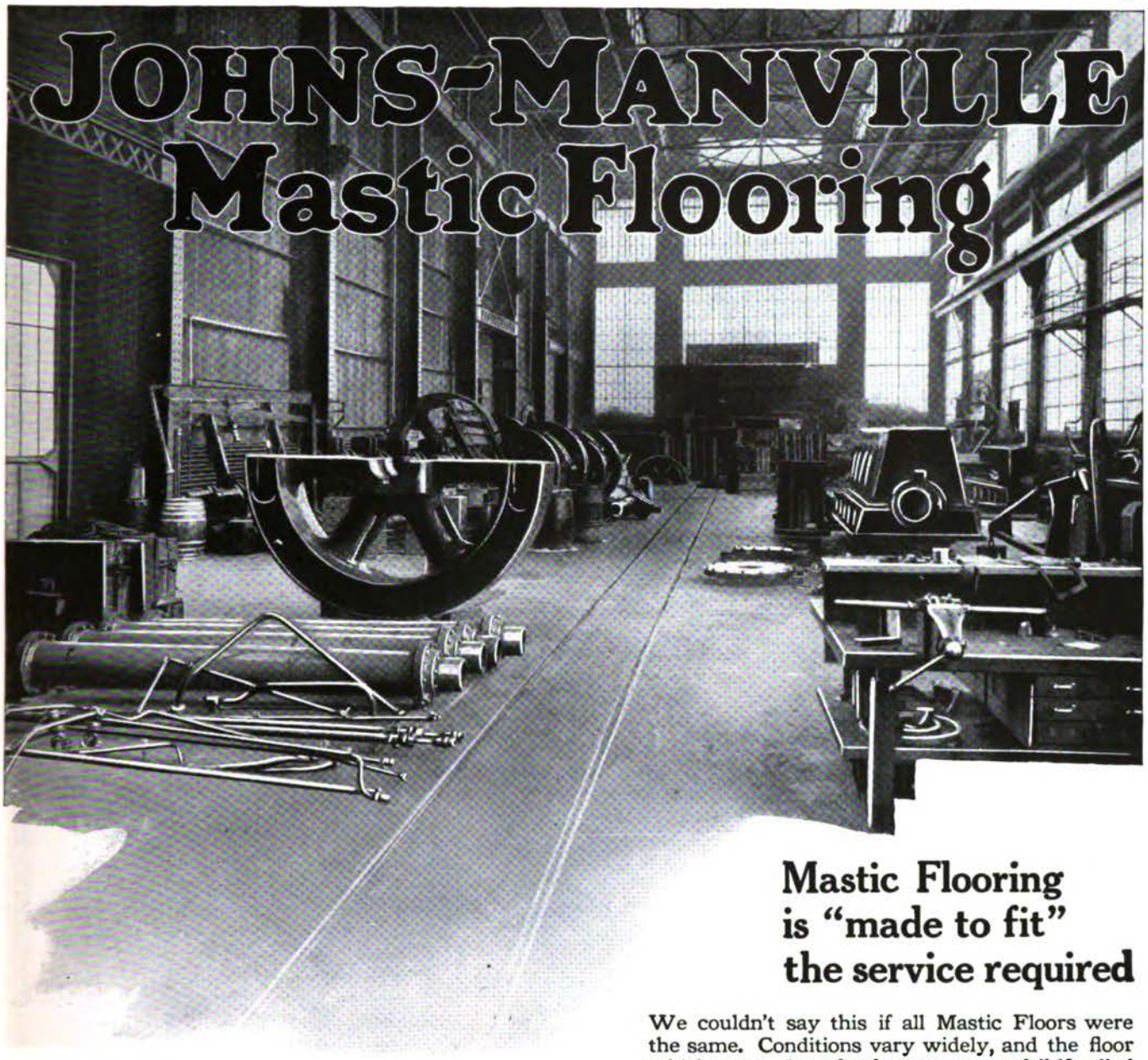

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We couldn't say this if all Mastic Floors were the same. Conditions vary widely, and the floor which serves best for foot wear may fail if called on to withstand the effects of heavy machinery or hard trucking.

For the very reason that it is *not* a stock or standardized material, Mastic meets a wide range of flooring requirements. In every case, it is designed and laid to specifications drawn by our engineers after a study of your plant conditions. By varying and manipulating the component materials, we can give you just the degree of hardness or resiliency that will best meet your needs—just the composition that will give the longest wear at the lowest maintenance cost. You know how big a part the floor can play in increasing output or profits and therefore fully appreciate the saving that this system of special flooring design makes possible.

Waterproof and non-absorbent, Mastic will neither originate nor hold dust and it affords a sure, resilient footing that lessens fatigue and reduces noise. For new floors, or laid over your present floor, if desired, complete by our own contract department. Let us demonstrate with a small test area in your plant.

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Illustrating a three-car installation in a ten-story building. Note Car No. 1 first floor, Car No. 2 fifth floor, Car No. 3 tenth floor.

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A Practical, Reliable and Economical Elevator Signal System

The popularity of a modern office building or apartment house is oftentimes determined by its Efficient Elevator Service.

The McNABB SIGNAL SYSTEM

will bring about the desired efficiency.

It has the approval of some of the best authorities on elevators and elevator service, and of ALL who have seen it in operation.

WHAT IT WILL DO

Do AWAY with the *starter*.

LOCATE definitely for each *operator* the positive position of every car.

REDUCE to a minimum the time consumed at a landing.

PREVENT duplication of stops at one floor.

PROPERLY space cars and prevent overcrowding.

PREVENT an indolent *operator* from trailing a loaded car, thereby distributing traffic equally and bringing about perfect running order.

PROVIDE the *supervisor* with means of communication with each *operator*, and information as to the exact location of each car in the building.

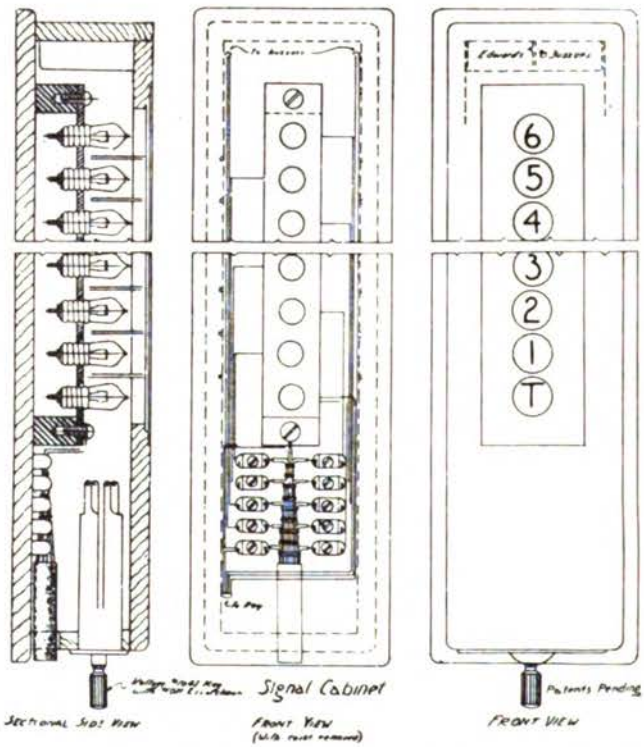
DO AWAY with floor numerals.

HAS the effect of making *passengers* call their floor upon entering the car.

FURNISH a check on the *operators* and insure better service on their part.

IN EVERY WAY MAKE BETTER ELEVATOR SERVICE.

DETAILS OF SIGNAL CABINET



Each car is provided with a Signal Cabinet as shown in the above drawing, which operates automatically, showing the exact location of all the cars by means of appearing and disappearing lights.

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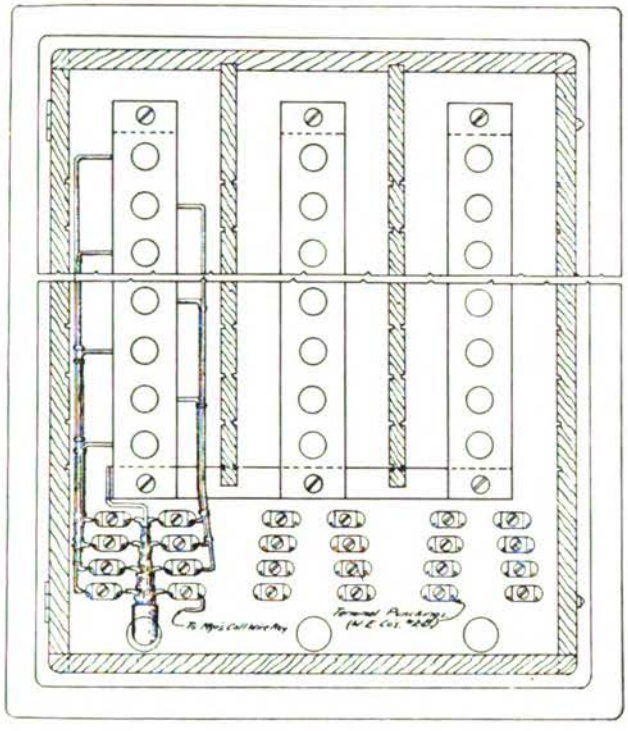
DETAIL OF SUPERVISOR'S CABINET



SECTIONAL FRONT VIEW
Supervisors Cabinet

SUPERVISOR'S CABINET

This may be located in any desirable place in the building, and enables the manager or his assistant to tell at a glance the exact location of each car.

By means of an auxiliary signalling system intercommunication between the manager and the operators is established.

The entire system is very simple and its maintenance cost is almost negligible.

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The contact device is operated by a small cable line extending up the elevator shaft. Through the agency of reduction gears operated by the car hoist the cable line is given a limited movement in the direction in which the car is moving. In a twenty-story building the movement of this line will not exceed two feet in either direction. The contacts are not over two inches square, each, and may be located at any convenient point in the elevator shaft. They do NOT have to be located at each floor.

All contacting and wearing points are made of phosphorbronze and will last for years.

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Number of passenger elevators in building.
Number of elevators in each battery.
Number of floors served by each elevator.
Number of elevators serving same floor.

Supervising Cabinet in Manager's Office

WAKEFIELD & McNABB · Dallas, Texas

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Standard in Size, in Quality, in Satisfactory Service.

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Essential needs in sash-pulleys are charted and the *Columbian* sash-pulley that best meets the specific need is indicated.

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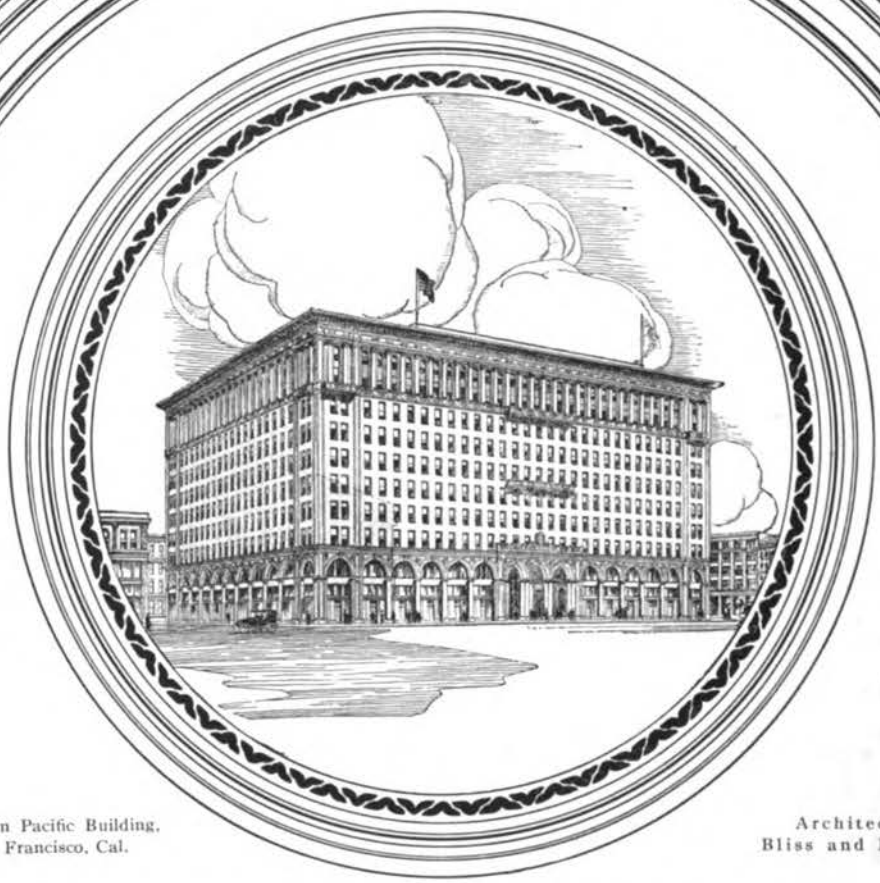

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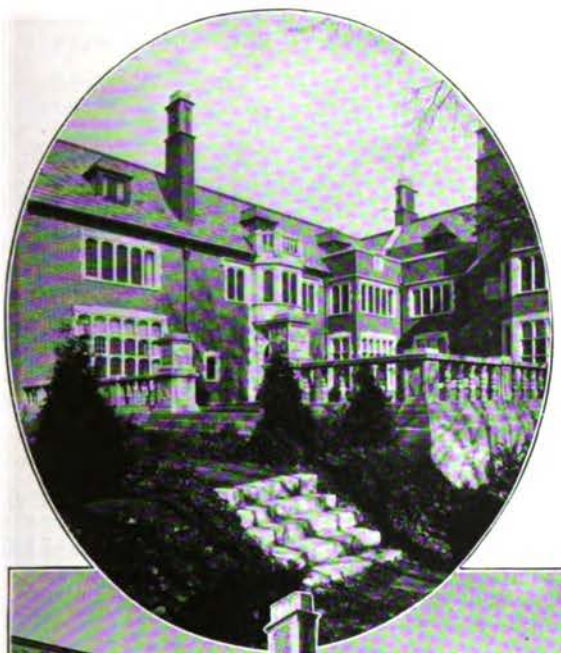

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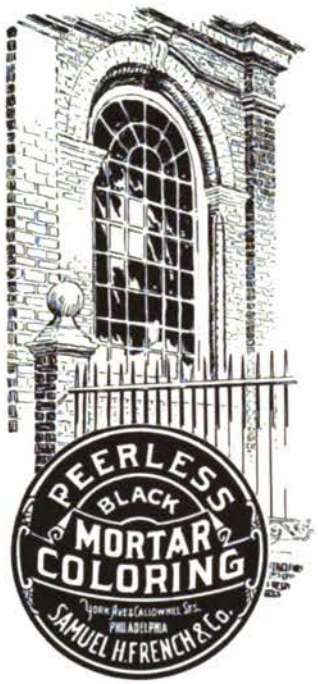

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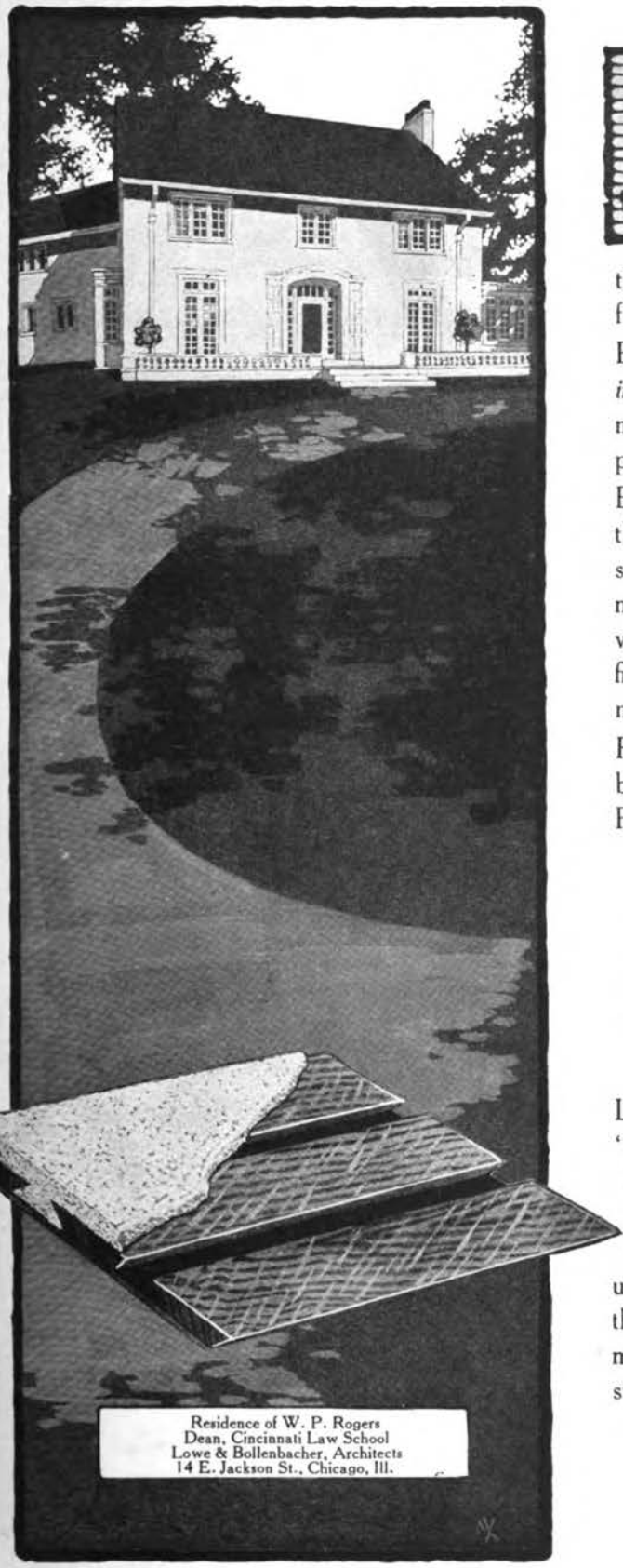

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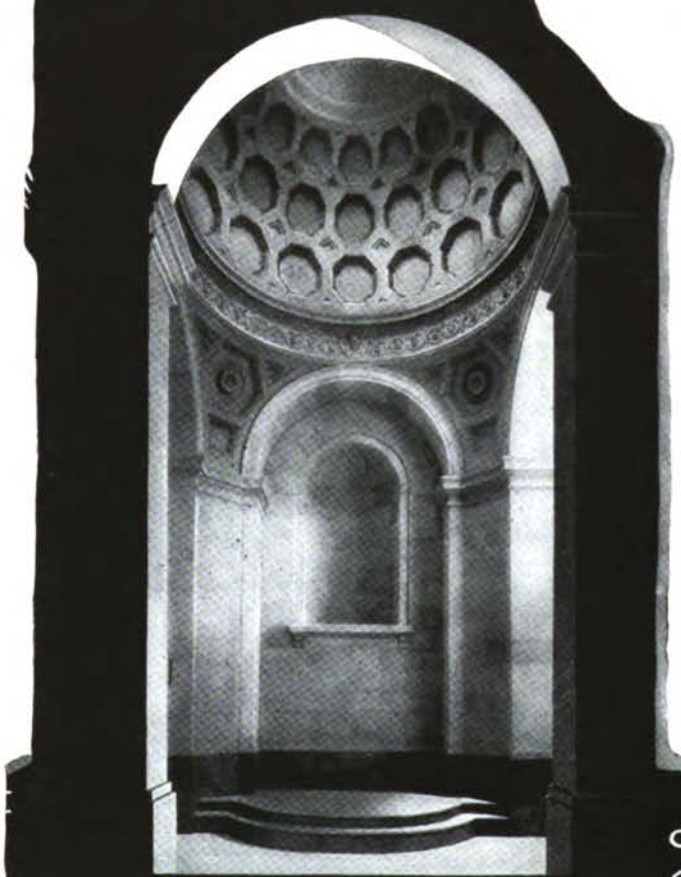

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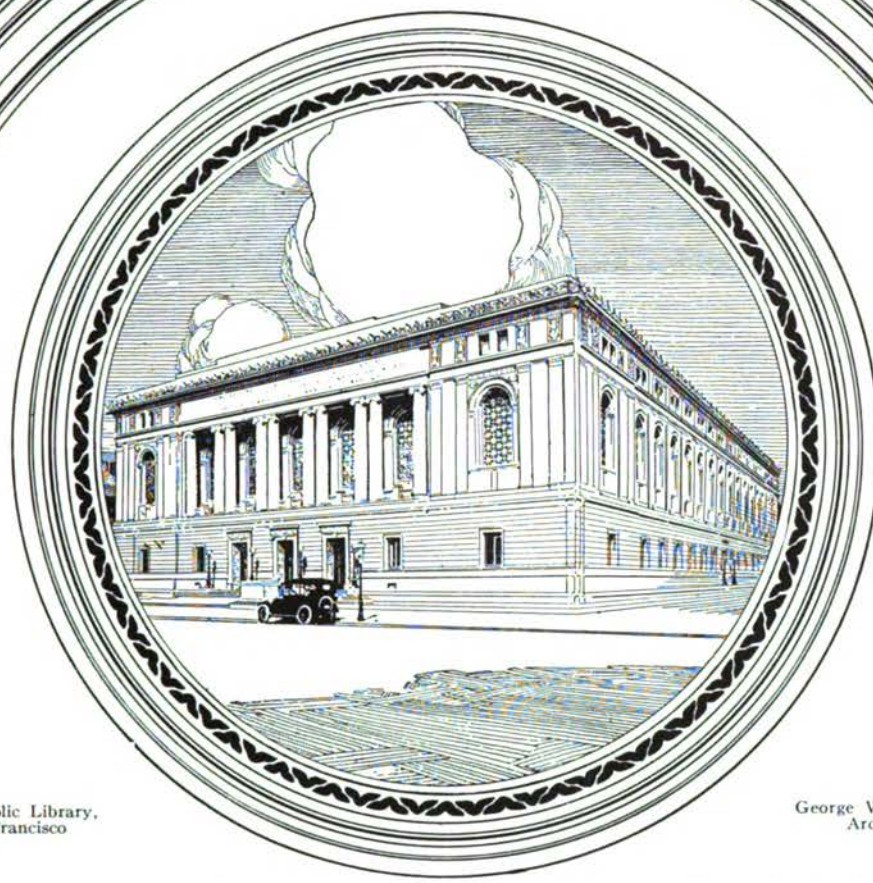

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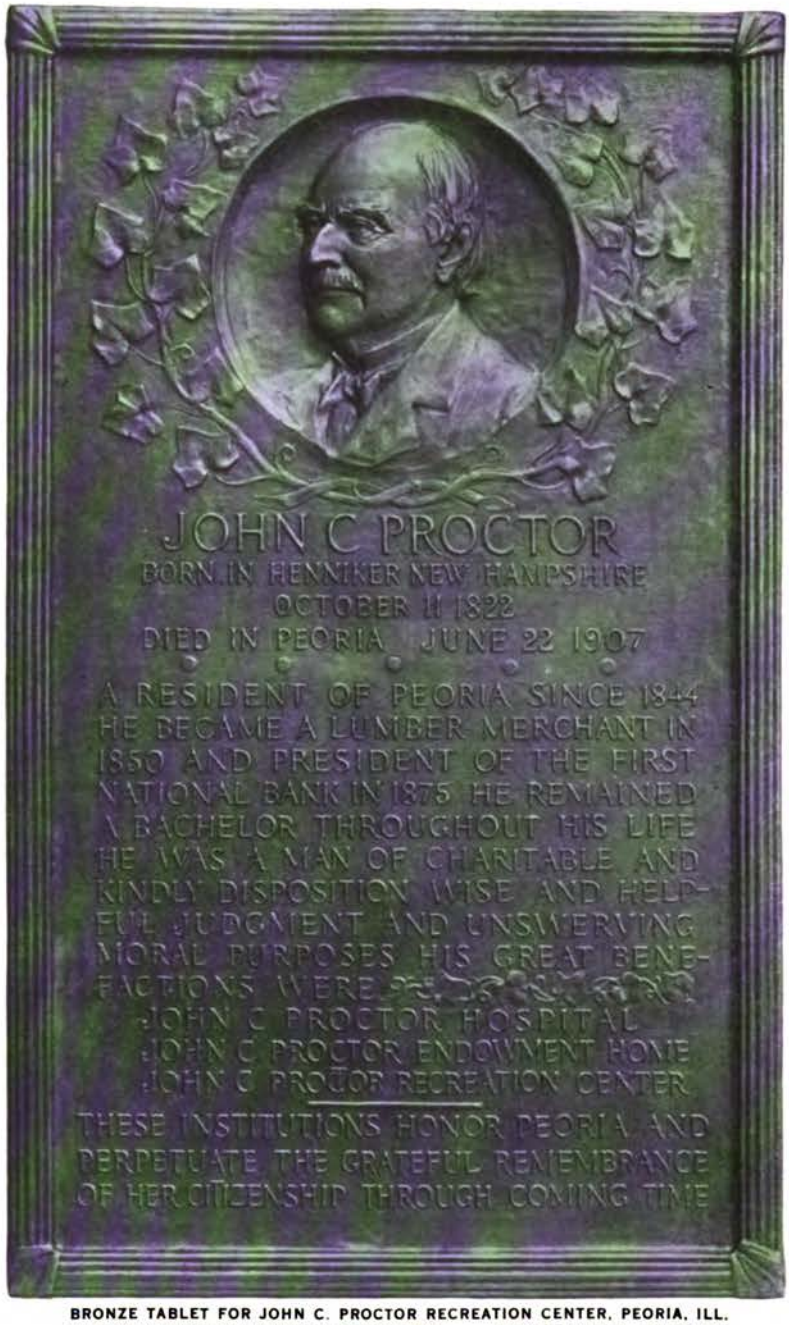

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JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V AUGUST, 1917 Number 8

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Vol. V AUGUST, 1917 No. 8

Shadows and Straws

IN THE UNITED STATES SENATE, on August 2 last, there was discussed the bill for the new Treasury Department Building which it has been proposed to erect on the lot owned by the Government at the corner of Pennsylvania Avenue and Layfayette Square, and facing the present Treasury Building. In the preliminary discussion of the project, Senator Smoot offered the opinion that it seemed best to wait, if it were possible, until after the Public Buildings Commission had presented to Congress the result of its investigations into the present rented building situation and its recommendations for a comprehensive building program based upon the needs of the Government. It is unfortunate that the wasteful and shortsighted public building policy of the past should bear so heavily upon the departments at this time, yet it was perhaps necessary that so stern and vital a necessity should appear in order to fully expose the lamentable situation which has long cried aloud for relief. Now we need, as never before, the space which should have long ago been provided. Lack of it means delay. Delay means expense. Indeed, there need be no hesitation in asserting that the chaotic public building condition in Washington, due to years of neglect and political juggling, has cost the nation millions of dollars in the delay of war preparation.

Senator Smoot no doubt had all of these things in mind when he spoke on the Senate floor, although he delcared his opposition to be based also upon other factors, such as the cost and the amount of time necessary to construct. We feel sure that he had no wish to make the departmental space situation any worse by opposing a bill to provide more space. He believed that it would be wiser to wait, unless waiting entails such a handicap as cannot be longer tolerated. The plot upon which it is proposed to build is part of a square which has been designated to be surrounded by the Executive Group. We understand that in planning for the proposed building this ultimate development has been taken into careful consideration, as suggested in the May Journal, so that the proposed structure, if erected, would fit into the further occupation of that whole side of the square.

THE BILL FOR THE BUILDING originated in the House. The Committee on Public Buildings of the Senate, through Senator Swanson, its Chairman, offered an amendment providing that the plans should be submitted to the Commission of Fine Arts. The discussion on this offered amendment was so revealing of the two attitudes toward public buildings in Washington that we have reprinted it as a supplement in this number of the Journal. The amendment was adopted, as will be noted, and the bill was finally passed by the Senate on August 15. It has not yet been passed by the House.

OF VERY GRAVE CONCERN is the new building to be erected on the site of the abandoned Arlington Hotel project at the corner of Vermont Avenue and H Street. This site touches the open square which faces the White House and will place a difficult obstacle in the way of carrying out the project for the Executive Group. It is to be an office building and is, we are informed, to be used largely for the

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Navy Department, special provision apparently having been made for its lease or rental. In the face of the present heavy duty laid upon the Navy Department, one cannot heap upon this undertaking the reproaches which it would ordinarily deserve. If the Navy Department cannot be housed in any other way, we must submit to the inevitable, and yet this is one of the rented building projects which we have fought so diligently, to which Congress is becoming more and more opposed, and which might be forever ended if the report of the Public Buildings Commission were before Congress. It is impossible, even in the face of the war, to escape regret at this most serious inroad upon the immediate vicinity of the White House. Whatever may be the merits of the building, it is not of a type to be permitted on the site, and the realization of the Executive Group is postponed to a far distant future and will be then saddled with a cost to make the Nation wince. Let us at least hope that out of the penalties now being paid, in many ways, there may be born an appreciation of the duty of Congress to forever prevent a recurrence of the condition which now retards our actual preparation for war and also inflicts a material injury upon the Capital.

THE MINNESOTA CHAPTER has issued a circular letter to its membership, as well as to the architects of the Northwest generally, in which it sets forth, in words which admirably reveal the fine spirit of its proposal, the feeling that those architects who are not permitted to take an active part in the war should, to quote, "do all in our power to make the personal loss and sacrifice of those going as small as possible."

There is appended to the circular the following pledge, which it is safe to be assumed will be as widely signed as it is circulated:

I hereby pledge myself to do all in my power in behalf of those architects who have entered the service of the United States, either directly or indirectly in the present war.

I further agree to take over the practice of any such architect, if requested, carry his work through for him in his name, accept no personal commission on his work, keep his name in evidence, paying all expenses incurred out of the payments accruing to him, and render a complete and careful accounting to him or his estate when all is finished.

I further agree to protect his clientele and his reputation as carefully as if it were my own, and to do no work for his clients except in his name, until such time as he may return.

ARCHITECTURE AND THE DRAMA are too closely related to leave any need for emphasizing the value of this kinship. In this number of the Journal we have provided a series of articles which are knit together around the future of the drama, of the part that a revitalized stage may play in contributing to our national culture, and of the position which the architect may occupy in coöperating with writer, actor, and manager to make the structure of the theater itself a coördinated part of the whole. Incidentally, the Journal welcomes the opportunity to pay, in the name of architecture, a tribute to one of the great arts of all time—to an art which is older than architecture by as long a space as man antedates his buildings—and to an art which has suffered in common with all the others, the maladies of commercialization. But that we may not decry. It is through it and out of it that we must work by ceaseless struggling to win support for a system of education which shall show the falsity of stifling imagination and all powers of expression in exchange for mere efficiency as a cog in a producing machine. It is only when people have known the joy of the creative power that they begin to enjoy the creative powers of others. To this end it is perhaps safe to say that no art offers so great a power of influence as that of the drama.

It is the first art to which children turn with an understanding of its demands such as leaves us amazed at their perceptions of what is dramatic in their life and their surroundings. Life itself is to them a drama, and they instinctively wish to take a part. The processes by which that instinct is supplanted are those which comprise what we call education, and by those processes life is gradually stripped to a uniformity of thought and action against which the artist must contend in the hope that here and there he will find someone who has escaped from the clutches of dogmatized knowledge. The only chance is to escape, as things are at present, but here again we must struggle not to discard education but to make it really educate. In that purpose the drama can do great things—witness the strides made by the Drama League of America.

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The Organization of the Architectural Profession

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(*Continued from the last number*)

Specialization in the Modern Practice of Architecture

TURNING now to the composition of the profession itself, it is not clear how far there can be said to be a tendency to an increasing specialization and differentiation among its practitioners. There are, of course, architects who obtain a stream of work in a particular line and acquire a professional reputation for that line. There are, for instance, architects who build more schools than anything else and others more lunatic asylums. Architectural firms let it be known that they specialize in warehouses and factories, whilst others get a reputation for churches. There is quite a distinct small class of brewers' architects whose business lies in public houses.

The architectural profession differs, it may be said, from that of the painter or sculptor on the one hand, and from that of the public accountant or actuary on the other, in the fact that it includes a large amount of what is called consulting work, where the architect is called in, not to erect a building, but to give some advice, testimony or decision with regard to a job in which another architect has been engaged or respecting an existing building in which no architect is concerned. No small part of the aggregate remuneration of the profession must be derived from this "consulting practice," whether it is as adviser or expert witness in litigation, or as assessor or umpire in arbitration proceedings, or as valuer of building property, or (less frequently) as referee in disputes between two architects themselves—to say nothing of the quasi-judicial functions of the district surveyor or building surveyor under metropolitan or other statutory regulations of new buildings. A perpetual stream of complicated issues concerning structural damage resulting from building operations, "ancient lights" and other easements, sanitary grievances, leasehold interests and ground rents, dilapidations and "extras," and all the innumerable grounds of disputes between builders and their employers come, in these ways, not unprofitably before the consulting architect.* Many architects, especially in London, specialize to such an extent in arbitration proceedings and legal work, or other consulting business, as practically to give up erecting buildings of their own design. But all this, extensive and profitable as it is, can hardly be said to make for the establishment of a "consultant" branch of the profession. Occasionally two architects will be employed for the same building, when a professional of experience and repute is asked as "consulting architect" to guide and assist a younger and less experienced practitioner.† We do not know how far the practice prevails of one architect professionally consulting another, in order to obtain for his plans the advantage of the consultant's superior artistic taste or ability for design, or the consultant's expert knowledge in the use of steel ferro-concrete or other material, or the consultant's exceptional experience in a particular kind of building, such as a school, a hospital, or an asylum. As among the public accountants, this eminently sensible practice may be coming in.‡

Unlike the medical profession, however, the architectural profession seems not to have developed any class of practitioners who devote themselves wholly to this consulting work and do not themselves engage in ordinary general practice, possibly because an architect who did not himself build would soon cease to be deemed competent to advise! There are, how-

*A good idea of the range, variety and complication of this work is afforded by "The Consulting Architect," by R. Kerr, 1886, 313 pp.

"It is found in practice that the architect is seldom a good advocate in a case of his own, his indignation too frequently getting the better of him in a question which seems to touch his professional credit." (*Ibid*, p. 71.)

†Various authorities, such as the National Government Departments or county or municipal bodies, the Ecclesiastical Commissioners or the Incorporated Church Building Society, may require plans of buildings in which they are interested to be submitted to their own consulting architects for discussion.

‡"The late William Burges, a man of the most inventive genius, used" frequently to submit his designs to another architect for criticism and advice, "giving his colleague his fee and then following his advice or otherwise as he thought best." ("Architects," by Alfred Waterhouse, in "Unwritten Laws and Ideals," by Miss E. H. Pitcairn, p. 355.)

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ever, other signs of fission. The quantity surveyors, indeed, may almost be said to have made this branch of consulting work into a separate branch of the profession which deals only with other architects. The district surveyors, in so far as they abandon general practice, are practically in a similar position.* The members of the Institute of Naval Architects belong undoubtedly to the engineering profession.

The Council of the R.I.B.A.

It remains to be said that the Institute—to which two women have been, without discussion, admitted as Associates and one as Licentiate†—has a constitution which bears the marks of past controversies and of the members' revolt in recent years against a too-continuous rule of old and trusted leaders. The Council may now consist of no fewer than forty-two members of eight different kinds. There is a President, two Past Presidents, four Vice-Presidents, an Honorary Secretary, eighteen Fellows, six Associates, the presidents (being Fellows) of the three largest of the allied societies, the presidents (being Fellows) of not more than six of the other allied societies in a certain rotation—this possible admission of no fewer than nine representatives of small provincial societies, though generally approved, being sometimes resented—and one Fellow or Associate officially representative of the Architectural Association. This Council is (since 1894) elected by all the Fellows and Associates in the United Kingdom by voting papers issued and returned through the post. So as to ensure a contest, the Council is required to issue annually, a fortnight before the annual meeting in May, a list of nominees which must include, besides the names proposed for the presidency, the two places of Past Presidents, the four of Vice-Presidents, and that of Honorary Secretary, the names of at least twenty-two Fellows (for the eighteen places) and of eight Associates (for the six places), whilst at the annual meeting any seven or more members (a majority of them being Fellows) may nominate any other candidate. A week later the full list, all candidates having equal typographical prominence, is to be issued to all members in the United Kingdom. The votes are returned by post, unsigned, and inclosed in sealed envelopes, with an outer envelope on which the member authenticates his vote. The anonymous votes are counted by independent scrutineers, who announce the result to the first business meeting in June of each year, at which any tie on the postal vote is decided by the votes of the members there present. Three of the Fellows and one of the Associates who have been elected to the Council—chosen by seniority in continuous service—become each year ineligible for reëlection during two years. The President is now habitually reëlected for a second year, but is then ineligible for reëlection during two years, and is, in fact, never again chosen. The Vice-Presidents, after four years' service, become similarly ineligible for reëlection during two years. No Past President may serve on the Council for more than three successive years. Even the Honorary Secretary is made, after six years' service, ineligible for reëlection for two years. Four separate standing committees have to be appointed annually for the promotion respectively of the art, science, literature, and practice of the profession of architecture; and each of them has to be elected (so far as concerns ten Fellows and six Associates) by the whole of the members in the United Kingdom by the same elaborate secret postal vote as that for members of the Council. To the members thus elected to each standing committee, the Council may add not more than five others, at least one of whom must

*The public officers who are so curiously designated "district surveyors," appointed under the Metropolitan Building Acts—architects who have under Sec. 140 of the London Building Act, 1894, to obtain a certificate of competency for their post, which is at present given after examination by the R.I.B.A.—have long had an organization of their own, the District Surveyors' Association, to which nearly every one of them belongs. We do not *hear* of any corresponding organization among the similar "building surveyors" in towns outside the metropolis. It is the duty of the district surveyor (who is not to be confused with the surveyor of the Borough or District Council, who looks after streets and drains) to scrutinize all plans for building work, whether of erection or alteration, and to pass them only if their execution would not constitute an infringement of the building regulations. He is remunerated by fees, which the builder usually pays. The duties of the district surveyor are accordingly those of a "building policeman" or "architectural magistrate" exercising very summary jurisdiction. The District Surveyors' Association protects the members against their superior, the London County Council, by whom they are appointed and by whom their districts are fixed, and maintains relations of friendly vigilance with its building act committee and superintending architect. But it also holds meetings of its members when any doubtful or disputed point of practice arises. The members discuss and come to a common decision, to which they severally conform. In this way, it is claimed, "mistakes on the part of individual members tending to compromise the general repute" are avoided ("The Consulting Surveyor," by R. Kerr, 1886, p. 209), wrongful decisions are overruled and corrected, and correct individual judgments are supported. The district surveyor is not absolutely precluded from private practice as an architect—all those appointed in recent years have had to agree to abandon it—but if he is concerned in any building within his official district, the plans have to be submitted to one of his colleagues appointed by the County Council.

†There is also no "color" bar. A few Hindoo Fellows, Associates and Licentiates are practising in India and East Africa.

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be a member of the Council. No member may serve on more than one of these standing committees, and no member is eligible to serve on the same committee for more than six successive years. The Council nominates the recipient of the annual Royal Gold Medal, but even this may be disputed by any twelve Fellows, when the special general meeting of members must decide.*

What the Organization of the Architectural Profession has Accomplished

Apart from the really great improvement in architectural education, in which professional organization among architects has, directly and indirectly, played a large part, it can not seriously be doubted that considerable advantages have really been secured to the profession by its steadily increasing organization. It is clear that architects, as a whole, have risen steadily in public estimation. Even if we cannot claim that the artistic achievements of the common run of practitioners have been very remarkable, there is little doubt that they show much greater competence and skill in the arts of construction—complicated as these have been by the successive introduction and ever-increasing employment of new materials, the increasing dimensions and variety of the buildings required, and the constant multiplication of legal restrictions. Whilst, on the one hand, the difficulties of the architect's work have in these ways been greatly increased, the existence of such an expert powerful body as the Institute affords him an untold amount of assistance in technical matters, partly by expert investigations and the publication of valuable information; partly by giving to inquirers authoritative replies on knotty points of practice. The publications of the Institute on brickwork, on commercial paints, or reinforced concrete, on lightning conductors, and what not, have been of great value. An attempt has been made to extend to the individual practitioner who is harassed by legal proceedings the strong shield of a Professional Defence Fund, but this cannot be said to have been yet properly established. By constantly pegging away for three-quarters of a century, the professional organizations (notably the R.I.B.A.) have gone very far in the way of imposing on public authorities, if not on individual clients, conditions for competitions in the submission of plans which afford a reasonable protection to those who compete. One of these conditions is that the competing plans shall be reported on, and the adjudication therefore practically decided by a professional architect, acting as assessor, who is often nominated for the purpose by the President of the Institute. "It is an unwritten law," since, indeed, expressly formulated, that no assessor can by any possibility become the architect of the building over whose inception he has been the guardian, for he has naturally great opportunities of ingratiating himself into the good opinion of the Committee.* It may be claimed, too, very largely for professional organization, that not a little advance has been made in clean-handed honesty among architects—the point on which the founders of the Institute in 1834 laid most stress. We cannot yet say that no one calling himself an architect is ever guilty of accepting commissions from those who supply building materials or accessories, whether "discounts" in return for the inclusion of their articles in the specification, or "discounts" allowed to the architect when he accompanies this client to choose particular patterns; we cannot yet feel assured that anything in the nature of presents or gifts from builders or contractors is quite unknown; it is not certain that all the architects interested in royalities on patents, or as sole or part proprietors of, or dealers in, particular builders' materials or accessories, make the fact of their interest known to their clients before ordering these articles to be used; we do not invariably find the architect abstaining from holding shares or a partnership or some other pecuniary interest in business con-

*The "provident" or "charitable" side of the Institute, for the assistance of members in disaster, takes the form of a distinct organization, the Architects' Benevolent Society, established 1850, which is supported entirely by voluntary contributions. Arising among the members of the Institute, it has always been almost entirely composed of its Fellows and Associates, and it is staffed and managed at the office of the Institute, but it is open to every architect, either as subscriber or beneficiary; and one place on the Council is reserved for a representative of the Society of Architects. The T-Square Club, a private social gathering, often assists the Benevolent Society. There is an Architects' and Surveyors' Approved Society, under the National Insurance Act, for the benefit of all employees of architects, surveyors, and quantity surveyors, whether architectural assistants, draughtsmen, clerks, or typists. This society, which now has over 1,600 members, of whom 37 are women, was formed by the Architectural Association in conjunction with the Institute, the Society of Architects, the Surveyors' Institution and the Quantity Surveyors' Association.

*"Architects" by Alfred Waterhouse, in "Unwritten Laws and Ideals," by Miss E. H. Pitcairn, 1899, p. 351. It may be noted that Bodley was permitted to help Scott in carrying out the design for Liverpool Cathedral.

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cerns or land companies with which he is brought in professional contact; in short, we cannot yet feel confident that no other consideration ever enters into the architect's specifications than the interest of his client. But there is every reason to believe that these practices—once, it is to be feared, common "customs of the trade" among architects and surveyors—are now much less frequent. They are at any rate now unequivocally denounced as acts of dishonesty and are, in fact, unknown in the practice of respectable members of the profession. To pass to minor derelictions, the Institute (and also the allied bodies and the newer Society of Architects) have more or less elaborate formulated ethical codes which prohibit public advertising, enjoin the signature of plans "in an unostentatious manner," and deprecate the exhibition of the architect's name on boards or hoardings. No architect may deliberately seek to supplant another—a consideration not always extended to architects in the salaried employment of public authorities—or take part in any competition which has been publicly blacklisted in the R.I.B.A. *Journal;* members of the Institute are expelled for this professional offence. He is definitely told that he must not, whilst practising as an architect, carry on the business of auctioneer or estate agent.* If he takes out quantities for his buildings (for which the Quantity Surveyor's Association prescribes a uniform commission at the rate of one and one-half per cent), he should be paid directly by the client and not by or through the builder. If he has any pecuniary interest in anything proposed to be used in his building, he is required at once to inform his client of such interest. It is nowadays extremely "bad form" for an architect to solicit business or ask for work, otherwise than indirectly by taking part in a competition.† It seems to be still a moot point to what extent, and with what degree of secrecy, an architect may, in his designs and plans, honorably make use of other men's talent, whether this be the talent of the pupils and assistants in his office, whose coöperation he does not openly acknowledge,* or the superior talent of another practising architect whom he employs as a consultant, or the simply purchased talent of a needy "ghost." There is no agreement as to how far the imitation of other men's designs, or their adaptation to different buildings, amounts to a blameworthy plagiarism. Finally, with regard to the scale of charges, elaborate regulations have been in force for half a century, based on the general principle of five per cent commission on the total outlay—this fee covering the preparation of all necessary drawings and specifications, all the correspondence and all ordinary supervision of the work—which, though not binding on either clients or architects, are the more generally adopted throughout the profession because their effect has been to maintain rather than to reduce the scale to which individuals might have been driven.† This method of remuneration is criticized as unfair both to the younger and to the more distinguished practitioners, because it prevents the former from offering their inexperienced services at lower rates and stands in the way of the men of greater skill obtaining the reward of their ability. It is not easy to determine to what extent the practice of paying a lump sum fee is coming in. The fashionable architect who can name his own terms will often refuse to undertake a small commission under a fee several times as large as his five per cent on the cost would amount to. On the other hand, the architect of a great asylum for a county council may find a lump sum fee of several thousand pounds very remunerative, though considerably less than five per cent on the outlay. The principle of equality in the rate of remuneration for jobs differing very much in size and complexity, and for work done by practitioners of varying experience and competence, is, moreover, mitigated in practice by the time and extra services lavished without stint by the

*About a score—say two per cent—of the architects so describing themselves in the London Directory for 1915 proclaim themselves as also estate agents. These are presumably not members of the Institute.

†"The times have certainly changed for the better since the leader of the profession did not hesitate to take round his portfolio of designs to those personally unknown to him who were supposed to have the erection of a church in view." ("Architects," by Alfred Waterhouse, in "Unwritten Laws and Ideals," by Miss E. H. Pitcairn, 1899, p. 357.)

*It is not clear how far the profession contents itself with the legal position. "The implied contract is, in commercial language, not that the architect shall do the requisite work with his own hand, but that he shall procure it to be done." ("The Consulting Architect," by R. Kerr, 1886, p. 297.)

†"Yet there have been gentlemen of position in the Institute who could permit themselves to be retained, against the personal claims of other members, in a court of law, to explain away . . . with all the licence of advocates at the bar," the schedule of professional charges imposed by the Institute. ("The Consulting Architect," by R. Kerr, 1886, p. 275.) The Institute has been latterly engaged on a revision of the scale—retaining five per cent as the normal basis, but providing for increased remuneration on commissions below £2,500, and in other cases. This has been suspended during the war.

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younger men, whilst the busier leaders find their advantage in a continuous stream of commissions and are able to make concessions on the enterprises of exceptional amount (notably in the larger jobs involving little work in comparison with their magnitude, such as hospitals, asylums, or prisons) which tend naturally to fall into their hands. A more fundamental criticism—that remuneration by a percentage on whatever may prove to be the ultimate cost, without any fixed limit, gives the architect a direct pecuniary interest in extravagance in building, in the multiplication of extras, and even in the builder's overcharges, and that, at any rate, it discourages too much toilsome zeal in discovering the points at which the builder's inferior execution calls for a cutting down of his charges*—seems to have been so far ignored by the professional associations. It is only fair to add that (apart from the obvious proposal that the architect's commission should be reckoned always on the original estimate of expenditure only, and should be deemed, without increase, to include "extras" up to, say, fifty per cent) no satisfactory alternative method of remuneration has yet been suggested. It is possibly partly due to this failure to devise a less invidious method of remuneration that the constantly recurring grumbling of the independently practising architect against the architectural work of public authorities being entrusted to architectural departments, presided over by architects employed at fixed salaries and served by staffs of professionally qualified assistants—a practice which seems to be steadily increasing—has had practically no effect.

APPENDIX

With regard to the professional organization of architects in other parts of the British Empire, we have but little detailed information. In the self-governing Dominions, local organizations seem to have sprung up spontaneously on the British model, and these bodies were admitted to formal alliance with the Institute, the first (New South Wales) in 1892, and the nine others between 1907 and 1913.

In the commonwealth of Australia, where there are still not so many as five hundred architects in any way organized, there are now societies in all the six states. The first to be formed was apparently that of the architects of New South Wales, whose Institute dates from 1871, but was reconstructed in 1890. It has 73 Fellows and 56 Associates, of whom a score are Members or Licentiates of the R.I.B.A. It has adopted a "Code of Professional Practice and Charges" and publishes an illustrated bi-monthly journal, *The Salon*, which serves also as the organ of the other Australian institutes of architects. It was by a long way the first to enter into alliance with the R.I.B.A., which it joined in 1892, fifteen years before its example was followed.

In Victoria the architects organized as early as 1871, the Institute becoming incorporated in 1890. It has 59 Fellows and 59 Associates, of whom 17 are Members or Licentiates of the R.I.B.A., with which it did not ally itself until 1910. An Architect's Registration Bill was introduced into the Victorian Legislature as long ago as 1888.

The South Australian Institute was founded in 1886 and incorporated in 1890. It has 26 Fellows and 16 Associates, of whom half a dozen are Members or Licentiates of the R.I.B.A., with which it did not ally itself until 1912.

In Queensland organization dates from 1888, but the Institute then founded was revised in 1904 and again in 1910. It has 23 Fellows and 14 Associates, of whom 4 are Members or Licentiates of the R.I.B.A. with which it allied itself in 1913.

The West Australian Institute dates from 1892 but was not incorporated until 1902. It has 25 Fellows and 10 Associates, of whom 3 are Members or Licentiates of the R.I.B.A. to which it allied itself in 1910.

The Tasmanian Institute of Architects, though of some years' standing, has not entered into alliance with the R.I.B.A.

The six Australian Institutes formed a Federal Council in May, 1915, "to represent the profession in all matters of a Federal character, especially in dealings with the Federal

*The professional answer to this objection seems to be that "it is not practically of much weight. The successful architect must be a scrupulously honest man . . . and he must be more than honest . . he must use every penny spent for his clients to their best advantage. This becomes a habit with him and outweighs any consideration of personal gain." ("Architects," by Alfred Waterhouse, in "Unwritten Laws and Ideals," by Miss E. H. Pitcairn, 1899, p. 352.) The architect habitually chooses and instructs the clerk-of-works, whom the client pays to ensure that the builder conforms to the architect's specifications.

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Government, and to bring about uniformity in Australian practice." All the Australian Institutes make use of *The Salon*, the bi-monthly journal of the New South Wales Institute. Since the Architects' Registration Bill appeared in the Victorian Legislature in 1888, no information is available as to any progress of this movement.

In New Zealand organization dates only from 1905, when its Institute was established, having autonomous "District Branches" at Auckland, at Wellington, and for Canterbury, Otago, and Southland respectively. These have (Auckland) 29 Fellows and 11 Associates; (Wellington) 23 Fellows and 28 Associates; (Canterbury) 12 Fellows and 16 Associates; (Otago) 15 Fellows and 8 Associates; (Southland) 4 Fellows and 7 Associates—a total of 107 Fellows and 72 Associates, of whom 28 are Members or Licentiates of the R.I.B.A. This Institute, which came into alliance with the R.I.B.A. in 1912, has scored a triumph in getting its scheme of registration of architects carried into law, though with what result on the status and remuneration of the profession is not known.

In the Union of South Africa, where there are local organizations for the Cape Colony, Natal, and the Transvaal respectively, there seem to be some five hundred architects in general practice as principals, of whom at least half are not in any kind of organization.

The Cape Institute was founded in 1899. It has 32 Fellows and 9 Associates, of whom 17 are Members or Licentiates of the R.I.B.A., with which it became connected in 1907.

The Natal Institute dates from 1901, but was not incorporated until 1902. It has 20 members (the titles of Fellow and Associate not being used), of whom half a dozen are Members or Licentiates of the R.I.B.A., with which it allied itself in 1909.

The situation in the Transvaal Province is interesting. The Transvaal Institute of Architects is centered at Johannesburg. This body, said to comprise most of the older and better established practitioners, has 38 members, of whom 10 are Members or Licentiates of the R.I.B.A., with which it entered into alliance in 1908. There is also a South African branch of the Society of Architects, mainly centered in Johannesburg. This body, supported by its parent society, agitated strongly for statutory registration, which it succeeded in obtaining in 1909, by the Architects' Private Act (Transvaal), which the Provincial Legislature passed in that year. Under this Act all the architects then practising as principals in the Transvaal—180 in number, including the members of both the above bodies, and many others—were enabled to unite in the Association of Transvaal Architects, and, in return for an initial fee of five guineas and a subscription of five guineas a year, were placed upon a statutory register. Only registered practitioners are allowed by law to style themselves architects. They elect a Council to manage the register, but, owing to defective drafting of the law, the Council finds itself powerless to take any other action on behalf of the profession. A scale of fees which it sought to impose by by-laws had been set aside by the courts. Moreover, the Council finds itself unable to stop all sorts of persons—estate agents, civil engineers, builders, and so-called "structural experts"—from advertising for and undertaking architectural work.

Under these circumstances the movement for any extension of statutory registration to the whole Union makes little progress, though a long and complicated bill was prepared in 1913. The activities of the Cape, Natal and Transvaal Institutes seem to be mainly concentrated on inducing the Government of the Union to make better regulations for competitions for plans for public buildings, in particular for the adjudication to be made by expert assessors, of whom two should be nominated by an architectural advisory board.

The Canadian Dominion, which apparently finds work for more architects than all the rest of the British Empire outside the United Kingdom, has a considerable record of provincial organization, especially in Montreal and Toronto, although the movement for a federal union of the profession is scarcely a decade old.* Omitting details as to the local associations, we may note that, in 1907, the Institute of Architects of Canada was established, having for its object the federation of all the Canadian bodies. This object was successfully accomplished in

*There seems to be no local professional organization in Newfoundland, where half a dozen members of the Royal Architectural Institute of Canada are in practice.

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1912, when a special Act of Parliament was obtained, and what had meanwhile become the Royal Architectural Institute of Canada was given a new Council of twenty members composed of delegates of seven provincial associations. The Institute is now geographically organized for Quebec, Ontario, the Maritime Provinces, Saskatchewan, Manitoba, Alberta and British Columbia, respectively, with a General Assembly meeting annually. The Institute, with about eight hundred members, now dominates the profession throughout the Dominion. Its General Assembly in 1908 adopted an elaborate Code of Ethics, scale of Fees and Regulations for Architectural Competitions, by means of which it is seeking to standardize professional practice from the Atlantic to the Pacific. Not more than thirty of its members belong to the R.I.B.A., either as Members or as Licentiates, and it did not enter into alliance until 1909.

Registration is, in Canada, still a provincial question. Ten years ago a law was passed by the Alberta Legislature for the registration and certification of all architects practising in this province—all those then in actual practice being admitted, whilst any newcomers had to prove their competence to the satisfaction of the Examining Board of the Alberta Architects' Association. It is reported that similar legislation is in process of adoption by the other provinces.

In the other parts of the British Empire, notably Egypt, East Africa, India, the Straits Settlements, Hongkong, the West Indies, and the West African Dependencies, a certain number of British architects carry on practice, several of them members of the R.I.B.A. or Society of Architects (including some Hindoos), but there is no local organization. In British East Africa, where objection is raised to the admission, by the R.I.B.A. and the Society of Architects, of persons of any color, there is a separate East African Association of Architects, confined exclusively to local practitioners of the Caucasian race, which has applied for alliance to the R.I.B.A.

We have been unable to put together any information as to the professional organization of architects in continental countries. The profession is everywhere more closely connected, both with the Government and with the universities and learned academies than it is in the United Kingdom. We note that in France, where the profession occupies a very distinguished place, there is a Société Centraleé des Architectes Français; an Association Provinciale des Architectes Français, with its own monthly *Bulletin;* a Société Nationale des Architectes de France; and, in some ways, the most distinguished of all, the Société des Architectes Diplômés par le Gouvernement. There is also a Caisse de Défense Mutuelle des Architectes, and a whole series of local associations, or sociétés regionales d' architectes, such as those of the Department du Rhône, the Department de la Maine, De la Basse Normandie, Du Nord de la France, d'Angore, de Lyon, etc. There is also a Société des Diplômés de l'Ecole Spéciale d' Architecture.

In Germany and Austria there seem to be great professional associations admitting both engineers and architects, in which a large part of the attraction of membership may be the excellent technical journals that are thus published. We note the great Verband Deutscher Architektenund Ingenieur Verein at Berlin, and the Oesterreichische Ingenieur und Architekten Verein at Vienna, each with its weekly journal. But there is also a powerful Architekten Verein at Berlin, a separate Vereinigung Berliner Architekten, and local Architekten und Ingenieur Vereine at Frankfurt, Mannheim and elsewhere. In Hungary there is a Magyar Mernok es Epitesz Egylet (a society of engineers and architects), and also a society of private architects. Switzerland, too, has the Schweitzischer Ingenieur und Architekten Verein. Holland has its Maatschappig tot Berorderung der Bouwkunst, and also the Genootschap Architecture et Amicitia. Belgium has its Société Centrale d'Architecture de Belgique, and also its Chambre Syndicale des Architectes de Bruxelles, its Société Royale des Architectes d'Anvers, its Association des Architectes de Liége, and other local organizations. In Italy there is the Societa degli Architetti Italiani, with its weekly *Bolletino,* and also an Associazone Artistica fra i Cultori di Architetturn, and a Collegio degli Ingegneri ed Architetti Italiani at Rome, and similar "colleges" at Genoa, Turin, Messina, Florence, Milan, Palermo, Bologna, Bari, Venice, etc. Russia has La Société Imperiale des Architectes Russes, with a

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monthly journal, and Sweden its Svenska Teknologforeningen. In Spain there is the Societé Centrale des Architectes Espagnoles and also such local societies as the Association des Architectes de Catalogne, Vizcaya, Navarra, etc. Portugal has its Societé des Architectes Portugais, as well as the Association Royale des Architectes et Archéologues Portugais. In Japan there is the Institute of Japanese Architects.

Practically all these bodies, together with many academies of arts, faculties of architecture, architectural schools, and municipal and government departments of works, buildings and monuments in seventeen different countries are represented in the International Congress of Architects, which has been held every two or three years since 1897. An International Permanent Committee, consisting of 100 members, has an office in Paris, and arranges for the successive Congresses, at which several hundred delegates from the different countries meet for a week's discussion.

The Subject of Camouflage

MANY inquiries have been received at the Octagon as to what possibilities there were for architects and others to offer their services in connection with camouflage work. On July 27 last, the Institute was informed officially by the War Department that it had under consideration the question of a suitable organization of the personnel and equipment of such sections of camouflage as might be deemed necessary to raise and maintain after details of the operations of camouflage sections had been obtained from abroad. It had been decided by the Department that, in accordance with existing laws and regulations, such service would become a part of the Corps of Engineers.

The sources from which the personnel may be drawn are fixed by law and, in addition to the Regular Army personnel, include assignment to active duty of members of the Officers' Reserve Corps and appointees from the country at large. Enlisted men will be obtained by voluntary enlistment or by selective draft. In closing its letter, the War Department expressed its appreciation of "the patriotic interest of the American Institute of Architects and trusts that in the furtherance of their desire to be of service, qualified individuals of this Association may see fit to join through voluntary enlistment or by appointment such units as may be authorized."

A few days later Major Evarts Tracy* was appointed to take charge of the organization of a department of camouflage and reported at Washington for that purpose. It is proposed to organize one company without further delay than may be incident to the requirements involved. This company will consist of commissioned and non-commissioned officers, and will, it is expected, be selected from among architects, painters, and sculptors. The enlisted personnel to bring the unit up to the proper strength will comprise metal-workers, carpenters, modelers, cabinet-makers, scene-painters and artisans whose trades have fitted them for the multitudinous occupations involved in the application of camouflage to modern military needs. As far as possible, the commissioned and non-commissioned officers will be chosen from among those who have already registered with the Institute or other bodies. It is not essential that a man should have had previous military training, or that he should speak the French language, although these things are of material advantage. There is no age limit, but it is believed that none will be acceptable over forty-five.

For the information of those who have made inquiry on this subject, as well as for others who desire knowledge, it should be stated that the department of camouflage will be a strictly military adjunct to the army, governed by military regulations. Its work embraces every conceivable kind of operation, from advanced reconnaissance under fire to the simplest form of concealment work designed to secure every form of military operation from observation by the enemy. It is in no sense a studio affair but a definite factor in modern war requiring a knowledge of how to use every form of artifice and how quickly to carry out plans which have been perfected through study and experience.

For the present, one company will be formed. When it will go to France is not known. When other companies will follow has not been determined. In making arrangements for transportation, consideration has to be given to the order of necessities. Many architects and artists of all kinds are impatient to do something. They chafe under the delay. Yet patience is required in these matters, and the practice of it can render a distinct service. All is being done that is possible, and, as we have stated on other occasions, it is far wiser to wait patiently for a chance to do the work for which one is best qualified than to take up something simply for the sake of being active. As soon as it is practicable, we shall publish further information of interest in camouflage development.

[EDITOR'S NOTE.—Major Tracy has asked us to state that while all possible plans are being made it is well to remember that there is a very real enemy constantly disarranging them, even though the newspaper reports seem to indicate nothing but an unchecked advance.]

*Major Tracy is a member of the firm of Tracy & Swartwout, Architects, New York City, and is Chairman of the Institute's Central Committee on Preparedness, Mr. Aymar Embury II being Vice-Chairman in charge.

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Telephone, 8040 4, Mayfair. Telegrams, RIBAZO, London.

Royal Institute of British Architects.

Incorporated in the Seventh year of William IV.
and the fifth of Victoria

9. Conduit Street. Hanover Square. London W.

11th June, 1917.

To
The President and Council of
The American Institute of Architects:

Gentlemen,

Probably no group of Britons has been wont to enjoy a closer bond of intimacy and mutual understanding with its corresponding group across the Atlantic than that which has so long and so happily subsisted between the architects of your great country and of ours. For this reason, if for no other, it seems natural to us to yield to a very evident desire among our members, the desire to give expression to the cordial and affectionate satisfaction which we feel in the recent practical evidences of close community between our nations.

The world-struggle, a fight not on our side for material possession but for the maintenance of those ideals which are the most precious heritage of man, is, as we all feel, not one in which the exponents of our Art are without interest. Architecture, the least luxurious and the most humane of the Arts, can never be aloof from the deeper and worthier instincts of mankind. We feel confident therefore that if we, as representing in our degree the architects of Great Britain, send you at this momentous juncture a word of heartfelt international greeting you will not think that we are departing from the proper functions of a professional Institute.

Had we any doubt on this point that doubt would be removed by our remembrance of the remarkable utterances of Mr. Cram in October 1914 and the comments of Mr. Clipston Sturgis on the position of England in the War, which together with other expressions by American Architects on the subject have been very eagerly read and warmly appreciated here.

Gentlemen, the heart of Britain has been warmed by America's action. We British architects are not the slowest to feel that warmth; and knowing that with you too the pulse of national life is strong, we feel a lively satisfaction in sending to you - as architects to architects - our very cordial welcome and our acknowledgment of profound pleasure in this union of the already kindred races.

In conclusion we would beg that so far as it may be practicable you will regard this message of ours as a message to the general body of architects in the United States.

With renewed expressions of brotherly goodwill,

We are
Gentlemen,
Yours very faithfully,

Ernest Newton — President.

Paul Waterhouse
Henry T. Hare
E. Guy Dawber — Members of Council

Hon. Secretary.

A Fac-simile of a Letter Recently Received from the R. I. B. A. and to Which Proper Reply Has Been Made by President Mauran and Secretary Parker

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*The Théâtre du Vieux Colombier in New York

By ANTONIN RAYMOND

IN THE many attempts of late years to re-create drama as the dominating interest on the stage, architects were not appealed to by any of the reformers until Jacques Copeau, realizing the necessity of the organic unity between the house and the stage of the theater, laid a new problem before them. The architect, aside from solving the practical demands of the problem, had not been supposed to be directly concerned in the creative efforts of the dramatic producer. He was left to drift for himself, free as to style, lighting arrangements, and accessories, and the purpose and amount of ornamentation depended largely on the sum appropriated. Copeau demands a complete understanding of his efforts on the stage, a direct coöperation in his attempts to return to the initial interests of dramatic art and to establish the forgotten bases for dramatic creation. This means that theaters which are designed to house and serve the drama in Copeau's sense are to be of a definite character, and it is not the problem of the architect to determine that character. The architect is to be dominated by the poet and the actor as another element of the organic whole.

In order to make myself clear on the subject I should like to indicate the conditions in Paris and the manner in which they prompted the most important of the efforts toward reform of the French stage of late years—that of Antoine and the succeeding attempts of Copeau, who is coming to this country to bring about an understanding of modern French dramatic art in the United States.

The American public at large is little acquainted with the modern development of the French drama; at best, it associates the French theater with the productions of the Boulevards. But is the Boulevard typically French? To a stranger it seems to be so, but those who observe closely soon will find out that the smallest chance of learning to know Paris offers itself in the neighborhood of the Opéra. Neither the public, the shops, the cafés, nor even the theaters are there characteristic. They are as little Paris as is the atmosphere of the Moulin Rouge, where the German tourists used to go to learn it. It is easily understood that the patrons of those theaters were cosmopolitan. It is more astonishing that their products triumphed and were acclaimed as distinctively French in foreign countries. In Berlin, Copenhagen, Vienna, and other cities they rejoiced in claiming to understand the "finesse" of these "French" creations; judged from that, these cities have just as much sense of humor as they have on the Boulevards. But how comes it that the foreign countries understand Racine, Corneille, Molière but superficially? It is because these playwrights are French, characteristic and national, while the productions of Flers-Caillavet, Wolff, Croissete, and the like, are only to amuse the visiting globe-trotters during their stay in Paris.

In the nineties of the last century the Théâtre Libre was founded. Its creator was Antoine, and its motive was a protest at the conditions I have narrated. It was a realistic theater. Antoine discovered Ibsen for Paris, which had a greater importance than the scenic and the stage management nouveautées going on at that time. The Théâtre Libre was a program theater. It was a rebellion against the pseudo-dramatic creation and, somehow, a predecessor of the reaction against theatrical symbolism. Of that theatre all that is left today is the name, a symbol only. The Théâtre Antoine is a good example of the general kind. How can one then speak of regeneration if Copeau, seized by the same indignation in 1914, quickly reconstructed the erstwhile popular music hall in the Rue du Vieux Colombier into a new theater, as a protest against the infamy perpetrated on the Boulevards, just as the Théâtre Antoine had, in its turn, been a protest? How is it that the work of Antoine, the purity of which was announced to be the holiest of holies and which has been considered a lasting restoration of the past glory of the French Theater—how is it that it left little or no trace? Copeau says that Antoine's undertaking and all those similar to it

*To be remodeled from the Garrick Theater.—EDITOR.

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suffered from a common malady. They were built up on a narrow literary platform and collapsed as soon as the program was in the least abandoned or exhausted. It was more a literary than a dramatic work. He assures us further that he will avoid this fault because he is, fortunately, an eclectic. There does not exist a literary direction to which he would be opposed *a priori*. He knows only good plays and bad plays. In the repertoire of his first season there were Æschylus, Euripides, Molière, Racine, but there were also Renard, Musset, and Mérimée, side by side with Becque, Porto-Riche, Bernard, and Courteline. Among the announced premiéres there were Vielé-Griffin, Claudel, Snarès and Ghéon, Schlumberger, Copeau, Shakespeare, Heywood, Ibsen, Wyspianski, Shaw and Synge.

Copeau's indignation is directed against the repulsive market where the theater fights with moving pictures for the frivolous public; against the unbridled hunger of authors; against the abominable tyranny of competition, which causes big expenses and usually destroys the unity of the play. He has built his theatre away from the electric signs, on the left bank of the Seine, in the quarter of the intellectuals, in the quiet Rue du Vieux Colombier, which gave the theatre the name against which it never sinned.

He saw that the theater had become a dishonorable game, the players again a minor caste for which the frivolous public stands because of its different morality on which it prides itself, while the success of the play is assured by scandalous stories. Copeau wants to "décabotiner" the actor and create for him an atmosphere more fit for his development, human and artistic; to cultivate him; to instil in him a conscience and to initiate him into the morality of his art. That is why he composed his troupe of people bound together by the same enthusiasms and who, though not famous, are not dilettantes. They have a high opinion of their own profession and a repulsion for the ugly comedy which Society plays around the actors, a comedy born only of curiosity and a thirst for sensation, not by respect or love for dramatic art.

Copeau is the first in a long time who in his endeavor to achieve a reform does not lay great stress on the scenic arrangement, as has been customary with the reformers of late years. He does not admit that the decoration and the properties should have a great importance; the importance of the scenic arrangement, according to him, is really negative, the chief concern being to arrange it so that it shall be unimportant. In this resolution seems to lie the real moment of his reform. All theatrical reformers before him could be summed up as scenic reformers (e.g., Rheinhardt). Of course there was a reaction toward simplification of the scene before, but that simplicity seems to have been intentional, and to have been another way of suppressing the poet's work—something done for its own end. Copeau calls it simplism, which does not go always hand in hand with real simplicity, and he sees in this tendency to underline, and to magnify by material means—often naïve enough—the poet's intention, an insult to French taste. Drama must be able to express itself by the root elements—the text and the acting. The poet and the actor will again become the only creators on the stage. In so far as they appeal for help to other artists, architects included, they demand, above all, their discretion.

That became the watchword of our endeavor to so reconstruct the present Garrick Theater in New York City as to enable Copeau to use it and yet remain faithful to his principles. Before attempting to sketch out the work to be done in New York I may mention what his theater was like in Paris.

There he has succeeded, with little means, in adapting a music hall, which served the purpose more or less well and was in accordance with his original program. The plan of the theater in the Rue du Vieux Colombier was, unfortunately, a very long oblong with a small stage at one end, its ceiling divided by arches. He enlarged the stage by taking advantage of the arch nearest to it, so that before the stage proper there was a narrow fore-stage. The separation was by an arch structure with permanent wings, and it was possible to isolate the stage by a curtain. The fore-stage was used either in connection with the stage or by itself.

This theater forsook entirely the conventional scenery. Interiors were composed out of wings of neutral colors. The wings remained neutral, too, even for an open scenery with a

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prospect and horizon; they were painted by Francis Jourdain. It has to be admitted that by this system of decoration (in the interiors, according to the demand, there was placed a window, a door, or a stair) one can attain remarkable results. It is especially important that the stage be so contrived that in every case both the background and the middle ground are most favorable for scenes which depend upon relief in the sense of the drama. Groups and colored spots are folded and unfolded according to the demands of the dramatic situation and not according to the method of the most and the least important figure. As to the neutral colors of the scenery employed, I should like to remark that this is only the first step and far from the final word; it was adopted to eliminate the unwieldy precedent and as a base for further development.

The war abruptly terminated the activities of the little theater in the Rue du Vieux Colombier, and most of its actors were scattered on the many French fronts. Its director, spurred by the success of his last season, continued, nevertheless, his researches, and the coming winter should give him an opportunity to demonstrate their results in practice.

The theater in New York City is not to be a copy of the theater in Paris. It will be the result of continued studies, and it must be regarded as a further step in the long process of development which has been only started. It is difficult to explain the various problems confronting us in trying to rebuild the Garrick Theater for Copeau without going deeply into his ideas regarding the spirit in which he conceives it, for this is, of course, the reason for the outside forms which it will take. We have to bear in mind all that was previously said about the nature of his reforms and remember that he desires to put fresh life and living interests on the stage, now used for dead forms and conventionalities. He believes that he can do so by bringing about a closer play and intimacy between the actor and the spectator. A great deal of his energy is spent in another direction, that is toward the realization of a fixed stage which would insure the reign of the poet and the actor in the theater, and once again free them from the load of misdirected and wasteful work of continuous scenery changing. The equipment of such a stage would have to be very pliable and would consist of parts adaptable for many uses and worked out with precision as to size and color. It would resemble in many ways children's building blocks, each one for a determined purpose, and the possibility of combinations would be infinite.

The results attained in those directions must yield harmonious arrangements, each working into and with the other, and there is no doubt that the ingenuity and collaboration of architects here can be of great value.

There is reintroduced, for example, the tréteau of the ancient village players. It is a platform about three feet high with steps on each side of a bench at the front and steps in the center of the three remaining sides. By its position and arrangements it naturally forces concentration of action upon a small elevated space. A jump of its full height or the use of its easy steps creates a variety of entrances. A plain cyclorama of neutral color forms both the sides and the background. Sometimes the scene consists of the cyclorama only, and a simple cube in the center of the stage is the pivot for the action. The removable platform over the orchestra pit, a riser's height below the level of the stage, offers another variety, and by it and by a few steps the floor of the auditorium itself can be reached and utilized as a third extension to the stage. The walls around the proscenium opening are pierced by four windows, with small balconies, accessible to the actors, offering another opportunity to extend the stage. The two lower windows can be connected by steps with the stage extension over the pit and serve as doors. It is almost impossible to convey a clear idea of this attempt to systematize and simplify the now so complicated mechanism of the stage. To order it like the intervals of the scale and to play it without effort, to use it as one uses language, is the aim.

The frame of the proscenium opening is strong and dominating, to emphasize the most important part of the theater. The rest of the theater is kept as simple, direct, and unassuming as plain plaster can make it, and a few simple moldings are the only ornament. Great stress is laid upon the lighting, as the desired lighting effects on the stage depend to a great degree on the lighting of the house itself.

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Reflected light allows the application of a cold illumination. There are sources of warm, gayer, and more intimate light.

Unfortunately the present theater building, an antiquated structure, is greatly limiting our possibilities, and what, with the little time at our disposal, we shall be able to accomplish remains to be seen.

The New Drama and the Theater of the Future

By PERCIVAL CHUBB
Retiring President of the Drama League of America

I

A NEW drama is calling for a new kind of theater—or shall we say, in view of the many species of the new drama, for several new kinds of theater? Logically, it would seem that there should be as many kinds of theater as there are major types of drama. Certainly each of the distinctive historic types has had, and should have, its own distinctive kind of theater, as Mr. Brander Matthews has so concretely shown in his "Study of the Drama," which, as he says, is based on "the conviction that all the masterpieces of the dramatic art were originally written to be performed by actors, in a theater, and before an audience of the dramatist's own contemporaries." It is but a step in thought to the general principle that the structure and size of a theater must depend upon the kind of plays intended to be presented in it. A clear recognition of this position is going to lead to a much closer partnership between architect and play-producer; and it must necessarily involve the architect in a wide comparative study of the drama and the whole changing technic of stagecraft.

To understand the present situation in regard to the housing of the drama, the architect must first recognize the thoroughgoing overhauling of dramatic tradition which has been taking place during the past thirty-five years. Only when he has taken stock of what has been going on, will he realize what radical reforms the new drama is demanding, both in the construction of the stage and of the theater as a whole. There are the many new kinds of plays to inventory, and numerous innovations in lighting, stage-setting (especially the new architectural motivation), and stage construction (the increasing use of the apron stage, e. g.) to reckon with.

The influences which have led to these and other changes are many. If from among them we select that of Ibsen as outstanding, it is not merely on the score of his stage technic, but also by reason of the spirit of the man—his temper of relentless interrogation and challenge. "I come to question," he wrote; and he exacted a veracity which set men to calling in question all their traditions, even the most cherished. Under his influence, and that of the rationalistic movement of which he was part, the modern mind has been sharpened to the keenest scrutiny, even to a settled suspicion of everything that is old and established. There are new ways, a new life; and therefore the old machinery will no longer serve. A new soul must have a new body.

Even as the old type of drama which Ibsen found had to meet this questioning, and has succumbed to it, so must also the one traditional type of theater. We now ask why we should longer tolerate a theater which had its origin long ago under conditions which have ceased to be. Why this yawning, perspective-less stage? this vaulting proscenium arch? those top-lofty seats looking down across a gulf on the diminished heads of the actors? Why those oblique boxes, distorting the vision and revealing all the disillusioning secrets of the wings? These and many similar questions must be met.

So far, the most palpable outcome of this new rationalism is the Little Theater, which plainly announces that certain kinds of plays call for an intimacy which the larger theater makes impossible. How far is that principle to carry us? How many types and sizes of theaters should there be to provide for plays ranging all the way from the cosy parlor play to the most spectacular historical play and

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pageant drama? An answer can be made only after that thorough survey, already insisted upon, of all the new departures and more audacious experiments in playwriting and stagecraft which have been made during this past decade or two. We have to take into account not only the innovations called for by the varied work of Ibsen, Maeterlinck, Barrie, Yeats, Shaw, Synge, Galsworthy, Dunsany, but the new departures of Gordon Craig and his followers; of Ben Greet, Winthrop Ames and Granville Barker; Sam Hume, Stuart Walker, Ernest Jones—to mention only the more familiar names, and omitting mention of what has developed in France, Germany, and Russia. Then there are the less obvious influences of the new pageant-drama, especially the possibilities suggested by the monumental setting and novel devices used in Mr. Percy MacKaye's "Caliban." We do not speak of the antique modes of decoration— all the irrelevancies and flamboyancies of the old playhouses, which must go the way of the rococo splendors of a by-gone time. They do but serve to emphasize the call for sweeping changes in the treatment of the theater interior.

II

Here, surely, in the creation of a new modernized theater responding in all ways to the spirit of the new drama and the new art generally, is a stimulating challenge for the architect, working, as we have said, in close collaboration with the play-producer of forward vision. We do not suggest a sudden and far-reaching revolution. The theater-going public is not ready for that. But it is getting ready. The work of educating audiences for the new theaters proceeds apace. Much is being done through the Drama League of America. Its growth is the most significant symptom and prophecy of the coming new order of things.* It is the best epitome of impending developments.

The League represents a far-reaching national awakening, on a comparatively small scale as yet (some twenty-five thousand members, not counting its club affiliations), but expanding most hopefully and potently. It includes that rapidly increasing constituency of readers of drama, and of books about the drama in all lands, to whose demands for the printed play the publishers are responding by an unprecedented publication of dramatic literature—a Drama League Series included. It focuses the interest aroused in literary clubs and women's clubs, in colleges and high schools, in amateur and community organizations; and it is helping to coördinate these. Through its circuit plans it is organizing intelligent theatrical patronage on a large scale. As its recent convention in Pittsburgh showed, it is also helping the Little Theaters to organize; and it looks forward, after the war, to the establishment of a national theater and school of acting. These are some straws on the wind that is blowing strong for change.

There is a gathering revolt here against mere traditionalism in the theater. With it is combined a revolt against the shameful commercialization of dramatic art. An essentially commercial people, we have been tenderly apologetic for commercialism, but we are getting bolder and more truthful. We are going gradually to rid ourselves of the cant that has marked the doings of mere traders in art. We have been dazed and silenced by the enormous commercial success of the "movies;" but we are beginning to get over that, too, and to recover our artistic senses. And with these reactions against commercialism there is springing up a hope and expectation of a more decisively American move-forward in drama which shall bring distinction and beauty to the stage. Soon, surely, there must be an outward and visible sign of this dramatic renaissance in a new type of theater—a new body that shall be worthy of the new soul which is being born amidst all the throes of these tragic times—a new birth of art which is to signalize the larger gestation of a more humane civilization.

*By way of emphasizing and better fulfilling its national function, the League at its recent Pittsburgh convention decided to move its headquarters from Chicago to Washington, where it hopes to connect more intimately and continuously with representatives of all its centers—including those on the distant Pacific coast.

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TAI FAH MIN
Mr. Reginald Barlow—1912
Mr. Albert Bruning—1916
(This illustration is of Mr. Barlow)

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THE DAFFODIL
Mr. Schuyler Ladd—1912–1916
(This illustration is of Mr. Ladd)

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The Yellow Jacket*

By HENRI PIERRE ROCHÉ

FIVE years ago a group of young Frenchmen, met together in a Paris salon, were reading in *Comedia*, the journal of the theater in France, a short letter from Chicago which plunged them first into surprise and then into enthusiasm. The letter told of a play which had been written by two Americans, George Hazelton and Benrimo, after the Chinese method, where the same sumptuous decoration served for all the scenes, where the successive stages of action were announced to the audience by a director, and where a few tables and tabourets, managed by a property man supposed to be invisible, sufficed to construct towering mountains, houses, boats floating upon broad rivers, bridges across abysmal depths, or frowning fortified castles.

Three years ago the same group learned that "The Yellow Jacket" had been produced at London. One of them crossed the Channel immediately, saw the play, fell madly in love with it, and bought the rights for France. A little later the decoration and costumes were acquired and "The Yellow Jacket" would have been seen in Paris in November, 1914, at the Theatre Edouard VII, launched by a group of American, French, and English theater lovers, if the war had not arrived.

The first American production of "The Yellow Jacket" had only a moderate success. Its history is a striking example of how the great American public still fails to discern, unaided, the big American plays. Frohman said of this one: "It will go round the world!" And indeed it has, for soon it will have been produced in every great capital. London, Munich, Budapest, Vienna, and Dusseldorf have seen it. Reinhardt produced it in Berlin with the perfection of detail and the finest group of actors that could be assembled in Germany. Unhappily, the translation was defective and had the effect of retarding the action, for in many places the same passage in German was double the length of the English original. The Berlin critics also complained that the play was more a Chinese demonstration than the living, moving tragi-comedy it was at London. At Moscow it was gorgeously presented, but perhaps not in a spirit absolutely conforming to that of the authors, for we have seen a photograph of the love-boat scene where the boat was not only suggested by the words of the Chorus and the mimicry of the actors, but accentuated also by the form of the drapery.

Recently "The Yellow Jacket" was presented in Spain and in South America, and after its tour of the world, it returned to New York City, finally to be comprehended by the theatergoers of that city and there to pass a triumphal autumn and winter. "The Willow Tree" is perhaps one of its children, since one of the authors of "The Yellow Jacket" collaborated in the writing of it and has therein introduced the same pearl-embroidered language, although it is quite different. Is this world success of "The Yellow Jacket" an exceptional thing or is it a presage of the success of a number of American plays? We think that the spirit of the American theater of tomorrow may be sufficiently broad, simple, and human to spread throughout the world. Many American characters are already universal because of these qualities—are not Buffalo Bill, Nick Carter, Charlie Chaplin, already dreamed about by children the world over?

But "The Yellow Jacket" is exceptional by reason of a wonderful quality which I consider to be essentially American. The daring, yet at the same time the smoothness of the creation, uniting in itself such widely separated elements of world poetry and even adding new ones, then melting them in one flow of deeds and words, full of music and fancy, belongs to the new continent! This play is already a classic. It will grow with the years. Children at school will learn its fragments by heart, and some of its lines will become lasting proverbs. Above all it is theater, theater, theater!

Let us narrate, briefly, some of the things which pass before us so miraculously and yet with such simplicity. At one moment, the farmer, become executioner by royal mandate,

*A Play Done in a Chinese Manner. By George Hazelton and Benrimo. Published by the Bobbs-Merrill Co., Indianapolis.

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WU FAH DIN WALKS IN THE GARDEN

1912 KOM LOI 1916
Mr. Walter F. Scott Mr. Henry Buckler

beheads a traitorous servant. Just as the blade of the huge saber descends upon the neck of the culprit, the property man hides the face of the young woman with a square of red cloth and tosses upon the ground a small red pillow to represent the bloody fallen head, while the supposedly dead servant retires from the scene, quite unnoticed by the audience. The whole attention of each spectator is captivated by the little red pillow. Each comprehends instantly the full dramatic force of the incident. The scene seems almost silly in recounting it—and there are always those few unimaginative spectators who titter at the moment—yet those who have seen it with imaginative eyes will remember how moving and how living an action it was.

Later on there is a love scene by moonlight in a boat. The hero and the heroine recline upon four chairs over which there has been spread a simple drapery. Behind them stand the property man's two assistants who imitate the slow sweeping motion of paddling. Another, with bits of sand-paper, makes the tranquil water to ripple softly as the boat swims gently down the shadowy stream. It is childish! Ah, it is just because of that childish quality that it becomes so cheerful and so lovely an illusion. The audience feels only the spell of delicious night on the bosom of a great river. And with what magic is that spell accentuated! The two lovers, themselves a part of the revery into which all are plunged, see, at the same moment, the distant light of another love-boat which advances, passes, and retreats into the distance. Their eyes follow it with a gentle intensity in which every spectator participates with breathless interest, while subdued voices make soft music seem to be wafted across the water from the passing boat. Who that saw will ever forget that boat upon that river?

And finally, when the young hero departs with the philosopher to reconquer the throne of his father, both mount a chariot represented by two great standards upon which wheels are traced in outline. The actors mimic the motions of mounting and the action of departing, and the beating of hoofs, the clash of wheels and the

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rattling of the harness are borne across the footlights to the audience with a vividness that no realism can equal. These suggestions of scenes, of which the play is almost a continuous succession, are far more realistic than the elaborate stage mechanisms of today, and the very beautiful Foreword to the play explains that this was indeed the hope that the authors had in mind: "The purpose of the creators of this play is to string on a thread of universal philosophy, love, and laughter, the jade beads of Chinese theatrical convention. Their effort has been to reflect the spirit rather than the substance. While the story of The Yellow Jacket is not taken from any direct source, it is hoped that it may convey an imaginative suggestion of all sources and reflect the childhood of the drama. It might be said in a Chinese way that scenery is as big as your imagination. Primitive people the world over begin to build their drama like the make-believe of children, and the closer they remain to the make-believe of children the more significant and convincing is the growth of their drama."

Someone asked one of the admirers of "The Yellow Jacket" what it resembled, and in replying he did not hesitate to speak of the Greek tragedies, the Mysteries of the Middle Ages, of vaudeville, of Punch and Judy, and of Shakespeare. The Chinese Ambassador at London went to see the play and when one of his English friends inquired of him whether the play truly resembles the Chinese theater, he answered, after a silence: "It is Chinese enough to make me homesick."

Those who believe that the theater ought to have a moral and educational value should encourage the production of plays like "The Yellow Jacket." In this really great work the authors seem to have abandoned themselves to the fantasies and the poetry of life, letting themselves glide hither and thither about the world with eyes indifferent to good and bad alike, painting in charming colors whatever seemed to suit their fancy, and yet, when one returns home after the play and recalls the story woven in word and picture, one is suddenly surprised to discover the moral significance hidden beneath its charm—a significance which grows steadily stronger once the discovery has been made. The young hero, after all, has found only deceit and falsehood among the young courtesans, exquisitely as they presented themselves and adorable as they seemed to his youthful eyes as they revolved with mincing steps upon the little tabourets, pedestalled like the wares they were, or reclined amorously in the love-boat. The temptations of life array themselves before him in simple symbols, and he finishes, through the ardor of his purpose and the strength of his devotion—blessed, it is true, with the tiny slipper as a *gage d'amour* from his well-beloved and the magic talisman of the little tunic of his babyhood, upon which his mother had written his history in words of her own blood—by triumphing over all his adversaries, overcoming all temptations, conquering all the forces and powers of the wicked who plotted against him. As says the Chorus: "This play deals with mother's love, the love of youth, and the hate of men, which makes them do unhappy things." It is a piece of symbolism in which the flights of the imagination one may bring to bear upon it are as illimitable as the paths of the universe.

Listen to the players speaking:

The Chorus, addressing the audience on behalf of his brothers of the Pear Tree Garden: "Observe well with your eyes and listen well with your ears. Be as one family, exceedingly happy and content. Heaven has no mouth. It makes men speak for it."

The Mother, who has been commanded by her Ancestral Spirit to mount to heaven and send the august Wu Hoo Git, her baby boy, on his world journey alone: "Will I hear his baby cry and not be able to come to him?"

The Ancestral Spirit: "Yes. Yes."

The Heroine, seeing the hero for the first time: "He stands so straight the clouds separate to form a pathway for his brain."

The Philosopher, encouraging Wu Hoo Git upon his journey toward the sun-hued garment: "No man can foresee his battleground." And again: "Every man must look into the garden of his soul alone."

Line after line could be taken out of this play, so rich is it in philosophy and so human is its poetry, but if to those lines one joins the memory of the scenes as they were presented by the players of the Pear Tree Garden—as they were announced by the Chorus—as they were arranged with such stolid indifference by the Property Man, one has found a form of imagery

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1912 Wu Hoo Git 1916
Mr. George Relph Mr. George Gaul

1912 The Property Man 1916
Mr. Arthur Shaw Mr. Arthur Shaw

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not easily to be forgotten. One may also say, in the drama, that the perfection of the rôle determines the perfection of the actor, up to a certain point. Thus it was that Mr. Ladd as The Daffodil in the production at New York City, and the actor who played the Property Man in London, attained an unforgettable perfection. Unsurpassable perhaps would be not too extravagant a word, for both of these men are likely to have their names attached to these rôles for the rest of their days and run the risk of hearing it said: "Ah! but he is not so good as he was in 'The Yellow Jacket.'" I mention these two rôles in no disparagement of the really fine creations which the characters in "The Yellow Jacket" have made possible and which are now so well known to the American public. It is a difficult thing, in a play where all seems new and novel, to avoid undue emphasis, yet the Chorus and the Property Man are here the exceptional novelties. The Chorus is seated upon the stage throughout the performance and rises only when it is necessary to address the audience and indicate the change of scene and the entrance of new characters. The Property Man likewise remains at one corner of the stage, where are stored the few simple accessories required, and all of his work is done in full view of the audience.

Turning from this form of setting where the scene becomes as full as the imagination of him who looks upon it, I recall the most perfect little round theater, seating only two hundred, built of rough timbers, at Pittsburgh, in one of the buildings of the Carnegie Foundation. I recall also that engineers and architects have contrived revolving stages; that others have arranged them in compartments, some with as many as nine or more, giving as many changes of setting. There is still a large field of invention open before these men, but there will be a reaction against realism in stage scenery. The work of Gordon Craig and of others will have a great influence, more indirectly than directly, perhaps. The architect must study, in coöperation with the modern stage-manager—who should be a new type—the important creations of the drama in order to invent the stage scene of tomorrow. The Greek theater found its architectural perfection. The modern theater has scarcely begun to grope for such a thing. One day, in talking with Gordon Craig, he developed the thought of a fixed scene built entirely of marble and bronze, for certain types of plays—and here is a thought for the architect.

To me, who follow the theater, the Journal of the American Institute of Architects is setting an example as unusual as it is fine in thus paying a tribute to another great art. Generally such praise is withheld, for most class publications feel themselves bound to the selfish purpose of advancing the interests of their own professional following—theatrical magazines being quite as bad as the rest. This is a process of disintegration rather than integration, and has the effect of detaching one art from another instead of relating them. We need great broadening influences everywhere—in the drama as in architecture—as indeed in every manifestation of art. Architects should pause and ponder upon the tremendous possible influence of the drama as a wholesome stimulus to that imaginative quality which they find lacking in so large a degree when they ask for sympathy with their art, a quality without which a nation is dead indeed. A poetic and imaginative work like "The Yellow Jacket" is an incentive for all artists and a window through which all the world may look out upon a broader and fairer comprehension of the meaning of art in all its forms. If "The Yellow Jacket" is a pleasure and lesson for children and youth, it is no less so for those of riper years. Each one finds the nourishment which his spirit craves and in sufficient quantity, while the innocent are not troubled in this lyric spectacle by that which only the older comprehend. There is in it more educational value than in heaps of books.

As for the future of the theater, one may say that it is now in the making. Said Eleanora Duse several years ago: "In order that the theater may be saved, it must be destroyed and all the actors carried off by the plague, for they render the art impossible." Jacques Copeau is not far from agreeing with her. Next year, New York will see in him the man who is the hope of all the friends of the theater in France, old and young. He is author, director, stage-manager, actor—but before all he is a moralist.

Commenting upon "The Yellow Jacket" it is worth while, perhaps, to cite some of his ideas:

"Is there too much rush in the little theaters of New York? More agitation than action? I do

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1912 GIT HOK GAR 1916
Mr. Mark Price Mr. Howard Kyle

1912 YIN SUEY GONG 1916
Mr. Reginald Barlow Mr. Albert Bruning

not know. But the spirit of change is there, stronger than in France."

"By tradition, I understand something alive and supple which renews itself ceaselessly."

"We need a new scene for dramatic art. We must start at zero, with other customs and another spirit, in order to attain not a superficial change such as we call naturalism, but a fundamental change."

"The public may like that which is not art, but it may also like art! Actually, the theater is based upon contempt for the public."

"What is lacking is love of the calling—the true professional conscience."

"Praise the modern clown, who is free from the pedantry of the modern actor."

"There is only one great personality on the stage—that of the poet and his work to be served."

Are not all of these principles in harmony with the atmosphere of "The Yellow Jacket?" Do they not apply broadly to all the problems of restoring those powers of creation and appreciation, the conspicuous absence of which now casts a gloom over the practice of the arts today?

HISTORICAL NOTE: "The Yellow Jacket" was first produced by Harris & Selwyn at the Fulton Theater in New York City, on Monday November 4, 1912, under the direction of Benrimo. The second production was by Mr. and Mrs. Coburn at the Cort Theater in New York City November 9, 1916, removing to the Harris Theater on December 25th, and thence to the Liberty Theater, after which a short spring tour brought the season to a close at the New National Theater in Washington, on May 5, 1917.

The Cast of Characters for both New York productions was as follows, the names of the actors first given being for the first production. The list follows the order of appearance:

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THE YELLOW JACKET

Property Man.
MR. ARTHUR SHAW. MR. ARTHUR SHAW.
Chorus. SIGNOR PERUGINI. MR. COBURN.
Wu Sin Yin (Great Sound Language), Governor of the Province.
MR. GEORGE RELPH. MR. HOWARD KYLE.
Due Jung Fah (Fuchsia Flower), Second wife of Wu Sin Yin.
MISS GRACE VALENTINE. MISS BEATRICE WOOD.
Tso (Fancy Beauty) Maid to Due Jung Fah.
MISS ANTOINETTE WALKER. MISS BEATRICE PRENTICE.
Tai Fah Min (Great Painted Face), Father of Due Jung Fah
MR. REGINALD BARLOW. MR. ALBERT BRUNING.
Assistant Property Men.
MR. LYMAN TOBIN MR. CHARLES HARPER
MR. THOMAS JACKSON MR. CARLOES PETNODE
MR. CHAMBERLAIN BROWN MR. WILLIAM FISH
MR. E. COLEBROOK. MR. E. COLEBROOK.
Suey Sin Fah (Lily Flower), Wife of Lee Sin and maid of the First Wife, Chee Moo.
MISS GRACE A. BARBOUR. MISS MABEL WRIGHT.
Lee Sin (The Farmer)
MR. J. ARTHUR YOUNG. MR. GEORGE FARREN.
Chee Moo (Kind Mother).
MISS SAXONE MORLAND. MRS. COBURN.
Ling Won (Spirit).
MR. MARK PRICE. MR. HENRY BUCKLER.
Wu Fah Din (Daffodil).
MR. SCHUYLER LADD. MR. SCHUYLER LADD.
Yin Suey Gong (Purveyor of Hearts).
MR. REGINALD BARLOW. MR. ALBERT BRUNING.
Wu Hoo Git (Young hero of the Wu Family), Destined for the Yellow Jacket.
MR. GEORGE RELPH. MR. GEORGE GAUL.
See Quoe Fah (Four Season Flower).
MISS BETTY BREWSTER. MISS MABEL VANET.
Mow Dan Fah (Peony).
MISS GRACE VALENTINE. MISS WINIFRED RIDGELEY.
Yong Soo Kow (Hydrangea).
MISS GRACE HALLECK. MISS BEATRICE WOOD.
Chow Wan (Autumn Cloud).
MISS ANTOINETTE WALKER MISS BEATRICE PRENTICE.
Moy Fah Loy (Plum Blossom), Daughter of Tai Char Shoong.
MISS JULIETTE DAY. MISS MARGARET CARROLL.
See Noi (Nurse), In Charge of Plum Blossom.
MISS FANNY ADDISON PITT. MISS VICTORY BATEMAN.
Tai Char Shoong (Purveyor of Tea to the Emperor).
MR. ROY GORDON. MR. HENRY BUCKLER.
The Widow Ching
MISS MARGARET CALVERT. MISS MARGARET CALVERT.
Maid.
MISS BETTY BREWSTER. MISS WINIFRED RIDGELEY.
Git Hok Gar. Philosopher and Scholar.
MR. MARK PRICE. MR. HOWARD KYLE.
Loy Gong (God of Thunder).
MR. J. ARTHUR YOUNG. MR. GEORGE FARREN.
Kom Loi (Spider).
MR. WALTER F. SCOTT MR. HENRY BUCKLER.

For the first production the scenery was painted by Mr. H. Robert Low; for the second, by Mr. Edward Sundquist. The costumes were imported.

Moving-Pictures and the Architect

By BEN J. LUBSCHEZ

MOVING-PICTURE dramas naturally fall into one of two classes: where the pictures are taken or the play is performed amidst existing surroundings appropriate to the story; and where the surroundings are set up as they are on the stage. Both may be interesting and instructive architecturally, although this architectural interest is, so to speak, usually only a by-product.

The moving-picture camera being portable, and the resulting film being capable of so widely distributed an exhibition, it is physically and commercially possible to stage a story of the old missions, or of Madrid, or of Colonial times, actually in the courtyard of a California Mission, in Madrid, or in some old Colonial mansion. Such things have been done well and beautifully.

Besides giving an atmosphere of realism to the story, such productions have an interest of which the producers have probably thought little. To the architect, that old mission, those old buildings of Madrid, that old Colonial mansion, peopled, apparently, with folks living the life of which these buildings are the expression, assume the value of vital living things rather than dead precedent to be copied for the client who wants his house in this or that style! He actually sees that architecture is definitely related to the life of its period. The writer confesses that he has often gone to the "movies," not because of much interest in the story to be unfolded but merely in the hope of catching a glimpse of this real meaning of architecture!

The picture with the artificial setting, however, has been interesting mainly on account of its unfulfilled possibilities. A floor of quite obvious wooden boards with black spots painted on them, is not very convincing as marble pavement; a dome made of muslin with tacks on the seams and ribs, conspicuously apparent, is not very impressive. The moving picture usually leaves little to the imagination. Perfectly obvious scenes are preceded or followed by an explanation. The architectural illusion should therefore be perfect or we would be far better off with such stimulants to the imagination as the "love-boat" or "heaven" of the "Yellow Jacket"! Perhaps these are better for us anyway than extreme realism, but that is beside the question.

We are shown a great Babylonian hall: the announcement slide says it is one mile long! The memory of that announcement is the only thing that lends any versimilitude to this, the effect of such tremendous size is not apparent in the picture.

The camera tells the truth without mercy, it exaggerates with merciless vengeance, but it is not recalcitrant, and these very qualities often make it a wonderful magician! Properly lighted and photographed, plaster or even thick kalsomine will pass for marble without detection; tinsel, for gold; painted wood or plaster, for bronze. A masterly combination of these two magic agents, light and photography, will produce almost any illusion. The moving picture seems to offer an opportunity to someone who is master of scene painting, lighting, and photography as well as versed in architecture. Perhaps no such versatile individual exists; perhaps the most beautiful results will come from the coöperation of such masters under supervision of an architect. It seems well worth trying.

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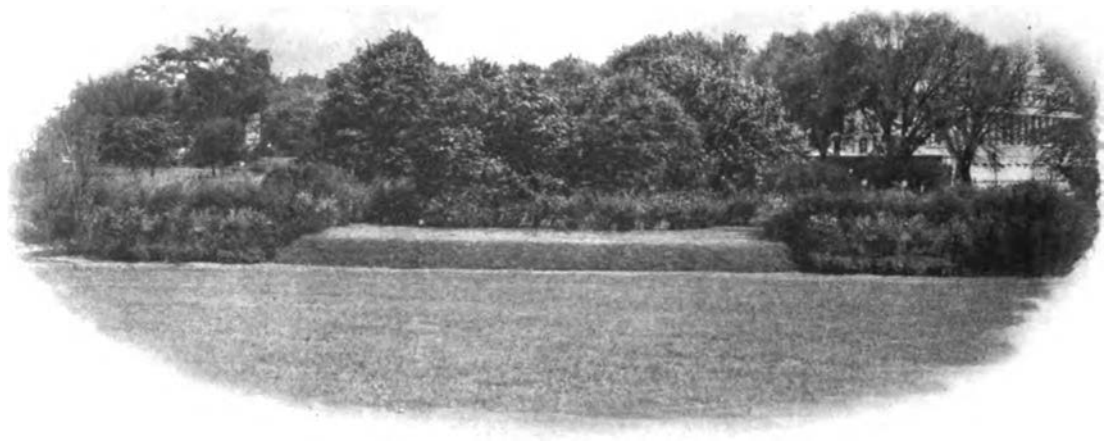
The New National Sylvan Theater

By COLONEL WILLIAM W. HARTS, U. S. A.
Officer in Charge of Public Buildings and Grounds, Washington, D. C.



VIEW OF STAGE AND SETTING, SYLVAN THEATER, WASHINGTON, D. C

LOCATED on public grounds of the United States, within the shadow of the Washington Monument and easy walking distance from the main business and residential sections of the city, the new sylvan theater opened to the public on the night of June 2 adds one more to the popular public recreation features gradually and systematically provided by the War Department in its administration of the park system of the District of Columbia.

The stage, a turf terrace about 5 feet high, is located about 350 feet to the south of the Washington Monument against a background of well-proportioned trees. From the base of the stage to the level of the Washington Monument is about a 7 per cent grade, sufficient for the desired elevation of each tier of seats above the other to enable the occupants to get a good view of the stage and performers.

The preliminary plan shows a seating capacity of 5,000, but at the initial performance only about 2,800 seats were placed.

The Government provided the stage with its foliage setting and will maintain it. The cost was nominal, the most of the expense being incurred for installation of conduits, hauling, and personal services; the planting cost was slight, since surplus stock from other sections of the park system was used. The use of the theater, without charge, will be permitted for any performance or play which has the approval of the Office of Public Buildings and Grounds.

The acoustics were quite satisfactory within the range of the seats, about 170 feet, the lines of the various speakers being plainly heard from every section within that area.

Judging from the interest and enthusiastic acclamation of the audience of about 15,000 on the opening night, who gathered despite the threatening aspect of the weather and in spite of the fact that on the opening scheduled for the preceding evening both actors and spectators were dispersed for the evening by a sudden severe rainstorm which came up at the last moment, the latest venture of an out-of-door theater for the enjoyment and use of the Washington public has met with general approbation and complete success.

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What France is Doing in City Planning in Time of War

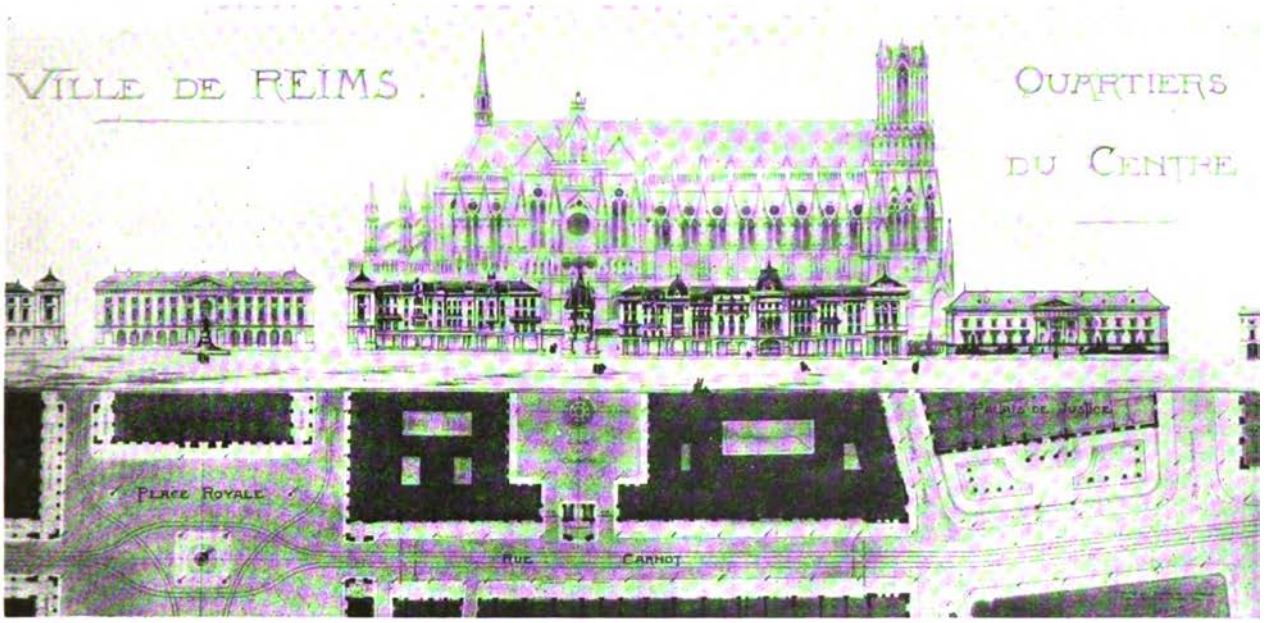
AN OBJECT LESSON FOR AMERICA

By GEORGE B. FORD
Member of the American Industrial Commission to France

NEW BRIDGE BUILT IN MARSEILLES DURING WAR TIME

DESPITE the fact that France led in city planning during the greater part of the last century, she had been surpassed by many other nations in recent years. One of the good things in France, therefore, directly traceable to the lessons which the war has taught, is the strong city-planning movement aimed at correcting some of the deficiencies in French town planning. This movement is headed by the Institute of City Planning (Institut des Architects Urbanistes) of which M. Eugéne Hénard is president. The Institute was founded in 1915, and the movement centers about the Loi Cornudet recently enacted by the National Assembly. This law provides for thorough-going compulsory city planning throughout the country, and its enforcement will place France in the lead in city planning. The expression of this tendency is shown in the official rebuilding plans for Rheims and other ruined towns, in the condemnation of unsanitary quarters in Limoges and Marseilles, and in the great port and canal work at Marseilles, Bordeaux, Rouen, and Havre.

Various cities are making extensive plans to provide for



OFFICIAL PLAN FOR THE REBUILDING OF RHEIMS.—DETAIL OF CIVIC CENTER

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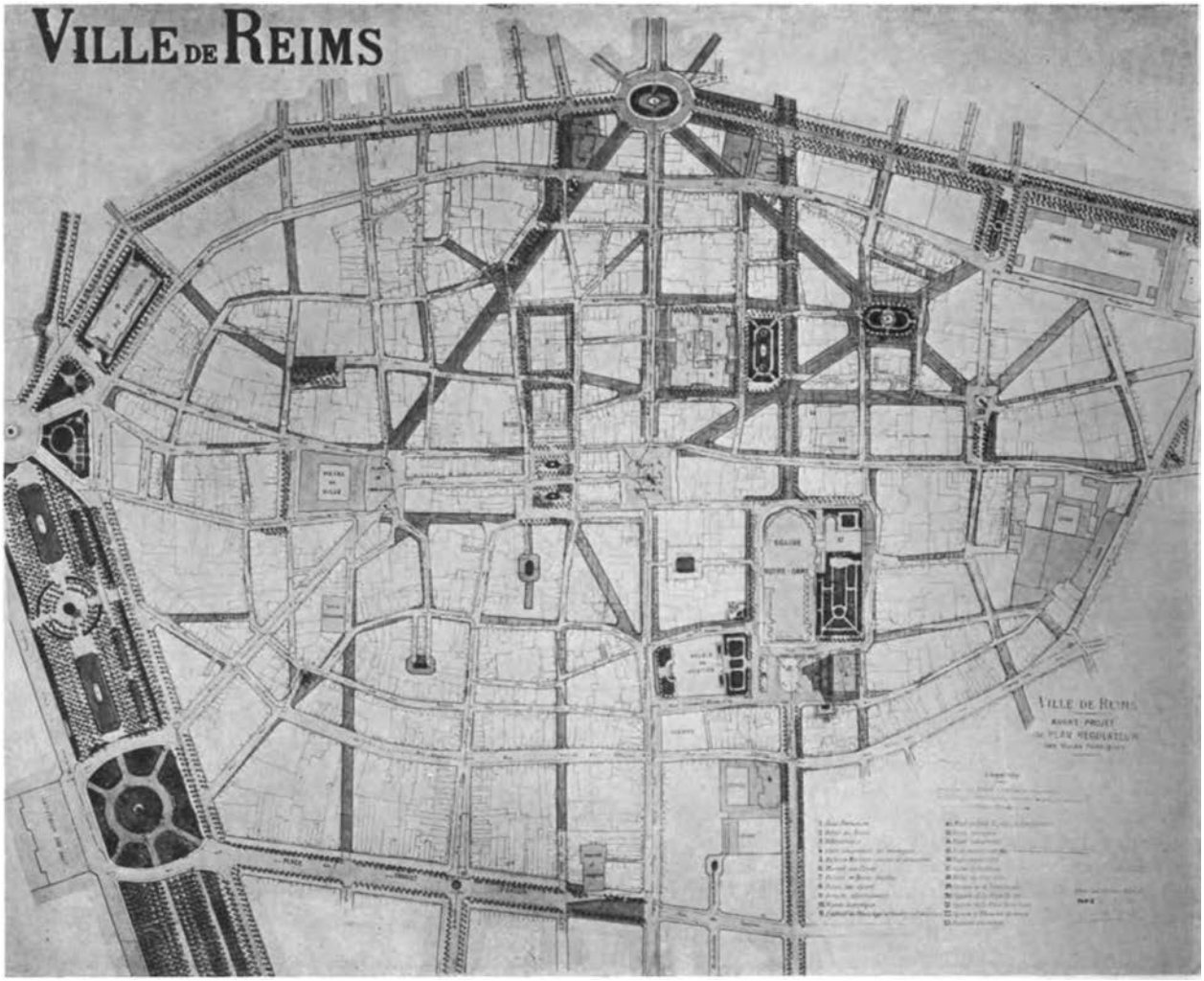

OFFICIAL PLAN FOR THE REBUILDING OF RHEIMS

future growth and to introduce certain needed improvements. In Paris there is a special bureau of the Department of the Seine devoted to city planning and architecture. This bureau is making comprehensive plans for the future development of Paris and its surroundings, and all matters which affect the plan of Paris pass through this office. Very wisely, provision has been made for an advisory commission of leading architects, engineers, and others, to serve as a check on the work of the Bureau. In a number of cities, as Lyons, Marseilles, Grenoble, Limoges, Bordeaux, etc., the department engineers look far ahead in planning for the growth of their cities.

Perhaps the most interesting of all are the plans which are being made for the reconstruction and extension of the bombarded cities. The recent official plans for Rheims and Claremont-en-Argonne, and the competition plans for Revigny are typical of the foresight that is being shown in remedying the evils in sanitation and promoting the conduct of business and convenient living in the older cities.

Most fortunately the new Loi Cornudet provides that all ruined villages, towns, and cities shall be reconstructed along comprehensive lines by local commissions, controlled by central authorities in the departments and at Paris. The application of the best practice in city planning throughout the devastated region is assured. Prefect Mirman, of the Department of Meurthe-et-Moselle, said that he believed the application of these principles in reconstructing the devastated region would have a remarkable effect on the whole of France, and that it would mean eventually the replanning of the old unsanitary and inconvenient parts of all existing cities and towns.

Remarkable work is being done by various French cities, despite the war, in cleaning out unsanitary areas. In Limoges, for example, about 6 acres of particularly unsanitary quarters, five- and six-story tenements, have been torn down and laid out with new, broad, sunlit streets bordered with new open buildings. In Marseilles, in the very center of the city, 14 acres of old six- and seven-story tenements were appropriated and rebuilt in the same way. At a cost of something like forty million francs, the city is laying out new broad streets and open

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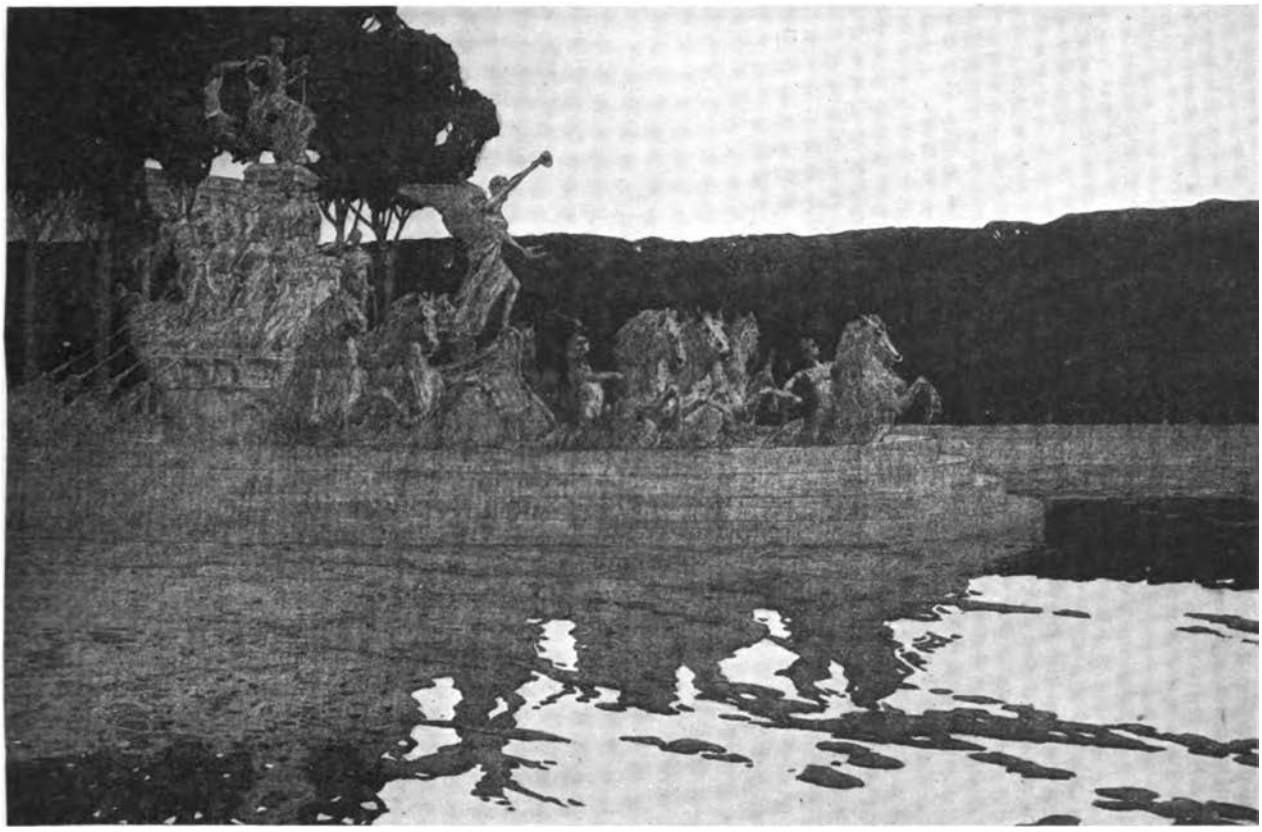
spaces, erecting new buildings of a modern character, all as a matter of "Preparedness for Peace." It has been impressed on them very strongly that with the loss of a million or more of their best men, they are bound to do everything they can to preserve and build up the next generation; that they cannot afford to let it grow up in unsanitary and disagreeable surroundings.

Excess condemnation exists in principle but not in practice. It is limited to properties or parts of properties within 50 or 60 feet of an improvement. Nevertheless, in the above-mentioned improvements in Limoges and Marseilles, the city expects to recover nearly half of the total cost of the improvements from the sale of the excess property.

In surveying the whole of the city-planning accomplishments of French cities in time of war, the striking fact is that they are doing these things because they find that they have to do them to meet the economic competition with other countries which is coming after the war. There must be no waste, and they are aiming to eliminate every possibility of it. France is doing all these things at enormous cost, despite the superhuman work of carrying on the war. She is doing it because she finds it necessary to make up for the mistakes of unpreparedness.

Memorial to New York's New Water System in Central Park—A Great Sunken Garden



THE MACMONNIES FOUNTAIN

TO convert the old Croton reservoir in Central Park, New York City, into a great sunken garden is the scheme proposed by Thomas Hastings of Carrére and Hastings, architects, of New York City, in tentative plans recently submitted by him to the Catskill Aqueduct Celebration Committee, appointed by the Mayor of the city. One of the duties of the Committee was to devise a plan for a permanent memorial of the new water-supply system for which the city has expended $100,000,000.

The opening of the new system will force the abandonment of the reservoir, which extends from Seventy-ninth to Eighty-sixth Street. The plan does not disturb the upper reservoir, which extends from Eighty-sixth to Ninety-sixth Street.

At the northern end of the garden, the plans call for the erection of the Frederick MacMonnies fountain of the sea horses drawing Fame and the barge of State. This fountain is known to architects the world over, and was a

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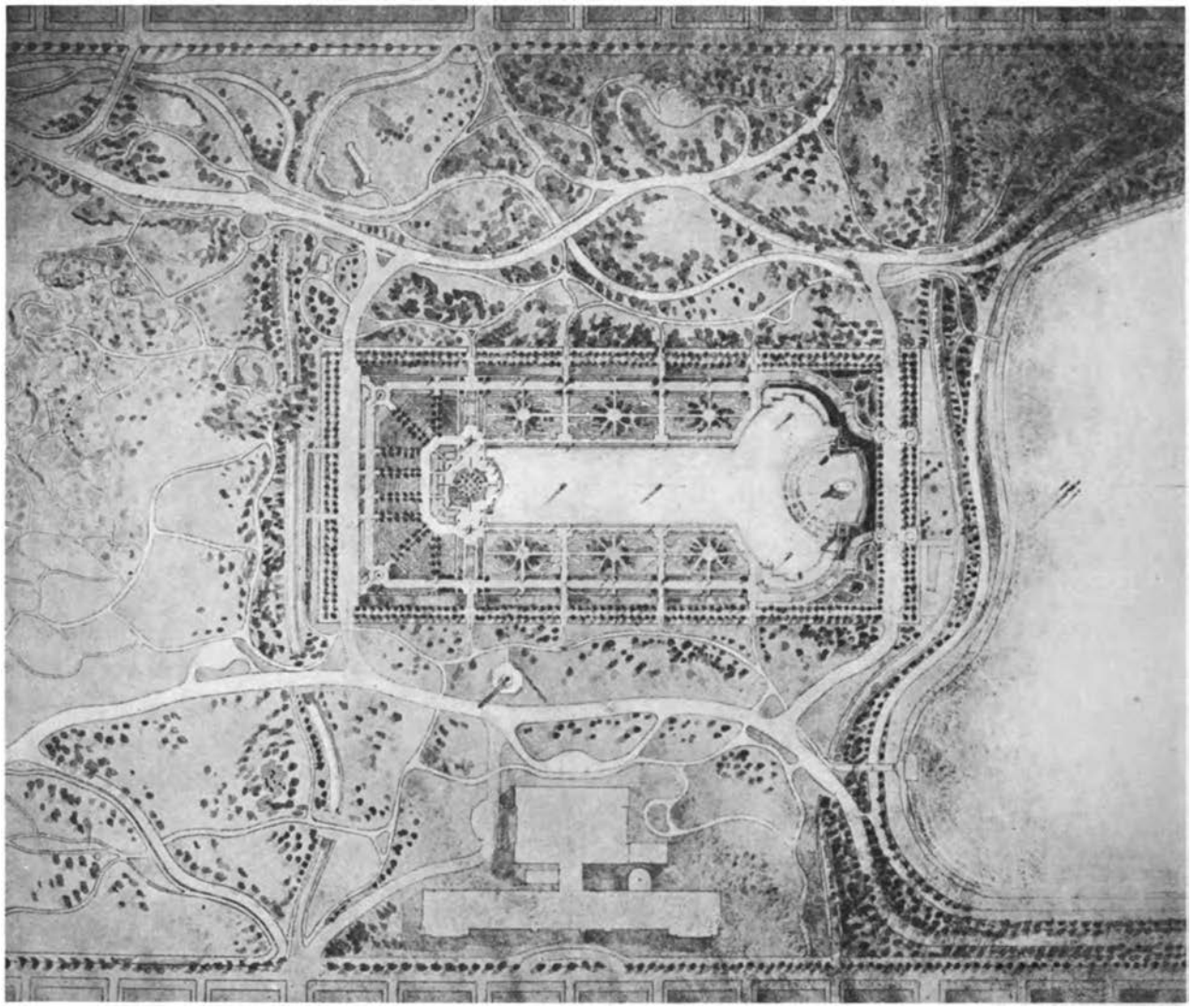

PLAN

feature of the Exposition at Chicago in 1893. At the southern end of the garden, it is proposed to build a garden amphitheater with seating capacity for 20,000 people, descending by turf terraces to a music pavilion. Between the northern and southern features there is to be a lagoon, flanked on the east and west by park spaces girded by stately trees. North of the garden, in the upper reservoir, and on the axis of the lower reservoir, an 80 foot jet will furnish a majestic termination to the vista.

The reservoir covers about 34 acres. The present elevation of its base is 18 feet lower than the general level of the park. It would cost the city much more to fill in this great acreage than to convert it into a sunken garden. The prevailing public sentiment against any radical change in the use of Central Park is responsible for a scheme such as this, embodying the most acceptable features of plans previously advanced for the use of the area and, at the same time, preserving the desired harmony with the original conception of Central Park. An important feature of the new plan is that it is confined to the area of the present reservoir and does not disturb the present arrangement of roads, while, at the same time, it does provide adequate connections with the neighboring road systems, and forms a convenient connection across Central Park between the Metropolitan Museum of Art and the American Museum of Natural History.

The approval of the New York Park Department and the Art Commission is necessary to give sanction to the project. It is proposed to lay the cornerstone of the sunken garden on October 12, in the course of the three-days' celebration which is to mark the completion of the aqueduct system.

Strong opposition to the project has developed and many differing views, both of the opponents and proponents, are being published in the newspapers of New York City. Whatever may be the outcome it is very evident that the development of Central Park is a matter which touches a great many people and which always arouses a keen controversy.

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Two Designs for the Facade of St. Peter's in Rome

By KENNETH JOHN CONANT, American Academy in Rome

FIG. 1. DESIGN BY MICHELANGELO AS MODIFIED IN EXECUTION

IF the façade of St. Peter's is a profoundly unsatisfactory composition, it is not only because we are out of sympathy with the love of extravagance and display so evident in every line of it, but also because it is the result of a long series of compromises between a number of different schemes, to none of which it does any sort of justice. An immense amount of thought and study was expended on the problem by the various architects from Bramante onward, for it was seen to be one of the greatest difficulty; and to turn over the solutions one after another, as anyone may do in the pages of Letarouilly or Guymüller, is to follow the spirit of the Roman Renaissance from its first tentativeness and uncertainty into its lavish decline. The earlier designs have a multiplicity of features that found the admirers in the period of the Gothic revival; the florid later schemes pleased the critics of their own time, but the soberer and simpler ideas worked out in the period between strike modern taste as the best.

An interesting phase of the finest scheme is presented in the first of the accompanying drawings. It is Michelangelo's design as modified in execution. The great dome has the outline given it by Vignola, for only the drum was completed at the time of Michelangelo's death in 1564, and Vignola, though he kept religiously to his predecessor's design, allowed his caution to influence him to a stabler form. Of the four auxiliary domes, still in the future at Michelangelo's death, two were built under Vignola. The great portico is the innovation of Michelangelo, and it shows the sweep of his genius. It explains and more than justifies the colossal order, so often criticized, with which he clothed the apses. However open to criticism from a structual point of view this portico may be, with its heavy attic loaded upon lintels which would of necessity have been built as iron-bound flat arches, no one can deny the immense effectiveness of it, or the peculiarly Michelangelesque flavor of a forty-foot band of masonry held up by fourteen towers of stone, each about seven feet in diameter and nearly one hundred feet high. The idea is

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FIG. 2. DESIGN BY BERNINI

worthy of its author, and I think must be admitted to be the most powerful possible solution of the problem. There is only the vaguest authority for the flanking colonnade shown in the drawing, although suggested by the existing one, for the site of the nave and forecourt was in a very chaotic condition during the last half of the sixteenth century. But it can hardly be doubted that the later architects wou'd have provided a fine approach to such a magnificent composition.

With the extension of the nave in 1612, the problem of the façade became a different one, for the dome no longer dominated it. It should have, therefore, some striking independent features, and it is the lack of these that makes the present front so disappointing. Compare it with the project of Bernini, the second drawing, made from the same viewpoint as the other. Whatever may be said of the taste displayed, or the appropriateness of expression, the scheme is certainly a grand one, with a wonderful excitement of design and a fine play of light and shade. The dome, large and important as it is, is completely thrown into the background by the two towers, which hold the spectator's interest at the plane of the façade. This lordly pair was actually executed in part, but the work done had to be taken down because of a threatening settlement in the foundations. It seems that Bernini failed to examine the substructures properly, but went blindly ahead on foundations prepared for much smaller towers by Maderna, who had brought the work to the parapet level. To this height it was now once more reduced, and remained so for many years, though the sky-line must have seemed very unsatisfactory and much less interesting than it is at present, with the attractive clocks added in 1782. Yet these clocks, compared with the towers they replaced, seem only weak and unsuitable; it cannot be said that they go very far toward making the design compare with the magnificent composition of Michelangelo.

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Beaux-Arts Institute of Design

Official Notification of Awards—Judgments of June 5 and June 19, 1917

Class "A," Sixth Esquisse-Esquisse

Class "B," Sixth Esquisse-Esquisse (Spiering Prize Competition)

Jury of Award.—F. H. Bosworth, Jr., L. Warren, J. H. Freedlander, H. R. Sedgwick, G. H. Bickley, R. Bolles. This Jury also served as Jury of Award for Class "A" and "B" Archæology, Sixth Projets and Measured Drawings.

Program.—Class "A," A Public Market. *Drawing, 14.*
Class "B," A Study in Vaulting. *Drawings, 15.*

Awards.—Class "A," Third Medal, P. J. Weber, University of Pennsylvania. Mention, L. C. Licht, A. M Pyke, G. M. D. Lewis, University of Pennsylvania.

Class "B," Mention, J. P. Morgan, Carnegie Institute of Technology. The Spiering Prize was not awarded.

Class "A" and "B" Archæology, Sixth Projet

Program.—A Cast Iron Balcony. *Drawings submitted, 3.*

Awards.—Mention, P. A. Tischler, Columbia University; L. C. Licht, University of Pennsylvania.

Eleven (11) Measured Drawings were submitted in this competition on which the following awards were made:

Third Medal, R. P. Van Derpoel, Syracuse University; L. C. Licht and W. Creighton, University of Pennsylvania.

Mention, F. J. Tarlowski, C. L. Hewitt, C. M. Snyder, N. R. Smith, Syracuse University.

Class "B," Sixth Analytique

Jury of Award.—W. Lamb, L. Warren, F. H. Bosworth, Jr., H. R. Sedgwick, J. A. Gurd, A. L. Noel, M. S. Wyath, H. O. Milliken, L. S. Weeks, F. C. Hirons, H. P. Pennington. This Jury also served as Jury of Award for Class "B," Sixth Projet.

Program.—A Memorial Column. *Drawings submitted, 38.*

Awards.—First Mention Placed, J. Ungar, Columbia University; P. J. Hoener, Atelier St. Louis

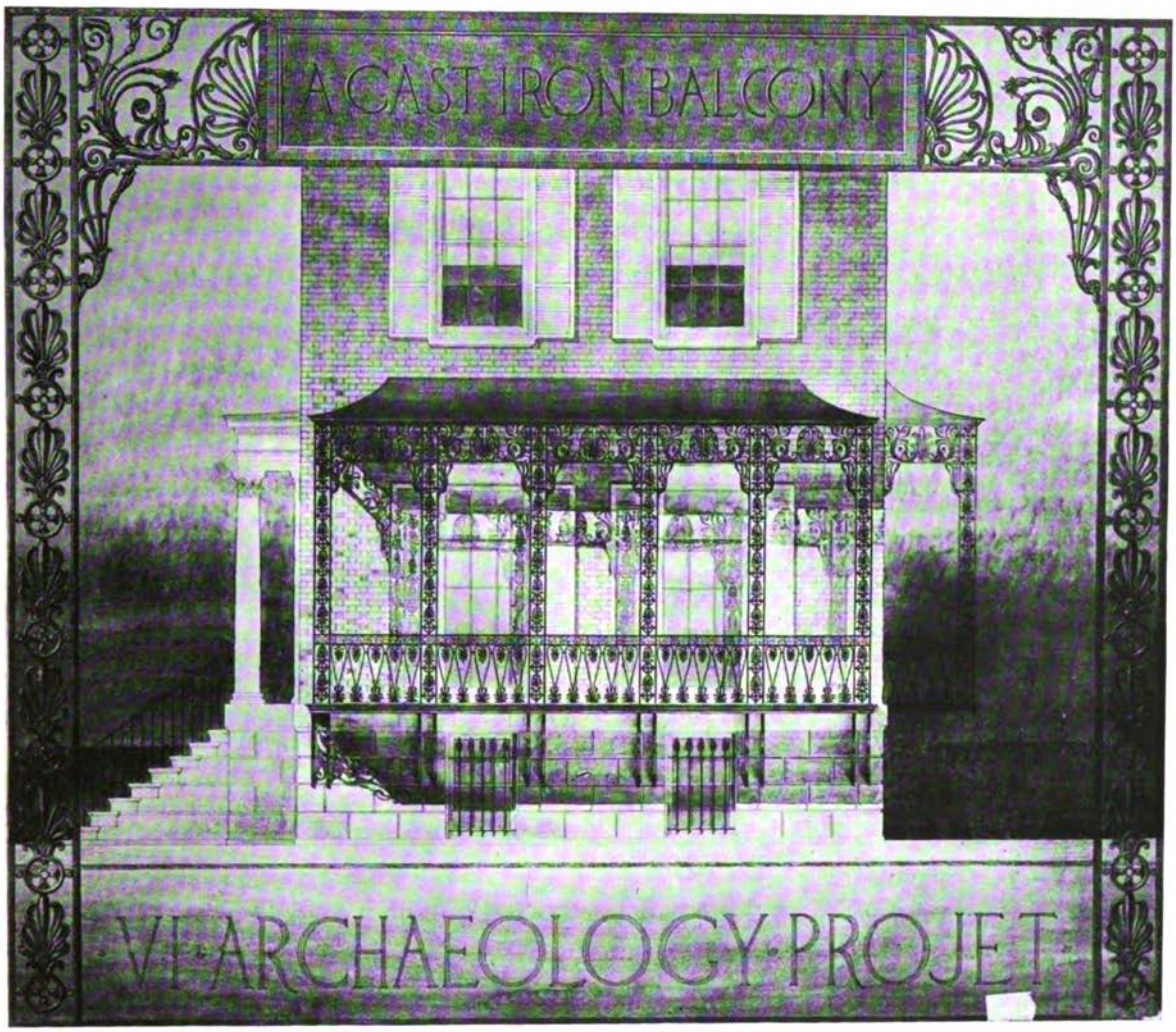
First Mention, R. A. Fisher and R. E. Rosenstein, Carnegie Institute of Technology; W. W. Krais, Atelier Licht, New York City.

Class "B," Sixth Projet

Program.—An Outdoor Restaurant. *Drawings submitted, 28.*

Awards.—First Mention Placed, F. A. Elsasser and J. Regan, Atelier Wynkoop, New York City.

First Mention, P. Friedman and A. E. Anderson, Carnegie Institute of Technology.



CLASS A AND B.—ARCHÆOLOGY.—VI. PROJET.—A CAST IRON BALCONY. Mention, L. C. Licht

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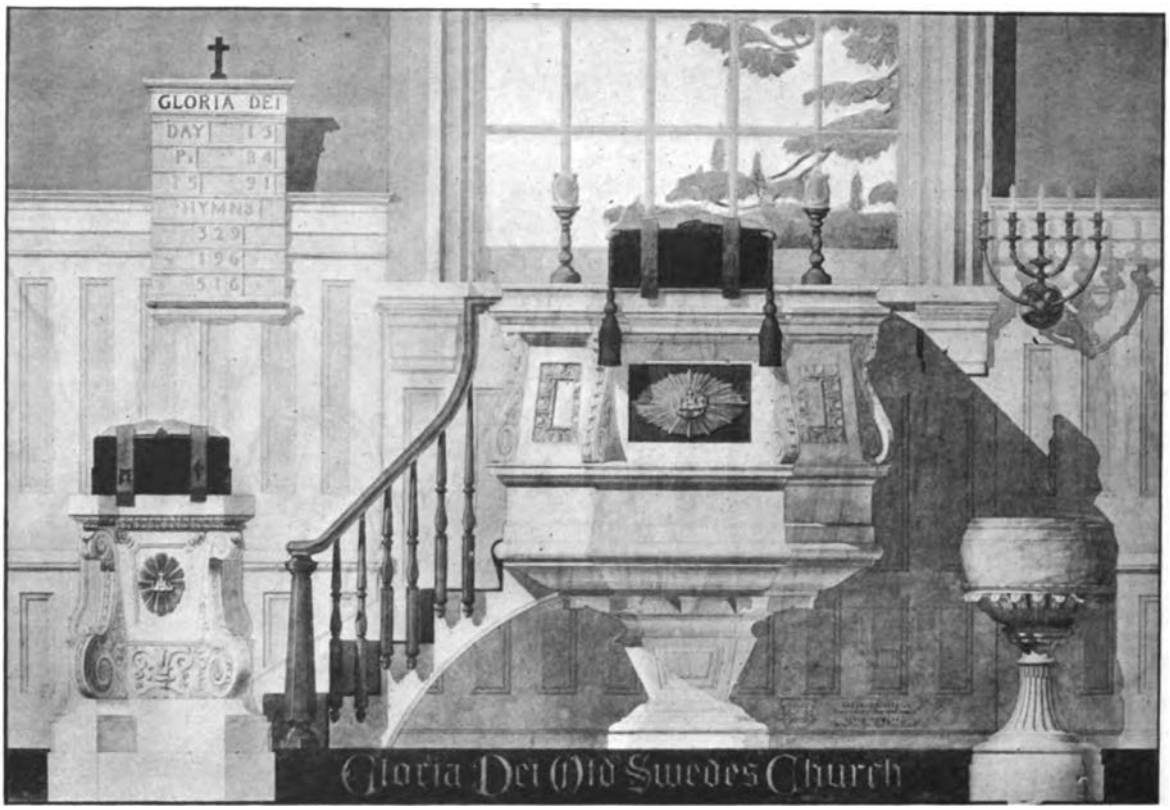

CLASS A AND B.—ARCHÆOLOGY.—VI. MEASURED DRAWING. Third Medal, L. C. Licht

CLASL B.—VI. ANALYTIQUE.—A MEMORIAL COLUMN
First Mentioned Placed, J. Ungar

CLASS B.—VI. PROJET.—An OUTDOOR RESTAURANT
First Mentioned Placed, F. A. Elsasser

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Nation Planning

AN ANALYSIS OF M. LOUIS VAN DER SWAELMEN'S "PRELIMINAIRES D'ART CIVIQUE"

By NILS HAMMARSTRAND

IT IS, indeed, a task involving the greatest responsibility that the rebuilders of the devastated countries will have to accomplish when the war is over. The success of their work will largely and quite especially depend on their ability to organize and to realize an indispensable work of preparative character, the scope and magnitude of which are not easily to be fully grasped by the distant onlooker. There is scarcely one of the most vital, the most urgent problems of contemporary architecture—taking the word in its widest sense—that these restorers, or rather renewers, will not have to encounter and to wrestle with. If it were not for its background of irretrievable losses and affecting human tragedy, I should unhesitatingly call their task not only fascinating, but enviable.

Fortunately, there are various evidences that the importance of the problems presenting themselves in this connection have been duly estimated. Thus, out of the disaster there has grown a considerable "war literature" of the most sympathetic kind, dealing with these subjects, which proves how conscientiously superior minds in the respective countries are weighing the obligations of the reconstructive work. One of the most remarkable among these publications is M. L. van der Swaelmen's book, "Preliminaires d'art civique mis en relation avec le 'cas clinique' de la Belgique."

There is in its title a promise of a more universal bearing than an exposé of locally or nationally limited questions would give. The aroused expectations are not baffled. Broadly viewed the book has two main divisions, the one of which may be characterized as an analytic exposition of the various aspects of civic development, of its manifold objects and aims, the respective desiderata being summed up in condensed synthetic conclusions, while the other part of the book, outlining as it does a scheme for organized establishment and methodical pursuit of constructive civic work, gives a basis efficiently dealing with and solving the pertinent, practical problems.

Such a publication, even if its teachings and principles were only or almost exclusively applicable within a nationally or geographically limited sphere, could always claim our interest and attention. Much more so when, as in this instance, the author has treated his subject not only in an amplified and diversified manner corresponding to the widespread, ruinous consequences of the war's events, but also has wished to give and has succeeded in giving to his suggestions and statements such a turn and shape that they largely may have an international, or even universal, significance and applicability. The tendency in this field, as in almost every other field of creative activity, will increasingly follow the direction of established international coöperation. This recognition is, certainly, sufficiently old and too well acknowledged to be in any way startling. It may rather, at first sight, seem startling from the fact that the world-dividing war itself has become a forceful promoter of this tendency. The foundation of an international organization for civic development already was laid before the war, through the establishment of "l'Union internationale des villes" with its seat in Brussels. It was formed at the first meeting of the "Congrès périodique international des villes," in Ghent, July, 1913. The national tools designed to carry out the work of this international organization were subcommittees to be formed in the different countries, and the urgency of conditions brought about through the war has, for Belgium's part, caused the formation of, foremost, two such executive suborganizations: "The Belgium Town-Planning Committee—London" and the "Comité Neerlando-Belge d'art civique—La Haye, Amsterdam." To M. van der Swaelmen—himself one of the founders of the last mentioned institution—the great question of post-bellum reconstruction has given an impulse to outline a more detailed scheme for a ramified structure to serve permanent international civic work and, as well, to suggest the frame of an "organiza-

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tion nationale perfectionnée," comprising "organismes officiels" and "associations privés." His suggestions respecting the official organs of such a national instrument, which might serve as a model to be imitated in other countries, are not confined to merely general indications, but elaborately specify its different members, each meant to deal with the pertinent questions from some special point of view, such as sanitation, alignment, communication, archæology, protection of sites and monuments, protection of nature, and all to be represented in a central commission acting as a superior administrative body.

As a definite step toward the realization of such a national organization in Belgium one may perhaps consider a law enacted by the Belgian government at Le Havre, in September, 1915, providing the obligatory submission of projects of reconstruction to a special committee for examination. M. van der Swaelmen pleads for systematization and extension of this principle to embrace all communities of the kingdom —in accordance with the general tendency of his programme and with a resolution of the conference in London for the reconstruction of Belgium, in February, 1915—and, moreover, he emphasizes, as a most urgent measure, the obligatory establishment of a special "Bureau d'inspection de l'état de dévelopment civique," in all cities and communities or agglomerations of communities in the country. These local institutions—to be formed in imitation of the first English "Civic Development Survey," founded in London by H. V. Lanchester—would have as their object to gather, classify, coördinate, analyze and present all the facts and matters relating to the state of civic development of the respective localities, including records, statistics, maps, plans, and graphic documents of all sorts, to be presented, as much as possible, in the graphic form of plans and diagrams, illustrating the statistics, and to be accompanied by explicative memoranda. For the benefit of the national, as well as the international, coöperation within this field it is, naturally, indispensable to organize such institutions as uniformly as possible and, still more urgent, to systematize their work according to strictly concordant methods.

While such institutions would be apt to facilitate and secure the task of the planner, they could, on the other hand—and this is a point on which the author strongly insists—be turned into tools for public instruction and information by arranging their gathered material in the form of a permanent exposition open to the public—one of the means the author suggests for the diffusion of knowledge about these things with a view to stimulating public spirit and ambition. For it ought always to be remembered that it is on the character and quality of this public spirit that the success of civic development will depend in the long run. Great individual scattered results may be attained without its help, but never that desirable level of general civic prosperity where the successful development of cities is pursued with pride by the society as a whole, where "a narrow individualism has been superseded by an elevated ideal of life in common."

The importance of such information—as important as any other form of social education—has been widely recognized, but its propagation, in the interest of public welfare, is on the other hand almost everywhere badly neglected. What has been done in this direction is, on the whole, confined to sporadic and comparatively inefficient achievements of private initiative. In the initiative of the governing authorities of the state, as well as of the communities, such private performances have their necessary future complement.

The necessity of this activity especially imposes itself in countries where the legal regulation of civic progress and improvement is still undeveloped, of comparatively recent date or limited to local centers, thus lacking the range and effectiveness of public law. This seems to be the case in Belgium. M. van der Swaelmen proposes concerning public control a "double legislation," one of the state in regard to the communities on the planning, organization and building of cities and on the protection of nature—"for," the author says, "he who is penetrated by the spirit of the civic problem knows that the urban, the rural and the regional problems are not to be separated." The communities, in their turn, ought to have legislative power in regard to the individuals, enforcing the application of the recognized sanitary, technical, or esthetic principles through regulating ordinances. An especially momentous injunction of the general law would, as already

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hinted, make the plans for systematic extension and improvement obligatory in all communities, cities, and villages of the kingdom, and, moreover, secure the periodic revisal of these plans every ten years for the villages, every five years for small and middle-sized cities, and every three years for large cities.

Such legislation—as regards urban development already instituted in its twofold form in some countries, for instance in Sweden and Germany—more than most laws, needs to be kept *à jour*, to be constantly modified and amended. The importance of national "civic development surveys" and of international coöperative civic work as a means to the attainment of this versatility can hardly be exaggerated. It will be one of the most momentous services to furnish that knowledge of empirical facts regarding civic conditions and civic necessities which alone can safely guide the legislation when formulating the directing conclusions of the law. We have already exposed some of the fundamental desiderata expressed by M. van der Swaelmen respecting the future organization of Belgian civic development survey—in the main concordant with the ideas of H. V. Lanchester. In a following article we shall deal with the author's suggestions concerning the immediate intervention in the "cas clinique" of Belgium, as well as with his expositions regarding the international research intended to serve this reconstructive work and to be developed into a permanent institution.

Resolutions on the Death of Dr. Jesse Benedict Carter

DIRECTOR, AMERICAN ACADEMY IN ROME, 1912–1917
DIED IN BOLOGNA, ITALY, JULY 20, 1917

At a special meeting held July 31, 1917, the Trustees of the American Academy in Rome, on motion of Dean West, Chairman of the Committee on the School of Classical Studies, seconded by Mr. Breck Trowbridge, Chairman of the Committee on the School of Fine Arts, adopted the following minute regarding the death of Director Carter:

"Jesse Benedict Carter was born in New York on June 16, 1872. He was of Scotch descent, the son of Peter Carter, the publisher, and of Mary Louise (Benedict) Carter, and a nephew of Robert Carter. His boyhood was happily nurtured in a home where books and studies were a natural part of the daily life. In 1889 his schooldays ended, and he entered New York University. The next year he entered Princeton and was graduated in 1893 at the head of his class. His brilliancy and range of power were evident from the start. He was first in every study he touched, whether ancient literature, physical science, philosophy, or history. His assiduous reading soon carried him far beyond the bounds of classroom tasks, widening the horizon of his regular studies, and opening vistas into other regions, especially modern letters and fine arts. It is conceded that in the last generation Princeton has graduated no one more highly gifted nor better trained in the studies of classical antiquity, and no one who combined with this special equipment a broader sweep of intellectual sympathy and vision. For four years after graduation he studied in classics and other fields at the Universities of Leipzig, Berlin, and Goettingen. He was still roving and ranging, and yet slowly settling to his special work. The next three years he was instructor in Latin at Princeton. The effect of his vivid teaching on the students was instantaneous, quickening, and even thrilling. The next year was spent at the University of Halle, from which he received the degree of Doctor of Philosophy. He then returned to Princeton as Assistant Professor and took a leading part in organizing the Classical Seminary established by his friend, Mr. George A. Armour. In 1902 he married Miss Kate Benedict Freeman. His devoted wife survives him. The same year he became Professor of Latin, holding this post until 1904, when he went to Rome as Professor in the American School of Classical Studies. In 1907 he was chosen Director of the School and was retained in this position on the consolidation of the School with the American Academy in Rome in 1911. The warm admiration shown for his executive skill by the late Mr. J. Pierpont Morgan went far to ensure the success of the consolidation.

"On the death of Mr. Frank D. Millet in 1912 he was elected Director of the Academy. The five years which followed were years of incessant and, at times, distracting labors, until at last the Academy with its two constituent schools was settled in residence on the Janiculum and well started on its new career. Deserved recognition quickly followed his work, as evidenced by the degree of Doctor of Letters conferred by Princeton, the invitation to deliver the Lowell Lectures in Boston, the lectures he gave in France on request of the Minister of Public Instruction, and the final honor of Commander of the Crown of Italy, bestowed last year by the King.

"To his regular duties he added an active coöperation of the Academy in measures of Italian war relief. In June of this year he went north to Paris, returning to Bologna to help in the ambulance work, and died there of sunstroke on July 20. He was buried July 25 in the Prostestant Cemetery in Rome.

"His work has been of fundamental value. His gifts and training and, above all, his enthusiasm for the unity of Arts and Letters made him the best man to succeed

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Frank Millet and put the new plan into operation, for he was through and through a humanist. Substitute the greater word Art for Sculpture, and the saying of Pomponius Gauricus (De Sculptura I) would be his watchword: 'I agree with you that Sculpture cannot exist without Letters, nor even Letters without Sculpture.' It was Art to quicken classical studies into brighter reality, and classical studies to illumine Art with the light of History.

"For all this Rome herself was in his eyes the main source of power. The Eternal City was to him a fountain flowing with living waters—quickening memories, self-renewing and priceless for both Art and Letters, ancient and modern. To blend these into one powerful impulse was his one aim. It is little wonder the students answered his call and that their daily fellowship is the sure pledge that his work, though unfinished, has been well begun.

"Such faults as he had were not unlike his virtues. His exuberant vitality and brilliancy, the source of his strength, at times appeared in mannerisms which might easily be misunderstood. They were of a sort which endeared him to the Italians and added to his influence. It is doubtful whether anyone less impressionable and sympathetic could have performed his difficult task so well.

"We lose him in the critical time of the great war. He was just coming into the fulness of his vigor. He was needed to guard and guide the new work. We had the best years of his life. No one can forget him—bright, alert, buoyant, friendly, flashing with life. His writings on Roman religion are secure in the esteem of scholars. His memory as an awakening teacher will last as long as his students survive. His administrative energy appears throughout our records. He lived to see the new plan well established; and for his loving labors he deserves remembrance as the chief intellectural builder of the new Academy."

Book Reviews

Michelangelo.

By Romain Rolland. Published by Duffield & Company. $2.50.

Romain Rolland is one of France's most distinguished writers, so that one opens with an expectancy of pleasure this life of Michelangelo. The world of letters has acclaimed the talents of Romain Rolland and acknowledged his surpassing mastery of the mysteries and realities of life. His is no genius of narrow bent, ever reproducing in the same field an initial success, but a genius comprehensive, embracing in its limits knowledge of man and all his activities, aspirations, and accomplishments. "Jean Christophe," his most famous work, is a monumental creation of amazing merit.

To Rolland, as to the average cultivated Frenchman, the world of art, of esthetics in its broadest aspect, is not an unknown, fenced-off phase of human endeavor wherein man has been eccentric or impractical. To him it is as an open book, the rarest flowering of human intellect and emotions; it is the justification and glorification of life, where the pleasures of man are tinged with divinity. Far from being exotic to man, this world of art is his natural environment in which there is freedom and joy.

Thus sympathetic with art, Romain Rolland is able in this book of all too few pages to sketch the chief incidents of Michelangelo's life, so that the reader has an overwhelming impression of Michelangelo as a living person. No longer a historical character, blurred with the mist of the past, he is flesh and blood, struggling with difficulties, beset by jealousies, accomplishing marvels, dreaming impossibilities, overturning the world of art. Painter, sculptor, military engineer, architect, writer of sonnets, but above all and preëminently painter, he like a cyclone swept clear the artistic world and implanted on it the stamp of his unattainable genius. Never before nor since has man so successfully pictured the power or the rush of motion. The "Creation of the Sun and Moon" from the Sistine Chapel is a unique stupendous miracle of art.

The book is well illustrated and has a chronological list of all the work of Michelangelo and at the end a bibliography. It has high literary merit and deserves a place in every library.

The following quotations illustrate the author's literary style and clarity of artistic judgment: "The heroes of art are also its tyrants, their glory kills, and the greater they are the more they are to be feared, for they impose on all men the laws of personality, which can exist but once. They are a devouring force; they illumine, but they burn." And again: "It would be absurd to offer Michelangelo as a model to young artists. Should great men ever be taken as models in art? Is not that one of the errors of classical training? They are examples of energy, sources of force and beauty. It is well to look for a moment on their radiance, then tear ourselves from their contemplation and work."—W. D. B.

Preliminaires D'Art Civique.

By Louis van der Swaelmen. 300 pp., frontispiece, and nine diagrams. A. W. Sijthoff's Uitgevers-Maatschappij, Leiden, Holland. Brentano's, New York City. $2 net.

A careful analysis of the book and its message will be found in this number of the Journal in Mr. Hammarstrand's article, "Nation Planning."

Town Planning for Small Communities.

By Charles S. Bird, Jr., and the Walpole Town Planning Committee. 450 pp., illustrations. National Municipal League Series. D. Appleton & Co., New York City. $2 net.

Walpole, a little rural industrial town in the eastern section of Massachusetts, has won for itself considerable distinction for its enterprise in town planning. Charles S. Bird, Jr., author of "Town Planning for Small Communities," is chairman of the local Town Planning Committee, and also of the Massachusetts Federation of Planning Boards. Mr. Bird has devoted himself energetically to the work of preparing and developing a town plan for

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Walpole. The experience and enthusiasm derived from this work accounts for the thorough and interesting way in which he has handled matters covered in this volume.

The book emphasizes the economy of town planning, and the conclusions drawn are supported by facts and figures. Suggestions are made on methods for putting a town plan into effect, both from the legal and propagandist standpoint. Successive chapters are devoted to the functions and various details of the street, park, and recreation systems. The importance of organization and the value of genuine coöperation in carrying out all plans are fully discussed. All the correlated agricultural and industrial factors affecting the planning of the small community are considered.

Those elements of the town plan under private control, particularly housing, and the problems of city adminstration conclude the discussion of the theory of town planning.

The second part of the volume presents the experience of the Walpole Town Planning Committee and describes the concrete accomplishments of the Committee.

The book is illustrated with valuable and pertinent photographs, diagrams, plans, and charts.

The New Registration Law in Wisconsin

The recently enacted law of the state of Wisconsin regulating the practice of architecture has several features which should be carefully considered, and it is well to consider them without a technical review of the act.

The law prohibits any person from using the term "architect" subsequent to January 1, 1918, unless he has a certificate of competency from the Board of Examiners. The issuing of such a certificate to those already in practice is optional with the Board, and should be, but a denial by the Board deprives a person of the right which he now lawfully possesses; this seems to be retroactive legislation which upon judicial review would probably fall; it invites attack. There is no question as to the legality of the requirement of a certificate of competency subsequent to the passage of the act for those then seeking to enter the practice of the profession, and an act requiring all architects in practice prior to the enactment of the law to be registered, whether competent or not, would make the law a farce; but the Wisconsin law apparently seeks to go back in its operation to undo an existing evil.

The law does not establish a standard of academic education but leaves that standard to the Board of Examiners. While this may be well, if many more states adopt this method it will require an active mind to find out what the minimum requirements are in the various states for interstate reciprocal registration. It will at once be seen that such Boards may change their standards overnight, in fact, the possibilities are fascinating.

The law recognizes the college courses in architecture and does well to reserve to the Board the right to review the character of the practice of the applicant subsequent to graduation.

The law provides that any person actually engaged in practice prior to the passage of the act may be registered if approved by the Board. This seems to cover architects without as well as within the state, but when the law goes into effect the architect in practice in a state having no standard of academic or technical education is in rather an embarrasing position if he seeks to practise in Wisconsin. He certainly would be required to brush up in his schoolday subjects.

The law provides that the registered architect shall file his certificate with the county clerk. As this leaves him without any to exhibit to a possible client, it would seem well if the certificate could be issued in duplicate or simply registered.

The provisions of the law creating the Board of Examiners are so good that a competent Board is assured, and the law will be perfected by competent men who have had the advantage of the experience which comes with the duty of enforcement.

WM. P. BANNISTER,
Chairman, Committee on Registration Laws.

News Notes

Proposed Illinois Housing Code

Public hearings on the proposed housing code for incorporated cities of the state of Illinois were held recently at Chicago. The proposed code contains provisions covering light, ventilation, sanitation, fire protection, and the like, and is based upon recent housing legislation enacted in other states. Private residences and two-family houses are exempt from the scope of the bill, which applies only to buildings occupied by three or more families. At the public hearings the chief difference of opinion concerned the advisability of including Chicago under the proposed law along with the other cities of Illinois. It was pointed out that Chicago conditions and problems are so different from those of the other cities that legislation of this sort befitting the great city would not fit the small city. Yet it was urged, on the other hand, that the omission of Chicago from the operation of the bill might be challenged as an exemption violating the principle of uniformity in legislation. Efforts are being made to redraft the bill so that it will be satisfactory for Chicago as well as for the smaller cities.

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Structural Service Department

D. KNICKERBACKER BOYD, Associate Editor

August, 1917

CONTENTS

So great is the present interest in the constructional activities of the United States Government that we are interrupting the sequential presentation of information in this department in order to give some account of the organization of those branches of the three departments of the United States Government—War,* Navy, and Treasury—which have to do with structural matters. With the information already given concerning the Bureau of Standards (Department of Commerce), Bureau of Mines and Geological Survey (Department of the Interior), this completes the account of governmental activities with respect to major structural matters.

*Unavoidably deferred to a future issue.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated, see the General Index, page 414)

8A Bureau of Yards and Docks: Department of the Navy.
8B Office of Supervising Architect: Treasury Department.
8C Bibliography: The United States Public Works.
8D The Convention of the American Society for Testing Materials.

8A Bureau of Yards and Docks: Department of the Navy

Established in 1842

(Prepared for the Journal by Rear Admiral Harris)

Chief of Bureau: Rear Admiral Frederic Robert Harris, U. S. N., Navy Annex Building, Washington, D. C.

Publications:

Bulletin "Public Works of the Navy," issued quarterly, January 1, April 1, July 1, and October 1; H. D. Rouzer, Engineering Secretary to Chief of Bureau, acting editor.

Information published in the Bulletin appears under the following heads: Administrative, Professional, and Engineering Notes.

Under the heading, Administrative, are published from time to time explanations of the manner in which the Bureau desires its work carried on, information relating to new contracts, reports of progress of work and work completed, reports of expenditures and analyses of expenditures, and matters relating directly to the administrative policy of the Bureau.

Under the heading, Professional, is published matter of professional interest to officers of the Corps of Civil Engineers, U. S. Navy, and includes proposed new methods of design; special cases of successful construction along new lines, as well as cases which may have proved unsuccessful; results of tests upon various manufactured articles which may be offered for use in public works; and cost data on the various works constructed under the cognizance of the Bureau. Articles descriptive of engineering projects of major importance prepared by members of the Corps appear under this heading.

Under the heading, Engineering Notes, is printed such matter as bibliographies, abstracts of published articles, etc., which it is considered will be of value as reference. Brief articles descriptive of engineering projects of somewhat minor importance are also published under this heading.

Bulletins are not for public distribution; however, it has been the custom to forward copies to parties on request, until the supply is exhausted.

Administration:

The duties of the Bureau of Yards and Docks comprise all that relates to the design and construction of public works of the Navy, such as dry-docks, marine railways, building ways, harbor works, quarry walls, piers, wharves, slips, dredging, landings, floating and stationary cranes, power plants, central heating plants, coaling plants, fuel-oil plants, heating, lighting, telephone, water, sewer and railroad systems, roads, walks and grounds, bridges, radio towers, hospitals, and all buildings for whatever purpose needed under the Navy and Marine Corps. It has charge of all means of transportation, such as derricks, shears, locomotives, locomotive cranes, cars, motor trucks, and all vehicles, horses, teams, subsistence and necessary operators and teamsters, in the various navy yards.

The work of the Bureau is carried out under the direction of the Chief of the Bureau, assisted by the officers of the Corps of Civil Engineers, U. S. Navy. Six officers are detailed for duty at the Bureau, the remaining number being stationed at the various navy yards and naval stations and supervise the work in their respective localities.

Organization:

The Chief of the Bureau is in general charge of all work under the cognizance of the Bureau. In his absence the Assistant Chief of the Bureau is in charge.

The work of the Bureau is classified under the following main divisions, each under the direct supervision of a commissioned officer or the Chief Clerk:

(*a*) Assistant Chief of Bureau.
(*b*) Division of Mechanical, Electrical, and Routine Design.
(*c*) Division of Special Design and Projects.
(*d*) Construction Division.
(*e*) Maintenance and Operating Division.
(*f*) Clerical and Office Management Division.

(*a*) *Assistant Chief of Bureau:* This officer is the special respresentative of the Chief of the Bureau and Acting Chief in his absence. He has the general supervision of all correspondence, Bureau organization and office methods, annual estimates, and coördination of Bureau work.

(*b*) *Division of Mechanical, Electrical, and Routine Design:* This Division operates through three subdivisions—(1) General Drafting, (2) Mechanical and Electrical, and (3) Architectural.

The following are the more important duties of this Division: Origin and development of design of altera-

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tions and extensions to existing public works and utilities and new projects of a routine character, and projects having architectural features of major importance.

Plans and specifications prepared at the yards, unless involving projects under the division of special design and projects. (See Division [c].)

All matters relating to radio work except contracts and records of yard-labor jobs.

All matters relating to power plant, mechanical and electrical work, except contracts and records of yard-labor jobs.

All matters relating to electric, water, power, air, and heat distributing systems accessory to power plants, except contracts and records of yard-labor jobs.

(*c*) *Division of Special Design and Projects:* This Division has the following among its general duties—

Origin and development of design, plans and specifications covering special projects involved in extensive development of the yards and stations.

Studies and plans for future development and expansion of yards and stations.

Studies and plans for standardizing public works structures.

(*d*) *Construction Division:* This Division has the following among its general duties—

Advertisements for proposals, opening of bids in Bureau and preparation of recommendation of award.

Work under Bureau contracts from date of contract. This includes arranging for factory inspection and shipment of materials and machinery.

All yard-labor jobs from date of authorization.

The officer having charge of this Division is the representative of the Navy on Committee on Portland Cement Specifications, on Waterproofing Cement, on Plumbing Board, and the representative of the Bureau on Cement Committee of the American Society for Testing Materials.

(*e*) *Maintenance and Operating Division:* This Division has the following among its general duties—

Supplies and accounts, requisitions and proposals; furniture records.

Allotment of funds under annual appropriations and allotment of funds under public works appropriations.

Periodical reports of inspection of public works and utilities.

Inspection and shipment of material under supplies and accounts, contracts, or requisitions.

Subsurface and topographical surveys of yards and stations.

The officer having charge of this Division is the representative of the Bureau of Civil Service Examinations.

(*f*) *Clerical and Office Management Division:* This Division has the following among its general duties—

Supervision of Bureau clerical force.

Examination of legal provisions of specifications.

Preparation of Book of Yard Maps and data book, public works.

Office management, coördination routine and office work of divisions.

8B Office of Supervising Architect: Treasury Department

(Prepared for The Journal by James A. Wetmore, Acting Supervising Architect)

Publications:

The office does not publish a bulletin. Advertisements soliciting proposals are published in a number of technical papers and in local newspapers. A number of papers make a specialty of reporting awards of contracts. The Society of Constructors of Federal Buildings, consisting of the members of the field force and some members of the office force, issues a monthly journal which, although not an official publication, gives much information regarding the activities of the office.

Administration:

The activities of the Office cover all that relates to the design, construction, and maintenance of public buildings in all parts of the country, such as post offices, courthouses, custom houses, appraisers' stores, power houses, departmental office buildings, wharves, marine hospitals and quarantine stations, in fact, practically all buildings for civic purposes.

With the exception of departmental office buildings, it furnishes the buildings, keeps them in repair, and controls and directs the force required for their maintenance.

It furnishes estimates for new projects for the information of Congress and conducts an extensive correspondence in relation to the buildings under contract and completed and in relation to new materials and methods of construction.

The Office does not buy any material direct but contracts for the construction of buildings and supervises the work of the contractors through the agencies of superintendents of construction and inspectors. After completion buildings are placed in charge of custodians.

Exclusive of marine hospitals, quarantine stations, and buildings which have been transferred to other Departments, there were under the control of the office on July 1, 1917, 1,072 completed buildings, of which approximately one-third have been extended, some more than once.

There are 54 marine hospitals and quarantine stations, each containing a considerable number of buildings. Practically every quarantine station has one or several wharves.

From 80 to 90 buildings are placed under contract every year and approximately the same number of buildings are completed every year. The yearly average expenditure for new construction work is $8,000,000, and approximately the following amounts are expended per year for completed buildings.

Repairs and preservation	$800,000
Mechanical equipment	440,000
Vaults and safes	110,000
Furniture and repairs to furniture	775,000
Operating force	3,025,000
Operating supplies	1,700,000

Organization:

(*a*) The Supervising Architect directs all activities of the Office with the assistance of the Executive Officer in charge of the administrative divisions and the Technical Officer in charge of the technical divisions; both officers are authorized to sign a certain class of mail. In the absence of the Supervising Architect, these two officers in the sequence given become acting head of the Office.

(*b*) The Technical Officer directs the following divisions, each in charge of a superintendent of division:

1. Drafting.
2. Structural.
3. Mechanical Engineering.
4. Computing.

(*c*) The Executive Officer directs the following divisions, each in charge of a superintendent of division:

5. Maintenance.
6. Files and Records.
7. Accounts.
8. Repairs.

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As this is division by subject and not by territory, the coöperation of the eight divisions is required in connection with every building.

(*d*) *Board of Award:* All expenditures are passed by the Board of Award, which sits daily and consists of four members, the Supervising Architect, Executive Officer, Technical Officer, and Superintendent of the Drafting Division.

Recommendations to the Board for expenditures are made by the Superintendents of Computing, Mechanical Engineering, Maintenance and Repairs Divisions. The letters authorizing expenditures are written by the Computing and Maintenance Divisions.

(*e*) *Technical Board,* consisting of the Supervising Architect (*ex officio*), Technical Officer and Superintendents of the Drafting, Structural, Mechanical Engineering, Computing and Repairs Divisions.

The principal duties of the Board are to consider technical processes, pass on important questions relating to materials and methods of construction, and secure the fullest coöperation between the different technical divisions. This Board convenes only when called by the chairman.

(*f*) *Construction Field Force,* comprises 105 superintendents of construction, transferred from point to point as their services are required. As there are constantly from 125 to 140 buildings under construction, some of the superintendents have charge of more than one building.

The traveling inspection force consists of five Supervising Superintendents and seven Mechanical Inspectors. The Supervising Superintendents and Inspectors are stationed in large cities and each covers the inspection work of a certain territory.

(*g*) *Custodian Force:* Each completed building is in charge of a custodian, who is a Government official and serves without compensation. The force of janitors, firemen, laborers, etc., varies greatly with the size of buildings. Four traveling inspectors report on the efficiency of the custodian force and the maintenance of the buildings.

Duties and normal strength of the different divisions:

1. *Drafting Division:*

Superintendent, Assistant Superintendent, 1 Principal Draftsman, 4 Foreman Draftsmen, 43 Architectural Draftsmen, 3 clerks, and 1 messenger.

Duties: Designs for the approval of the Cabinet Board; architectural working drawings; approval of architectural samples and models; recommendations for mural decorations and decorative painting; construing architectural drawings; checking architectural shop drawings; memoranda as basis for correspondence; custody and maintenance of library; and preservation of files of drawings.

2. *Structural Division:*

Superintendent, Assistant Superintendent, 18 engineers, 1 clerk, and 1 messenger.

Duties: Structural drawings; checking structural shop drawings; approval of mill inspection reports; construing structural drawings; memoranda as basis for correspondence; and preservation of files of active structural drawings.

3. *Mechanical Engineering Division:*

Superintendent, Assistant Superintendent, 18 engineers, 3 clerks, and 1 messenger.

Duties: Mechanical engineering drawings and specifications for new and completed buildings; technical advice to Maintenance Division regarding expenditures in occupied buildings and engineering supplies and personnel; approval of mechanical engineering samples and selection of mechanical engineering appliances; construing mechanical engineering drawings and specifications; checking mechanical engineering shop drawings; memoranda as basis of correspondence; preservation of active mechanical engineering drawings and specifications; and recommendations to the Board of Award.

4. *Computing Division:*

Superintendent, 16 computers and estimators, 23 clerks, 5 skilled laborers.

In the Photograph and Duplicating Galleries, there are employed: 1 photographer, 1 foreman, 2 chemists, 4 skilled laborers, and 1 messenger boy.

Duties: Estimating for new buildings and extensions; reports on contemplated public buildings; writing of specifications; construing specifications; preparation of annual construction estimates; miscellaneous technical correspondence; recommendations to the Board of Award; authorization of expenditures from special appropriations; approval of structural samples; direction of movements of superintendents and inspectors (except inspectors of furniture and maintenance and site agents); management of all work on new buildings and extensions; all field correspondence; receiving, filing and shipping samples; in charge of duplicating and photograph galleries; files of active specifications; files of advertising; files of bids; list of awards; charge of contractors' room; and construction cost keeping.

5. *Maintenance Division:*

Superintendent, 24 clerks, 1 electrical engineer, 1 foreman vault, safe and lock shop, 1 messenger, 4 Inspectors of Maintenance, 1 Furniture Inspector, 1 Inspector of Vaults and Safes.

Duties: Authorization of janitors' miscellaneous supplies (fuel, electric current, gas, washing-towels, removing ashes, rubbish and snow, cutting grass, etc.); purchase of oil and lamps; purchase of coal.

Direction of custodian and janitor forces and engineering personnel; pay-rolls of custodian force.

Drawings and specifications for furniture; authorization of expenditures for same; furniture record; sale of old furniture; supplies and materials; sale of condemned property.

Purchase of carpets and linoleum; safes, lock-box equipment and vault repairs for completed buildings.

Charge of storerooms; issuing flags, towels, sponges, etc.

Charge of supply-room; purchase and distribution of office supplies; office printing; multigraphing, etc.

Correspondence relating to all of the above; Recommendations to the Board of Award from appropriations for operating supplies, furniture and repairs to same of public buildings, vaults and safes for public buildings, and general expenses of public buildings.

6. *Files and Record Division:*

Chief, Assistant Chief, 20 clerks, 2 skilled laborers, and 3 messengers.

Duties: *Law Section.*

Legal work generally; titles and title surveys; contracts and bonds; leases, licenses, and other instruments; correspondence and detail work in connection with sites and movements of site agents; authorizations from appropriation for "Lands and Other Property of the United States;" correspondence relative to claims; settlement of all contracts; responding to calls from Court of Claims; and legal correspondence.

Duties: *Files Section.*

All general files and records; incoming and outgoing mail; mailing specifications and drawings for Computing, Drafting, Structural, Repairs and Mechanical Engineering Divisions; preparation of miscellaneous forms and circular letters.

7. *Accounts Division:*

Superintendent, 19 clerks and accountants, 1 messenger.

Duties: Accounting and bookkeeping; statistical and cost-keeping systems; transmission of estimates for all appropriations and incidental correspondence in connection therewith; annual report; special and Congressional reports; office pay-roll, time-records, and leaves of absence of office force.

8. *Repairs Division:*

Superintendent, 4 draftsmen, 2 clerks, and 1 messenger.

Duties: Drawings, specifications, and estimates for repairs to completed buildings; technical advice, assistance and recommendations to the Maintenance Division; files of active drawings and specifications; approval of samples for repair work; and recommendations to the Board of Award.

8C Bibliography

In connection with the structural activities of the Government, the book by Col. W. M. Black, of the Corps of Engineers of the U. S. Army, and member of the American Society of Civil Engineers, entitled "The United States Public Works" will be found instructive. It contains a

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Summary of the Methods of Construction and Character of Materials and Plant used in the Public Works under the Charge of the War and Treasury Departments, and of the Commissioners of the District of Columbia, including Works of River and Harbor Improvement, Buildings at Posts of the United States Army, Lighthouses, Public Buildings, Life-Saving Stations, and Works of Municipal Engineering of Washington, D. C.; also of the Laws, Regulations, and Forms Prescribed for the Conduct of Such Works; and a Directory of the United States Agents in Charge of These Works, and of Contractors for Them; also of Manufacturers of and Dealers in Machinery, Materials, and Miscellaneous Supplies Used in Construction of the Works. Published as a Book of Reference for All Persons Interested in the Public Works, and for Engineers and Contractors in General. 276 pp., illustrated with 56 half-tones and working drawings.

8D The Convention of the American Society for Testing Materials

August 13, 1917.

To the Editor of the Journal:

Dear Sir: I enclose the following notice relating to the recent annual meeting of the American Society for Testing Materials and embodying those matters which I deem of especial importance and interest to the architectural profession. Yours very truly,

THOMAS NOLAN
Chairman Committee on Materials and Methods.

The Chairman of the Institute's Committee on Materials and Methods attended the twentieth annual meeting of the American Society for Testing Materials in Atlantic City, N. J., June 26–29, inclusive. There were 549 members in attendance. The Chairman attended all of the sessions of the four days and took part in the discussion of several of the reports and papers, especially in those relating to cement, reinforced concrete, and hollow building tile.

The American Institute of Architects as a body is a member of this Society, and the Chairman of the Committee on Materials and Methods has been, and is at present, the official representative of the Institute in that Society. That Society has made the Chairman of the Institute's Committee on Materials and Methods a member of its Committee C-1 on Cement and also of Subcommittee IX of that Committee C-1. Two other members of the Institute are members of Committee D-7 on Timber. Subcommittee IX on General Clauses and Publication has charge of the editing for publication this year of the Report of the Joint Conference which formulated the present Standard Specifications for Portland Cement.

Your Chairman has attended important meetings of Committee C-1 on Cement held in Philadelphia and in New York City and hopes to attend the next meeting of that Committee, to be held next October in Allentown, Pa.

Of the sixty-three reports and papers presented, the following were of special interest to the architectural profession:

1. Report of Committee A-2: On Wrought Iron.
2. Report of Committee D-9: On Electrical Insulation.
3. Report of Committee A-3: On Cast-Iron.
4. Report of Committee A-5: On Corrosion of Iron and Steel.
5. Report of Committee E-1: On Methods of Testing.
6. Distribution of Pressure through Earth Fills.
7. Annual Address by the President.
8. Report of Committee A-1: On Steel.
9. Inspection of Brass and Bronze.
10. Report of Committee D-1: On Preservative Coatings for Structural Materials.
11. Optical Properties and Theory of Color of Pigments and Paints.
12. Report of Committee C-1: On Cement.
13. The Properties of Cement-Lime-Sand Mortars.
14. High-Silica Portland Cement.
15. The Economical Proportions for Portland-Cement Mortars and Concretes.
16. Tests of Concrete Slabs to Determine the Effect of Removing Excess Water Used in Mixing.
17. Report of Committee C-2: On Reinforced Concrete.
18. Report of Committee C-9: On Concrete and Concrete Aggregates.
19. Report of Committee C-7; On Lime.
20. Effects of Grading of Sands and Consistency of Mix Upon the Strength of Plain and Reinforced Concrete.
21. A Comparison of the Heat-Insulating Properties of Materials Used in Fire-resistive Construction.
22. Report of Committee C-4: On Clay and Cement Sewer Pipe.
23. Report of Committee C-6: On Drain Tile.
24. Report of Committee C-10: On Hollow Building Tile.
25. Report of Committee C-5: On Fireproofing.
26. Report of Committee D-8: On Waterproofing.
27. Report of Committee D-7: On Timber.

At a meeting of Committee C-1 on Cement your Chairman fully explained to the forty members present the work and purposes of our Committee on Materials and Methods of the Institute, its desire to coöperate with the American Society for Testing Materials and other similar organizations, and also explained the Institute Committee's coöperation with the Structual Service Department of the Journal of the Institute. Your Chairman also explained to the members of this Committee the request made to all of our Chapter subcommittees to urge the Chapters of the Institute to consider the adoption of the A.S.T.M. Standard Specifications for Portland Cement and for Structural Steel for Buildings, and he stated that this was being done, some of our Chapters and one state association having already taken such action.

During the latter meetings of the Convention, Mr. D. Knickerbacker Boyd, the Associate Editor of the Structural Service Department of the Journal of the Institute, was in attendance and aided materially by offering valuable suggestions and taking part in discussions.

During the Convention your Chairman discussed informally with Mr. A. A. Stevenson, the retiring President of the American Society for Testing Materials, the advisability of some formal and official recognition on the part of that Society of the increasingly successful efforts of the Institute Committee on Materials and Methods and the Structural Service Department of the Journal to secure recognition and approval, and to adopt in practice the Standard Specifications of the American Society for Testing Materials. At the next annual meeting of that Society such action will probably be taken.

Your Chairman would urge, also, and will so recommend in the final report of this Committee, that at the next annual convention of the Institute formal action be taken affirming the A.S.T.M. Standard Specifications for Portland Cement and for Structural Steel for Buildings when these materials are to be used in architectural construction. (For Information concerning these two standards see the Journal for January, 1917.)

THOMAS NOLAN, *Chairman*
Committee on Materials and Methods

EDITOR'S NOTE.—It is of interest to note that one Chapter of the Institute, namely, Cincinnati, is a member of the American Society for Testing Materials and also that the Illinois Society of Architects is a member.

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Columbian
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A very limited supply of back bound volumes is on hand at the price of $6 in Buckram; $7 in Half Morocco, an allowance of $3.50 being credited for 12 numbers returned in good condition.

Journal of the American Institute of Architects

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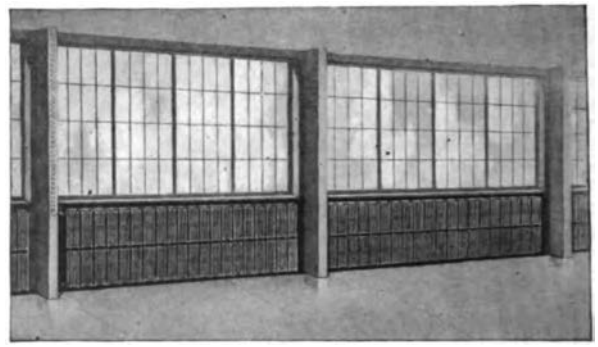
Wall radiator heating superior to pipe coils

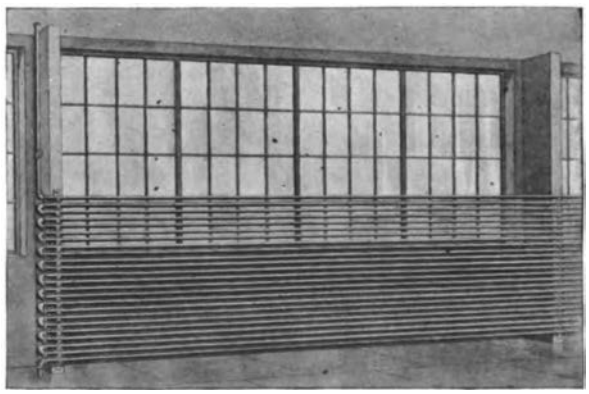
These two illustrations show very strikingly the many advantages of AMERICAN Rococo Wall Radiators over pipe coils for factory and warehouse heating.



These AMERICAN Rococo Wall Radiators in two tiers contain 360 square feet of heating surface; distance between pilasters, 26 feet; height from floor to window-sill, 5 feet. Radiators do *not* project above the window-sill.

AMERICAN Rococo Wall Radiators

can be erected on walls, ceilings, skylights and in narrow passageways, on girders or columns and around windows—easily installed in small units to accommodate any spare space not otherwise usable.



This Pipe-coil made up of 2-inch pipe, twenty-four pipes high, contains 390 square feet of heating surface; distance between pilasters, 26 feet; height from floor to window-sill, 5 feet. Pipe-coil projects 2½ feet *above* the sill.

Wall radiator units are easily rearranged, increased or diminished in size and permit of adjusting the heating supply to the weather demands—thus preventing much fuel waste and overheating.

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A New Book On Swimming Pools

THE constructive work that is being done by this association is again illustrated in the publication of a new book, "Swimming Pools," which recently came from the presses.

This book, following the one dealing with Tile for use in Hospital Construction, is evidence of the association's desire to render a helpful service to architects.

It will be followed by others of equally constructive character, and architects are invited to take advantage of the assistance which all these books relating to Tile and its uses will render.

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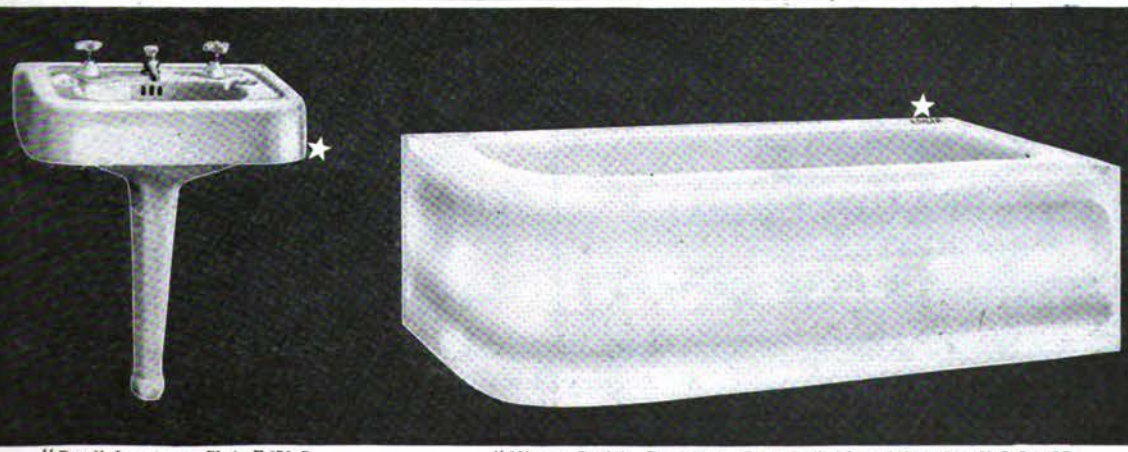

"Bevo" Lavatory—Plate F-275-P *"Viceroy Bath"—Plate V-12* (Patent Applied for and Name Reg. U. S. Pat. Off.

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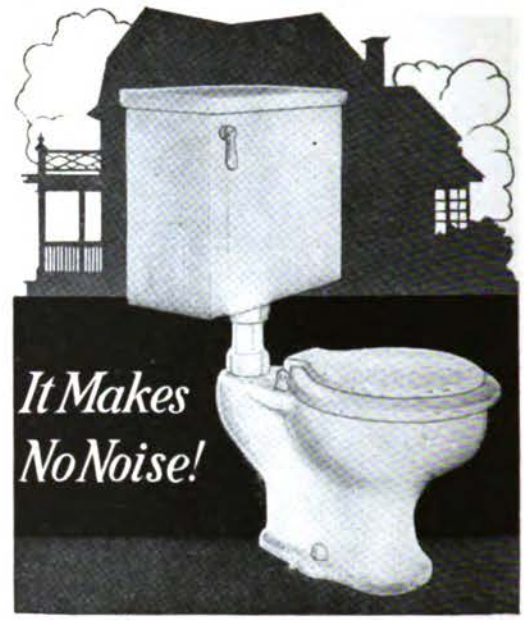

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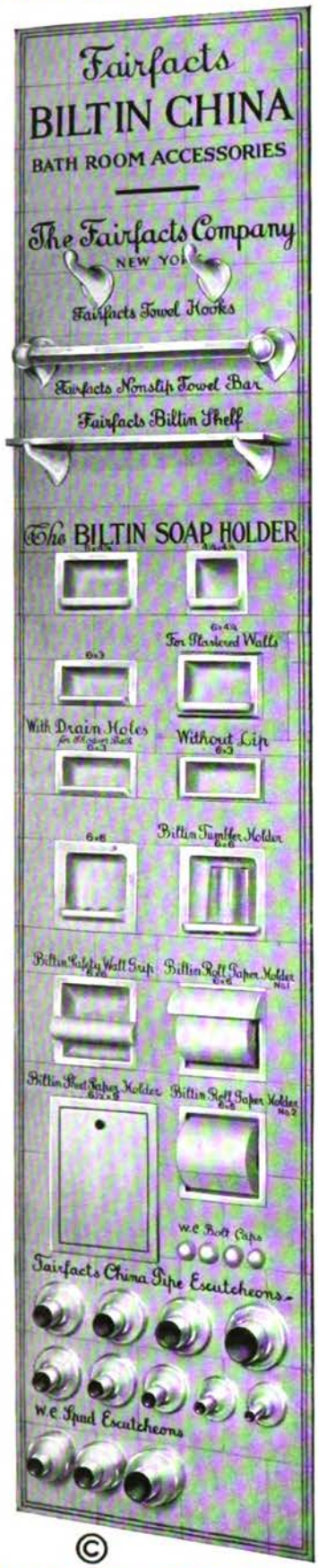

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Pure White China	*versus*	Nickel Plate
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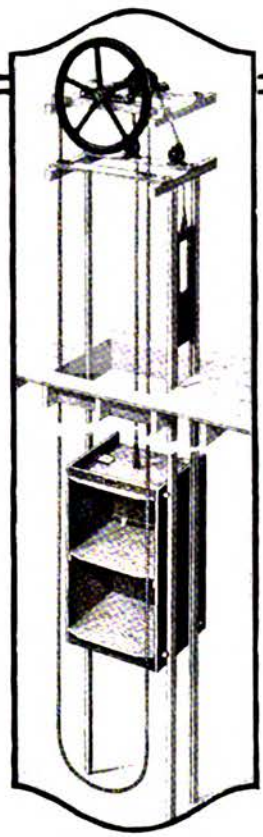

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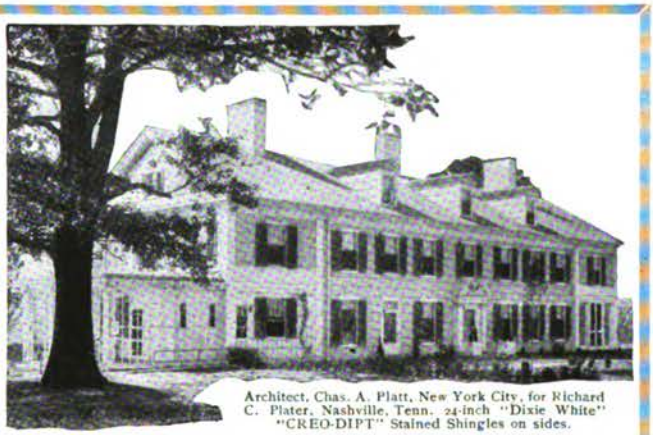

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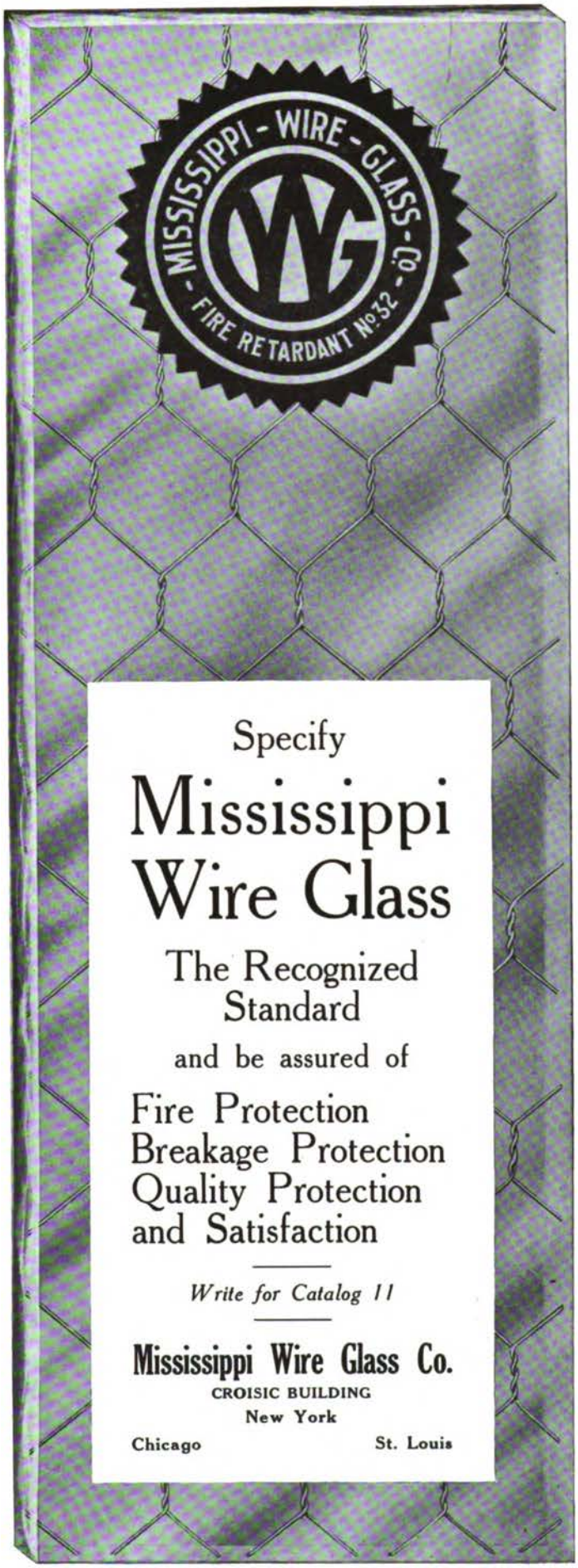

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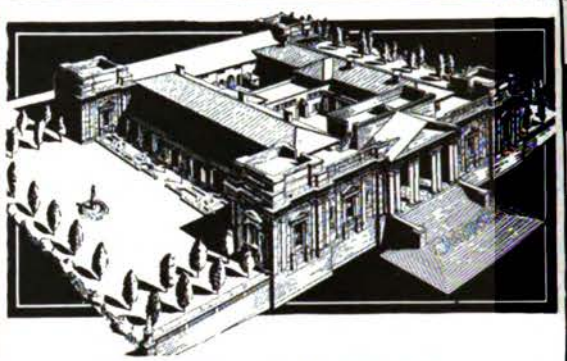

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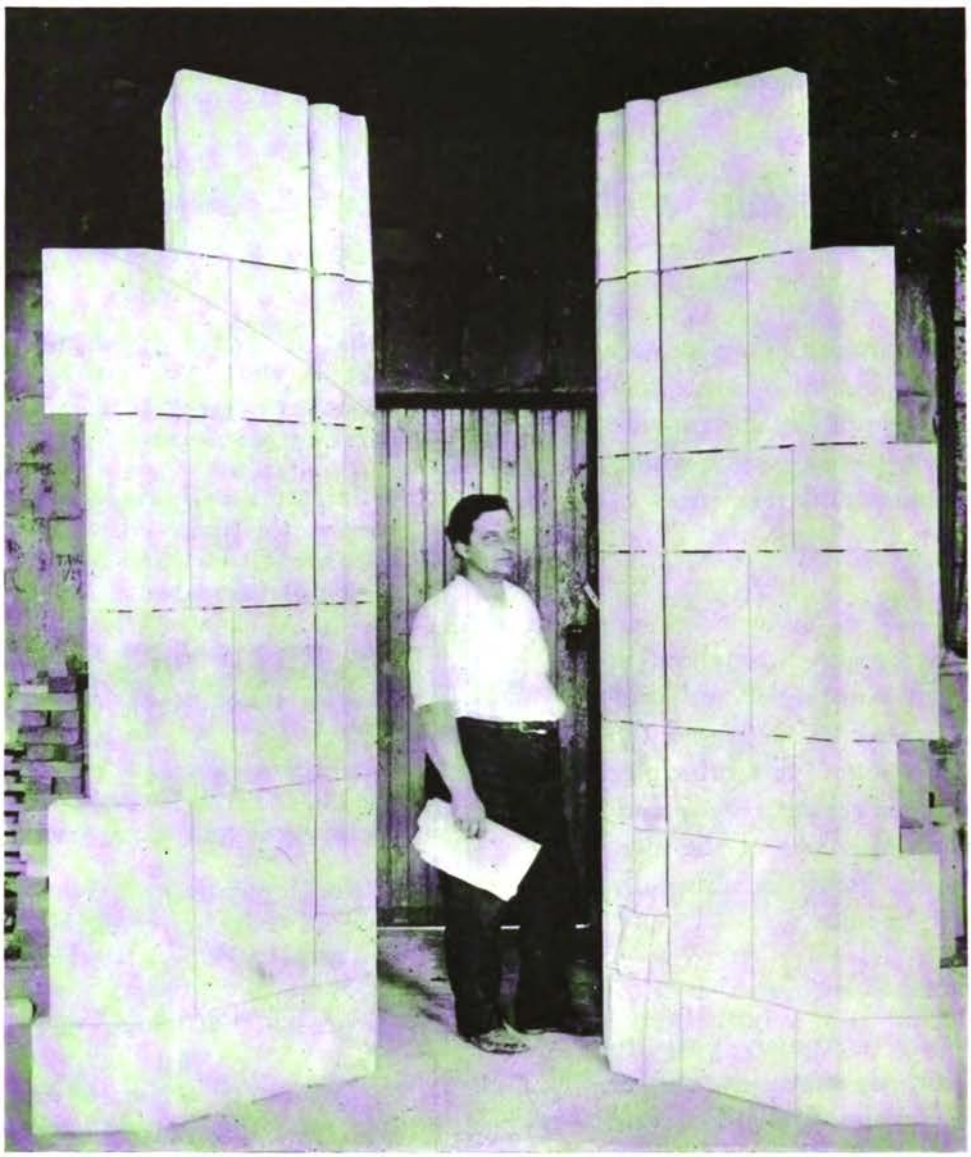

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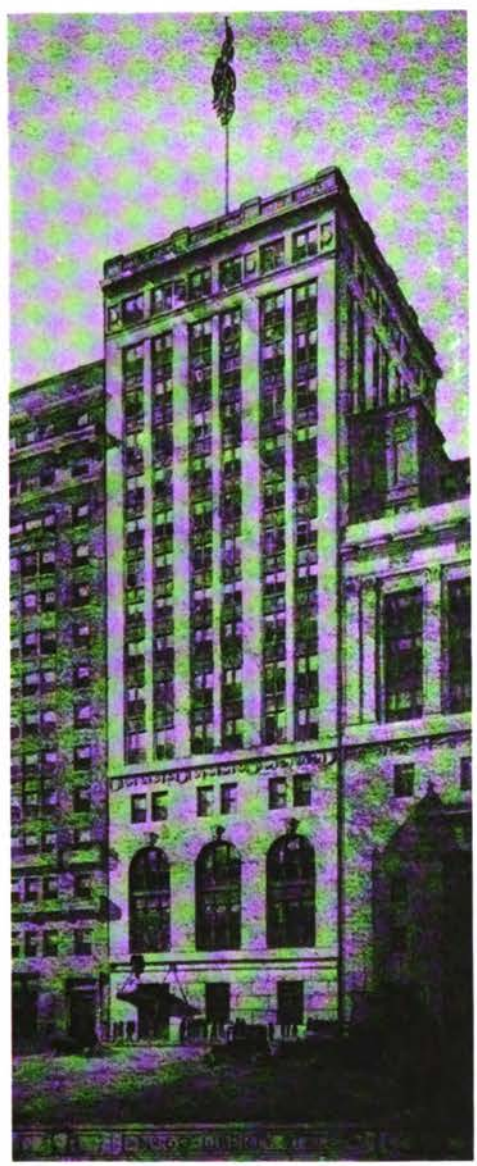

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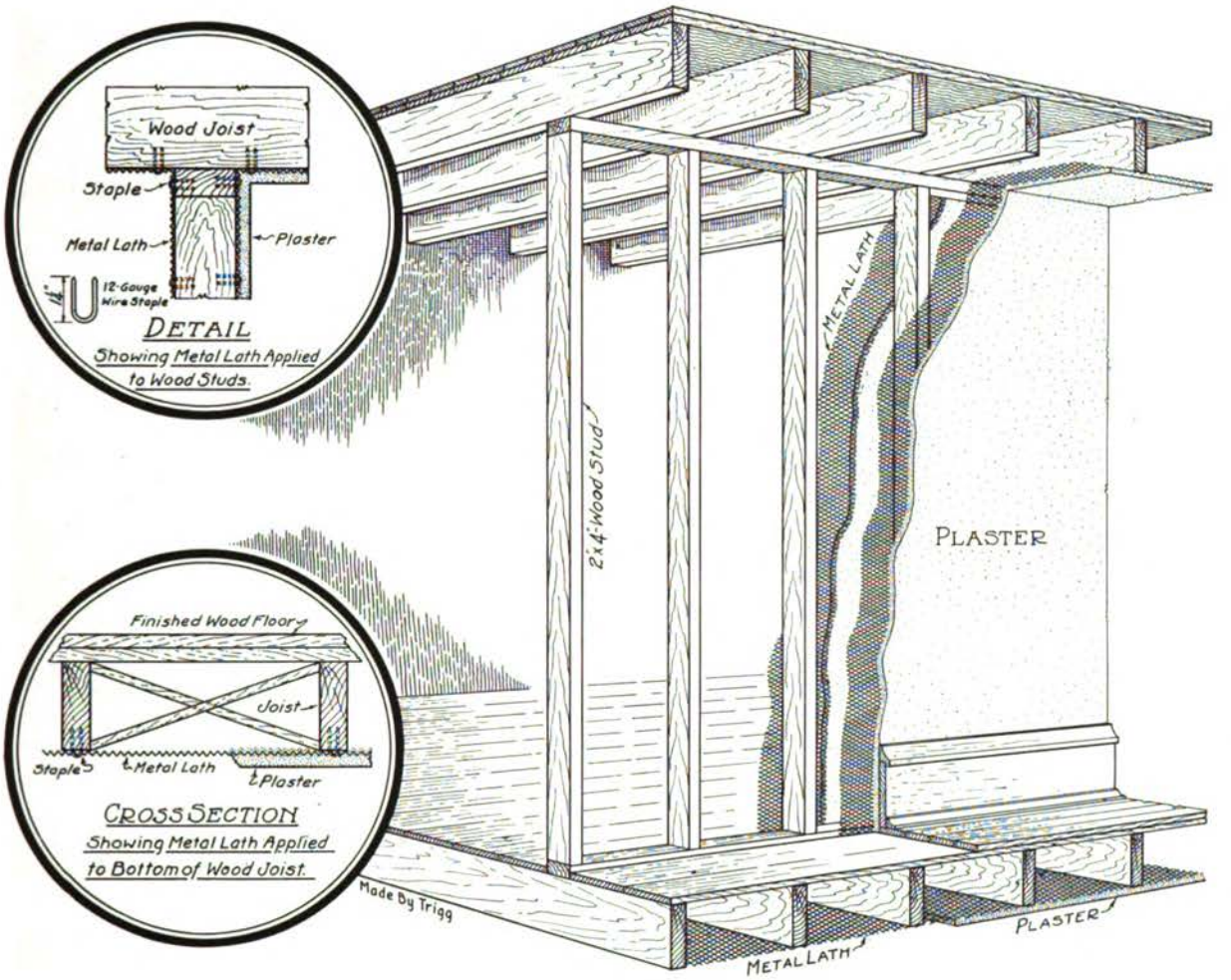

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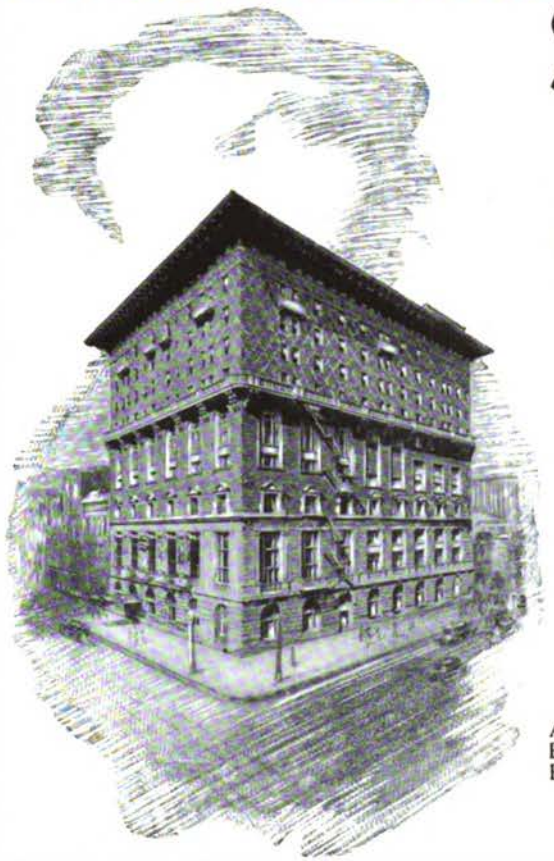

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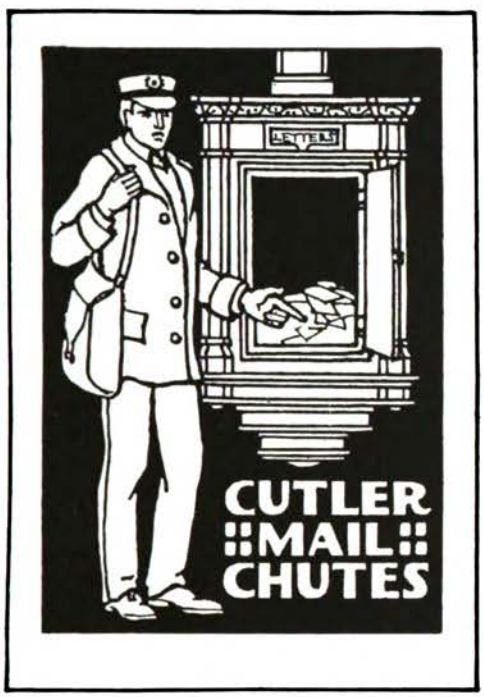

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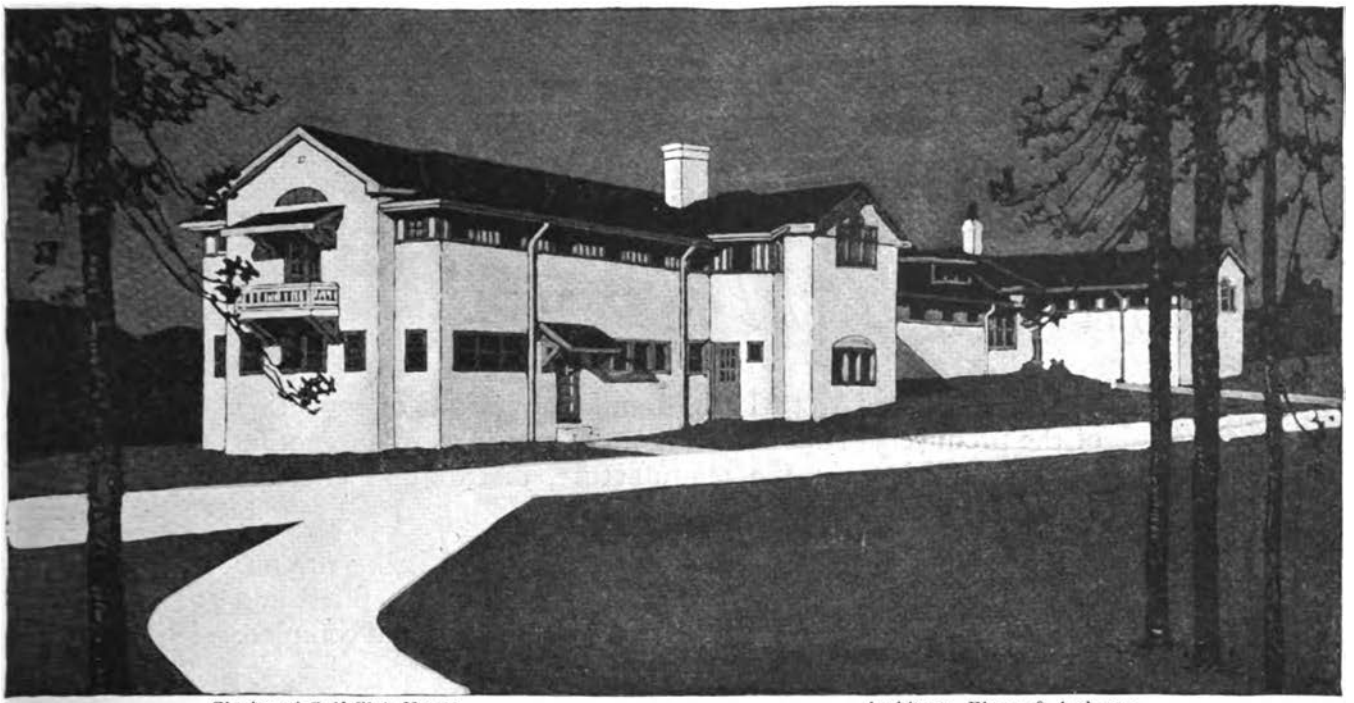

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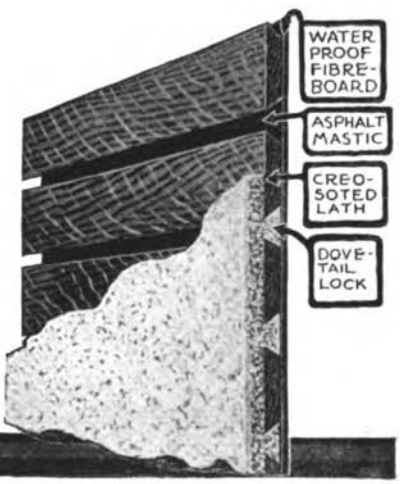

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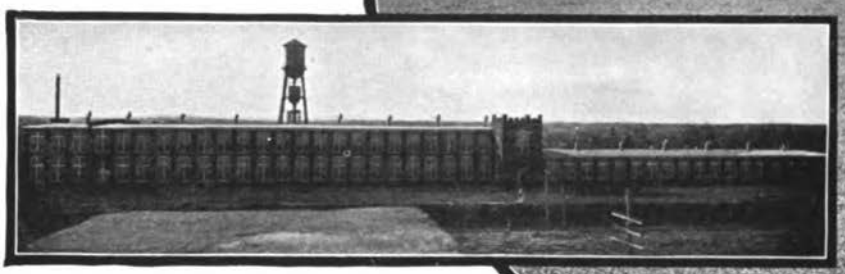


Barrett Specification Roof on GROVES MILLS, Inc., GASTONIA, N. CAROLINA *Architects:* Mayes Engineering Co., Charlotte, N. C.—*General Contractor:* J. D. Grandy, Charlotte, N. C.—*Roofing Contractors:* A. Y. Bond, Inc., Greensboro, N. C.

Free Roof Insurance for 20 Years

You are proud of that new plant—proud of its modern construction, its efficiency, its output. It represents a big investment of money and enterprise.

Of course it is insured against fire. But how about the roof? Is your investment there insured?

If you cover your building with a Barrett Specification Roof you will get such insurance in the shape of a 20-Year Surety Bond.

Our experience has proved that a roof laid strictly according to The Barrett Specification will last much longer than twenty years without repairs of any kind, and our new plan of issuing the 20-Year Surety Bond Guaranty gives owners the benefit of that experience.

Here is our offer:

On all roofs of fifty squares or more, in all towns of 25,000 or more throughout the United States and Canada, and in smaller towns where our Inspection Service is available, we will give a 20-Year Surety Bond Guaranty, provided the roof be laid strictly according to The Barrett Specification of May 1, 1916, and by a roofer approved by us.

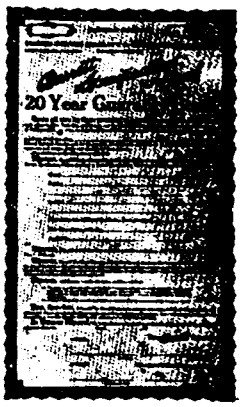
This bond exempts the owner from all expenses of maintenance and repairs for a period of twenty years.

We claim only the right to have an inspector on the roof during construction to insure strict compliance with the Specification.

The risk is ours, the gain is yours.

Leading architects, engineers and roofing contractors throughout the country are familiar with and endorse our plan.

A line to our nearest office will bring any information you may desire concerning this proposition.



A copy of The Barrett 20-Year Specification, with roofing diagrams, sent free on request.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in ROSS WAY *Looking East.*

H. M. Office of Works,
Westminster,
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JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Vol. V SEPTEMBER, 1917 No. 9

Shadows and Straws

The War—The Machine—The Man!

THE SIGNIFICANT THING about the vast governmental housing undertakings of Great Britain, of which Well Hall, one of the most important, is illustrated in this number of the Journal of the American Institute of Architects, does not lie in either the technique of the operation or the result. The significance lies in the fact that War has given a prominence to housing such as Peace could not give. War has made us see that the philosophy of housing—call it the science if you will—as applied on so vast a scale by Germany, was really inspired by her profound analysis of what would be necessary first to prepare for war, and second to conduct a war. Germany foresaw what England had to learn—that a modern army is dependent upon the industries at home; that War demands more from industry than does Peace; that the meeting of those demands which mean national life or death depends upon obtaining the utmost in skill and energy from the workers who supply the soldiers; that workmen cannot put forth those qualities except under living conditions which constantly renew and thus maintain the highest vitality. Peace has enunciated this economic principle with a voice which has been drowned to a whisper. War shrieks the message to the nation and makes it heard above all other cries, and England has heard so well that in addition to the extraordinary plans which have already been executed—under financial and industrial pressure which only add to their extraordinary character—she is looking far ahead into the future and making ready to provide new living conditions to replace the old. She is now far-seeing enough to understand that the essential principle of her national existence cannot be left to the speculative builder.

Independently and in spite of the emergency housing which already has been undertaken by industrial corporations and by private capital, the industrial housing situation in the United States is at this moment a vital and yet scarcely recognized factor in our war-time industrial production, upon which all other things depend. A most casual examination of the facts will bring one face to face with the knowledge that unless the Government will cope with the problem of housing workmen as it is meeting the problems of housing machinery, we shall shortly be at an impasse. It is useless to encourage industry to expand while leaving the housing of workmen to chance and caprice.

At Bridgeport, Connecticut, for example, a new factory for war purposes is being rushed to completion. It will employ a thousand operatives. There is at present, as we are informed, not a single house available for rent in Bridgeport, nor is there any capital available for building. The Government is, we are told, furnishing money for the new building to contain the machinery while the housing problem is totally ignored! Could anything be more shortsighted? This is one situation in many, and fresh ones are developing with every step which the Government is taking toward speeding up production. Our ability to build ships is found to be based upon first housing the workmen. In almost every industrial center, large or small, the cry is for houses and more houses. The private capital usually available for operations of this kind is being diverted to other uses where the gains promise to be large. The very war-time hazard

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attending upon many of these demands for more houses deters capital, while the present cost of building also adds an element of uncertainty as to the future of the investment. It is by no means certain that rentals based upon present building costs will continue to be payable by workmen, and there are doubts, in many cases, as to the permanent nature of the industries for which houses are needed.

The situation has developed with amazing rapidity and will soon reach a climax that cannot be ignored. It seems that it might have been possible to foresee this by making a simple study of the human element involved, but the problem is now here and has assumed menacing proportions. Upon the speed and thoroughness with which it is met will depend our ability to supply the equipment without which we cannot successfully perform our share in France. There seems to be no other agency capable of quickly assuming the direction and control of the problem than that of the National Government.

This was the step which England found it necessary to take, and in that country the need was met with the same degree of energy and ability which has characterized the remarkable industrial transformation which the war has forced her to undertake. More than that, she was wise enough not to try to meet the situation by temporary makeshifts but by building permanent houses which are to remain as a national asset, or else by building, as she did in some localities, other buildings such as hospitals, which later easily can be converted into substantial modern houses at low rentals. She met the problem squarely and with economic astuteness.

For the United States Government to extend financial aid to home building, in whichever one of the forms that have been put into operation in every other civilized country, would be more of a jump than a step. We are inexperienced in dealing with the question, whereas European countries without exception have all extended financial aid to the building of homes for workmen. But it would be as absurd to argue over the principle involved, at this moment, as for an engineer to hesitate at cutting down an apple orchard in order to build a bridge to save a division of troops. War is relentless. It asks plain questions and insists on getting the answer. The answer to this war is industrial organization. The answer to that is homes for workmen to live in. The answer to that is to build them now and cut off the delay and waste involved by waiting for somebody else to do it. When we are spending at the rate of $50,000,000 a day, delays cost money!

As to the method by which the Government should extend aid it seems evident from the facts now available that private capital only needs to be supplemented to the extent of relieving it of the risk consequent upon the uncertain nature of those undertakings where permanency is involved. To meet this same condition in the expansion of industrial plants and not to meet it by absolutely assuring the necessary house building is to refuse to recognize an elementary business principle. The methods of extending governmental aid by the principal countries of the world are set forth in the volume published by the Department of Labor in 1915 and are familiar to those who have studied the housing question in European countries.

The Government is already at work in a preliminary consideration of plans for coping with the housing shortage at some of the vital points, and it seems not unlikely that the building of Government-owned workmen's houses may begin in the near future. On account of the shortage of capital, several large industrial housing schemes which had been started have now come to a stop.

In Washington, the congestion has now so hampered the administrative functions of the Government that Congressman Fitzgerald, of New York, has advocated the erection of a three-story temporary office building, of frame construction, with a ground-area of 350,000 square feet, and designed to provide space for 10,000 employees. It is planned to erect this building on the Mall, not far from the Capitol, and while the site selected seems less desirable than others which might have been found, this plan would undoubtedly prevent the further mulcting by owners of buildings, who are now collecting no less than a million dollars yearly from the Government. Yet one hesitates to think of what might happen in the event of a fire in such a structure. Temporary buildings are undoubtedly the answer to the immediate needs, but they must be made safe to life, at no matter what expense.

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The Organization of the War Department for Construction Work*

(Furnished by the Government Committee on Public Information)

Office of the Cantonment Construction Division of the Quartermaster's Department

All work pertaining to the thirty-two cantonments for housing the National Guard and National Army, also embarkation depots, warehouses, etc., is handled by Colonel Littell through the organization which has just been set up for that purpose, with Captain Marshall as his Adjutant.

In order to carry out the work, the duties and responsibilities of the several divisions are defined as follows:

Engineering Division.

The officer in charge of the Engineering Division prepared the typical plans of cantonments, including water distribution, internal sewer and draining lines, lighting distribution, trucks, roads, etc. He secured, with Colonel Littell's approval in each case, the services of consulting engineers to do all the engineering involved in water-supply and sewage-disposal, as this is work which must be done in the field.

Designs prepared for such works are submitted, through Colonel Littell, to the consulting engineers of the Committee on Emergency Construction for approval or comment.

He determines and defines the requirements in the way of laundries, incinerators, refrigerating plants, and informs the Material Officer of the requirements, including any other information that he gets incidental to these investigations, and he and the Material Officer together discuss and recommend to Colonel Littell where these contracts and other similar contracts should be placed, the details of the purchasing being in the hands of the Material Officer.

Material Division.

The officer in charge of the Material Division makes recommendations as to placing all contracts for material to be purchased by this organization. He consults freely with the Engineering Office and with Colonel Littell in connection with the purchase of such equipment as power plants, pumping machinery, refrigerating plants, and similar items, and with the Constructing Officer on building materials and supplies.

He keeps in touch with the various supply committees of the National Munitions Board and works out with those committees the best method of handling supplies of material which they may control.

He also has charge of the inspection and expediting of materials and equipment, excepting such part of this work as may be turned over to the several contractors, and even in these cases is ready at all times to help the contractors in any way possible to secure the necessary materials.

The details of transportation from points of manufacture to the several cantonments are handled by the several contractors, but transportation requirements are worked out in advance and arrangements made with the railroad association and with the Transportation Committee of the Munitions Board so that cars are available and transportation expedited in every way possible.

Construction Division.

The officer in charge of the Construction Division is in charge of all operations in the field and handles the correspondence, directly or through his representatives, on all questions arising between the office and the contractors, or between the office and constructing quartermasters stationed at the several cantonments.

The officer in charge selects assistants, each one to follow in detail the work located in the several cantonments as assigned.

Any correspondence originating in any part of the office other than the Construction Division is signed by the officer originating the correspondence but goes out over the desk of one of these assistant construction officers, so that they can be familiar with all matters under discussion.

In the same way all correspondence coming in from constructing quartermasters, referring to engineering, material, or accounting matters, comes in over the desk of the proper assistant construction officer, to be noted and forwarded to the officer in charge of the department having jurisdiction.

In addition to the assistant construction officer located in this office and mentioned above, there are other assistant construction officers similarly assigned who act as field supervisors and circulate, each in his own territory, practically all the time, reporting to this office after each visit to a job.

Accounting Division.

The officer in charge supervises accounting matters and the general administration of the office.

Under his direction an accountant is chosen who handles the accounts of this office and supervises the work of the accountants stationed at the various cantonments, and also of the auditors. Each of these auditors covers a territory corresponding to the territory covered by one of the assistant construction officers and visits the jobs in his territory often enough to be sure that office routine and accounting matters are being handled satisfactorily.

*Referred to in Structural Service Department of August Journal.

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The officer assigned to duty in this Division for legal matters advises with all divisions of the office at any and all times, and every precaution is taken to comply with laws and regulations, with particular reference to matters involving expenditure of funds.

Constructing Quartermaster's Office.

Each Constructing Quartermaster reports to the office through one of the assistant construction officers outlined above. He has an assistant who is a civil engineer, and there is under him whatever force of surveyors, draftsmen, auditors, etc., is needed by particular circumstances.

The Constructing Quartermaster has the responsibility of adapting to the topographical conditions typical plans furnished by the office.

As outlined above, he has the assistance of civilian engineers in the planning of water-supply, sewage-disposal, etc. The contractor does such engineering work as is necessary to carry out the plans.

The conditions in various cantonments differ, and matters of this kind are left largely to the judgment of the Constructing Quartermaster to be decided for each cantonment on its own merits, after consulting with the office.

The theory of the field organization is to use the contractors' organization as far as possible for the field work required and for any engineering details.

The chief accountant is responsible for the administration of the job office of accounting, for all expenditures of the contracting officer direct, and for verifying and auditing the expenditures of the contractor, and payments to the contractor by the Constructing Quartermasters are made practically on the certificate of the chief accountant.

The office issues instructions for the chief accountant, who is a part of the Constructing Quartermasters' organization.

The number of clerks, stenographers, and inspectors, varies, of course, at the different jobs, depending on local conditions.

Assignments.

The following assignments in charge of divisions have been made:

Material Division, Major R. E. Hamilton.
Engineering Division, Major F. M. Gunby.
Construction Division, Major M. J. Whitson.
Accounting Division, Major W. A. Dempsey.

Office of the Signal Corps Construction Division

Chief, Construction Division: CAPTAIN C. GOODLOE EDGAR, S.C.U.S.R.

Administration Division.

The duties of the Construction Division of the Signal Corps cover all activities relating to the design and construction of signal corps and aviation buildings, and maintenance and repair of all buildings, both temporary and permanent. It has charge of the railroad transportation of supplies, material, and personnel of the corps.

The work of the Division, under the direction of its chief, is divided into departments, each in charge of an officer detailed from the Signal Corps, with the single exception of the Engineering Division which is in charge of an officer detailed from the corps of engineers, U. S. Army, and the real estate division in charge of a trained real estate operator on a civil status.

(*a*) Administration.—This division has general supervision of all correspondence, organization, office methods, annual estimates, and coördination of division work, etc., and is in charge of an assistant chief, or acting chief in his absence.

(*b*) Transportation.—This division has charge of the movement of all supplies, material, and personnel of the corps.

(*c*) Records and Audits.—This division operates two subdivisions, one having charge of records and audits at its offices in Washington, two in charge of records and audits in the field.

(*d*) Engineering.—This division operates through two subdivisions. One is located in Washington in general charge of engineering problems, plans, specifications, prices, and inspections. It arranges for the purchase of material and supplies for building operations. The second superintends building operations and engineering problems in the field, inspects material as delivered, and adjusts wages and labor disputes.

(*e*) Real Estate.—This division has charge of the inspection of proposed aviation training-fields, the inspection of other proposed sites for signal corps buildings, preparing and renewal of leases, examination of titles, and it is charged with notification to the Finance Division of dates of payments on leases in advance of their maturity.

(*f*) General.—An advistory architect has been retained who furnishes the Division with plans and specifications for the buildings used for aviation, both temporary and permanent, and whose opinion is secured on all material and supplies.

The work of the Division, as will be seen from the above, is divided into work in Washington and work in the field. At each building operation an officer in charge is furnished by the Engineering Department with assistants who are trained by means of daily meetings at the work to complete familiarity with standard plans, specifications, and design of buildings for the Signal Corps. A chief auditor and sufficient assistants are furnished at each building operation to supervise the books of the contractor, to check pay-rolls and material bills, to prepare for him the vouchers and papers necessary to be furnished to the Finance Division in Washington before payments can be made. In addition, inspections are regularly made by officers from the headquarters of the division in Washington during the course of the work.

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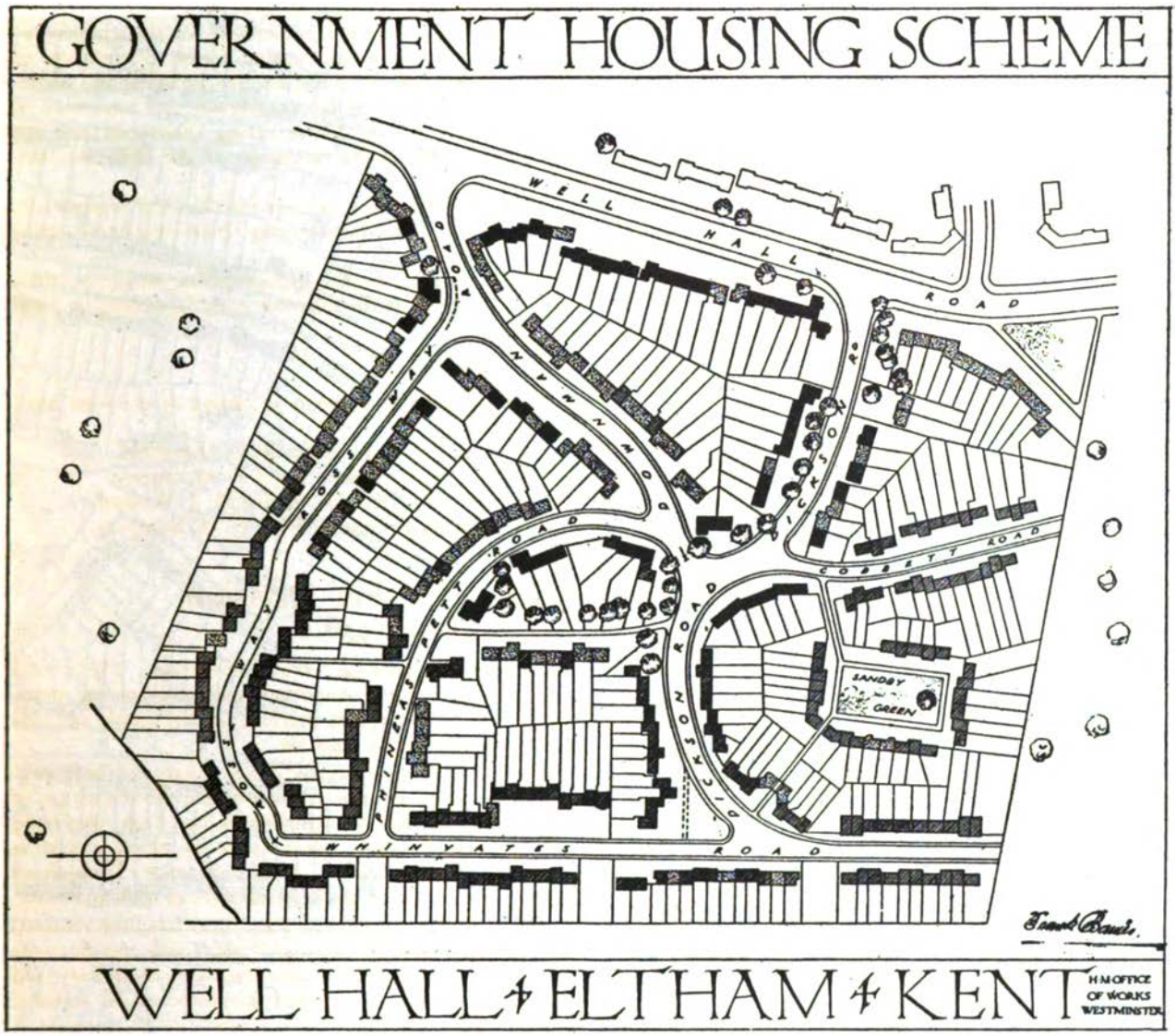

WELL HALL is only one of the British Government's housing operations. It is situated about a mile from Woolwich and is a complete new development. It consists entirely of permanent dwellings for workmen. There are four types of houses of from two to four rooms with bath, the rentals ranging from seven shillings to fifteen shillings and sixpence a week. There have been built some sixteen hundred houses, all of the best materials available, and the design has preserved the traditions of English rural life. Mr. Ewart G. Culpin, Secretary of the International Garden Cities and Town Planning Association, whose article in the April Journal dealt with the application of town-planning principles to the new housing developments of England, writes that he believes Well Hall to be "easily the first thing in cottage plans and elevations for the whole world." This statement is perhaps capable of a wrong interpretation, for it is evident that the plans would not suit living conditions in the United States; but, from the point of view of a great housing undertaking deliberately undertaken by a Government and guided by experts to yield the maximum advantages consistent

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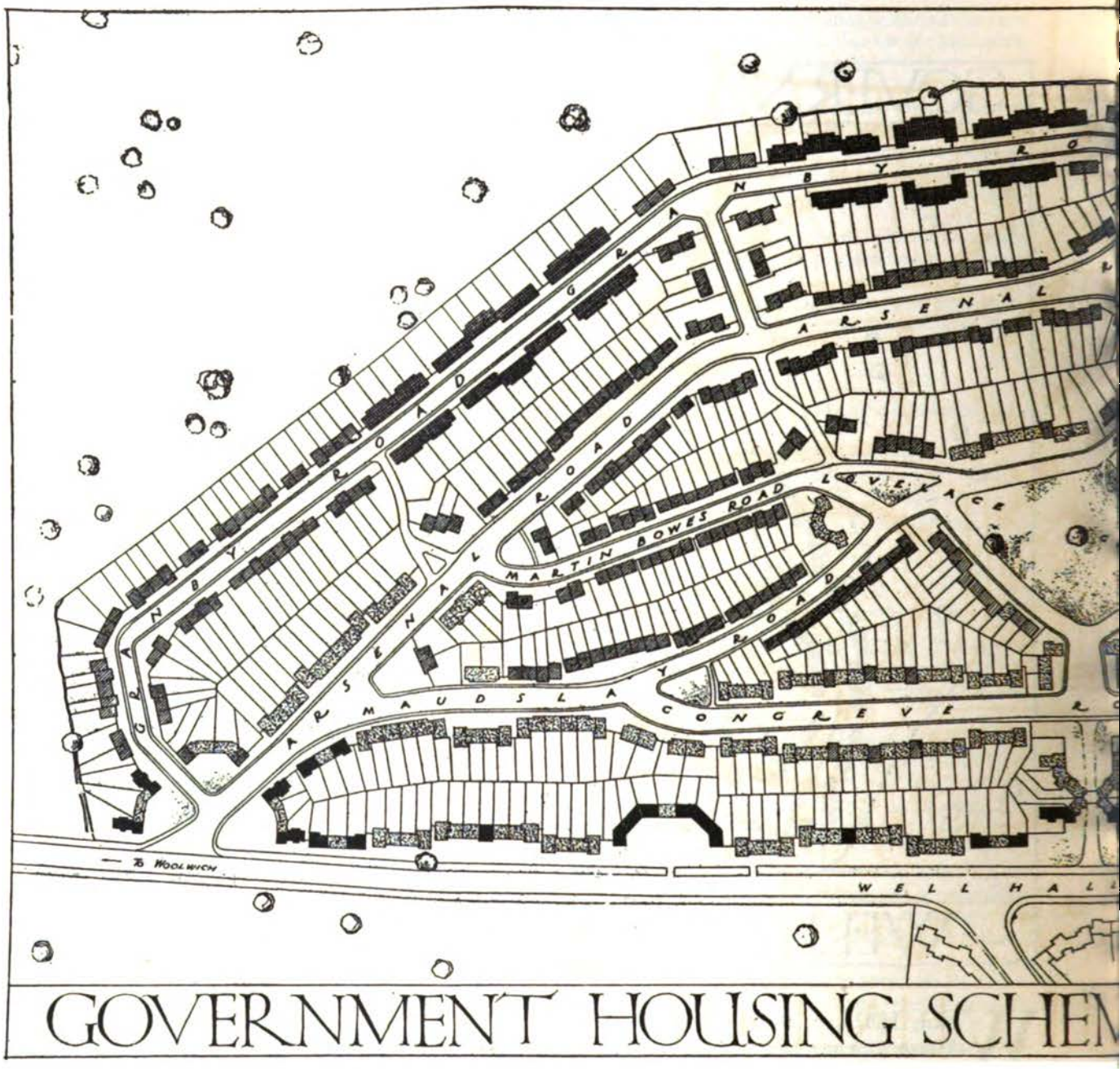

with a given mode of life, Well Hall is undoubtedly entitled to rank where Mr. Culpin places it.

Of primary importance in the consideration of the underlying reasons which led to the building of Well Hall is the fact that in spite of urgent necessity it was decided to make it a permanent enterprise rather than a merely temporary one. This has been the consistent policy of the British Government, except where urgence made it impossible to wait upon permanent construction, for the difference in cost between permanent and temporary work is measured by a small margin, and it was decided that it would be folly to throw away money upon makeshift expedients. Possibly this decision was also influenced by the knowledge that nothing is harder to be rid of than a temporary building. We believe that the shacks built at the time of the flood emergency in Galveston

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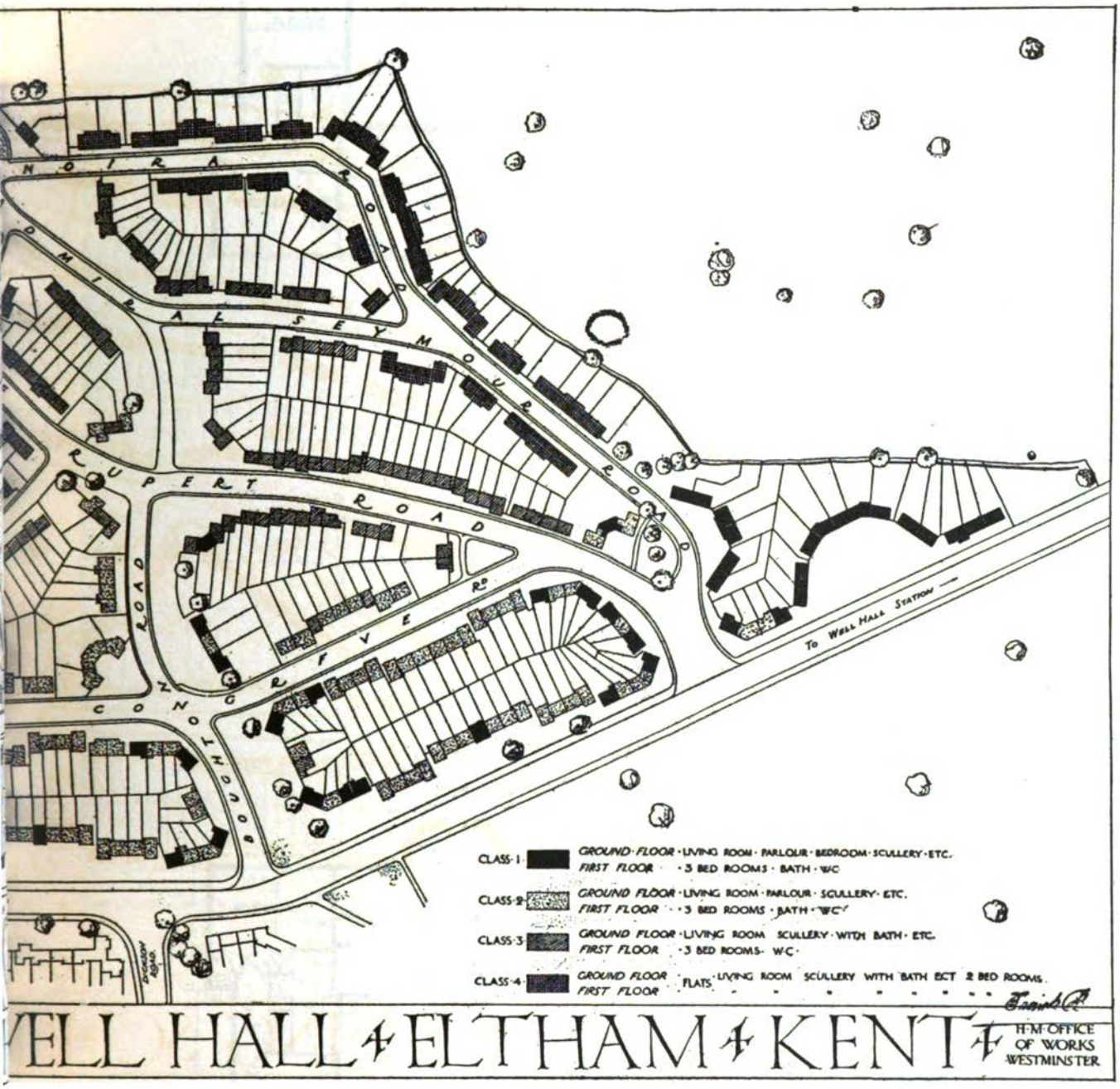

are still doing duty as slums, and such is the usual experience with temporary buildings. In cases where the British Government could not spare the time necessary to build permanently, huts of a temporary or semi-temporary character were constructed, either of concrete slabs or wooden framing. These were three in type and, as built at East Riggs, another important housing development, will be illustrated and described in the October Journal, which will also contain a list of references on Industrial Housing.

In addition to these purely housing operations, the Government has erected stores, halls, and other public buildings necessary for a good-sized town; in one case there were provided bakeries, a central kitchen, laundry, schools, churches, and all the usual accessories of community life.

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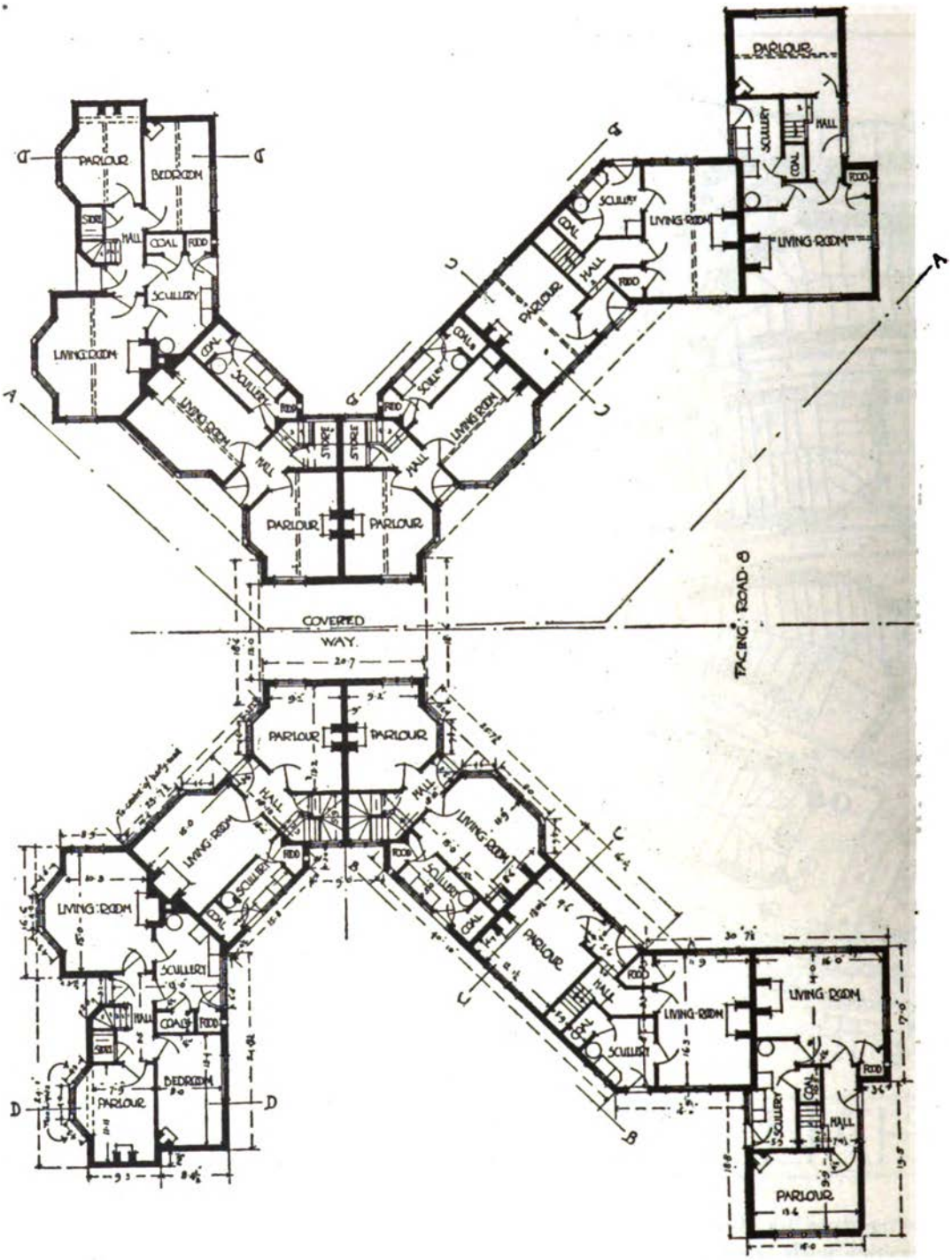

Ground Floor Plan.

GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Group facing WELL HALL *and* CONGREVE ROADS, *1st and 2nd Class.*

H. M. Office of Works,
Westminster,
London, S. W.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Entrance Group in WELL HALL ROAD, *East Side.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in WELL HALL ROAD *Looking South.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
A Group in WELL HALL ROAD *Looking South.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in WELL HALL ROAD *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Crescent near Station in WELL HALL ROAD.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in ROSS WAY *Looking East.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in ROSS WAY *Looking West.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
WHINYATES ROAD *from* ROSS WAY *Looking South.*

H. M. Office of Works,
Westminster,
London, S. W.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
A Group in WHINYATES ROAD *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Block of Houses in PHINEAS PETT ROAD.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
SANDBY GREEN *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
LOVELACE GREEN *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Pair of Cottages in LOVELACE GREEN.

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in ARSENAL ROAD *Looking South.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
CONGREVE ROAD (*Boughton Road Crossing*) *Looking South.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Junction of CONGREVE ROAD *and* MAUDSLAY ROAD *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in CONGREVE ROAD *Looking North.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
Group of Houses in DOWNMAN ROAD.

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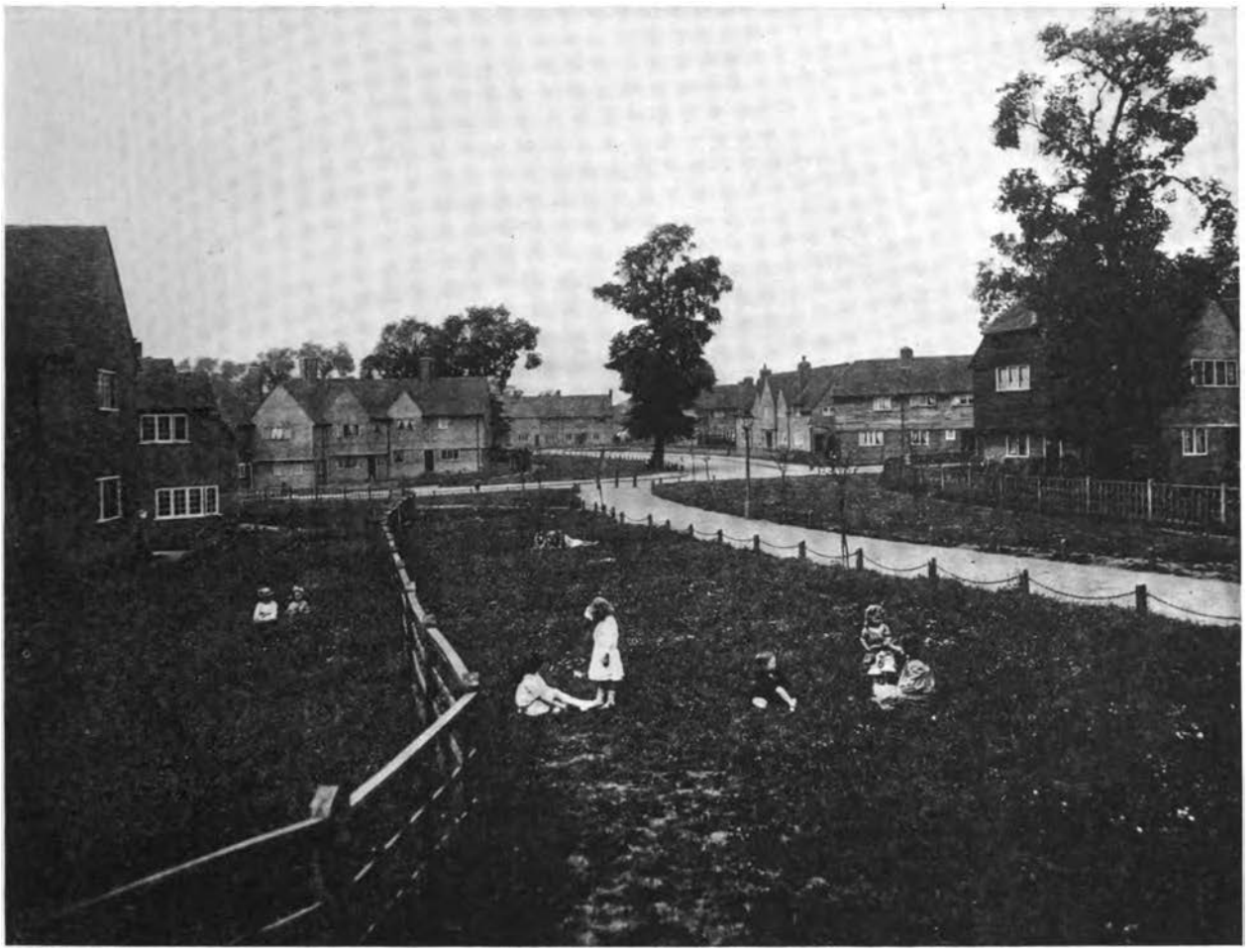

GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View of GILBORNE WAY *Looking West.*

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GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH. 1915.
View in DICKSON ROAD *Looking East.*

H. M. Office of Works,
Westminster,
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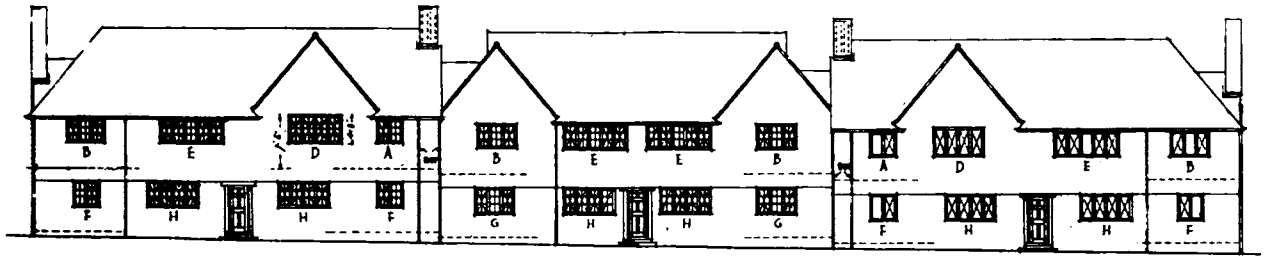
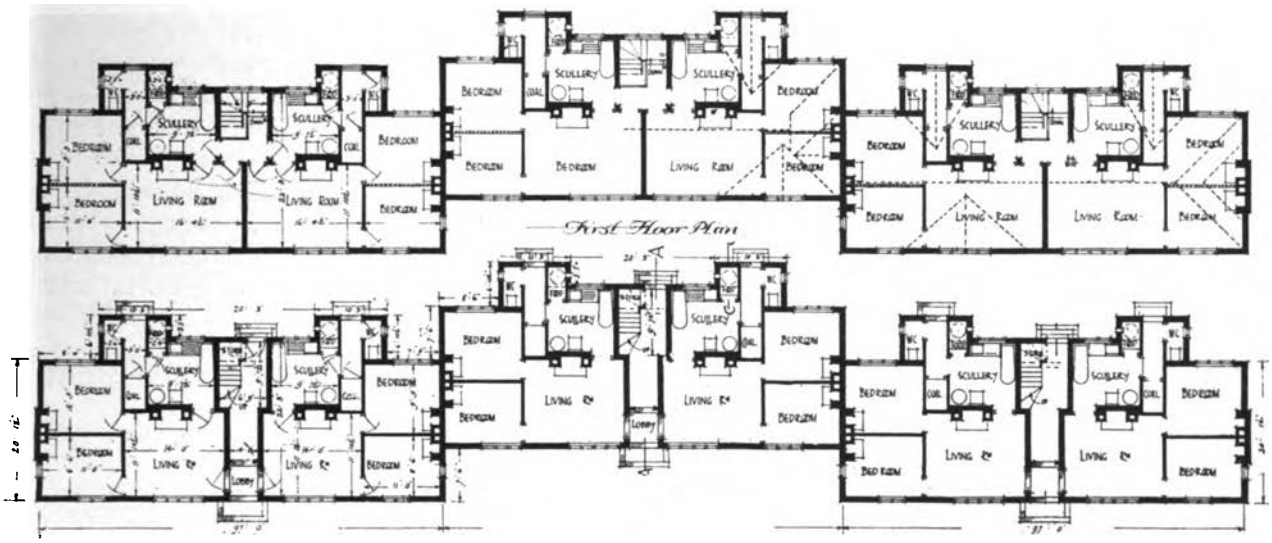


Front Elevation

Back Elevation



GOVERNMENT HOUSING SCHEME,
WELL HALL, WOOLWICH 1915.
Block of Flats, GRANBY ROAD, *Class IV.*

H. M. Office of Works,
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Multi-Family *versus* Individual Houses

By HENRY ATTERBURY SMITH

NEARLY all our cities are built upon unscientific exploiting systems, a good deal as we encourage the sale of liquor to gather a tax, and then have all sorts of reformatories and asylums to care for the victims.

Most buildings that house the masses are built to sell, and so they are built shoddily and only as good as they must be in direct proportion to the building laws and municipal supervision. The idea of building real well never enters the head of the building promoter, who may not be a builder at all. In fact, usually he is a storekeeper or trader who sees far more profit in selling a building than he does in selling clothes or suspenders, because the amount involved is larger and the purchaser is more ignorant. He is usually in league with a loan man or institution, which latter, I am sorry to say, is frequently a savings bank. But usually the loan is sold as soon as the building, and so the two original partners step out immediately and turn the project over to two other innocent people, who try from then on to squeeze an income out of a rotten machine which gets worse and worse rapidly until a few years after, health boards order the premises vacated.

New York, proud New York, the self-appointed example to the rest of the states, not only allows but recommends this miserable type illustrated below.

What are we architects to say about such a thing; calmly let it pass, or protest? If we cannot suggest something better, we are grossly incompetent or indifferent.

Now, again, how about all this stuff about the individual house for the employee in the industrial town? Have you ever seen the result, reader; have you ever pushed down to the fundamentals of this talk; have you ever studied the balance-sheet to see if the truth is being stated? Are you sure the lowest paid in the factory are being housed at all or are they boarding, rooming, or crowding? If not, they soon will be. How can the lowest incomes afford to sustain those individual public utilities which our knowledge of health demands? In cold climates how can each family shovel coal, or in warm, have enough energy left after a day's work to look after plumbing, shutters, gutters, and leaders? Why should we foist all this work and repairs upon the individual occupant—the stitch in time to save nine—when he or she or both have had a hard day's work in the mill or factory or mine, and who are supposed to have a family of children besides?. The answer is to be found in the word exploitation at times, for it has been soberly brought to the writer's attention that a long-time obligation, like a fifteen-year mortgage upon the workman's cottage, has a tendency to keep the operative in the factory organization. He is less likely to strike or leave if he has paid something on his house. When it is not wilful exploiting then it is gross ignorance and lack of imagination or sympathy, for how can the general run of house occupants know how to take care of their real estate in such a manner as will cause it to last and not become a source of expense? Even the most intelligent of us seem not to understand how to make a house hold out year after year. No, the answer is a multi-family house, with expert repair men constantly on the job, men who like such work, just as

A Bad Type That Gives a Bad Name to the Multi-Family House, Built by the Mile This Year in Greater New York

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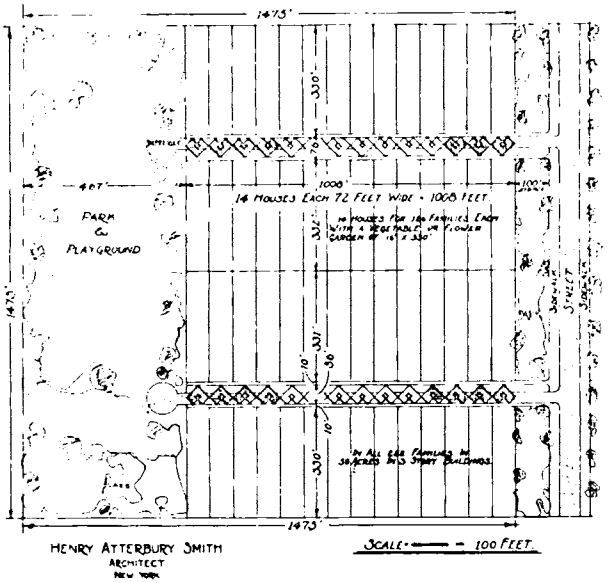
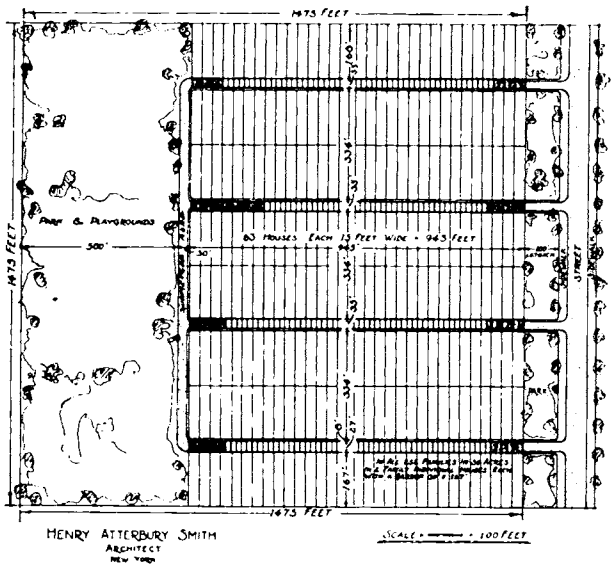


Sawtooth Economic Open Stair Type, Three Families to a Floor, Three Stories High, Nine Families to a House or Staircase. 252 Families in All, in 50 Acres



Linear Streetless Type, Exact Duplicate of Philadelphia Terrace, 4 Rooms and Bath, House 27′ by 15′ Broad. 252 Families in All, in 50 Acres

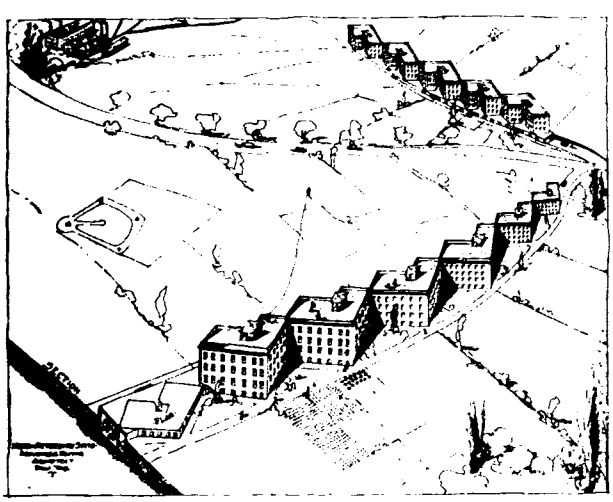
EACH OF THESE HOUSES HAS THE SAME NUMBER OF FAMILIES, EACH FAMILY HAVING FOUR ROOMS AND A BATH. CONDUCIVE TO ECONOMICAL STEAM HEATING AND APPLICATION OF OTHER PUBLIC UTILITIES

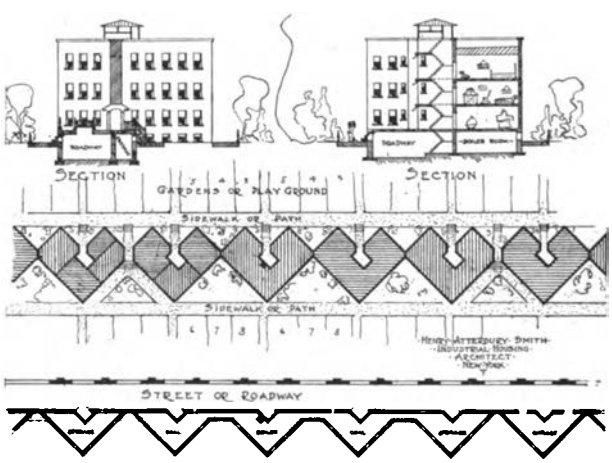
other men, like myself, hate it—one man a tinsmith and plumber, another a painter, another man to take away the garbage, say twice a day, and burn it in an incinerator to produce hot water. We shall also want women to collect the rent and coöperate with the families in regard to their varying necessities.

Then we get as true efficiency in the life of the factory families outside the factory as we do inside, and the occupants can buy the stock of the housing company and be represented upon the board of directors or they can in time be the sole managers.

The multi-family house is thought to bring about congestion, but it is a very idle, immature thought that jumps to such a conclusion. Property restrictions are usually in vogue in some form or other, even with an individual house scheme. It is quite feasible, without a strain on one's mentality, to imagine that a similar restriction could be made regarding a multi-family house scheme.

Let us limit the number of families per acre, and let us induce some kinds of families on some acres and other kinds on others, according to the type and finish of the buildings, or the





PERSPECTIVE AND DETAILS OF SAWTOOTH ECONOMIC OPEN STAIR TYPE

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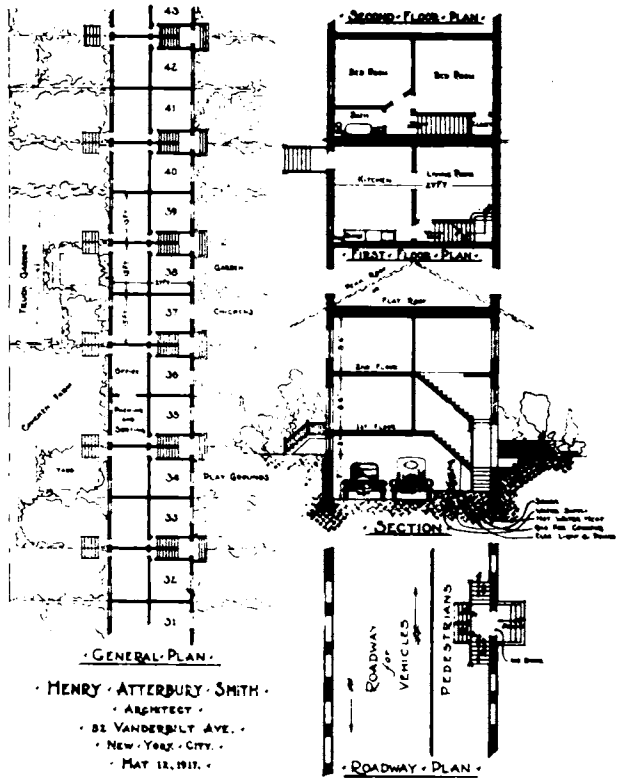
NON-COMMUNICATING ECONOMIC OPEN STAIRS, WEATHER PROTECTED. INTERCOMMUNICATION, INFECTION AND CONTAGION REDUCED TO A MINIMUM



DETAIL PLANS AND SECTION LINEAR STREETLESS TYPE

character of the probable occupant. What shall that limit be? It will vary, no doubt, according to conditions, but let us assume that it is to be five families to the acre, a very roomy layout (8,712 square feet to a family, 100 x 87), provided we don't waste a lot of the ground in streets and pavements (for the convenience of the tradesman), the maintenance of which becomes a heavy tax upon our resources, and the danger of which to our children is proverbial. Let's away with the street entirely; it may be of great interest to the engineer—curbs, sidewalks, grades, fills and cuts, sewer and water out under the roadway in an inconvenient place to connect and repair—but to an architect the roadway is a means to an end, and one of very doubtful value.

Let us study a layout of a square plot of, say 50 acres, and I will leave the solution of that plot to anybody else who wants to submit in a following article how he would improve matters by covering the property with an identical number of individual homes, or semi-detached, or triple or quadruple, or any other kind of a make-shift, including the world-renowned terrace type that makes Philadelphia and Baltimore famous. I submit two types: both multi-family, coöperative types; both having their heating, sewage, domestic hot water, lighting, power (for sewing and other light machines) provided from central plants; both having repairs done by experts who do nothing else; both assuring rent is paid just as taxes; and both giving the occupant every opportunity to become an owner of the stock with a voice in the management.

The two types I suggest are the "sawtooth economic open stair" type and the linear type suggested by Mr. Stephen Lengyel and Mr. Edgar Chambless, respectively. In certain cases, one type will be preferable to the other, depending on the contour and shape of the property and other conditions such as proximity to the central plant. In the sawtooth type the heating plants can economically be distributed, one to each 75, 100, or 125 families, and can be contained right in the basement. In the linear type the heating plant and sewage system are a little more difficult, but other considerations keep the comparison very close.

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The New License or Registration Law for Architects Now in Force in the State of Illinois

It Abolishes the Old Board of Examiners and Its Officers, and Puts the Enforcement of the Law into the Hands of a Director of Registration and Education, Who is Not an Architect, and Has the Same Authority over Twenty Other Departments Comprising the Department of Registration and Education; in the Performance of Which Function he is Assisted by Committees of Architects Nominated by the Regular Organizations of Architects within the State

By PETER B. WIGHT, F.A.I.A.
Seventeen Years Secretary of the Illinois State Board of Examiners of Architects

The examination and licensing of architects in the State of Illinois and the regulation of the practice of architecture as a profession is no longer the legal prerogative of a Board of Examiners consisting of five architects in that State. It is now the duty of *The Department of Registration and Education* organized on the 1st day of July, 1917, under "An Act" passed by the present General Assembly "*in relation to the civil administration of the State government, and to repeal certain acts named therein.*"

This does not mean that there is any diminution of the effectiveness of the original Architects' License Law, with the various amendments which from time to time have been adopted to facilitate its better enforcement, but that the licensing of architects and regulation of the practice of architecture as a profession are to proceed from a higher authority than heretofore; one which should be more highly respected by the architects and the community than has been the case, and which is intended, if possible, to remove it from the taint of party politics, which formerly was possible.

Illinois a Pioneer State

The State of Illinois, as in much other progressive legislation, has been the pioneer in the United States in legislation for good architecture. The first license law was passed June 3, 1897, and had been in force since July 1 of that year, just twenty years, until the new *Civil Administration Code* be camein force July 1, 1917. This code is far-reaching in its effect. It has been agitated just four years, and in the form in which it was adopted has been under consideration for one year last past. It was first prepared by a commission appointed by the General Assembly of 1915, and it was the principal measure advocated by Governor Frank O. Lowden, in his canvass before the people, which resulted in his election in 1916 by a large majority of the popular vote. It was introduced early in the session of 1917, and took precedence of all other legislation. Governor Lowden took personal interest in it and followed minutely every stage of the proceedings in the General Assembly. The interests of architects in the regulation of their profession, of structural engineers in theirs, and in public works and buildings by both, were of minor consequence in comparison with those of the State's Charities, Finance, Agriculture, Mines, Public Health, Trade and Commerce and many other departments. Yet they have received careful attention, and the Governor called upon the organized associations of both architects and engineers to consult with him about the provisions of the act which were of interest to them, and has accepted all that were reasonable. Hence the influence of both professions was exerted in behalf of its passage.

The "Consolidation" Bill

The whole scheme was so great and comprehensive that it was evident to all that it was useless for any to seek any special favors. It was known as the "Consolidation" bill, and its main purpose was to eliminate overlapping authority and to bring together co-related departments of the government and all of them more directly into contact with the supreme executive authority which is vested by the Constitution in the Governor himself. A governor who was not afraid to assume it was at the head of the movement. It may be of interest to know that, in this consolidation, twenty-four acts and parts of acts establishing governmental departments were repealed in this bill; but the Architects' License Law was not repealed. Only the State Board and officers under the Board were abolished and their authority vested in the director of one of the departments. But this Director of the Department of Registration and Education also has official authority over the business heretofore done by twenty other state boards and minor departments; and he is only one of nine department heads, who constitute the Cabinet of the Governor; and all are responsible to him.

A Sketch of the New Law

A few extracts from the new law covering anything directly or indirectly relating to architects will probably make this digest more brief than a general description of its requirements. The same might also be said of those relating to structural engineering.

"*Section 3.* Departments of the State government are created as follows: (1) Finance; (2) Agriculture; (3) Labor; (4) Mines and Minerals; (5) Public Works and Buildings [this includes the office of the State Architect]; (6) Public Welfare; (7) Public Health; (8) Trade and Commerce; (9) Registration and Education [this includes the registration of structural engineers as well as architects, each under its own Act].

"*Section 4.* Each department shall have an officer at its head who shall be known as a Director, and who shall, subject to the provision of this Act, execute the powers and discharge the duties vested by law in his respective department.

"The following offices are hereby created.....

"Director of Registration and Education, for the Department of Registration and Education." [In other parts of the Act, from information furnished by the Governor's office, it appears that the officers of this department are as follows:

Director, Francis W. Shepardson, Chicago. Salary, $5,000.00.

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Assistant Director, Ernest A. Wreidt, Chicago. Salary, $3,600.00. Superintendent of Registration, Fred C. Dodds, Springfield. Salary, $4,200.00.]

"*Section 7.* . . . . . .

"Neither the Director, Assistant Director, Superintendent of Registration, nor any other executive and administrative officer in the Department of Registration and Education shall be affiliated with any college or school of medicine, pharmacy, dentistry, nursing, optometry, embalming, barbering, veterinary medicine and surgery, *architecture, or structural engineering*, either as teacher, officer, or stockholder, *nor shall he hold a license or certificate to exercise or practise any of the professions*, trades, or occupations regulated."

From this it will appear that no architect can have any executive authority in enforcing the law, as was the case formerly with the State Board and its officers. The professional relation of architects and the voice of organizations of architects will be explained later on. The same is the case with structural engineers.

"*Section 16.* The director of each department is empowered to prescribe regulations, not inconsistent with law, for the government of his department, the conduct of its employees and clerks, the distribution and performance of its business, and the custody, use, and preservation of the records, papers, books, documents, and property pertaining thereto."

This undoubtedly insures the preservation of all the records, papers, and filed documents of the State Board of Examiners of Architects accumulated during the last twenty years, all of historical value and precious for reference during succeeding years; but, as far as the rules of procedure of the old board, which were authorized by law, are concerned, it remains to be seen how far the Director of twenty-one subsidiary departments, who is not an architect and not technically acquainted with the usages of the profession, will renew and reëstablish them for his own governance. They were the result of nineteen years of experience in executing the license law, were last amended in 1916 and published, with the last biennial report in January of the present year. It will also be noted in the section above quoted that the Director has absolute authority to make such rules independent of the law under which the old board received its authority. It is expected, however, that he will pay due respect to the opinions of his predecessors in exercising this authority.

"*Section 17.* Each department shall maintain a central office in the Capitol Building at Springfield, in rooms provided by the Secretary of State."

The former office of the State Board in Chicago was closed July 1 and all its records and property removed to the Capitol Building at Springfield.

The following extracts from the new law have a more or less direct bearing upon the acts of the State Board of Examiners of Architects during the last twenty years, and do not seem to controvert any of them. The court decisions upon the law will doubtless hold as if the whole of the old law were in force.

"*Section 32.* Whenever rights, powers, and duties, which have heretofore been vested in or exercised by any officer, board, commission, institution, or department, or any deputy, inspector, or subordinate officer thereof, are, by this Act, transferred, either in whole or in part, to or vested in a department created by this Act, such rights, powers, and duties shall be vested in, and shall be exercised by, the department to which the same are hereby transferred, and not otherwise, and every act done in the exercise of such rights, powers, and duties shall have the same legal effect as if done by the former officer, board, commission, institution or department, or any deputy, inspector, or subordinate officer threof. Every person and corporation shall be subject to the same obligations and duties and shall have the same rights arising from the exercise of such rights, powers, and duties as if such rights, powers, and duties were exercised by the officer, board, commission, department, or institution, or deputy, inspector, or subordinate thereof, designated in the respective laws which are to be administered by departments created by this Act. Every person and corporation shall be subject to the same penalty or penalties, civil or criminal, for failure to perform any such obligation or duty, or for doing a prohibited act, as if such obligation or duty arose from, or such act were prohibited in, the exercise of such right, power, or duty by the officer, board, commission, or institution, or deputy, inspector, or subordinate thereof, designated in the respective laws which are to be administered by departments created by this Act. Every officer and employee shall, for any offense, be subject to the same penalty or penalties, civil or criminal, as are prescribed by existing law for the same offense by any officer or employee whose powers or duties devolved upon him under this Act. All books, records, papers, documents, property, real and personal, unexpended appropriations, and pending business in any way pertaining to the rights, powers, and duties so transferred to or vested in a department created by this Act, shall be delivered and transferred to the department succeeding to such rights, powers, and duties.

"*Section 33.* Wherever reports or notices are now required to be made or given, or papers or documents furnished or served by any person to or upon any officer, board, commission, or institution, or deputy, inspector, or subordinate thereof, abolished by this Act, the same shall be made, given, furnished, or served in the same manner to or upon the department upon which are devolved by this Act the rights, powers, and duties now exercised or discharged by such officer, board, commission, or institution, or deputy, inspector, or subordinate thereof; and every penalty for failture so to do shall continue in effect.

"*Section 34.* This Act shall not affect any act done, ratified, or confirmed, or any right accrued or established, or any action or proceeding had or commenced in a civil or criminal cause before this Act takes effect; but such actions or proceedings may be prosecuted and continued by the department having jurisdiction, under this Act, of the subject matter to which such litigation or proceeding pertains."

The following section provides for the abolition of about one hundred and twenty-five State boards, commissions, and offices comprising more than two hundred officials and two thousand employees. This is the most important feature of the so-called "Consolidation" act, which is intended to simplify the whole system of State government by retaining those branches which are essential and preventing overlapping authority; abolishing offices long since found to be useless, among which were many sinecures which were only of political importance to those holding them. So far as concerns the architects' and engineers' boards, the boards themselves and the officers under them only, are abolished, and the laws under which they were appointed remain in force, their duties and authority only being transferred to the Director of the twenty-one offices comprised in his department including all of the professions and occupations heretofore regulated by law.

"*Section 35.* The following officers, boards, commissions, arms, and agencies of the State government heretofore created by law, are hereby abolished, viz.:— . . . . . .
State Board of Examiners of Architects, State Board of Examiners of Structural Engineers, Secretary of the State Board of Examiners of Structural Engineers, Secretary-Treasurer of the State Board of Examiners of Architects. . . . . "

The following extracts from different sections further pertain to the duties and authority of the

DEPARTMENT OF REGISTRATION AND EDUCATION

"*Section 58.* The Department of Registration and Education shall have power:—

. . . . . .

"(4) To exercise the rights, powers, and duties vested by law in the State Board of Examiners of Architects;

[and of all the other State boards that are not abolished.]

"*Section 60.* The Department of Registration and Education shall, wherever the several laws regulating professions, trades and occupations which are devolved upon the department for administration so require, exercise, in its name, but subject to the provisions of this Act, the following powers:

"1. Conduct examinations to ascertain the qualifications and fitness of applicants to exercise the profession, trade, or occupation for which an examination is held; and pass upon the qualifications of applicants for reciprocal licenses, certificates, and authorities;

"2. Prescribe rules and regulations for a fair and wholly impartial method of examination of candidates to exercise the respective professions, trades, or occupations; . . . . . .

"6. Conduct hearings on proceedings to revoke or to refuse renewal of licenses, certificates, or authorities of persons exercising the respective

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professions, trades, or occupations, and to revoke or to refuse to renew such licenses, certificates, or authorities;

"7. Formulate rules and regulations when required in any act to be administered.

"*None of the above enumerated functions and duties shall be exercised by the department of registration and education, except upon the action and report in writing of persons designated from time to time by the director of registration and education to take such action, and to make such report, for the respective professions, trades and occupations as follows:*

. . . . . .

"*For the Architects, five persons, one of whom shall be a member of the faculty of the University of Illinois, and the other four of whom shall be architects residing in this State, who have been engaged in the practice of architecture at least ten years.*

. . . . . .

"The action or report in writing of a majority of the persons designated for any trade, occupation, or profession, shall be sufficient authority upon which the director of registration and education may act.

"In making the designation of persons to act for the several professions, trades, and occupations *the director shall give due consideration to recommendations by members of the respective professions, trades, and occupations and by organizations therein.*

"Whenever the director is satisfied that substantial justice has not been done either in an examination or in the revocation of or refusal to renew a license, certificate, or authority, he may order re-examinations or re-hearings by the same or other examiners.

"*Section 61.* All certificates, licenses, and authorities shall be issued by the department of registration and education, in the name of such department, and with the seal thereof attached."

This concludes a compilation of the sections and parts of sections in the Act, directly or indirectly referring to architects, and, in connection with all the clauses in the old law not eliminated by the Act, comprises the license, or registration law of the State of Illinois for architects as now in force.

The Administration of the Law

I am advised by the Department of Registration and Education that it has not been determined yet what amount will be paid to the examiners of the various professions, but in the case of the architects it will not be less than $10 per day, as formerly provided for members of the State Board of Examiners of Architects. They will also receive their traveling expenses. There is an appropriation sufficient to pay for such services. The Director has power to determine the compensation. The Superintendent of Registration will have charge of all of the administration work in connection with the examining and licensing of the professions, trades, and businesses now being licensed by the State. He is subject to the orders of the Director of Registration and Education, who is the supreme authority in his department. The Superintendent of Registration simply is the head of a division in the department and is subordinate to the Director.

The Department is authorized to establish branch offices in other parts of the State should it be necessary. Employees will all be under Civil Service rules.

Annual reports to the Governor, of all departments, will be made in December of each year.

Conclusion

It must now be a comfort to those who hug to their breasts the delusive idea that the registration of architects is something more respectable and honorable than licensing them, to know that the architects of Illinois are now *registered* under this act. That is, they are *registered* because they were *licensed;* the license "permitted" them to be registered in the Department of Registration and Education. This is the proper use of the terms. But whether this is a licensing or registration law is a matter of little importance. The law confirms the acts of the old licensing board, and puts all architects under the authority and discipline of State officers. It is simply another step in the progressive legislation of 1897 which first gave architects a legal status in this country. Many of the states have followed, or tried to follow the lead of Illinois, but few of them have succeeded in doing it all. In several states such laws were introduced in legislatures during the present year. Some were for licensing, some for registration. Some passed and some did not. Now their advocates will have another chance to sit up and make another study of Illinois' experience. New York got its registration law amended but it did not succeed in its main purpose, and get around the opinion of its own attorney-general, that a man who had called himself an architect could continue to do so, and could not be compelled to register. The law there only enables a man to be protected by calling himself a "Registered Architect," after he is registered. I can not see why anyone should want to call himself a "Registered Architect" if he did not want to be registered or could not get registered if he wanted to.

The Illinois architects are in good company because the new Department under which they are enrolled is not only a Department of Registration, but of *Education* also. It has authority over all educational matters in the State except the University of Illinois, which has a special and old charter; but the Department is already coöperating with it in certain matters, such as the Geological Survey. Some day this new department may take up the subject of architectural education, as recommended by progressive architects, which the Institute, the Chapters, and the architectural press have recently been discussing so extensively. It may establish colleges of architecture and other fine arts not controlled by the Trustees of the University. But as long as the feeling for coöperation continues its examinations may continue to be held at the University as has been the case for many years last past. It will be noted that one member of the examining committee must still be a member of the Faculty of the University.

The organized architectural associations are recognized in the new law. That means the Illinois Chapter of the Institute, which is a State Chapter and the Illinois Society of Architects which is also a State organization. It is on their advice and recommendation that the Director of the Department must appoint all committees for conducting examinations for license or instituting trials for violation of the law.

This reform is the result of many years of dissatisfaction with the work of the old board of examiners—though not always expressed with due regard to justice—which never was entirely free from political appointees in its membership, and which for some years last past has lacked the respect and support of the best element in the architectural profession.

As the original law was an experiment, so also is this change, to a certain extent, an experiment. It will have to be tried out practically. The architectural profession now has an opportunity to exert a direct influence upon the enforcement of the law. If it is not a success its failure may lie at the door of the architects of the state and their organizations. Both have advocated its enactment.

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STANDARD INDICATIONS OF MATERIALS FOR ARCHITECTVRAL DRAWINGS

INDICATION		MATERIALS
	1	RVBBLE
	2	STONE OR GRAVEL CONCRETE
	3	CINDER CONCRETE
	4	CONCRETE BLOCKS
	5	CVT OR CAST STONE
	6	MARBLE
	7	BRICKWORK
	8	ARCHITECTVRAL T·C·
	9	STRVCTVRAL T·C·
	10	GYPSVM BLOCKS
	11	STANDARD PARTITION
	12	WOOD PARTITION OR WALL
	13	METAL LATH AND PLASTER PARTITION
	14	STEEL & IRON
	15	EARTH
	16	WATERPROOFING
	17	SHEET METAL & ROOFING
	18	ROVGH WOOD
	19	FINISHED WOOD FOR DETAILS ONLY
	20	PLASTER OR STVCCO FOR DETAILS ONLY
	21	GLASS & MIRRORS FOR DETAILS ONLY

NOTES

INDICATION NO·12 TO HAVE A CRAYON POCHE WHICH PRINTS WHITE

INDICATION NO·11 FOR VSE WHEN PARTITIONS ARE THE SAME MATERIAL THROVGHOVT STRVCTVRE, THE SPECIFICATIONS DESCRIBING THE MATERIAL

HATCHING AND STIPPLING IS IN DILVTE INK

INDICATIONS NOS·1 TO 18 INCL· ARE AT SCALE OF 4 FEET TO 1 INCH AND ARE INCREASED PROPORTIONATELY FOR LARGER SCALE OR FVLL SIZE DRAWINGS· INDICATIONS NOS·19 AND 20 AT ¾ INCH TO THE FOOT AND NO 21 AT FVLL SIZE

MATERIALS IN ELEVATION TO BE INDICATED BY LETTERING

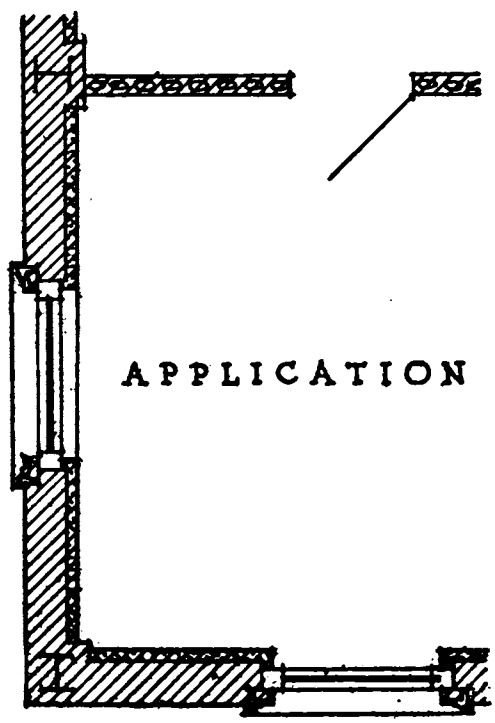

DIAGRAM OF PROPOSED STANDARD INDICATIONS OF MATERIALS

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Proposed Standard Indications of Materials

FOR USE ON ARCHITECTURAL DRAWINGS

THE Standing Committee on Contracts and Specifications of the American Institute of Architects has, with the approval of the Board of Directors, had for some time under consideration standard indications for materials for use upon architectural drawings.

Such a standardization for electrical wiring, outlets, etc., adopted by the National Electrical Contractors' Association and approved by the Institute, is now generally in use and has proved of advantage to contractors, engineers, architects, and draughtsmen. Well-designed standard indications for building materials should, in their larger field, be of even greater advantage to all concerned.

A scheme for such indications was prepared for criticism by the Standing Committee a year or more ago, but of late the work has been in the hands of a subcommittee of which Mr. J. A. F. Cardiff is chairman. The first tentative form prepared by the subcommittee received the criticism of many architects, out of which has grown a second tentative diagram, now published in the Journal in the hope that architects and draughtsmen may express their opinions as to the suitability of the proposed symbols.

The subcommittee accompanies its tentative diagram with the following comment:

"The only changes from the earlier draft are with respect to the first three indications, No. 1 being revised and Nos. 2 and 3 being definite indications in place of the alternatives originally shown. These changes are the result of the criticisms elicited by the circulation of the earlier forms. The rest of the indications received favorable comment from a large majority and have therefore been retained, but the minority recommendations will be outlined hereinafter.

"*Scope.*

Indications have been provided only for such materials, mainly structural, as are ordinarily shown on the working drawings by some method of hatching, stippling, or poché. The materials which constitute the "interior finish" have been omitted on the ground that they are matters for the specification or for a schedule or synoptic form accompanying either the drawings or the specification.

"The subcommittee believes that materials in elevation can best be indicated, both as to kind and extent, by lettering, and this is the consensus of opinion of those who criticised the first form. While no other indication is necessary from the standpoint of clearness, architects do frequently stipple or otherwise render the elevations to give expression to the design. This, however, rather than justifying standardization, would seem to point in the other direction—leaving the indication to the individual taste of the designer.

"In the case of alterations to existing buildings, the new work would be indicated as in new buildings. For the existing work which remains undisturbed and for existing work which is to be entirely removed, indications were suggested in the criticisms of the first draft, but they were not indications of *materials*. It is our belief that there is little or no need for indicating the materials of existing work in such cases, and that an indication to show only the proposed change in *arrangement* has no place in such an Indication of Materials.

"*Indications.*

Clearness, simplicity, and rapidity, and with these, some regard for the appearance of the finished drawing, should govern in determining the character of the indications. They should be of a nature such as will not be confusing under slightly differing interpretation at the hand of the *average* draughtsman.

"Indication No. 1 is readily differentiated from brickwork and cut stone with which it frequently comes in contact. Alternatives which were suggested are (a) freehand wavy lines, (b) a more open stippling than the cut stone indication, and (c) diagonal dotted-line hatching.

"Indications Nos. 2 and 3 have been widely used for some years. Others suggested are (a) the letter "S" in No. 2 and the letter "C" in No. 3 in place of the quirks shown, as signifying respectively, stone (or gravel) and cinders; (b) triangles in place of the circular quirks in No. 2 and (c) freehand wavy lines for No. 3.

"Indication No. 4 in actual test executed quite rapidly, and it suggests the material. An alternative proposed is diagonal dotted-line hatching.

"Indication No. 5 has long been a standard for cut stone. Two objections were made to its employment for cast stone, one contending that we should differentiate and the other that cast stone and concrete blocks should have the same indication—that which we have illustrated for concrete blocks. Another alternative suggested is diagonal hatching of lines alternating solid and dotted.

"Indication No. 6. Stippling the same as cut stone has been recommended for this.

"Indications Nos. 7, 8, 9, and 10. For these materials, which occur with the greatest frequency, the base is diagonal hatching—the simplest and quickest indication of all. The lines may be drawn through all four materials in one operation, as shown in the Application. The hollow tile and gypsum blocks are subsequently and quickly given the differentiating stipple or oval. Substitutes suggested for structural terra cotta are (a) freehand wavy lines and (b) perpendicular hatching. Substitutes for gypsum blocks are (a) freehand diagonal wavy lines, (b) perpendicular hatching with a crayon poché, and (c) stippling instead of diagonal hatching with the ovals retained.

"Indication No. 11 is designed as a time-saver for use when the partitions are the same material throughout, whether wood, tile, gypsum, or plaster, the specification establishing the material. Where there are some exceptions, as for instance hollow tile partitions about stairways with gypsum blocks elsewhere, the hollow tile would have the regular No. 9 indication and the gypsum block partitions the "standard partition" indication.

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"Indications Nos. 12 to 21 inclusive need no special comment and no alternatives have been suggested in the criticism received.

"An indication which has not been made use of, for reasons both of speed and appearance, is the freehand wavy line. It has been suggested so frequently, however, for one material or another that it would seem to warrant special thought when this draft is circulated for criticism.

"Another point to which special thought should be given is the suitability of the indications for one-eighth scale drawings, for while that scale is perhaps not as frequently used as quarter scale, it is nevertheless so much in use that standard symbols should be just as applicable in its case as in that of the larger scale."

As it is obviously of importance that the Institute should adopt only a thoroughly practical system of indications the Standing Committee will greatly appreciate expressions of approval, constructive criticisms or suggestions for the improvement of the diagram. All communications should be sent to the chairman, Mr. Frank Miles Day, 925 Chestnut St., Philadelphia, not later than October first, 1917.

News Notes

National Conference Committee on the Quantity System

Mr. Sullivan W. Jones, representative of the Institute on the National Conference Committee to consider the Quantity System as a means of checking the economic waste in the present method of competitive bidding, reports that the Committee will hold its first meeting at the Octagon about the middle of October, and that of the eighteen associations invited to send representatives, ten have agreed to do so and three others have promised to take the matter up at meetings in the near future.

Wrong Methods of Advertising the Architect

At the Board meeting in September, an account of which will appear next month, the two following resolutions were adopted:

Resolved, That the Board of Directors condemns as contrary to the spirit of the Canons of Ethics the issuance by Members of the Institute of professional treatises or monographs of their work in the form of books or pamphlets, whether privately printed or published through regular channels, which are supported by advertisements.

Resolved, That the Board of Directors condemns the issuance of catalogues of architectural exhibitions which are supported by advertising, as injurious to the profession because the support so given is in the nature of a contribution which the advertiser dislikes to refuse to make, rather than a payment made for value received, and believes that those holding such exhibitions should give consideration to other unobjectionable means for financing them.

It was with some regret that the Board deemed it necessary to take explicit action in these matters, yet it felt that there still lingers a misunderstanding of the fact that advertising is today a commodity, the values of which have been pretty well established. Thus, many practices which, although never justifiable, once passed muster as a friendly contribution to this or that cause, are now frankly recognized as wrong. Advertising has become a well established business based upon sound methods of selling space, and it has been definitely determined that advertising in such catalogues or year-books has little, if any value; thus the sale of such space sets up a relationship which injures both the buyer and the seller. It is true that some societies now find themselves in a position where they must either continue the publication of an exhibition catalogue from which they derive a considerable advertising revenue, or else forego valuable educational work which they have been building up over a period of years. The Board recognizes this contingency, but believes that through careful study, some unobjectionable means of raising money can be found, and it was suggested that a conference of such societies be held in the near future for the purpose of discovering a solution of the problem.

Personals

The firm of Graham, Burnham & Company has been dissolved. Messrs. Ernest R. Graham, Peirce Anderson, Edward Probst, and Howard J. White will continue the practice of architecture at 1417 Railway Exchange, Chicago, as Graham, Anderson, Probst & White.

Messrs. Hubert Burnham and Daniel H. Burnham will continue the practice of architecture in the Rookery Building, Chicago, as D. H. Burnham & Company.

Perkins Fellows & Hamilton announce the removal of their offices to 814 Tower Court, Chicago.

Mr. Edwin H. Hewitt, of Hewitt and Brown, Minneapolis, has sailed for France to assist in the Y. M. C. A. work on behalf of our troops. Mr. Edwin H. Brown of the same firm is now stationed at the Red Cross Distribution Depot at Deming, N. M.

Mr. W. M. Somervell, of Seattle, has been commissioned Major E. O. R. C., awaiting orders in Washington.

Preserving Architectural Types in the Devastated French Provinces.

"La Maison des Pays de France," the text by M. Leandre Vaillat, editor of *Le Temps*, Paris, and 80 drawings by M. André Ventre, architecte en chef des Monuments historiques, illustrates the principal types of houses in Flanders, Artois, Picardie, Ile de France, Champagne, Lorraine, and Alsace.

The Journal will be glad to secure copies of this book for its readers at the price of $2 each.

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Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

PLUMBING ISSUE

HYDRAULICS—SANITATION—PUBLIC HEALTH

CONTENTS

A consideration of the subject of "Plumbing" involves at once a broad human problem which takes in the health of individuals, communities, and the country at large. There will, consequently, be found in this issue reference to considerations which include, first, the source of any water-supply, then its storage or impounding, its distribution, and its purification. Next comes its utilization, which has been considered with respect to the materials and methods involved in general plumbing installations in and around all forms of human habitations. Finally comes the question of disposal of sewage and waste. Information and activities concerning all these subjects have been recorded as fully as possible within the limitations of a treatise devoted to aspects within the purview of architects and other constructionists.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated see the General Index, page 472)

9A U. S. Government Specifications and Publications.
9B Public Health, Water Works, Plumbing and Other Associations.
9C1 Housing Associations and Other Volunteer Organizations.
9C2 Other Allied Interests and Influences.
9C3 Educational and Research Work.
9D Water-Supply, Storage, Utilization and Incoming Pipes.
9E Filtration and Water Treatments.
9F Heating and Cooling of Water.
9G Plumbing Installations in General.
9H Fixtures and Fittings.
9H1 Bathroom and Laundry Finishes and Accessories.
9J Swimming-Pools, Baths, Bath- and Change-Houses.
9K Sprinklers and Fire Protection.
9K2 Safeguarding Industry—A Wartime Necessity.
9L Outgoing Pipes, Sewage Disposal, and Public Health.

9A U. S. Government Specifications and Publications

1. Composed of representatives of the Treasury, War and Navy Departments, there is a Board on Uniform Plumbing Specifications. This Board has issued (March 1, 1916) a "Specification for Plumbing Fixtures, etc., for the Treasury, War and Navy Departments."

   It is stated that "These specifications are published for the purpose of facilitating construction in the governmental departments concerned. They are not to be construed as prohibiting the installation of any fixture desired for a special purpose and covered in the specifications for any particular work."

   These specifications consist of 147 pages of printed matter, including 53 plates showing in detail all types of plumbing fixtures and their connections. They cover general requirements for all kinds of piping and various wares, and form the basis of the specifications for each particular installation prepared by these departments. They are also so used by some architects in their regular practice.

   These specifications may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington, D. C., at 75 cents a copy.
2. The Navy Department issues specifications for "Naval Stores and Materials," as described under 3A1*e*; those pertaining to plumbing materials, other than the fixtures and fittings referred to above, will be found completely listed in the "Index to Specifications" (3A1*a*1).
3. For publications by other governmental departments concerning materials, devices, and workmanship pertaining to hydraulics and sanitation, see the listings under the different subdivisions

9B Public Health, Water Works, Plumbing, and Other Associations

9B1 *American Public Health Association*

Secretary: Salskar M. Gunn, 126 Massachusetts Ave., Boston.

Publications:

(*a*) "American Journal of Public Health."
(*b*) Also, "Standard Methods for the Analysis of Water, Sewage, Air, and Milk."

Its objects are to protect and promote public and personal health. The Association has seven sections: Laboratory, Public Health, Administration, Vital Statistics, Sanitary Engineering, Sociological Industrial Hygiene, and Food and Drugs.

9B2 *American Society of Sanitary Engineering*

President: Wm. C. Groeniger, State Health Dept., Columbus, Ohio.

Publications:

(*a*) Proceedings of Annual Meetings.

Composed of inspectors of plumbing, sanitary engineers, health officers, and others interested in its objects. Any manufacturer of sanitary goods is eligible as a contributing member. Committees of the Society engaged in work of interest to architects and builders are: on Research;

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Causes of Iron Rust in Domestic Water-Supply; on House-Traps; on Standardization of Brass Goods; on U. S. Standards with respect to Plumbing Installation in Government Buildings.

9B3 *Water Works Associations*

Of great importance are the results accomplished by organizations formed to advance the design, construction, operation, and management of water works. These include:

9B3a *American Water Works Association*

Secretary: J. M. Diven, 47 State St., Troy, N. Y.

Publications:

1. The Journal of the American Water Works Association. Quarterly: March, and thereafter. Supplements give the proceedings of the annual conventions and lists of officers, committees, and members.
2. Standard Specifications for Cast Iron Water Pipe and Special Castings (adopted May 12, 1908).
3. Standard Specifications for Hydrants and Valves (adopted June 24, 1913; revised June 9, 1916).

A joint committee is now at work on revisions of these standards.

Other committees working on subjects of interest to architects and constructors are those on: Electrolysis, Standard Specifications for Wrought Iron Pipe, Plumbing Code and Control of Plumbers, City Planning, and Private Fire Protection Service.

9B3b *New England Water Works Association*

Secretary: Willard Kent, Narragansett Pier, R. I.

Publications:

1. Journal of the New England Water Works Association. Quarterly. Contains papers presented at the six regular meetings each year, with discussions, and list of officers and reports of committees.
2. Standard Specifications for Cast-Iron Pipe and Special Castings. (Adopted Sept. 10, 1902.)
3. Index. Lists articles, papers and other information contained in "The Transactions," from 1883 to 1885, and in the Journal from Volume I to date.

9B3c *Water Works Manufacturers' Association*

Secretary: E. K. Sorenson, 15 Broad Street, New York City.

Issues no publications.

9B4 *National Association of Master Plumbers of the U. S.* Organized 1883.

Secretary: A. A. Zertanna, 4337 Manchester Ave., St. Louis, Mo.

Publications:

(*a*) Convention Proceedings, published annually.

Aims to establish harmonious and equitable relations between master plumbers, hydraulic and sanitary engineers, journeymen plumbers, and other employees, and manufacturers and jobbers in supplies used in plumbing, heating, gas-fitting and the drainage business; to educate apprentices in plumbing and to establish an apprenticeship system; and to promote the standardization of fittings and other plumbing goods.

This Association, together with the National Association of Master Steam and Hot Water Fitters, was represented in a joint conference in November, 1913, with the American Institute of Architects to consider the advisability of the direct letting of mechanical equipment contracts, which resulted in the adoption by the Institute of the resolution quoted under 9G*a*.

9B5 *Cast Iron Soil Pipe Makers' Associations*

Eastern Soil Pipe Association

Secretary: Chas. F. Tuttle, 269 Clinton Ave., Brooklyn, N. Y.

Southern Soil Pipe Association.

Secretary: M. W. Bush, Birmingham, Ala.

Publications:

(*a*) "Complete Specification for Cast-iron Soil Pipe and Fittings."
(*b*) "A Nation-wide Comparison of House-drainage Piping."
(*c*) "Cast-iron Soil Pipe vs. Wrought Pipe—for House-drainage."
(*d*) Numerous reprinted technical papers pertaining to house-drainage piping.

Copies of any of the above will be sent upon application.

The chief object of these Associations is to standardize the manufacture of all extra heavy cast-iron soil pipe and fittings so that a single specification covers the product used by all consumers. These specifications are for adoption in Federal and municipal plumbing rules or regulations and cover in detail the weights of fittings as well as pipe, the quality of iron used in pipe, testing of pipe, marking, dimensions and radii of bends, hubs, etc. Another object of these Associations is to promote sanitation by the use of cast-iron soil pipe for all house-drainage, that is for house-sewers, house-drains, soil-stacks, vents, and leader lines.

9B6 *American Concrete Pipe Association*

Secretary-Treasurer: J. H. Libberton, 210 S. La Salle St., Chicago, Ill.

Publications:

(*a*) Proceedings of Annual Conventions, containing papers and discussions on all phases of the manufacture, use, and application of cement sewer pipe and drain tile.

This organization is composed entirely of men who are interested in concrete sewer pipe, irrigation pipe, and drain tile, either as manufacturers of the pipe itself or as manufacturers of equipment for making such pipe.

The Association coöperates with the A.S.T.M. and other organizations in the formulation of standard specifications.

9B7 *The Sewer Pipe Manufacturers' Association*

Field Commissioner: John L. Rice, Second National Bank Building, Akron, Ohio.

Publications:

(*a*) "Vitrified Clay Pipe." 32 pp., illus. Contains description of Salt Glazing, Results of Tests, and Specifications for Sewer Pipe and the Laying of Sewer Pipe.
(*b*) "About Culverts." 32 pp., illus. Contains Basic Principles, Types, Definitions, Sizes, Costs, Diagrams and Culvert Design, the latter by P. K. Sheilder from Proceedings of Ohio Engineering Society.
(*c*) "Clay Products for Building Construction." 32 pp., illus. Concerns Vitrified Clay Pipe for House Drains, Wall Copings, Flue Linings, and Fire Clay Chimney Tops, and contains Building Code Suggestions and diagrams from publications of the N.B.F.U. and the N.F.P.A.

This Association was formed for the purpose of promoting the welfare of the sewer pipe industry and to the end that the public might be more fully informed as to the adaptability of vitrified clay pipe and other clay products and as to the best manner of using them.

A committee is now working on the subject of standardized practice with respect to the manufacture and laying of sewer pipe.

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9C1 Housing Associations and Other Volunteer Organizations Which Work for Improvement of Sanitation in Buildings

(Written for the Journal by John Ihlder)

The importance of good sanitary standards is becoming generally recognized, but the old easy distinction between what is necessary for me and what for the other fellow still makes necessary a great amount of educational work. In our progressive cities the operative builders find it so difficult to sell or rent new houses without sanitary toilets and even bathtubs, that they themselves often build the sewers.

This applies not only to expensive houses for the well-to-do, but, in some cases, even to the less expensive for the wage-earner. In cities where it is the policy for the municipality to pay all or a considerable proportion of the cost of sewer-extension out of general funds, as in Philadelphia, the builder of wage-earners' houses, who must work on the smallest possible margin, is between two influences. He cannot build sewers at his own expense entirely and yet compete with the builder on a city-sewered street; he cannot sell his houses unless he at least holds out a promise that they will have modern sanitary conveniences. This creates a strong demand for rapid sewer extension, but pending such extension he does all he can. For instance, I saw recently a group of three-bedroom brick houses on the far outskirts of southwestern Philadelphia, now nearing completion, which are to sell for $2,600—a low price in these times. Each has a good-sized bathroom containing tub and basin and pipes for water-closet. The waste from tub, basin, and kitchen sink flows into a temporary wooden sewer that empties into a nearby creek. In the back yard is a temporary privy which will be replaced by a water-closet in the bathroom as soon as the Ward Business Men's Improvement Club—of which the builder is a very active member—can secure an extension of the city sewer system. Without these visible tokens of an imminent change at minimum expense the houses would not be salable.

This is in part a result of the work of housing associations and committees which for years have insisted that the well-being of the community demands as good sanitary conditions for the wage-earner's family as for families of those of a higher economic status. Not only has the wage-earner himself come to accept this, but public opinion has begun to support it also.

So the sanitary problem of the new house seems to be nearly settled with the acceptance of a sound public policy backed by the continued interest of those most directly concerned. But this very acceptance of a right policy for new houses makes more difficult the problem of the old house in the poorer districts of our large cities in the East. Here are large areas where houses were built long before modern sanitation began, before the modern water-closet had been invented, before the stationary bathtub had been thought of. In these houses the operative builder has considerably less than no interest—they compete with his new houses, and he is quite willing that they should not be made more attractive than their central location inevitably makes them. Moreover, where the city pays all or a considerable part of the cost of sewer extension, there is such competition for a share in the appropriations that these rarely suffice to go around. The owners of the old houses are frequently indifferent. To begin with, they often have a backward-looking instead of forward-looking habit of mind. Their houses never had sanitary conveniences. Frequently they are houses that once sheltered the city's aristocrats. What was good enough for the former inhabitants certainly is good enough for the present ones. This habit of mind is buttressed by the fact that the houses, being centrally located, are usually easily rented so long as they are at all habitable. The immigrant is not particular. What he desires most is to live among his countrymen and to be near his work. Why then should the owner go to any expense to remodel and refit the old building? So in these old districts the housing workers and allied groups have a distinct and more difficult task since they are working for a population whose ignorance makes them comparatively indifferent and against, instead of with, a strong group who have financial interests in the properties. Yet even here they are making notable progress, backed though they are only by a slowly awakening public opinion and by a slowly increasing knowledge on the part of the inhabitants as to what unsanitary conditions mean to them personally.

In some of the smaller cities, even in the East, there are practically no houses without sewer-connected sanitary conveniences, as in Savannah, Ga., and Mt. Vernon, N. Y. Washington has reached almost as high a standing. In New York City practically all the tenement houses are equipped with sanitary water-closets, and an increasing proportion have bathtubs. In Baltimore, where a new sewer system and disposal plant have recently been completed, it is proposed to require that every dwelling in the city shall be sewer-connected, and it is already required that every new house containing four or more rooms shall have a bathtub with all necessary supply and waste pipes.

Even in Philadelphia, where past neglect has permitted the development of very unsanitary conditions, there has been notable progress in recent years. According to the official figures more than 8,000 privy vaults are being abandoned annually and sanitary water-closets installed in their places. Were it not for the building of new vaults on unsewered streets, Philadelphia might look forward with confidence to the end of this menace within a few years, despite the opposition of some owners and the slowness of sewer construction in the oldest districts. In these districts there are still approximately 30 miles of unsewered streets. Illustration of the worst of them is a dead-end segment of Spring Street near the Delaware River. Spring Street at this point is only about 12 feet wide. Opening off it is a court where stands an old house on the site occupied by Benjamin Franklin's home in 1748. The houses here are packed so closely together that in one place it has been necessary to make a two-story privy to provide for four houses. The Bureau of Surveys does not wish to put such dead-end streets on the city plan because they should not be perpetuated. Unless a street is on the city plan, sewer extension can not be compelled. Some of the owners—among them resident owners—do not wish the expense of sewer extension and connections. The city has not the power and there is as yet no public opinion in favor of clearing and replanning such an area.

It is with such complicated situations as this that housing workers in the older cities are compelled to deal. Considered individually such situations are almost hopeless; only the slow and uncertain extension of business and industrial areas can wipe them out. But we are getting beyond the individual situation to the development of city-wide policies in city planning and rebuilding. In that lies our main hope and to that we are led by our desire to improve the sanitation of the individual house. Plumbing

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has wide ramifications. The well-to-do recognize its importance for themselves. The more ambitious of the wage-earners are willing to sacrifice time and carfare to secure it for themselves. Public opinion recognizes its desirability in a general way but has not yet become convinced of its necessity for the immigrant and the unskilled laborer.

To show this necessity is one of the tasks of housing associations and committees. New York, because it first developed intolerable conditions, was the first to make serious efforts for their reformation. It has had housing, or tenement house, committees for many years. The present committees of the Charity Organization Society and of the Brooklyn Bureau of Charities are very active organizations, and to the former New York owes its present tenement house law, enacted in 1901. Philadelphia, Boston, Pittsburgh, Washington, Chicago, and other large cities long ago organized committees or conferences to work for better sanitation and housing. The first of these had their inception among people interested primarily in social work among the poor, for to them came first-hand knowledge. But of late years chambers of commerce and other organizations have taken up the work because of its direct effect upon the continued prosperity of the community. Philadelphia was the first city to establish an independent housing association which should deal with all phases of the question and coördinate the work of all other agencies so far as they touch housing. This the Association's independent position has enabled it to do much more effectively than could a committee of an organization having other interests. There are now nearly seventy agencies in Philadelphia coöperating with the Housing Association by reporting to it the unsanitary conditions they find in the course of their work. Among these are hospitals, social settlements, local improvement societies, and such business organizations as the Chamber of Commerce.

The organization of the Philadelphia Housing Association in September, 1909, preceded by a few months that of the National Housing Association, which has had a great influence in stimulating interest throughout the country. Its annual conferences have been of great educational value. Largely as a result of its work there are now more than a hundred cities in which there are active organizations. Most of these are committees of charity organization societies, chambers of commerce, city clubs, or improvement associations. But several cities are progressing beyond this stage to that of the independent association which can devote all its energies to housing and can more effectively coördinate the housing work of other agencies. Among these are Chicago, Cincinnati, and Pittsburgh. There are several state organizations, like the Pennsylvania Housing and Town Planning Association, the Indiana Housing Association, and the New Jersey Housing Association, besides committees of such state organizations as the Massachusetts Civic League. These hold annual conferences. Even in the national field housing has been recognized by the National Conference on City Planning (now the City Planning Institute) and by the National Real Estate Association, which has a housing committee.

In addition, there are in a number of cities housing companies that build and manage improved wage-earners' dwellings on a limited dividend basis. Some of the earliest of these, as is so often the case in first attempts, have ceased operations or have failed to live up to their promise. The oldest that has enjoyed continuous success is the Octavia Hill Association in Philadelphia, founded in 1896 and still growing. The Housing Association owes its being to the Octavia Hill Association, whose officers were its founders. Other conspicuous companies of this character are the City and Suburban Homes Company in New York City, the Sanitary Housing Company and the Sanitary Improvement Company in Washington, D. C., the Model Homes Company in Cincinnati, Ohio, the Woodlawn Company in Wilmington, Del., and the Improved Dwellings Company, in Brooklyn, N. Y. (See the pamphlet referred to under 9L39 which lists these companies, village improvement associations, and others.)

In all these developments the installation of sanitary conveniences is a conspicuous feature, as is evidenced in the names of some. While the later companies do not lay the emphasis upon sanitation that the older ones did, this means not that sanitation is considered less important, but that it has become so generally understood as not to require emphasis. The greatest single motive for this work, as in that of the increasing number of industrial villages now being built by the large corporations, is to provide sanitary dwellings for the wage-earner.

The increasing interest in this question is shown by the growing number of reports describing conditions in our cities. Illustrative of them are the reports published under the auspices of the Russel Sage Foundation on Springfield, Ill., Topeka, Kan., and Ithaca, N. Y., dealing with public health and with housing, and such independent reports as those on housing in Providence, R. I., Grand Rapids, Mich., Minneapolis, Cleveland, which concern themselves largely with sanitary conditions and methods for their improvement.—JOHN IHLDER.

[EDITOR'S NOTE.—In certain reports which will be found mentioned under the various subdivisions, particularly under 9L, references are made to the subject of sanitation and public health and to constructional work in connection therewith. Among these are: The Annual Reports of the Director General of the International Health Commission to the President of the Rockefeller Foundation; the Annual Reports of the Department of Engineering, City of Hartford, Conn., and others.]

9C2 *Other Allied Interests and Influences*

The American Ceramic Society, mentioned under 3C1, is an important factor in the development of porcelain and vitreous ware used in plumbing, in addition to which there are many state or local clay working associations which hold meetings and conventions.

There is record of the National Organization of Health Officials and also of the Confederated Supply Association, the latter representing the various associations of plumbing supply dealers, both of which are referred to under 9Gb.

There is also record of the Enameled Sanitary Ware Manufacturers' Association, concerning which no information has yet been obtained.

There is also the American Institute of Metals and the National Association of Brass Manufacturers and others which are interested in metal plumbing accessories. These will be described later under Metal Products.

For description of the Range Boiler Exchange see 9F1.

There are, of course, "labor organizations" of the artisans, mechanics, and others employed upon the various branches of the work embraced within a plumbing installation, an activity of one of which is referred to under 9K1.

9C3 *Educational and Research Work*

In the colleges, technical and other institutions of the country instruction in hydraulics and sanitation is being cared for. A list of many of such, including those wherein branches of the A.S.M.E. are located, was given under 1B3*a*.

A practical indication of interest from without was manifested when recently awards were made of the Nelson Prizes in Plumbing. These were presented through the

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courtesy of the Cast Iron Soil Pipe Makers Advertising Association for the best papers on the "Practice or Theory of Plumbing" prepared by any student or instructor in Harvard University or the Massachusetts Institute of Technology, or by any student or instructor in other institutions of learning who had had training in the theory or practice of house-drainage. The Chairman of the Committee in charge of the awards was George C. Whipple, Professor of Sanitary Engineering, Harvard University, and the prizes were named for N. O. Nelson, a manufacturer of plumbing supplies who has devoted himself to the general improvement of living conditions.

First prize of $100 was awarded to Thomas J. Claffy, Assistant Chief Sanitary Inspector, Health Department, Chicago, Ill., for a paper entitled "Plumbing." Second prize of $50 to James W. Anderson, student graduating in the class of 1917 from the Massachusetts Institute of Technology, Cambridge, Mass., for paper entitled "A Study of the Different Types of Pipes Used in the Disposal of Rain Water from Buildings." Third prize of $50 to Walter G. Ward, Instructor, North Dakota Agricultural College, Agricultural College, N. D., for a paper entitled "Water Closet Connections."

A new contest similar to the one just completed, but involving awards approximating $750, is planned for the ensuing year.

9D Water Supply, Storage, Utilization and Incoming Pipes

Many publications are issued dealing with investigations and developments in connection with hydraulics, public water supplies, reservoirs, standpipes, pumping equipment, and other phases of this subject. These are also treated in the leading pocket-books, handbooks, and other literature prepared for the use of architects, engineers, and constructionists. Independent private water supplies will usually be found treated in the publications of the manufacturers which specialize in their production and installation. Much attention has been given to the development of standards in the manufacture of water pipes by associations and societies whose activities are elsewhere referred to and the results of which are listed under this heading and under those subdivisions which follow pertaining to water. The subject of trenching for and laying of pipes has been carefully studied, the interest in which is confined not alone to water or incoming pipes but to drains or outgoing pipes. In other ways the subjects of water-supply and drainage are interlaced and so closely related to the public health that the references under 9L which treat of outgoing pipes should also be consulted.

For Tanks, Reservoirs, and Tank Supports, being Regulations and Standards pertaining to these subjects, see April Journal 4D5.

1. The U. S. Geological Survey (2A1*b*) has published about 400 reports on various phases of water-supply and conditions likely to be met with in different parts of the country.
2. The U. S. Bureau of Mines (2A3) has issued:
   (*a*) Technical Paper 33, "Sanitation at Mining Villages in the Birmingham District, Ala." (9L1*a*), contains a section on "Water Supply."
   (*b*) Bulletin 87, "Houses for Mining Towns" (9L1*e*), contains sections on "Responsibility for Water Supply" and "Sources of Water Supply."
3. The U. S. Reclamation Service issues:
   (*a*) "List of Publications," No. 3, 1916. In same will be found many references to reports and bulletins on water supplies, farm plats, and town sites, including maps, specifications and drawings which may be had upon application to Arthur P. Davis, Director and Chief Engineer, 2212 First St., Washington, D. C., or the Superintendent of Documents, Government Printing Office, Washington, D. C.
   (*b*) "The Reclamation Record," a regular bulletin of service, issued monthly and contains many illustrated articles. Subscription 50 cents per year.
4. Read the "Indexes to Transactions and Proceedings" and other publications of the American Water Works Association, The N. E. Water Works Association, and others described under 9B for references to complete libraries of information on the subject, not alone of water, but of all appurtenances and allied subjects.
5. See "Review of Current Technical Literature" and *Journal* of the A.S.M.E. for information on all phases of this subject. Also reports of committees in that Society on Filter Standardization. See, also, Standards recommended in reports of committees received by the Council of the A.S.M.E. (Serial No. 10.) as follows:
   (*a*) Special Reports on Standard Pipe, Pipe Threads, and Pipe Unions.
   (*b*) Separate Reports on Standard Threads for Hose Couplings, Standard of Pipe Thread Gages, and Standard Thickness Gage for Metals.
   (*c*) The American Standard for Pipe Flanges, Fittings, and Bolting.
6. See "Proceedings" of the A.S.C.E. for lists of "Current Engineering Literature," on matters connected with water-supply. Also reports of the committee in that Society on "A National Water Law."
7. "Reservoirs," by James Dix Schuyler, 573 pp., illus., contains sections on Domestic Water Supply, Types of Dams, and the Methods, Plans, and Cost of Their Construction; also Distribution, Application, and Use of Water and the Rainfall and Run-off from various Watersheds.
8. "Water-Supply Engineering," A. Prescott Folwell. 570 pp., illus. Included in the Contents are: Sources of Supply, Gravity Systems, Pumping Systems, Hydraulics, Dams and Embankments, Pumping and Pumping Engines, Practical Construction, Pumping-plants and Filters, Pipes and Conduits.
9. "Waterworks Handbook," by A. D. Flinn, R. S. Weston, and C. L. Bogert. 824 pp., illus., 311 tables. Contents include: Dams, Wells, Equipment for Treating Water, Aqueducts, Pipes, Pumps, Pumping Stations and Equipment, Standpipes and Tanks, Non-ferrous Metals (also corrosion of iron and steel).
10. "Towers and Tanks for Water Works," J. N. Hazelhurst. 325 pp., illus.
11. "Water Works for Small Cities and Towns," John Goodell. 286 pp., illus. Contents include: Dams, The Utilization of Springs, Open Wells, Driven Wells, Deep and Artesian Wells, Pumps, The Air Lift, Pumping Stations, Pipes, and The Quantity of Water to Be Provided.
12. "Waterworks Distribution," J. A. McPherson. 175 pp., illus. A practical guide to the laying out of systems of distributing mains for the supply of water to cities and towns.
13. "Small Water Supplies," F. N. Taylor. 180 pp., illus. A practical treatise on the methods of collecting, storing, and conveying water for domestic use in country estates, small villages, and farms. Contents include: Wells and Well-sinking, Noises in Water Pipes and Their Causes.
14. "American Civil Engineers' Pocket Book," (9G22), Mansfield Merriman, pp. 914–927: Section on "Collection of Water."
15. "Elements of Sanitary Engineering," (9L15), Mansfield Merriman, contains information on "Water Supply Systems" and "New Water Supply for New York City."
16. "Clean Water and How to Get It," (9E1), Allen Hazen, treats of water-supply from various sources.
17. "Water Purification and Sewage Disposal," J. Tillmans. Translated by Hugh S. Taylor. 169 pp., illus. A critical survey of the work of German authorities in developing modern methods for suitable water-supplies and the adequate disposal of sewage.
18. "Treatise on Hydraulics," Mansfield Merriman. 565 pp., illus. Contents include, besides all Fundamental Data: Water Supply and Water Power, Water Wheels, Turbines, Pumps and Pumping.
19. "Treatise on Hydraulics," Henry T. Bovey. 582 pp. Contents include descriptions and illustrations of Rams, Presses, Accumulators, Water-pressure Engines, Vertical Water-Wheels, Turbines and Centrifugal Pumps.
20. "Water Power Engineering," D. W. Mead, 843 pp., illus. Covers the theory, investigation, and development of water power and presents fully the details of the entire engineering problem from the first investigation to the complete plant.
21. "Mechanical Equipment of Federal Buildings," Chapter IV (9G1—), contains a section on Water Supply, with information as to service installations and data on sizes and kinds of service pipes and branch water-supply pipes.
    See, also, p. 384 of this book for Table of Capacity of Cylindrical Tanks.

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22. See "Sanitation of Public Buildings" (9G4), Wm. Paul Gerhard, for sections relating to water-supply and utilization.
23. See "Water Supply, Sewerage, and Plumbing of Modern City Buildings" (9G5), by Wm. Paul Gerhard, for information on Domestic Water Supply, The Water Supply of Large Modern Buildings, and other data.
24. See Chapter IX on Water Supply Systems in "Mechanical Equipment of School Buildings," (9G8), H. L. Alt.
25. "The Sanitation, Water Supply and Sewage Disposal of Country Houses" (9G7), Wm. Paul Gerhard, dwells upon the sources of water, various modes of raising and storing water and its distribution, and gives detailed advice on how to obtain a satisfactory water-supply.
26. See "Architects' & Builders' Pocket Book" (9G9), F. E. Kidder, for information on Private Water Supply Pumps, Construction of Cylindrical Wooden Tanks, Capacity of Tanks, Windmills, Fire Streams.
27. "Domestic Sanitation and Plumbing" (9G13), A. H. Shaw, contains water supply information in Part II.
28. "Sanitary Plumbing and Drainage" (9G12), J. W. Hart, contains a section on water supply.
29. See *Journal of the Society of Constructors of Federal Buildings*, November, 1915, pp. 336–338, for Paper No. 196, entitled "An Experience with House Water Supply Piping," by Harry G. Richey.
30. See "I.C.S. Plumbers' and Fitters' Handbook," (8G23), section on "Water Supply and Distribution" for information on Sizes of Street Service Pipes Suction Lifts, Sizes of Wooden Tanks, Size of Water Pipes in Building, and Air Locks in Water Pipes.
31. For Tables of Capacity of Rectangular Tanks, Cylindrical Tanks, Cisterns, etc., see "I.C.S. Building Trades' Handbooks," pp. 399, 400.
32. "Hydraulic Tables," Gardener S. Williams and Allen Hazen. 104 pp. Included in the contents are: Observations of Flow in Cast-iron, Riveted Steel, Wooden-Stave, Rectangular Wooden, Cement, Wrought-iron, Galvanized-iron, Brass, Lead, and Glass Pipe, Fire-hose, Open Conduits, Aqueducts, Brick Sewers, and Canals.
33. "Flow of Water," L. Schmeer. 134 pp., illus. A new theory on the motion of water under pressure and in open conduits, and its industrial application.
34. "Water Pipe and Sewer Discharge Diagrams" (with tables and charts), T. C. Ekin. These give the discharges in cubic feet per minute of every inch diameter of pipe from 3 to 48 inches. Velocity curves are shown on the diagrams.
35. "Crosby-Fiske Handbook of Fire Protection" contains tables on the Flow of Water in Pipes, Capacity of Full Smooth Pipes, Friction of Water in Pipes, Capacity of Wrought Iron Pipe.
36. "Water Hammer in Hydraulic Pipe Lines," A. H. Gibson. 68 pp. illus.
37. For "Water Pipe Calculations" see "Lefax" Data Sheet 3–5, by J. W. Ledoux.
38. See "The Hydraulic Ram," "Lefax" Data Sheet 7–83. 4 pp. compiled by T. M. Lane, with diagrams.
39. For "Windmills," see "Mechanical Engineers' Pocket Book," William Kent, 1916, pp. 627-632. Gives information on Power and Efficiency, Capacity and Economy of the Windmill, with tables.
40. For "Windmills," see "Mechanical Engineers' Handbook," Lionel S. Marks, 1916, pp. 864–865. Gives two tables and important references on the subject.
41. For "Water Wheels," see "Mechanical Engineers' Handbook," Lionel S. Marks, 1916, pp. 1070–1071. Contains diagrammatic illustrations.
42. N.F.P.A. "Index" (3A3*h*5) contains references to information on Cast Iron Coated Water Pipes and Cast Iron Water Mains.
43. The Associated Factory Mutual Fire Insurance Companies have issued: "Laying Cast Iron Water Pipes in Factory Yards—Rules" (3A7*a*17).
44. The New England Water Works Association issues:
    (*a*) Standard Specifications for Cast-Iron Pipe and Special Castings (9B3*b*2). Adopted September 10, 1902. (See 46 below.)
45. The American Water Works Association issues the following:
    (*a*) Standard Specifications for Cast Iron Water Pipe and Special Castings (9B3*a*2), adopted May 12, 1908.
    (*b*) Standard Specifications for Hydrants and Valves (9B3*a*3), adopted June 24, 1913; revised June 9, 1916. (See 46 below.)
46. NOTE.—Committees of the two Water Works Associations and of the Manufacturers' Association have been working for some time in the endeavor to harmonize the differences between the standard specifications above referred to.
47. The Standard Specifications for cast iron pipe and special castings (Serial Designation A44–04) of the A.S.T.M. were adopted November 15, 1904, and therefore antedate those of the American Water Works Association.

    These two Standard Specifications, while entirely independent, are identical for practical purposes, for while the highpressure pipe feature of the A.W.W.A. specifications is of interest to water works officers generally, only the larger communities install such systems.

    The whole question of Standard Specifications for water pipe and fittings is closely connected with world trade, and hence the export feature is bound to come to the front more and more. Even the present specifications, nearly identical as they are, should be considered only as fundamental to the international specifications of the future. A very considerable step has been taken in this direction by the International Association for Testing Materials, which has before it at the present time a proposed standard for export use—each pipe-making country of the world retaining its own specifications but all uniting on the international proposal, if found acceptable and workable, for the good of international trade relations.

9E Filtration and Water Treatments

The subject of water purification is covered in the foregoing principal division but the following are listed separately for their special interest in this connection.

1. "Clean Water and How to Get It," Allen Hazen. 196 pp., illus. Treats of: The Action of Water on Iron Pipes and the Effect Thereof on the Quality of Water, Red-water Troubles, Development of Water Purification in America, Storage of Filtered Water, The Required Sizes of Filters and Other Parts of Water Works, Measurement of Water.
2. "Value of Pure Water," Geo. C. Whipple. 84 pp. Included in the Contents are: Benefits of Filtration, Water-softening, Cost of Filtration, The Disadvantages of Hard Water, Use of Hard Water in the Household, in the Industries, and in Steam Making, Financial Loss from the Use of Hard Boiler Water.
3. "Waterworks Handbook" (9D9), A. D. Flinn, contains information on Equipment for Treating Water, Water Softening, and Filtration.
4. "Elements of Sanitary Engineering (9L15), M. Merriman, contains information on Water and Its Purification, Water Filtration at Philadelphia, and Water Filtration at Little Falls, N. J.
5. "Water Works for Small Cities and Towns" (9D11), John Goodell, contains a section on "Clarification and Purification of Water."
6. "American Civil Engineers' Pocket Book" (9G22), Mansfield Merriman, pp. 927–942: Section on "Purification of Water" treats of Auxiliary Methods, Sedimentation, Sand for Filters, Sand Ejectors, Mechanical Filters, and Results of Filtration.
7. See "I.C.S. Plumbers' and Fitters' Handbook," section on "Water Supply and Distribution" (9D30) for information on water Filtration.
8. See "Mechanical Engineers' Pocket Book," 1916, Wm. Kent, for section on "Purifying Feed-Water for Steam Boilers," pp. 723, 724.
9. See "Architects' & Builders' Pocket Book" (9G9), F. E. Kidder, for brief information on Filters and Softening Hard Water for Domestic Use.
10. See Adopted Report of Committee on Water Service, published in Manual of the American Railway Engineering Association (1A9*c*), pp. 443–464, for
    (*a*) Quality of water, methods of treatment, and results obtained therefrom.
    (*b*) Efficiency of water-softeners.
    (*c*) General principles of water-supply service.
    (*d*) General specification for steel water and oil tanks (requiring plates not more than $\frac{5}{16}$ inch thick).
11. See reference to the Report of Committee on Filter Standardization A.S.M.E. under 9D5.
12. See "Water Purification and Sewage Disposal," J. Tillmans, described under 9D17.
13. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see the following pages in the Industrial Section:
    (*a*) "Clean, safe, freshly filtered Water," Loomis-Manning Filter Distributing Co., p. XVIII.

9F Heating and Cooling of Water

The same note as made under 9E as to these subjects being also covered in the main division 9D applies here. The heating of water by gas was fully treated in the July Journal under subdivision 7K.

The cooling of water applies chiefly to drinking-water systems which are herein referred to independently of the general subject of refrigeration, with which it is closely

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connected and which will be referred to under a separate heading in the October Journal, Serial No. 10.

1. "Mechanical Equipment of Federal Buildings," Chapter IV (9G1), contains a division on "Refrigeration," which treats of Systems, Cooling Tanks, Cooling Coils, Circulating Pump, Circulating Lines, Drinking-Water Fountains and Faucets, Methods of Calculation, and Amount of Water Circulated. In addition to various tables, an example of the actual figures used in estimating a plant in one of the larger buildings is given.
   Included in the above Chapter is a typical Specification for a Drinking-Water System, which is the uniform type used by the Supervising Architect's office.
2. In "Mechanical Equipment of Federal Buildings," pp. 134, 135, is information on Exhaust and Live Steam Heaters for heating of water, and on pp. 159–161 are data on heating of water by gas and by coal for storage and circulating systems with calculations for the number of outlets and fixtures.
3. "Inexpensive Plumbing for Farm Kitchens," W. E. Etherton, Professor of Rural Architecture, Extension Bulletin No. 9, April, 1916, Kansas State Agricultural College. 23 pp. Describes and illustrates a unique arrangement for securing hot and cold water from a kitchen range boiler with the use of a hand-pump at the fixture.
4. "Hot Water Circulation," R. M. Starbuck. Illus. A set of 50 blue-prints showing range boiler connections and hot-water circulation put in under all possible conditions. Full notes and suggestions accompany each print.
5. See "Architects' & Builders' Pocket Book" (9G9), F. E. Kidder, for information on Instantaneous Water-Heaters, An Automatic Water Heater, and Heating Water with Steam Coils. Also, see section on "Mechanical Refrigeration" for information on Water and Milk Cooling.
6. See Hutton's "Hot Water Supply and Kitchen Boiler Connections," 211 pp., illus.
7. See Starbuck's "Range Boiler-work, Hot Water Supply, etc.," Vol. II, 160 pp.
8. "Domestic Sanitation and Plumbing" (9L30), A. H. Shaw. Part II, contains information on Domestic Hot-Water Service.
9. See Chapters X and XII on "Hot Water Systems" and "Drinking Water" in "Mechanical Equipment of School Buildings" (9G8), H. L. Alt.
10. See "I.C.S. Plumbers' and Fitters' Handbook," section on "Water Supply and Distribution" (9D30), for table and data on Heat Transmission through Metals to Water, for Standard Sizes of Galvanized Boilers and for Size and Capacity of Hot-Water Supply Tanks.
11. See reference to water heaters and mixers in Technical Paper "Miners Wash and Change Houses" (9J16).
12. See "A Method for Practical Elimination of Corrosion in Hot Water Supply Pipe," paper by F. N. Speller. 1916. 12 pp. Reprinted from the *Journal of the American Society of Heating and Ventilating Engineers.*
13. The U. S. Department of Agriculture has issued Farmers' Bulletin No. 475, "Ice Houses," by L. C. Corbett. 1917. 20 pp. Contains construction diagrams and other illustrations.
14. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see the following pages in the Industrial Section:
   (*a*) Heating of Water by Automatic Gas Water Heater, Humphrey Company, p. xv.
   (*b*) Removal of Discoloration from Hot Water, Loomis-Manning Filter Distributing Co., p. xviii.

9F1 *Standardization of Range Boilers and Others.*

While the Code of the A.S.M.E. (referred to under Serial No. 10) for the "Construction of Steam Boilers and Other Pressure Vessels and for Their Care in Service" covers the manufacture of steel-plate hot-water boilers over 60 inches in diameter, or where the grate area exceeds 10 square feet and the maximum allowable working pressure exceeds 50 pounds per square inch, there appears to be a noticeable lack of uniformity in the gauge of metal and sizes of boilers manufactured for domestic purposes or use in small installations.

The words "standard" and "heavy" are used extensively though the resultant products seem to vary according to various manufacturers' interpretations of these terms.

Realizing the great need of standardization in the range boiler industry in respect to capacities, dimensions, and guarantees, nine manufacturers organized The Range Boiler Exchange, with A. A. Ainsworth, Secretary, 17 Battery Place, New York City, and on March 14, 1916, issued a pamphlet, "Regulations Governing the Sale and Installation of Range Boilers as Adopted by The Range Boiler Exchange." This gives a list of sizes, capacities, and approximate prices of range boilers and expansion tanks, describes standard tappings and guarantees, and gives recommendations for the successful and economical installation of range boilers and expansion tanks.

The State of Massachusetts adopted, as revised to take effect July 2, 1916, Senate Bill No. 395 relative to the capacity, working pressure, and manufacture of range boilers, requiring that all vessels or tanks in which water is to be heated under pressure in the Commonwealth is to have stamped thereon its capacity, the maker's name and guarantee that it has been tested to not less than 200 pounds' pressure to the square inch.

Notwithstanding the above, there is room for improvement in the matter of standardization, so that range boilers, expansion tanks, storage, pneumatic, and other tanks, may be specified with an exactness that will secure equable conditions in estimating and the installation of the article intended.

9G Plumbing Installations in General

Under this heading will be placed those reference works and other publications which cover the whole subject fully. For convenience many of them, or sections from them, will be found mentioned also under the various subdivisions wherever the references are especially applicable or significant.

The subject of Piping Buildings for Gas, usually associated with plumbing installations, was treated under Serial No. 7 in the July issue of the Journal.

1. "Mechanical Equipment of Federal Buildings" (6L1), pp. 137–193. Chapter IV on "Plumbing, Drainage, and Water Supply" contains much valuable data and many tables and recommendations for plumbing installations, also a Report of Committee on Toilet Regulations for Industrial Plants (9H5).
   It also contains several pages of very complete "Itemized Estimating Data" for fixtures, fittings, piping and all features of a plumbing installation.
2. "Mechanical Equipment of Federal Buildings," Chapter IV, also contains a section on "Tests of Plumbing and Drainage System," which treats of Water, Air, and Smoke Tests, Test of Water-Supply System, Cost of Tests, and Certificate.
3. In "Mechanical Equipment of Federal Buildings" will also be found the following information: p. 383, Table of Standard Dimensions of Wrought Iron and Steel, Steam, Gas and Water Pipe; p. 388, Table giving Velocity of flow of water in feet per minute, through pipes of various sizes, for Varying Quantities of Flow; p. 389, Table giving Loss in Pressure Due to Friction in Pounds, per Square Inch, for Pipe 100 Feet Long; p. 392, Table of Pressure in Inches of Water; p. 392, Table of Pressure in Ounces per Square Inch, and, p. 397, Table of Weights of Galvanized Iron Pipe per Lineal Foot.
4. "Sanitation of Public Buildings," Wm. Paul Gerhard. 262 pp.
   Part I deals with Hospital Sanitation including: Disinfecting Station, Garbage Disposal, Bibliography.
   Part II: Theater Sanitation, Ventilation, Lighting, Bibliography.
   Part III: Church Sanitation, Precautions against Fire and Panic, Seating, Dust, Lighting, Heating, Ventilation, Plumbing, Bibliography.
   Part IV: School Sanitation—Heating and Ventilation, Lighting, Fire Protection, Sanitary Arrangements, School Baths, Bibliography.
   Part V: Sanitation of Markets and Abattoirs—Interior features, Equipment, Ventilation, Lighting, Removal of Waste Food, Sanitary Features, Mechanical Equipment, Bibliography, Appendices.
5. "Water Supply, Sewerage, and Plumbing of Modern City Buildings," Wm. Paul Gerhard. 491 pp., illus. Contents include: The Essential Features of the Hydraulic and Sanitary Engineering of Buildings; The Maintenance of Pipe Systems for Sewage, Gas, and Water; Rules on Plumbing, Water Supply, and Sewerage of Hospitals and other Public Institutions; Definitions; and Plumbing Specifications Reminder.
6. "Sanitary Engineering of Buildings," Wm. Paul Gerhard. Illus. I. Defective Plumbing and Sewer Gas. II. Traps and Systems of Trapping. III. Sewerage of Buildings. IV. Plumbing Fixtures. V. Sewage Removal and Sewage Disposal. VI. The Leading Principles of House Drainage and Sanitary Plumbing. VII. Improved Methods of House Drainage. VIII. The Proper Arrangement of Water-Closet and Bath Apartments. IX. A Plea for Sanitation in Factories and Workshops. X. The Sanitary Drainage of Tenement Houses. XI. On Testing House Drains and Plumbing Work. XII. Simplified Plumbing Methods.
7. "The Sanitation, Water Supply and Sewage Disposal of Country Houses," Wm. Paul Gerhard. 348 pp., illus. General sanitation of country houses, relation of the soil, subsoil, surface drainage, aspect, surroundings, lighting, heating, ventilation, water-supply, sewage, etc., to a healthful home.

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8. "Mechanical Equipment of School Buildings," Harold L. Alt. 112 pp., illus. Contains Chapters as follows (other Chapters referred to elsewhere): V. Toilet Fixtures. VI. Plumbing Fixtures. VII. Number and Location of Fixtures. VIII. Toilet Partitions and Shower-Baths. IX. Water-Supply Systems. X. Hot-Water Systems. XI. Fire Protection. XII. Drinking Water. XIII. Sewage Disposal.
9. See "Architects' & Builders' Pocket Book," 1916, F. E. Kidder. Contains a section on "Hydraulics, Plumbing and Drainage, Gas and Gas-Piping" (pp. 1295–1350), by J. J. Cosgrove, which treats of Hydraulics, Private Water Supply, Pumps, Windmills, Fire-Streams, Construction of Cylindrical Wooden Tanks, Capacity of Tanks, Plumbing Definitions and Requirements, Plumbing Materials and Details, Testing of Plumbing Systems, Plumbing Specialties, Symbols for Plumbing. Includes numerous tables and diagrams.
10. "How to Drain a House," G. E. Waring. 229 pp. Third edition enlarged. Illus. Contains practical information for householders on Drains, Foundation and Cellar, Sewer Gas, Fresh Air Inlets, Soil Pipe, Traps and trap Ventilation, Plumbing Appliances, and Sewage Disposal.
11. "Modern Sanitary Engineering," Thomson Gilbert. 283 pp., illus. Part 1: "House Drainage." Contents include considerations of the Site and Surroundings of the House, General Principles of Drainage Design, Materials and Size of Drains; Traps—Their Principle, Efficacy, Number, Position and Ventilation, Fixtures and Fittings, Designing a System of Drainage, Buildings of Special Class, Sewage Disposal for Isolated Houses.
12. "Sanitary Plumbing and Drainage," J. W. Hart. 253 pp., illus. Contents include: Sanitary Surveys, Sanitary Defects, Water Supply, Town House Sanitary Arrangements.
13. "Domestic Sanitation and Plumbing," in two parts, A. Herring-Shaw.
    Part I: Materials and Their Uses. 334 pp. illus.
    Part II: Water Supply, Domestic Hot-Water Services, Warming and Ventilation of Buildings. 374 pp., illus.
14. "Standard Practical Plumbing" Vols. I and II, J. P. Davies. A complete encyclopædia for practical plumbers and guide for architects, builders, gas-fitters, hot-water fitters, sanitary engineers, and others. Contains numerous engravings.
15. "The Building Foreman's Pocket Book and Ready Reference," H. G. Richey, 1118 pp., illus. Contents include data on Boilers, Water, Sewers, Soil and Vent Pipes, and miscellaneous plumbing information.
16. "A Handbook for Superintendents of Construction, Architects, Builders and Building Inspectors," H. G. Richey.
17. "The Mechanics' Ready Reference," H. G. Richey. Prepared for each trade.
18. "The New Building Estimator," William Arthur. 1913. Part II contains a section on "Plumbing and Gas Fitting."
19. "Plumbing Practice" Vol. I, J. W. Clarke and Walter. 297 pp., illus. Practical lead-working and plumbers' materials described.
20. "Mechanical Engineers' Handbook," 1916, Lionel S. Marks Section on "Pipe and Pipe Fittings," pp. 790–842, contain. information on Cast-Iron, Wrought-Iron, and Steel Pipe; Pipes and Tubes of Copper, Brass, Lead, Tin and Aluminum; Vitrified, Wooden-Stave and Concrete Pipe; Fittings for Wrought-Iron and Steel Pipe; Valves; Pipe Supports; Pipe Coverings; numerous diagrammatic illustrations and tables of sizes and weights.
21. See "Civil Engineers' Pocket Book," 1913, J. C. Trautwine, pp. 649–688. Contains sections on Consumption, Use and Waste, Reservoirs, Service Pipes, Anti-bursting Device, and Fire Hydrants. Also contains section on "Water Pipes," which treats of Prevention of Concretions in Water Pipes, Gives Weights of Cast and Wrought Iron Pipes, Wooden and Other Pipes, Costs of Pipes and Laying, Repairs and Connections.
22. See "American Civil Engineers' Pocket Book," 1916, Mansfield Merriman, pp. 913–1022.
    Also (pp. 395–397), contains tables of Standard Pipe, Standard Pipe Fittings, Flanges.
23. See "I.C.S. Plumbers' and Fitters' Handbook," section on "House-Drainage System," which gives Drainage System Details; Least Sizes of Soil, Waste, and Vent Pipes; Sizes of Traps and Back Vents and data on Testing Plumbing by Water, Air and Smoke. Also see pp. 261–375, for Plumbing Materials and Fixtures, Drainage and Sewerage, Water Supply and Distribution, and other useful information for plumbers and others.
24. See "I.C.S. Building Trades Handbook," section on "Plumbing."
25. See "I.C.S. Mechanics' Handbook" for information on Sizes and Weights of Pipe, Standard Dimensions, and Cylinders.
26. The above I.C.S. handbooks are independent of two volumes on "Refrigeration" and two volumes on "Plumbing and Gas-Fitting" in the extensive International Library of Technology, each of which treats the subject exhaustively.
27. See Gray's "Plumbing, Design and Installation" 560 pp., illus.
28. See Hutton's "Country Plumbing Practice," 310 pp., illus.
29. See "Standard Practical Plumbing," R. M. Starbuck.
30. "American Sanitary Plumbing," J. J. Lawler. 320 pp., illus. For plumbers, steam fitters, architects, builders, apprentices and householders.
31. "Sanitary House Drainage: Its Principles and Practice," H. Coleman. 186 pp. A manual for architects.
32. "Treatise on Water Supply, Drainage and Sanitary Appliances of Residences," F. Colyer. 92 pp.
33. For papers and lectures in connection with materials, methods, and devices used in plumbing installations, see the Index to the Library of the Franklin Institute, of the state of Pennsylvania.
34. See Index to "Lefax Data Sheets," classification (1) Civil, and (2) Mechanical, for topics of interest.
35. "External Plumbing Work, J. W. Hart. Second edition. 280 pp., illus. A treatise on leadwork for roofs.
36. See "A Plea for Strict Plumbing Codes" by Dr. Wm. Paul Gerhard. reprinted by courtesy of *The Sanitary Engineer* of Toronto in "Sanitary Pottery" for July and August, 1917.
37. The U. S. Department of Agriculture Office of Experiment Stations, A. C. True, Director, has issued Farmers' Bulletin No. 270, "Modern Conveniences for the Farm Home," by Elmina T. Wilson. 1916. 48 pp. Contains a treatise on the water-supply, all features of plumbing in the house, earth closets, disposal of waste-water and sewage, of ashes, garbage and miscellaneous refuse.
38. The Specifications for Construction of a Standard Building of the N.F.P.A. (3A3*d*31) state, "The lowest floor of the building shall be drained to a sump chamber, which is provided with adequate facilities for removing surplus water therefrom."
39. "The Prevention of Corrosion in Pipe," paper by F. N. Speller. 15 pp. Contains illustrations, diagrams, and tables. Reprinted from the *Journal of the American Society of Heating and Ventilating Engineers*.
40. See publication of the N.F.P.A. entitled, "Frozen Water-Pipes: A Winter Hazard" (3A3*c*6).
41. N.F.P.A. "Index" (3A3*h*5) contains references to information on Pipe and Standardization of Pipe and Pipe Fittings.
42. See "Building Code" recommended by the N.B. of F.U., 1915, pp. 225–229. Contains sections on "Plumbing," "Drainage" and "Electrical Requirements."
43. "The Superintendence of Piping Installations in Buildings—Sanitary, Hydraulic and Gas." William Paul Gerhard, C. E. 85 pp. A manual intended for the use of practising architectural superintendents, plumbing and health inspectors and all interested in the installation of piping systems. Contents include: Sewer, Water, and Gas Connections; Rough Work; Soil, Waste, Vent and Leader Systems and Drains; Water Pipes, Tanks, Meters, Boilers, Hot-Water Tanks, Pumps, etc.; Roughing for Plumbing Fixtures; Setting the Plumbing Fixtures; Turning on the Water and Gas; Tests of the Work; Records and Plans.
44. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see the following pages in the Industrial Section:
    (*a*) "An Investigation of Pipe Corrosion in 125 Apartment Buildings," A. M. Byers Co., p. xiii.
    (*b*) "Crane Drainage Fittings," Crane Co., p. xix.
    (*c*) Cast Iron Soil Pipe Mfrg. Asso., p. xxi.
    (*d*) "White China Pipe Escutcheons," The Fairfacts Co., p. x.

9Ga *Separate Letting of Contracts*

A committee of the American Institute of Architects, known as the Committee on Conference with the National Association of Master Plumbers and the National Association of Master Steam and Hot Water Fitters, held meetings with the joint committee representing those two organizations in 1913. As a result of such conference the Committee recommended to the American Institute of Architects the adoption of the following Resolution, which was formally adopted by the Convention of 1913 at New Orleans:

"*Resolved*, That the American Institute of Architects, in convention assembled, recommends to the members of our profession the adoption of the practice of direct letting of contracts for mechanical equipment, such as heating apparatus, plumbing, and electrical equipment. This recommendation is based on the conviction that direct letting of contracts, as compared with subletting through general contractors, affords the architect more certain selection of competent contractors and more efficient control of execution of work, and thereby insures a higher standard of work, and, at the same time, serves more equitably the financial interests of both owner and contractor."

9Gb *Notes on Standardization of Cast-Iron Soil Pipe and Fittings*

From a paper by Harry Y. Carson

For years, in fact since the New York City Plumbing Code of 1881, there have been specifications and requirements in all plumbing regulations governing the weight

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and wall thickness of soil pipe; but there have been no such specifications, until recently, which regulate soil-pipe fittings.

It is almost impossible in foundry practice to prevent a variation in individual pieces of as much as $\frac{1}{16}$ inch, and with the class of pipe known as "standard" calling for a wall thickness of but $\frac{1}{8}$ inch, when we consider this possible variation, we are confronted with the very real danger which must exist in pipe having a wall thickness at any point of $\frac{1}{16}$ inch.

In the casting of extra-heavy pipe with a wall thickness of $\frac{1}{4}$ inch, while the same variation is both possible and permissible, the factor of safety is far greater, for the wall of the pipe should not, with the observance of high standards in foundry practice, be less than $\frac{1}{16}$ inch—ample protection against leakage in the finished stack. That the leakage of gases of every nature is considered harmful is evidenced by the regulations adopted by all cities with respect to the test which must be applied to all plumbing prior to its approval by the plumbing inspectors, and it is not only sewer gas which may escape through the use of light wall pipe, but illuminating gas which enters the sewers through leaks in the gas mains.

That a specification for soil-pipe fittings, regulating not alone the weight of each fitting but its wall thickness, radii of bends, calking room, depth and thickness of hubs, and other essential dimensions, has long been needed is manifest by the efforts that have been made and the able work that has been accomplished in this direction during the past six years. A very desirable standard for soil pipe and fittings is now in existence, and it is being adopted in the larger cities of the United States. This standard is known as the "Naco" specification for soil pipe and fittings.

In 1911 a committee made up of sanitary engineers, jobbers of plumbing supplies, plumbing inspectors, and others familiar with trade conditions were delegated to report on this subject to the American Society of Sanitary Engineering.

A report of the Committee on Organization and Functions of Municipal Health Departments given in the Public Health Officials' Section of the American Public Association, Jacksonville, Fla., December 2, 1914, as reported on page 1258 of Vol. V (December, 1915) *American Journal of Public Health*, states:

"The lack of standardization appears in the requirements for some of the commonest fittings. We have noted variations in the weights required for soil pipe when called for under specific names, such as standard, medium, and extra heavy. While in soil pipe itself the variations noted were not great, yet in the fittings which go with the pipe and form an essential part of the drainage lines we find a complete absence of control except in a few of the codes of very recent date where notice has been taken of this omission from previous codes and the defect corrected. To illustrate, we have computed the per cent. variations of the weights given for some of the quite common fittings which were purchased on the open market and weighed by investigators of this form of plumbing supplies." (See Table on page 1259, *American Journal of Public Health*, December, 1915.)

The Committee of Health Officials further reported:

"This variation may have been due to variation in length of fittings as well as to variation in thickness of shell, but members of your Committee have personally examined some such fittings which had a thickness of shell of less than $\frac{1}{16}$ inch on one side and a scant $\frac{1}{8}$ inch on the other."

That no manufacturer had, prior to 1911, adopted any fixed standard for making up soil-pipe fittings is apparent from the table shown in the report. In fact, there are many instances where patterns become so confused that fittings marked "extra heavy" are actually of lighter weight than those marked "standard."

A study made of plumbing codes from some 200 of the leading cities in the United States revealed the fact that no attempt had as yet been made by boards of health or other proper authorities to regulate the dimensions and weights of soil-pipe fittings. It was therefore only natural that the chaotic condition shown by the above table should exist. A chief reason for the lack of standardization has been that under the highly competitive conditions in the soil-pipe business this situation has resulted in the marketing of fittings of the *lightest possible weight*. Such fittings are necessarily fundamentally weak, of bad design, and a practice permitting this, while it demands pipe of $\frac{1}{4}$ inch wall thickness, is ridiculously inconsistent. The stack is no safer and no more sanitary than the lightest and weakest fitting.

At the present writing it can be stated that all necessary progress has been made in creating the standard of weights and dimensions for extra-heavy soil-pipe fittings, so that now fittings can be furnished of such proportions as to correspond to the wall thickness and strength of extra-heavy pipe; yet, there persists today a lax attitude in many of our cities with regard to the advantages to sanitation and economy that follow the adoption of this standard. On the other hand, some of the larger and more progressive communities, such as Cleveland, Ohio, Portland, Ore., and the state of Wisconsin have not been slow to see those very real advantages which do come. Consequently these localities have passed laws that are now in effect and require that the extra-heavy fittings shall conform to the Naco specifications.

Recognizing that such inertia persists in many of our municipal governments, the American Society of Sanitary Engineering prepared and adopted, at its 1914 convention in Minneapolis, Minn., a resolution for the attention of those who influence plumbing and sanitary legislation. This resolution, as it appears in the Annual Proceedings of the Society, reads as follows:

WHEREAS, The National Committee of Confederated Supply Associations, representing the various associations of plumbing supply dealers, adopted, July 11, 1912, specifications called Naco specifications for the standardization of extra-heavy soil pipe and fittings, and

WHEREAS, Since these specifications do not conflict with the specifications and drawings already recommended by this Society, and represent a simple working basis for the establishment of a standard for extra-heavy pipe and fittings, therefore be it

Resolved, That Naco specifications be adopted by this Society as its standard for extra-heavy pipe, and that it be further

Resolved, That the Society, through its members, use their best efforts toward the adoption of this standard in the plumbing regulations of municipalities where they have influence, and also assist in the extension of the use of such pipe and fittings which comply with the standard hereby adopted.

The term Naco has been given to the specification as an identification motto, and this motto in reality accredits and honors the name of the National Committee of Confederated Supply Associations, they having been the prime movers in securing data for the ultimate specification adopted.

Committee A-3 of the American Society for Testing Materials, a Society which is working for the standardizing of all engineering materials, is giving the Naco specification equal prominence with the well-known standard specification of cast-iron water and gas pipe which came originally from the American and New England Water Works Association.

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9H Fixtures and Fittings

1. In its work on the technology of clays, the U. S. Bureau of Mines has issued:
   (*a*) Bulletin No. 53, "Mining and Treatment of Feldspar and Kaolin in the Southern Appalachian Region."
   (*b*) Bulletin No. 92, "Feldspars of the New England and Northern Appalachian States."
   (*c*) Technical Paper No. 99, "Probable Effect of the War in Europe on the Ceramic Industries of the United States."
   (*d*) A report on the purification of the Georgia kaolins, setting forth how this American product may be substituted for imported clays in the making of porcelain, etc., will be issued shortly.
2. Among the numerous publications of the U. S. Bureau of Standards, the following are of interest concerning fixtures and fittings:
   (*a*) "Annual Report of the Director," 1916 (1A2*a*), contains the following regarding enameled iron: "Work has been undertaken upon the study of enamels for cast iron and steel. It was first necessary to secure proficiency in the proper treatment of metal and the application and fusion of the ground coats and enamel. A number of excellent undercoatings and enamels have been developed, both for cast iron and steel. A study of enamels possessing maximum resistance to solution is under way."
   (*b*) Circular No. 45, "The Testing of Materials," gives requisite information (pp. 40, 41) on sewer pipes and drain tiles made of hard burnt clay; also, porcelain and white ware manufactured from white burning mixtures of kaolin, ball clay, feldspar, and flint.
   (*c*) Other circulars and technologic papers, specific information about which will be furnished through the Journal, or copies of which may be had upon application to the Director, as noted under 1A2*b*.
3. The U. S. Geological Survey has issued:
   (*a*) A chapter on "Mineral Resources of the U. S." (2A1*d*), entitled "Clay Working Industries and Building Operations in the Larger Cities," a section of which is devoted to "Pottery."
   (*b*) A large number of bulletins and separate chapters (2A1*d* and *g*) dealing with clays, iron, and other materials entering into the manufacture of plumbing fixtures and of other plumbing materials. Specific information will be furnished through the Journal, or the publications may be had upon application to the Director, as noted under 2A1.
4. For detailed drawings and descriptions of all kinds of plumbing fixtures used as "standard" in Government installations, see "Specifications for Plumbing Fixtures, etc., for the Treasury, War and Navy Departments," mentioned under 9A1 and described on p. 146 of "Mechanical Equipment of Federal Buildings under Control of the Treasury Department" (9G1), in which it is said: "The board which prepared this specification has produced a document remarkable for both scope and accuracy, and has rendered a substantial service to sanitary engineers and to the manufacturers in this line of business. Engineers and architects who have had to hear and weigh the claims and counter claims of representatives of various plumbing-material houses will undoubtedly appreciate the relief which the standardization brings."
5. "Mechanical Equipment of Federal Buildings," Chapter IV 9G1), contains "Report of Committee on Toilet Regulations for Industrial Plants." This Committee was appointed by the Chairman of the Sanitary Section of the Boston Society of Civil Engineers to consider the regulations for toilet facilities in industrial establishments, and its report contains valuable basic data upon the subject of proportioning plumbing fixtures to occupants of buildings.
6. "The Development of the Ceramic Industries in the United States," A. V. Bleininger, Ceramic Chemist, Bureau of Standards, Pittsburgh, Pa. An address delivered before the Franklin Institute, November 2, 1916.
7. See *Journal of the Society of Constructors of Federal Buildings*, March, 1915, pp. 160–164, for address by Mr. T. Nelson Kise on "Vitreous China Plumbing Fixtures" and discussion which followed.
8. For developments in the art of ceramics, which include the manufacture of porcelain and vitreous ware plumbing fixtures, see the publications of the American Ceramic Society, listed under 3C1, including "A Bibliography of Clays and the Ceramic Arts" (3C1*b*).
9. "Water-Closets," Glenn Brown, Architect. A Historical, Mechanical, and Sanitary Treatise. Contains over 250 engravings, drawn expressly for the work by the author. The descriptions are particularly full and thorough.
10. See "Sanitary Engineering of Buildings" (9L24), W. P. Gerhard, for information on Plumbing Fixtures, and The Proper Arrangement of Water-Closet and Bath Apartments.
11. In "Mechanical Equipment of School Buildings" (9G8), by H. L. Alt, note Chapters V, VI, VII, and VIII, as of interest in connection with fixtures and fittings.
12. "Modern Sanitary Engineering" (9L29), Thomson Gilbert, contains information regarding Water-Closets, Flushing Cisterns and Pipes, Urinals, Baths, Lavatory Basins, Sinks, Tubs, and other fixtures.
13. "Sanitary Plumbing and Drainage" (9G12), J. W. Hart, contains data on Baths and Fittings, Lavatories, Sinks, and other fixtures.
14. "How to Drain a House" (9G10), G. E. Waring, treats of Plumbing Appliances, Wash-Stands, Water-Closets, Sinks, and other fixtures.
15. "The Building Estimator's Reference Book," 1917, Frank R. Walker: Section on "Plumbing, Sewerage and Gas Fitting," pp. 3100–3115, gives information regarding the size and cost of all plumbing fixtures.
16. "I.C.S. Plumbers' and Fitters' Handbook" (9G23): Section on "Plumbing Fixtures" gives information on Baths, Dimensions of Baths and Foot-Baths, Wash-Basins, Water-Closets, Urinals, Sinks, Laundry Tubs, and Swimming-Pools.
17. "I.C.S. Building Trades' Handbook" (9G24) gives information and tables on the sizes of fixtures.
18. See reports of committees of the American Institute of Metals and of the National Association of Brass Manufacturers on standardization of metal plumbing accessories.
19. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see the following pages in the Industrial Section:
   (*a*) Kohler Enameled Ware Tubs, Lavatories and Sinks, Kohler Co., pp. xvi–xvii.
   (*b*) "Impervio" Vitreous China and "Ideal" Solid Porcelain Tubs, Lavatories and Water-closets, The Trenton Potteries Co., p. xi.
   (*c*) "Pembroke" Built-in Baths, Standard Sanitary Mfg. Co., p. xii.

9H1 *Bathroom and Laundry Finishes and Accessories.*

Of much interest in connection with plumbing installations is the finish of the walls and floors in any bathroom, toilet, and other place given over to similar use.

The extensive use of tile for this purpose makes it desirable to call attention to the information pertaining to the service and products of the Associated Tile Manufacturers contained on page xiv of the Industrial Section.

Information concerning marble and slate will be found in the February issue under 2F and 2K.

For illustrations and descriptions of various "Biltin" china bathroom accessories such as towel-bars, soap-holders, and many others, see page x in the Industrial Section—The Fairfacts Company.

As of interest in connection with laundry installations, see information pertaining to Glass Enameled Steel Laundry Chute, on page xxxix, in the Industrial Section by The Pfaudler Co.

9J Swimming-Pools, Baths, Bath and Change Houses

1. The Bureau of Mines has issued:
   (*a*) Technical Paper No. 33, "Sanitation at Mining Villages in the Birmingham District, Ala." (9L1*a*), which contains a brief section on "Bath and Change House."
   (*b*) Technical Paper No. 116, "Miners' Wash and Change Houses," J. H. White, 1915, 23 pp. Contains information on the advantages of wash and change house; extent of installations; comparative inexpensiveness; location of building; artificial lighting and heating; drying arrangements; lockers; shower baths preferable to bathtubs; water-mixers and -heaters; number and construction of shower-booths; swimming-pools; quality and quantity of water required; public laundries; plumbing. Contains illustrations, plans, sections and details of wash and change houses: Price, 10 cents.
   (*c*) Bulletin No. 87, "Houses for Mining Towns" (8L1*e*), contains information and one illustration regarding the "Wash and Change House."

A number of wash and change houses have been described in various mining magazines and other publications, and some of the recommendations contained in the publication described under 8J1*b* are based on information derived from these descriptions. Some of these references are given in the list following:

2. "Miners' Change and Bath House," A. F. Allard, *Coal Age*, Vol. 3, January, 1913, pp. 115–116, describes bath house at coal mine near Clinton, Ind.

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3. Bulletin No. 7 of the American Iron and Steel Institute, Vol. 1, July, 1913.
4. "Report of Committee Appointed by Illinois Coal Operators' Association to Draw up Standards for Wash and Change Houses," *Black Diamond*, Vol. 52, November, 1914, 363 pp.
5. "Miners' Baths," H. F. Bulman and W. B. Wilson, *Coal Age*, Vol. 2, November, 1912, pp. 619–620. Discusses bath houses in Europe; also in Coll. Eng., Vol. 35, October, 1914, pp. 140–143. Describes construction and use of bath-houses in England and on the Continent.
6. "European Wash House Practice," *Coal Age*, Vol. 11, January, 1912, pp. 502–505; February, pp. 538–540, 573, 574. Discusses in detail wash houses at European mines.
7. "Suggestions for New Zealand Mines," *Coal Age*, Vol. 2, September, 1912, pp. 397, 398. Describes bath house recommended by New Zealand Royal Commission on Mines.
8. "Bath House at Shamokin, Pa," *Colliery Engineer*, Vol. 33, July, 1913, pp. 679, 680.
9. "Welfare Work of a Coal Company," *Colliery Engineer*, Vol. 34, March, 1914, pp. 497, 498. Describes bath house at anthracite mine in Pennsylvania.
10. Report of the Departmental Committee of the Committee on Provisions for Washing and Drying at Mines, appointed by the Secretary of State for the Home Department of Great Britain to consider the provision of washing and drying accommodations at mines under Section 77 of the Coal Mines Act of 1911.
11. "Wash Houses at Coal-Mines," *Engineering and Mining Journal*, Vol. 83, April, May, 1907, pp. 675, 1012. Short editorials on the advantages of wash and change houses at mines.
12. "Change House at Franklin Furnace, N. J.," *Engineering and Mining Journal*, Vol. 94, August, 1913, pp. 358, 359.
13. "Change House with Novel Features," *Engineering and Mining Journal*, Vol. 97, March, 1914, pp. 521–523. Describes wash and change house at mine in the Menominee Range.
14. "Examples of Modern Sanitary Dry Houses," A. H. Fay, *Engineering and Mining Journal*, Vol. 88, October, 1909, pp. 822–824. Describes bath houses at three Minnesota and Michigan iron properties.
15. "Observation in Coal Mines of Europe," Frank Haas, *Engineering and Mining Journal*, Vol. 89, April, 1910, p. 730. Describes bath house at a German coal-mine.
16. "Wash and Change Houses Abroad," *Iron and Coal Trades Review*, Vol. 83, 1911, pp. 848–850, 866, 887.
17. "Description of Several Wash Houses in England," *Iron and Coal Trades Review*, September, 1914.
18. "A Wash House for Coal Miners," L. Peyton, *Engineering and Mining Journal*, Vol. 91, March, 1911, p. 604. Describes wash house at Benton, Ind.
19. "A Modern Twin Coal-mining Plant," W. R. Roberts, *Coal Age*, Vol. 1, December, 1914, p. 236. Describes bath-house at coal-mine near Danville, Ill.
20. "Change House with Swimming-Pools," A. H. Sawyer, *Engineering and Mining Journal*, Vol. 98, 1914, pp. 483, 484. Describes change house with two pools, one for white and one for colored miners, at Raimund mines, near Bessemer, Ala.
21. "A Change House for Coal Miners," A. A. Steel, *Mines and Minerals*, Vol. 32, June, 1912, pp. 647, 648. Suggests plans for construction and methods of keeping building in order.
22. For "School Baths" see "Sanitation of Public Buildings," W. P. Gerhard (9G4), Part IV.
23. For "Toilet Partitions and Shower Baths in Schools" see "Mechanical Equipment of School Buildings," (9G8.)
24. See reference to Baths and Swimming-Pools in "Plumbers' and Fitters' Handbook," (9H61.)
25. "Modern Baths and Bath Houses," Wm. Paul Gerhard. 311 pp., illus. Contents include: Historical Notes on Bathing; The Different Forms of Baths; The Modern Rain Bath; House and Tenement Baths; Public Bath-Houses; People's Baths; Factory Baths, School Baths; Baths for Military Barracks, Prisons, and Jails; Hospital Baths; Baths for Club Houses, Gymnasia, Hotels and Barber Shops; River and Sea Baths; Air and Sun Baths; Medical and Electric-Light Baths; The Water Supply and Plumbing of Bath-Houses; Bibliography on Baths and Bathing; Appendix—Bathing in Various Countries; The Dog Bath.
26. "Turkish Baths," R. O. Allsop, Architect. Illustrated with plans and sections from scale drawings by the author. Describes the Turkish bath, its design and construction for public and commercial purposes, with chapters on the adaptation of the bath to the private house and institutions.
27. "Baths," R. O. Allsop. 98 pp., illus. Describes public baths and wash houses.
28. "Architects' and Builders' Pocket Book" (9G9), F. E. Kidder, gives information on Plunge Baths and Symbols for Plumbing.
29. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see "Swimming-Pools," a 32-page book, 8½ x 11, with plans, sections, details and photographic illustrations of tiled pools and accessories, copyrighted 1917 by the Associated Tile Manufacturers. (See p. xiv in Industrial Section.)

9K Sprinklers and Fire Protection

References were given in the April Journal, Serial No. 4, under 4F "Fittings, Contents and Protection Equipment" to the publications of the various fire prevention authorities. In addition to those and to the papers, articles, and discussions listed in the N.F.A. Index therein referred to, others on various phases of the subject will be found listed in the indexes of the water works associations and the engineering societies referred to in this issue, and the use of water in connection with fire extinguishment is of course treated in many of the publications listed in this issue under the 8D Division.

The following letter from the Chairman of the Institute Committee on Materials and Methods is printed as of interest in connection with this subject.

9K1 *Concerning Underground Piping for Sprinkler Installations*

July 19, 1917.

To the Structural Service Department of the Journal of the A.I.A.:

I have received from the United Association of Plumbers and Steam Fitters of the United States and Canada a communication addressed to the members of the American Institute of Architects and signed by Mr. John R. Alpine, the General President of this Association. The letter states, among other things, that:

"For many years you have been disturbed because of industrial conflict arising in connection with your building operations, and with which you as architects were not concerned, but which caused you builders, owners, and the public generally much discomfiture and great loss of money because of stoppage of work. The industrial disturbances referred to are commonly known as jurisdictional disputes between trades engaged in the building industry, or, in other words, internecine disputes between building trades, each laying claim to a certain form of work, and one striking against the other in order that control over the work in dispute might be secured.

"For some time past we have been troubled with the question of jurisdiction as concerns the installation of what is known as underground piping, when such underground piping comes in connection with the installation of sprinkler equipments. The United Association of Plumbers, Steam Fitters, Sprinkler Fitters, etc., is granted by the American Federation of Labor trade jurisdiction over all forms of pipe fitting, except conduit piping for electrical purposes, and underground piping of all descriptions comes within the jurisdictional scope of the United Association. We frequently have internal disputes because of the fact that when sprinkler contracts are awarded, underground pipe work, in connection with sprinkler equipments, is frequently awarded separately from the sprinkler contract, and awarded to plumbing and steam-fitting concerns. When it comes time to install this underground work the sprinkler fitter contests the right of the plumber or steam fitter to make the installation, and the plumber or steam fitter maintains his right to do this work because it comes within the contract of his employer.

"Since this is the case, we maintain that neither one has the right to encroach upon the work of the other; yet when a contract embracing work that clearly belongs to one class of men is subdivided, and portions of such contract awarded to another class of men, our task is made exceedingly difficult. Trouble ensues and architects, owners, builders and the public generally are involved as well as the men who are participating in the contest. Of course, ultimately, we dispose of these disputes, but not until much discomfiture and loss has been experienced by all concerned.

"Underground piping herein referred to means cast-iron or wrought iron piping, representing underground mains, branches, etc., from city mains, pumps, reservoirs, tanks, hydrants when in connection with sprinkler equipments, etc., and I am sending this letter to the members of your Association with the hope that you may be helpful in the future in having this class of work included in the general sprinkler equipment contract, thereby obviating the chance of jurisdictional differences arising on buildings, since these jurisdictional differences, as applying to this class of work, are created because of the subdivisions of the contract

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awarded in such work to plumbing and steam-fitting contractors, when in reality the work should be included in the general sprinkler contract, which belongs to the sprinkler fitter. Coöperation on your part in regard to retaining this underground work, or other work in connection with sprinkler contracts within the contract covering sprinkler installation, will aid us materially, and tend toward the successful and speedy completion of building operations and better and more satisfactory installations of fire-preventive devices."

The Chairman of the Institute Committee on Materials and Methods feels that this is a matter which might at least be called to the attention of the profession and given careful consideration by its members. If further detailed information is desired, and if the full discussion of the subject, as embodied in the complete circular letter sent out by the Association, is wanted, all can be obtained by writing to the office of the General President, 401 Bush Temple, Chicago, Ill. THOMAS NOLAN,

Chairman of Committee on Materials and Methods.

[EDITOR'S NOTE.—Without wishing to enter into any phase of a controversy between organizations of any kind, it would nevertheless appear to be advantageous to keep as much work as possible concerning any one installation under the control of any one contractor making that installation, thereby unifying instead of dividing the responsibility for the equipment and its successful operation.]

9K2 *Safeguarding Industry—A War-Time Necessity*

This is the title of a 24-page book prepared by the National Board of Fire Underwriters for the Council of National Defense, which is replete with practical suggestions for reducing fire-loss.

This book is described and quoted from with particular reference to conservation through the use of sprinklers by the Information Service Department of the National Automatic Sprinkler Association on page 20 of the Industrial Section.

9L Outgoing Pipes, Sewage Disposal and Public Health

As stated in the introductory paragraph to the Division 9D, the question of water-supply and distribution is similar in importance with the question of sewage disposal as concerns the public health.

No better introduction to this Division could be given than Mr. Ihlder's article printed under 9C1, to which the attention of the reader is directed.

1. The U. S. Bureau of Mines has issued:
   (*a*) Technical Paper No. 33, "Sanitation at Mining Villages in the Birmingham District, Ala.," Dwight E. Woodbridge. 1913. 26 pp. Contains illustrations and map.
   (*b*) Technical Paper No. 117, "Quantity of Gasoline Necessary to Produce Explosive Conditions in Sewers," G. A. Burrell and H. T. Boyd. 1916. 17 pp., diagrammatically illustrated. Price, 5 cents.
   (*c*) Miners' Circular No. 20, "How a Miner Can Avoid Some Dangerous Diseases," A. J. Lanza and J. H. White. 1916. 26 pp. Contains, among others, two illustrations, being front and rear drawings of a sanitary privy. Price, 5 cents.
   (*d*) Public Health Bulletin No. 68, "Safe Disposal of Human Excreta at Unsewered Homes," L. L. Lundsen, C. W. Stiles, and A. W. Freeman. 1915. 22 pp.
   (*e*) Bulletin No. 87, "Houses for Mining Towns," J. H. White. 1914. 64 pp. Contains a treatise on the subject of the small house in groups and as small towns. Includes a discussion of the town-site and enlargement of town with streets and alleys, types of houses, windows, doors, lighting, ventilation, screening, heating, interior and exterior finish, construction, the yard and its appurtenances, sources of water supply, disposal of wastes, sewer systems, substitutes for sewers, and other subjects of vital interest as affecting the public health. Illustrated with map of model mining town, plans, elevations and perspectives of houses, details of construction, and other data. Price, 15 cents.
2. See "Proceedings" of the American Society of Civil Engineers for lists of "Current Engineering Literature" on sanitation and other subjects covered by this issue.
3. See "Review of Current Technical Literature" and *Journal of the American Society of Mechanical Engineers* for information on these subjects. Also reports of committees in that Society on Flanges and on Standardization.
4. "Modern Methods of Sewage Disposal for Towns, Public Institutions, and Isolated Houses," G. E. Waring. 247 pp., illus. Contents include: Selection of Method of Disposal; Sewage Irrigation, Farming and Filtration; Chemical Treatment; Rights and Obligations of Riparian Owners; Disposal for Large Institutions, and Hotels; Disposal for Village and Country Houses.
5. "Sewerage and Land Drainage," G. E. Waring. Illus.
6. "How to Drain a House" (9G10), G. E. Waring.
7. "Guide to Sanitary Inspections," Wm. Paul Gerhard. 229 pp. Contents include: Essentials of a Healthful Home; Schedule for Sanitary Inspection of Tenement Houses; Inspection of Country Houses; Summer Boarding-Houses and Summer Resorts; Schedule for Sanitary Inspection of Schools, Hospitals, and Institutions; Sanitary Inspection of Dairies; Sanitary Surveys of Cities and Towns; Bibliography on Sanitary Surveys and Inspection.
8. See "Sanitation of Public Buildings"(9G4), Wm. Paul Gerhard, for sections relating to drainage systems and sewage disposal.
9. "Water Supply, Sewerage, and Plumbing of Modern City Buildings" (9G5), Wm. Paul Gerhard.
10. "The Sanitation, Water Supply and Sewage Disposal of Country Houses"(9G7), Wm. Paul Gerhard. Treats of the general sanitation of country houses and shows relation of the soil, the subsoil, surface drainage, sewage, etc., to a healthful home. The question of sewage disposal for houses not in reach of sewers is taken up, and latest developments in methods of disposal are given particular attention.
11. See "American Civil Engineers' Pocket Book" (9G22), M. Merriman, pp. 967—980: Section on "Sewerage Systems."
    See, also, section on "Sewage Disposal," pp. 980–997.
12. "The Separate System of Sewerage: Its Theory and Construction," C. Staley and G. S. Pierson. 324 pp., illus. Contents include: Plans, Specifications and Contract, Construction, House Drainage and Plumbing, Purification of Sewage by Application to the Soil.
13. "The Design, Construction and Maintenance of Sewage Disposal Works," Hugh P. Raikes. 429 pp., illus. A practical guide to modern methods of sewage purification.
14. "The Purification of Sewage," S. Barwise. 234 pp., illus. A brief account of the scientific principles of sewage purification and their practical application.
15. "Elements of Sanitary Engineering," M. Merriman. 250 pp., illus. Contents include: Sewage Systems; Disposal of Sewage, Refuse and Garbage; The Chicago Drainage Canal; British Commissions on Sewage Disposal.
16. "Practical Methods of Sewage Disposal," Henry N. Ogden and H. Burdett Cleveland. 132 pp., illus. Contents include: The Settling Tank; Valves, Siphons, and Siphon Chambers; Subsurface Irrigation; Sewage Filters; Broad Irrigation; Estimates of Cost.
17. "Sewer Design," H. N. Ogden. 248 pp., illus. Contents include: Preparatory Maps and Data; Estimating Future Population; Amount of Sewage per Capita; Ground-water Reaching Sewers; Sewer Diagrams; Plans and Cross-section.
18. "Sewer Construction," Henry N. Ogden. 335 pp., illus.
19. "Sewage Disposal," Leonard P. Kinnicutt, C. E. A. Winslow, and R. Winthrop Pratt. 435 pp., illus.
20. "Sewerage," A. Prescott Folwell. 506 pp., illus. The Designing, Construction, and Maintenance of Sewerage Systems, in three parts.
21. "Sewage Disposal," G. W. Fuller. 767 pp., illus. A comprehensive work with a comparison of values and data on methods, which includes a chapter on Institutional and Residential Plants.
22. For "Sewage Purification Plants for Small Country Residences and Isolated Buildings," see paper with this title by A. P. I. Cotterell, in the *Journal of the Royal Sanitary Institute*, June, 1916.
23. For recommendations as to "Sanitary Provisions for Medium-Sized Stations," see adopted Report of Committee on Buildings, Manual of the American Railway Engineering Association (1A9c), p. 218.
24. See "Sanitary Engineering of Buildings," Wm. Paul Gerhard, which contains Chapters on Sewerage of Buildings; Sewage Removal and Sewage Disposal; A Plea for Sanitation in Factories and Workshops; The Sanitary Drainage of Tenement Houses, and others as listed under 9G6.
25. "Mechanical Equipment of School Buildings" (9G8), H. L. Alt. Chapter XIII contains information on Sewage Disposal.

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26. See "Architects' and Builders' Pocket Book" (9G9), F. E. Kidder, for information on Plumbing and Drainage, including reliable rules for same, and data regarding drains, sewers, etc.
27. "Architectural Hygiene and Sanitary Science as Applied to Buildings," R. F. and M. T. Fletcher. Illus. A textbook for architects, surveyors, engineers, and others, with many diagrams and figures.
28. See "A Guide to Sanitary House Inspection" or, "Hints and Helps Regarding the Choice of a Healthful House in City or Country," by Wm. Paul Gerhard.
29. See "Modern Sanitary Engineering:" Part 1, "House Drainage," Thomson Gilbert, for principles of drainage design, materials, gradients and other data as listed under 9G.
30. "Domestic Sanitation and Plumbing" (9G13), A. Herring-Shaw, contains sections on Soil, Waste and Vent Pipes; Sanitary Fittings; House Drainage; Cesspools; Disposal of House Sewage.
31. "I.C.S. Plumbers' and Fitters' Handbook" (9G23) contains a section on Drainage and Sewerage, which treats of Capacity of Circular Sewers; Sewer Pipe; Double Strength Sewer Pipe; Roof Leaders; Sewage Ejection; and Disposal of Sewage.
32. See Starbuck's "Drainage and Venting," Vol. I, 160 pp., illus.
33. Gillette's "Handbook of Cost Data," 1850 pp., contains information on the cost of Sewers.
34. "American Sewerage Practice," Leonard Metcalf and H. P. Eddy:
Vol. I, "Design of Sewers," 747 pp., illus.
Vol. II, "Construction of Sewers," 564 pp., illus., gives detailed descriptions of every step of trenching and the construction of pipe, masonry, and concrete sewers.
Vol. III, "Disposal of Sewage," 878 pp., illus., explains in simple language the nature of sewage and the changes that take place in it when it is subject to different conditions and describes the structures designed to produce these various conditions.
35. For descriptions and illustrations of reinforced concrete sewers installed by the city of Hartford, see Eighth Annual Report of the Department of Engineering, City of Hartford, Conn.
See Ninth Annual Report of same Department, concerning tile block sewers.
36. See "Water Pipe and Sewer Discharge Diagrams," T. C. Ekin, listed under 9D34.
37. The "Building Code" recommended by the N.B.F.U. (9G42) contains Section 257 on Plumbing and Drainage, which gives requirements to be followed in connection with the alteration or change of plumbing and drainage systems.
38. "Water Purification and Sewage Disposal," J. Tillmans. Translated by Hugh S. Taylor. 169 pp., illus. Embodies a critical survey of the work of the German authorities during the past few years in developing modern methods for the provision of suitable water-supplies and the adequate disposal of sewage, with a chapter on the disposal of industrial sewage.
39. See "What Our Cities Do Not Know," published 1915 by National Housing Association. Describes existing conditions in cities throughout the country as to vaults, privies, sewers, and general sanitation, with progress in legislation, law enforcement and improved dwellings, with a list of limited dividend companies in the United States and Canada which are seeking to improve wage-earners' dwellings in villages, together with a list of official commissions or departments and of volunteer housing associations or committees.
40. The National Housing Association issues many pamphlets, booklets, and other publications pertaining to all phases of housing, in many of which the subject of sanitary conditions is fully gone into. These are to be had at very nominal prices, and their study and distribution is to be encouraged.
41. For description of existing sanitary conditions, with summary and recommendations as to improving conditions in the city of Providence, R. I., and surrounding communities and some mill villages, and as applicable to many others, see "The Houses of Providence," John Ihlder and others, 1916.
42. See the "Annual Report of the Rockefeller Foundation," 1915, for information on "The Latrine Problem," pp. 60–65, as submitted in the Report of the Director General of the International Health Commission to the President of the Rockefeller Foundation from which the following is quoted.
"In what has already been done there is sufficient volume and variety of experience to afford a satisfactory basis for a critical study of the advantages and disadvantages or relative efficiency of the various methods employed for the disposal of sewage at the rural home. The state departments of health are eager to have this study made and offer coöperation in carrying it out; the Commission is prepared to coöperate by supplying the necessary funds for the work; working plans are being matured; the results of the many scientific studies that have been made of different phases of the problem are being summarized; and it is hoped that the investigation may be under way within the coming year. The work, if undertaken, will need to extend over a long period of time and to cover a considerable area of field work in order to test experience under all seasons and under a sufficient variety of conditions. The aim will be to subject present procedures to scientific examination with a view to pointing the way, if possible, to a method for the disposal of sewage at the country home that will be safe and that will be workable under prevailing conditions."
43. The U. S. Bureau of Standards has issued Technologic Paper No. 44, "Investigation of the Durability of Cement Drain Tile in Alkali Soils." 1915. 56 pp. Contains illustrations, tables and diagrams. Price 35 cents.
44. For information on "Vitrified Salt-Glazed Sewer Pipe," with dimensions, weight and cost, see "Lefax" Data Sheet 6–94.
45. For publications dealing with the make and use of especial kinds of pipes and sewers, see those referred to elsewhere as follows:
(*a*) Cast Iron Soil Pipe Makers Association (9B5).
(*b*) American Concrete Pipe Association (9B6).
(*c*) The Sewer Pipe Manufacturers' Association (9B7). This includes "House Drain Specifications" approved by the Association.
46. See Paper read at the 1917 Convention of the A.S.T.M., entitled "Distribution of Pressure through Earth Fills," A. T. Goldbeck.
47. Besides the Standard Specifications for Cast-Iron Pipe and Special Castings, mentioned under (9D41) the American Society for Testing Materials has issued:
(*a*) Standard Specifications for Drain Tile, Serial Designation C4–16, adopted 1914, revised 1916. These specifications cover three classes of drain tile, namely, Farm Drain Tile, Standard Drain Tile, and Extra-Quality Drain Tile, and apply to drain tile made of shale, fire-clays or surface clays, and to drain tile made of concrete. See reference to Report of Committee C–6 on Drain Tile.
(*b*) Standard Definitions of Terms Relating to Sewer Pipe, Serial Designation C8–15, adopted 1915.
(*c*) Report of Committee C–4 on Clay and Cement Sewer Pipe, 1916, presents, under the title Appendix 1, "Analytical Data for Sewer Pipe."
(*d*) In the report of the same committee, C–4, for 1917, the Committee presents the following, with a recommendation that these proposed standards be printed as tentative for one year before being presented to the Society for adoption:
Proposed Tentative Specifications for Clay Sewer Pipe.
Proposed Tentative Specifications for Cement-Concrete Sewer Pipe.
Proposed Revised Tentative Recommended Practice for Laying Sewer Pipe.
Proposed Tentative Specifications for Trench Pressures upon Sewer Pipe.
48. For further descriptive matter and illustrations pertaining to subjects covered by this heading, see the following pages in the Industrial Section:
(*a*) Crane Drainage Fittings, Crane Co., p. xix.
(*b*) Cast Iron Soil Pipe Mfgs. Asso., p. xxi.

Some Conventions, Meetings, and Expositions. September, October, 1917

Sept. 10–15.—The National Exposition of Safety and Sanitation, Grand Central Palace, New York City, under joint auspices of American Museum of Safety and National Safety Council.

Sept. 10–15.—New England Water Works Association, annual convention, Hartford, Conn.

Sept. 11–14.—The International Association of Municipal Electricians, annual convention, Niagara Falls.

Sept. 18–21.—Chamber of Commerce of the United States of America, special convention at Atlantic City.

Sept. 25–28.—American Foundrymen's Association, twelfth annual exhibit, foundry and machine shop equipment, Mechanics Building, Boston, Mass.

Sept. 27–28.—National Association of Brass Manufacturers, meeting at Milwaukee.

Oct. 7–11.—The National Paint, Oil and Varnish Association, convention, Congress Hotel, Chicago, Ill.

Oct. 15–17.—The National Housing Association, annual meeting, Chicago.

Oct. 26–27.—The American Iron and Steel Institute, annual meeting, Hotel Sinton, Cincinnati.

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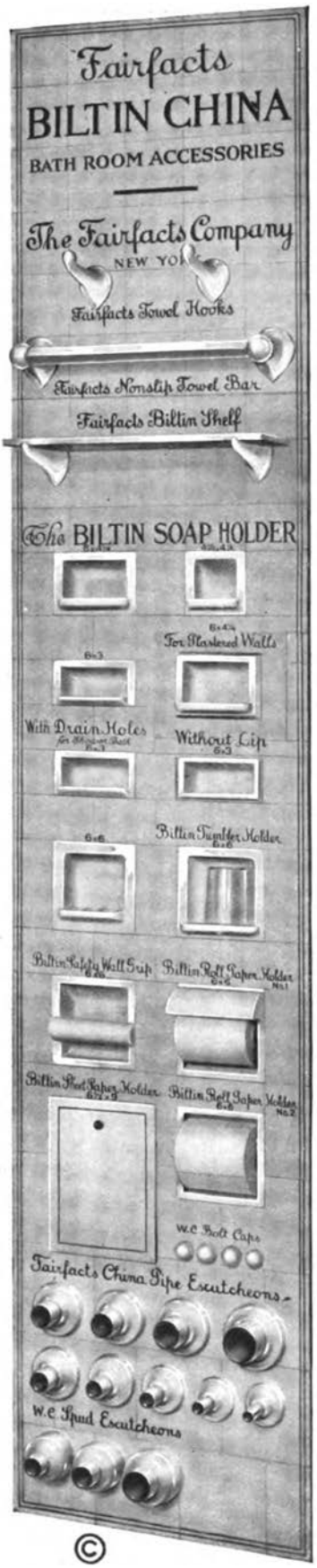

The New 1917 Model

of Biltin Patent

China Bathroom Accessories

THAT BUILD IN THE WALL WITHOUT SCREWS, ARE SHOWN HERE—THE DAY OF NICKEL-PLATED BATHROOM ACCESSORIES IS OVER

Snow white china Towel Hooks

Spotless non-slip Towel Bars, no more towels slipping

The finest, cleanest white Glass Shelf made

China Soap Holders—simply niches in the wall but made for all tile sizes and plaster walls too

The China Safety Wall Grip to keep you from slipping in the tub. A real ounce of prevention

Roll Toilet Paper Holders of china, for standard rolls and the No. 1 type rewinds the paper

A white coated metal recess sheet Paper Holder that is flush with the wall

White china Pipe Escutcheons

Pure White China	*versus*	Nickel Plate
Built in the wall	"	Screwed on
Recessed in the wall	"	Projecting from
Economy	"	Continual upkeep

Write for our specification sheet and catalogue

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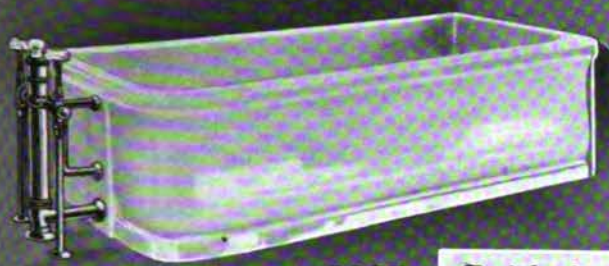

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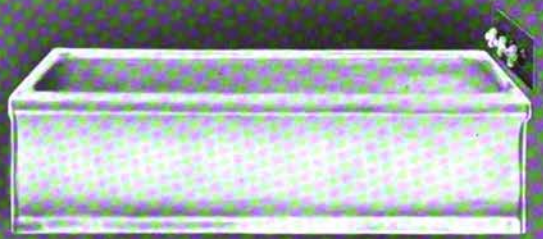

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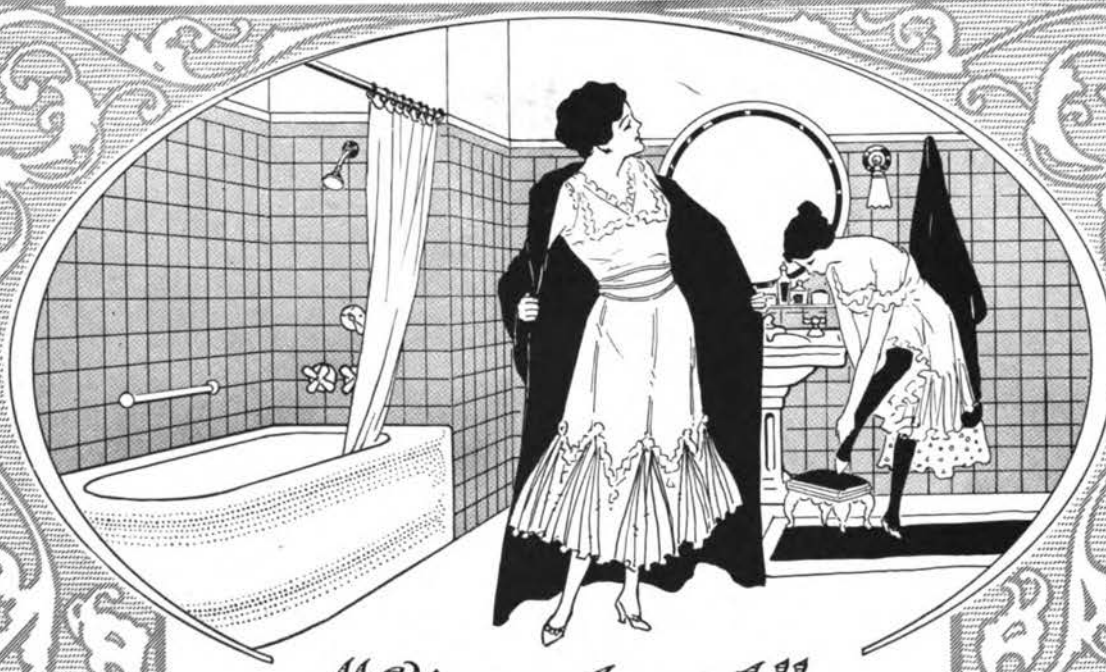

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have been a revelation to thousands of home owners throughout the country—those who have built new homes and those who have remodeled.

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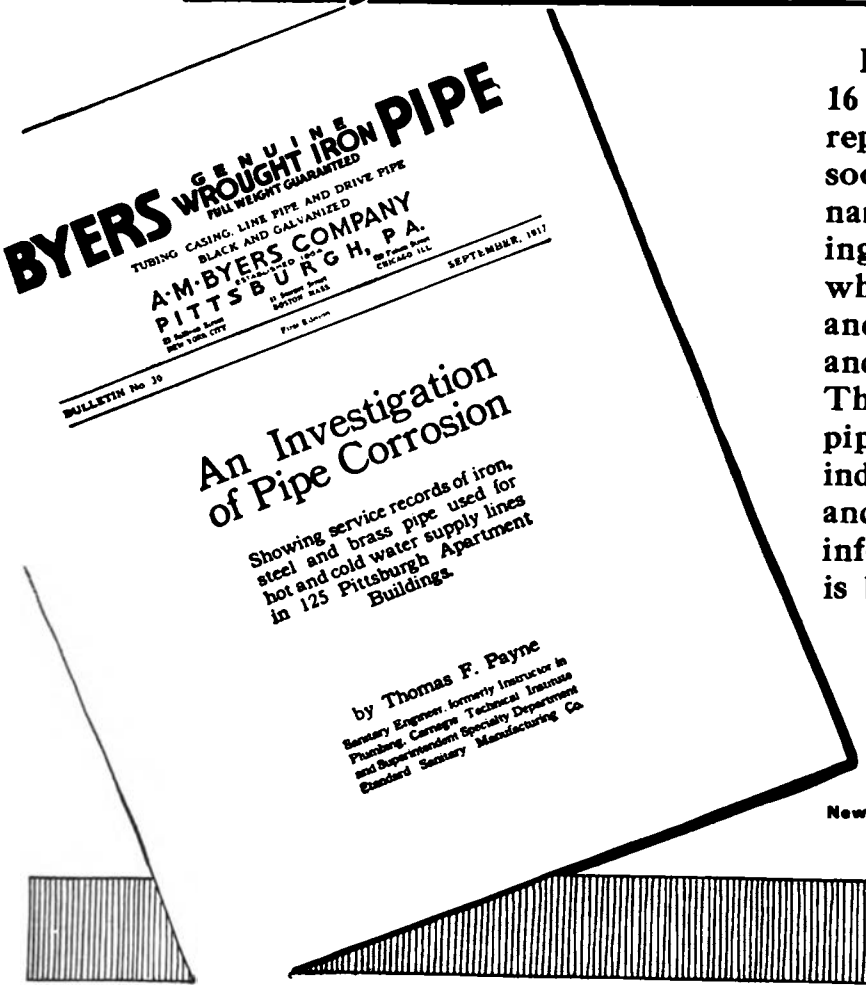

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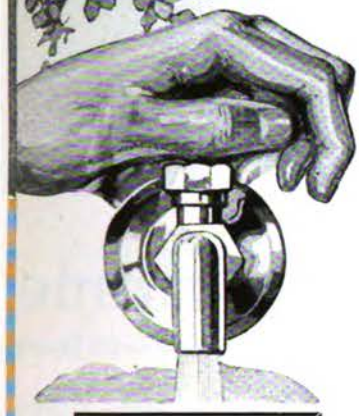

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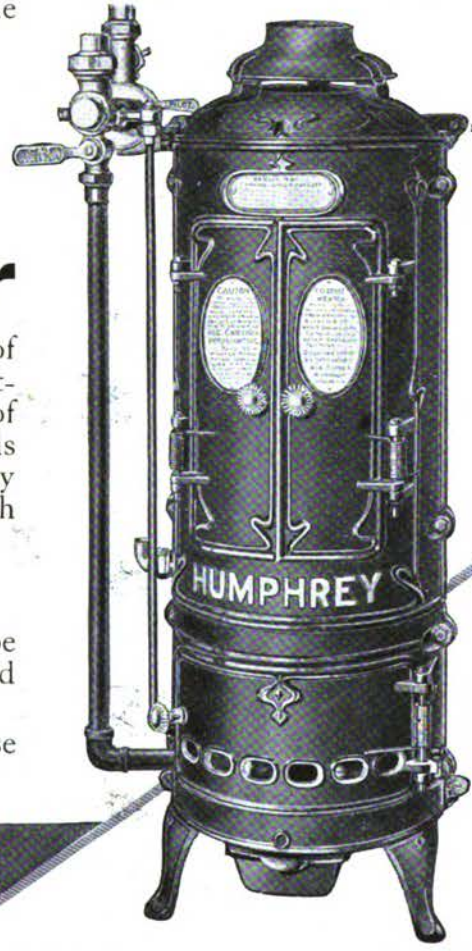

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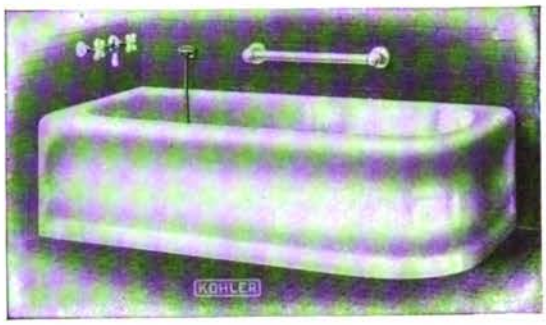
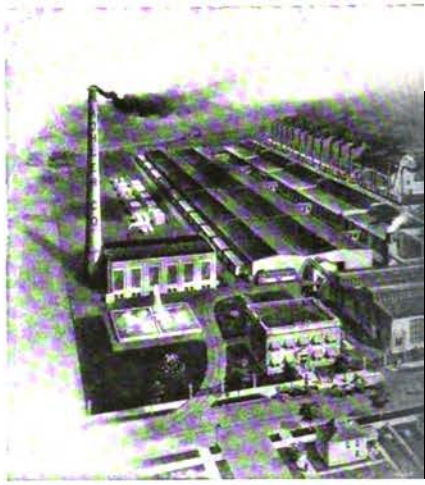


"Viceroy," Plate F-14-A
(Patent Applied for and Name Reg. U. S. Patent Office)

The "Bretton" Lavatory, Plate F-580-A
(Name Reg. U. S. Patent Office)

"Bevo" Lavatory, Plate F-271-FA



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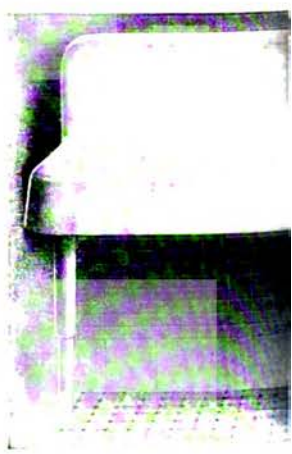

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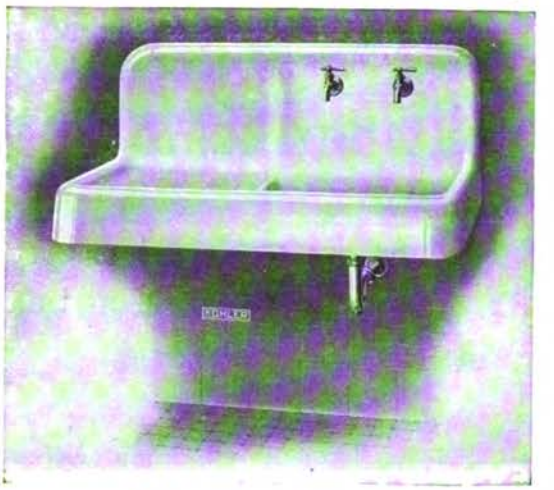
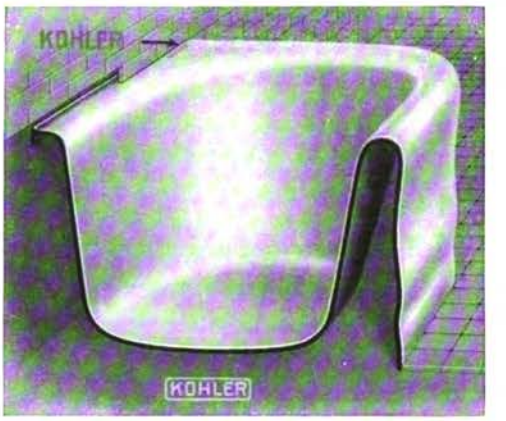


Kitchenette Sink – Plate F-1008-A



Sectional View of "Viceroy" Bath Tub, showing parts built into wall and floor. Arrow points to permanent trade mark which is incorporated in faint blue letters in all Kohler products.

"Columbia" Lavatory, Plate F-205-A

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Clean, safe, freshly-filtered Water

In Buildings of all kinds, and in Residences, water of this character is

A great protection to valves, pipes and mechanical equipment because the water is free from grit and dirt.

It is a great protection to basins, toilets, tubs, etc., because the water is free from discoloration.

It is a source of pleasure and comfort in the bathroom because the water is clear, sparkling, attractive and safe.

The value of clean, stainless water in the laundry and clean, safe water in kitchen and pantry is apparent.

Loomis-Manning Filters

provide water of this quality and at the same time require very little care or attention. Their simplicity coupled with their substantial construction have won them wide success and approval by leading Architects and Engineers. The cuts below illustrate several sizes of this filter, designed to meet large or small requirements or varying conditions of water supply. Full information or the services of our engineering department are always gladly furnished.

The removal of discoloration from Hot Water is a specialty with us

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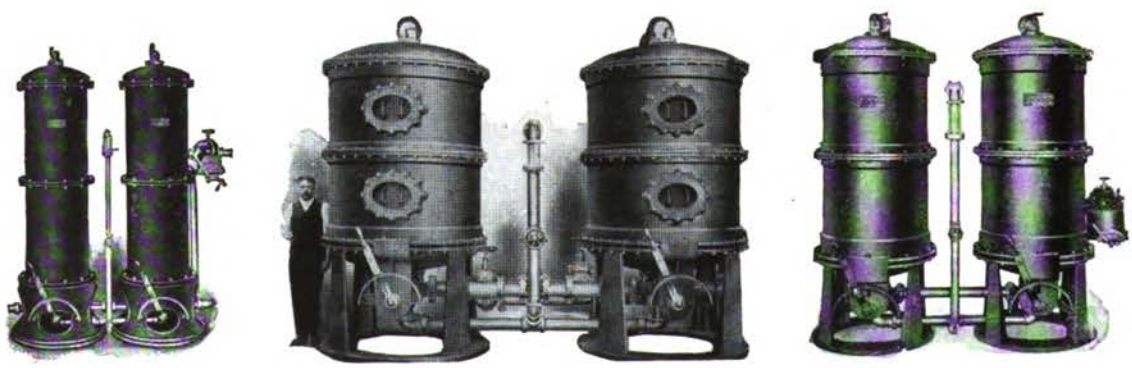

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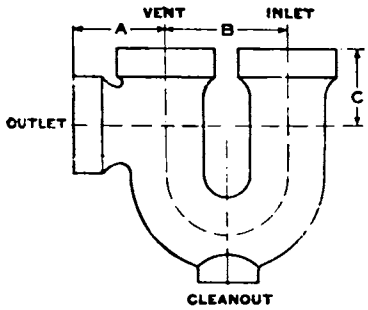
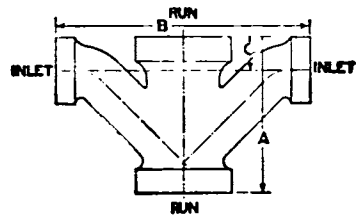
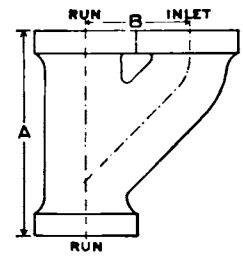
Drainage

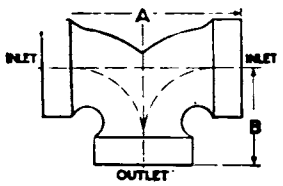


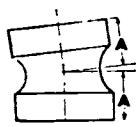


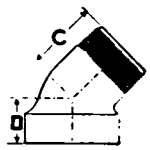


should have an unobstructed escape from the premises.

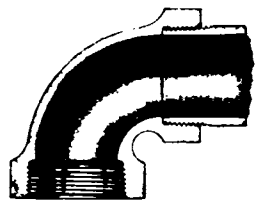
CRANE DRAINAGE FITTINGS



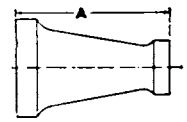


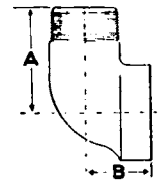


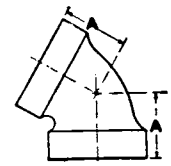
are made with a shoulder against which the pipe abuts so closely that all "pockets" are eliminated, thus affording the drainage a free and continuous flow to the sewer. As a further precaution against contamination, the interior of these fittings are as smooth as it is possible to make them. They are heavy and strong enough to safely withstand the strain of settling.

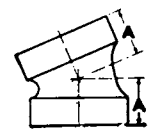


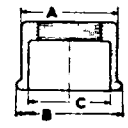
We have such a large variety of patterns and sizes that we can easily accommodate the drainage system of any building, regardless of size.











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Potential Power of Architects to Create Conditions Favoring Conservation

CONSERVATION now consumes the attention of the public—there is grave need of conservation of the food supply—feeding is as necessary as fighting to win the war.

Much food has been wasted by both feasting and fire. Mr. Hoover tells how to conserve the food supply by regulating consumption.

The National Board of Fire Underwriters (New York) tells how to conserve food and other things from waste by fire in "Safeguarding Industry—A War-Time Necessity," a book of common-sense rules for remedying conditions favoring the inception and spread of fire. The book is valuable to architects. A mere request will get a copy.

Six conditions favor inception and spread of fire, says the book:

(1) Disorder; (2) Ignorance and Carelessness; (3) Defective Equipment; (4) Faulty Construction; (5) Insufficient Protection; and (6) Lack of Defense.

Architects are mainly responsible for conditions three, four, and five. Though only half the number, they comprehend many more factors of safety than the others. Therefore the potential power of architects to create conditions favoring conservation.

The most vital condition concerns the control of fire. The book says:

Common sense will tell you that almost all fires have small beginnings, from which arises the old saying that the first five minutes in fighting a fire is worth more than the next five hours. This means that your means of extinguishing should be immediately accessible; in other words, that such means should be distributed throughout your premises so that at no point will they be far away. The most valuable of all devices for this purpose is the automatic sprinkler, which is too familiar to need description. It provides an immediate downpour of water at the exact place of the blaze, and generally extinguishes such a blaze at once. Insurance companies recognize this protection by making a large reduction in rates wherever buildings are well equipped with sprinklers.

Among "Practical Suggestions for Reducing Fire Loss" is this:

When properly installed, with an abundant and constant water supply at proper pressure, and the equipment maintained in a constantly operative condition, the automatic sprinkler has proven itself to be the most reliable and satisfactory fire extinguishing device in use, being suitable for effective service in practically every class of structure and under nearly any condition of fire hazard arising from causes incident to occupancy or processes. It is therefore urged that such protection be installed in every structure where the nature of the occupancy is not such as to render these devices inoperative or ineffective.

Today the design and equipment of buildings to resist and control fire is not only a practical necessity, but also a war-time necessity, and above all, A PATRIOTIC DUTY!

ARCHITECTS SHOULD EXERCISE THEIR POTENTIAL POWER NOW!

Information Service Department

National Automatic Sprinkler Association

80 MAIDEN LANE, NEW YORK, N. Y.

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House Drains that can't stand the Sanitary Test *will not* be approved by the Plumbing Inspector

Suit to test the city ordinance, providing for plumbing inspector and naming his duties, was filed in court yesterday by the Chalmers Manufacturing company, who are erecting a building at Greenlawn avenue and the Erie railroad They secured Harry DeWitt as contractor and he in turn engaged John Scully as plumber

When the building reached the point where Edward Ashton, city plumbing inspector, was to go over the same and sanction approval of the plumbing system, Ashton informed the company and contractors he would use a ten-foot head of water test This the contractors aver the drains will not stand and claim the same is unjust in this test.

Ashton, according to the petition, stated he would arrest the contractors unless they tore up the drains and complied with his order. He refused to give his approval of the system.

Upon contractors providing a bond of $300 in court today, Ashton was temporarily enjoined from interfering with the construction and completion of the house drains and from using and enforcing the 10-foot head of water test on the drains, which are of earthenware pipe, of the quality and character provided by the state plumbing law. The joints are of mortar, made of one part of the best Portland cement and one part of clean, sharp sand. Ashton wanted to use the test for a period of 15 minutes.

Lima, Ohio Democrat June 9 1917

Too bad they didn't use CAST IRON SOIL PIPE!

USE SOIL PIPE WHERE SOIL PIPE SHOULD BE USED

Profit by their Experience

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PLUMBERS
ENGINEERS
BUILDERS

Use CAST IRON SOIL PIPE for SOIL LINES VENT LINES LEADER LINES WASTE LINES

No corrosion – No menace of leaking sewage and sewer gases – No tearing out of floors and walls after pipe is installed

Use CAST IRON SOIL PIPE for HOUSE DRAINS HOUSE SEWERS

No pollution under cellars – No stoppage by tree roots – No danger of breakage by jar or settlement – No costly replacements

CAST IRON SOIL PIPE LASTS LONGER THAN THE BUILDING IN THE BUILDING UNDER THE GROUND

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Abendroth Brothers	Port Chester, N. Y.	Johnson Co., J. D.	New York, N. Y.

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CAST IRON SOIL PIPE in cellar of Ohio State University Columbus, Ohio, replacing vitrified pipe that became clogged up with roots

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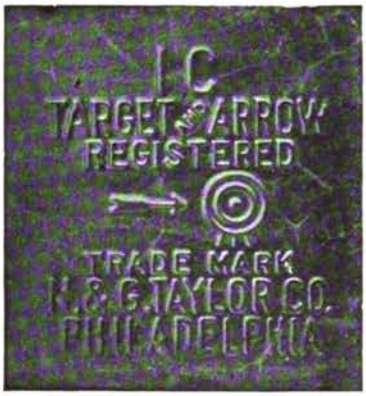

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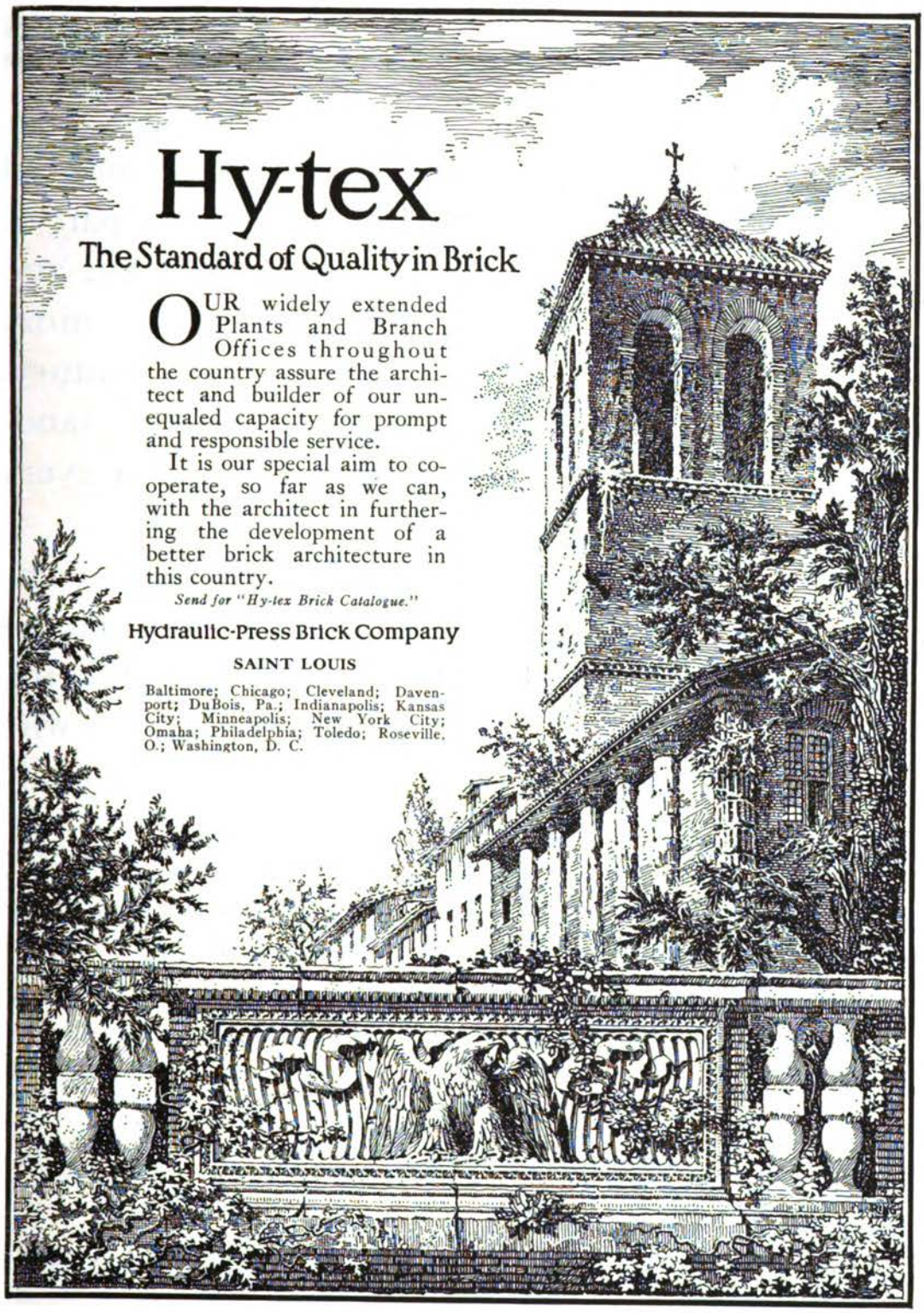

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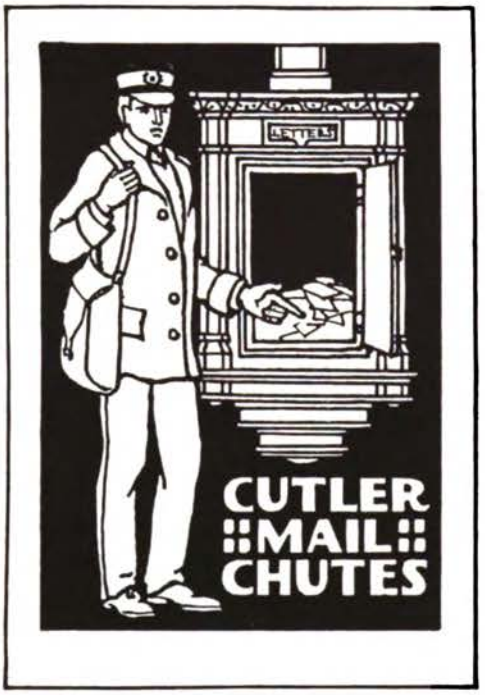

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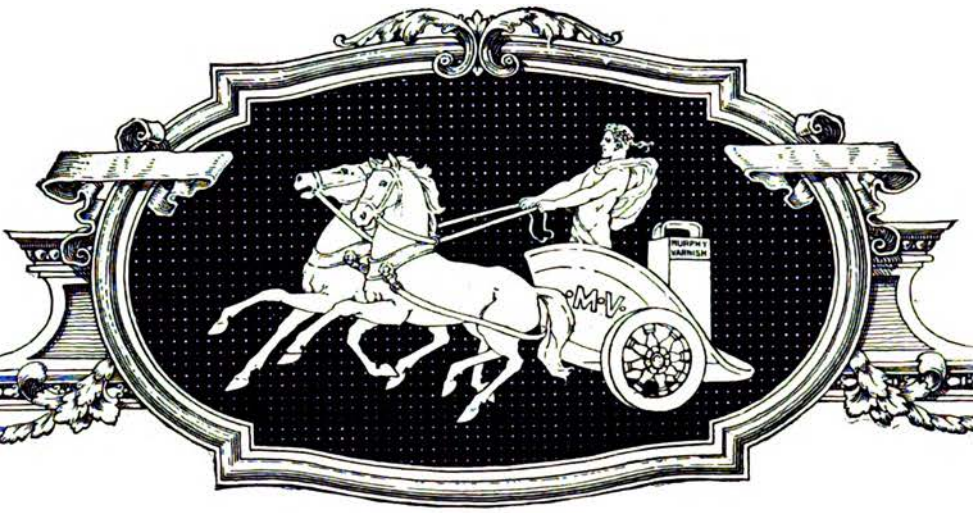

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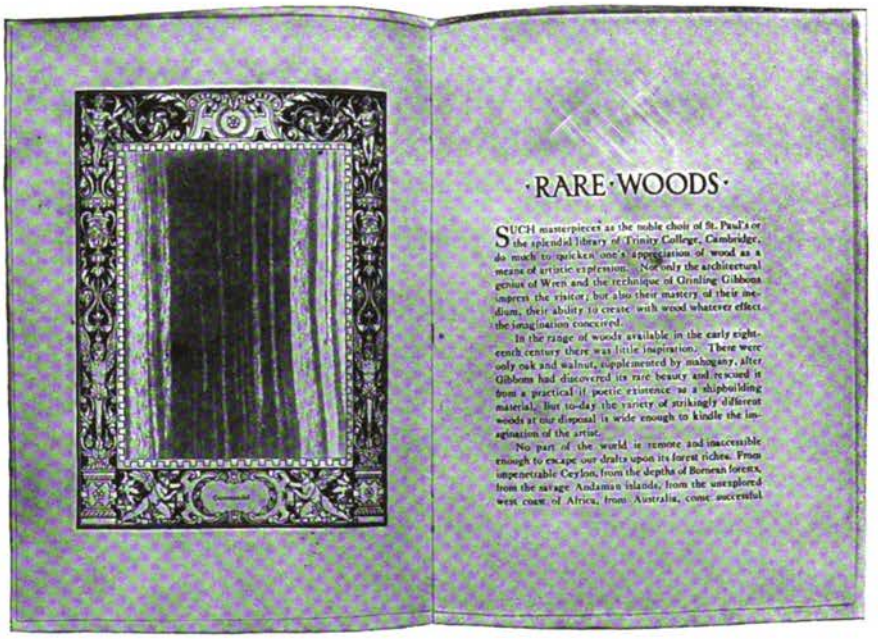

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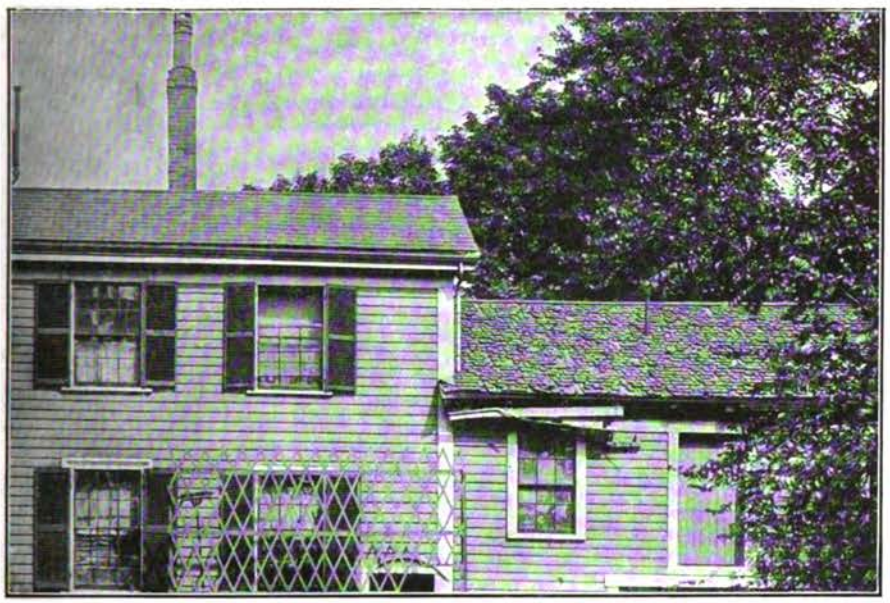

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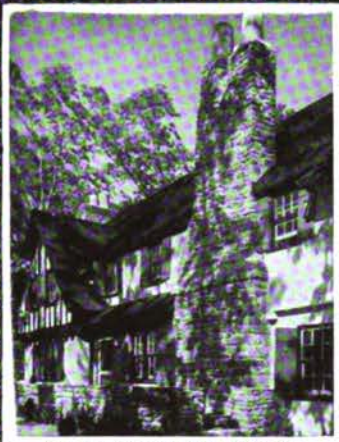

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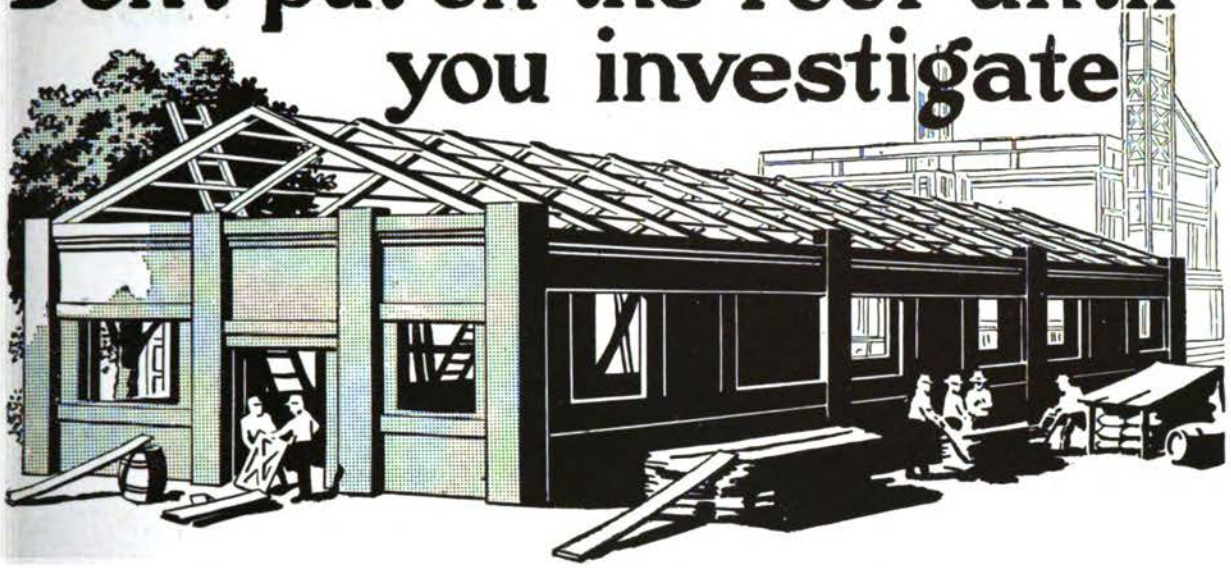

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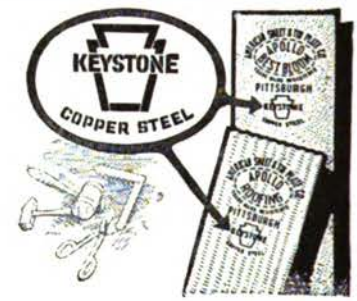

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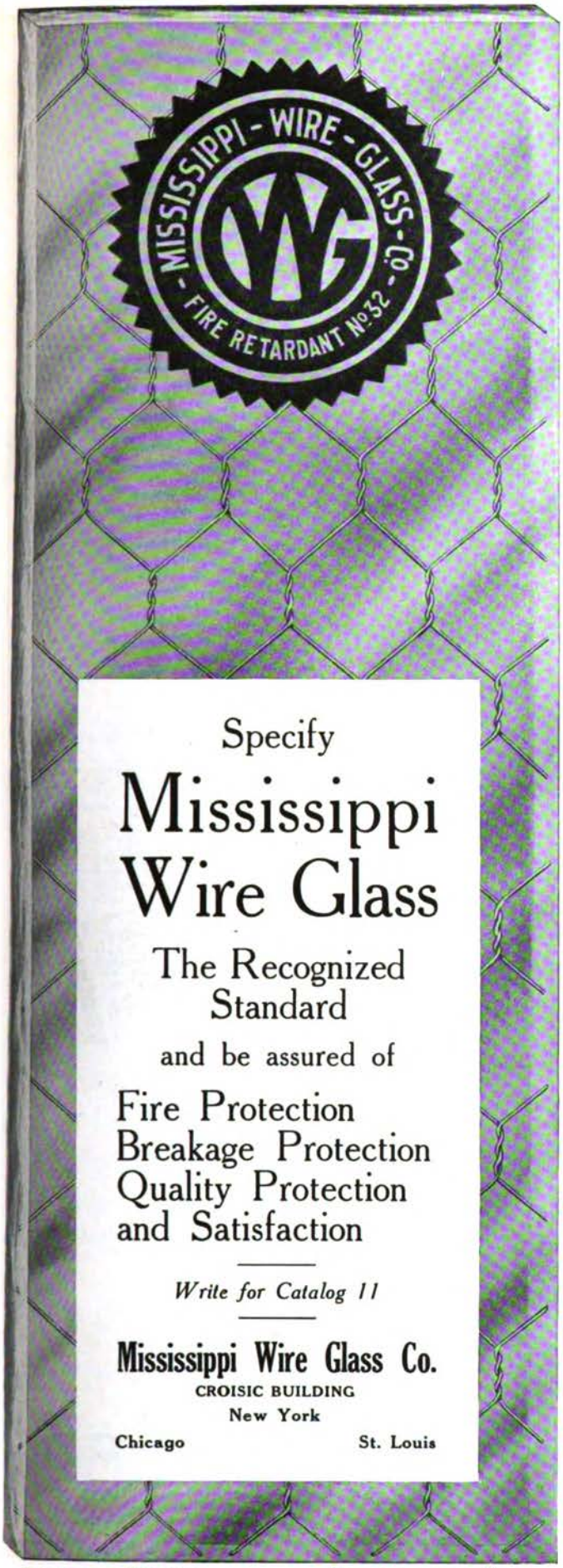

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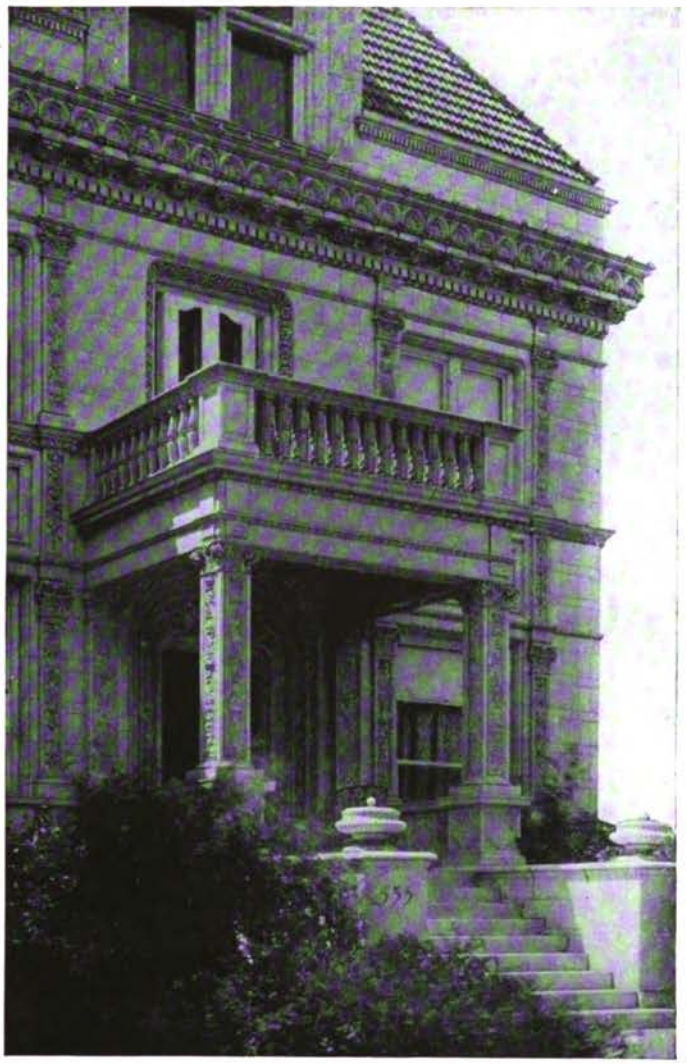

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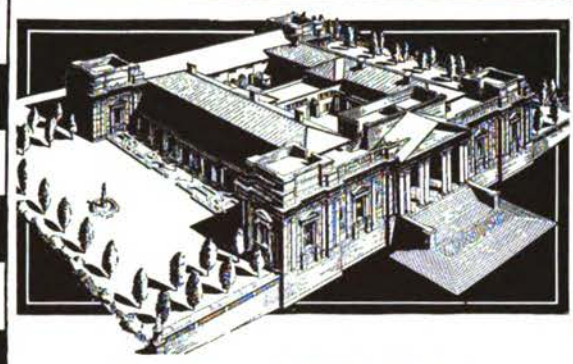

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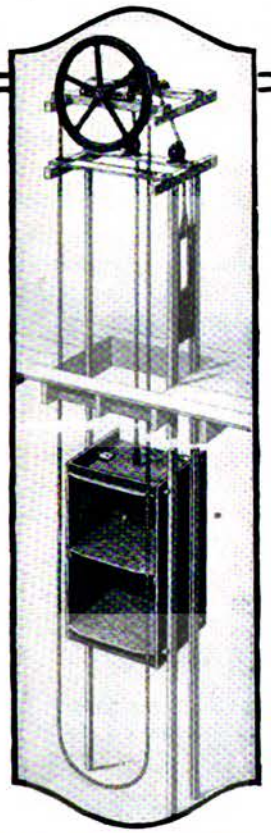

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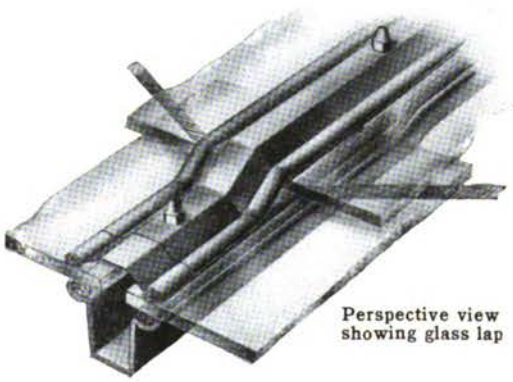

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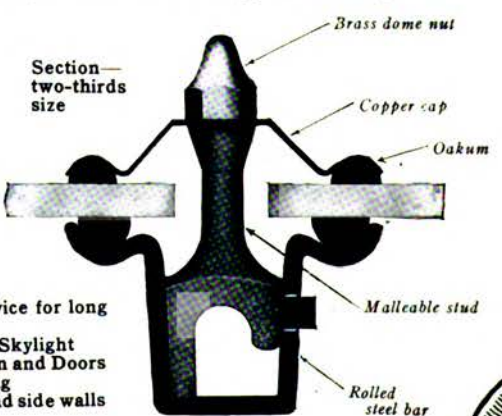

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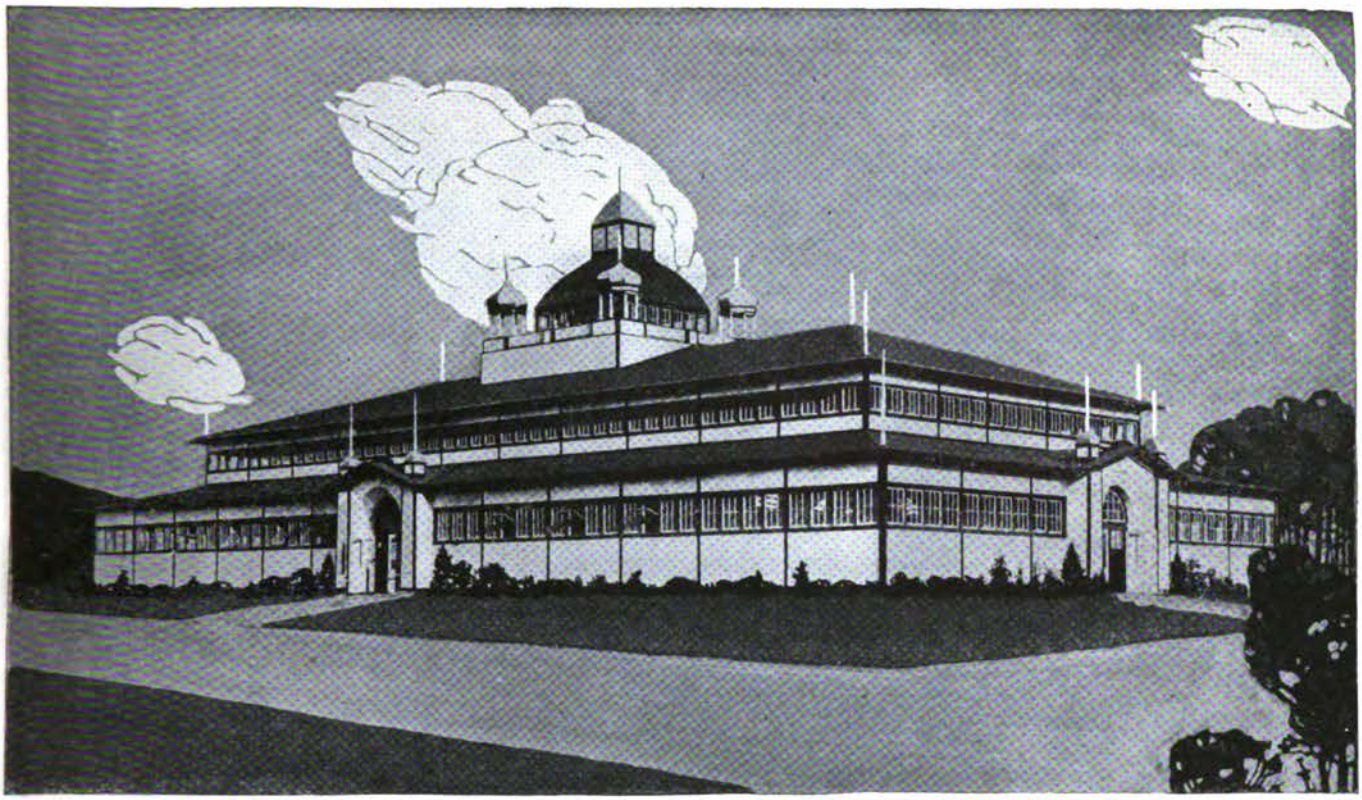

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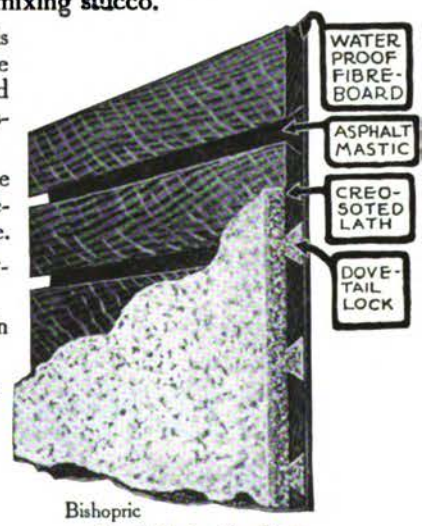

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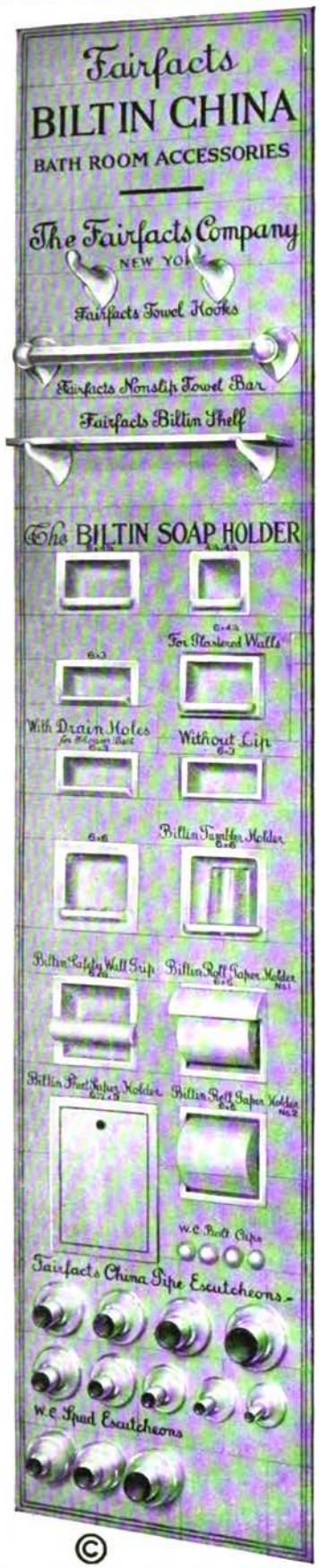

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THE ARCHITECTURAL REVIEW.

Boston, August 8, 1917

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JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V OCTOBER, 1917 Number 10

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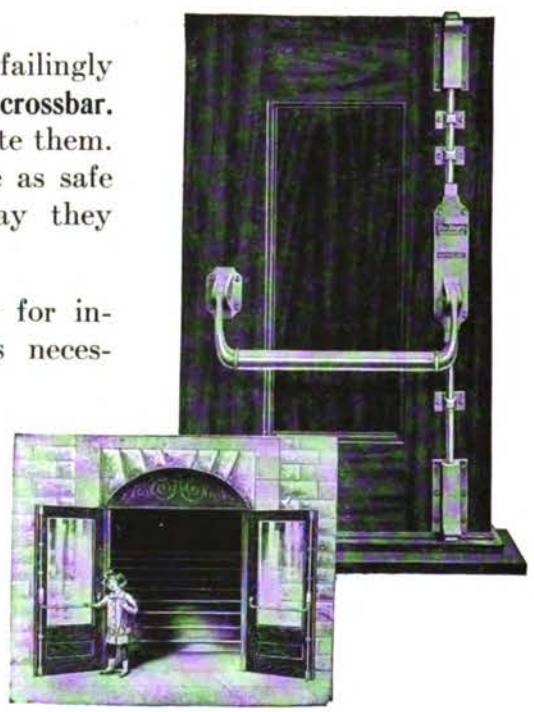

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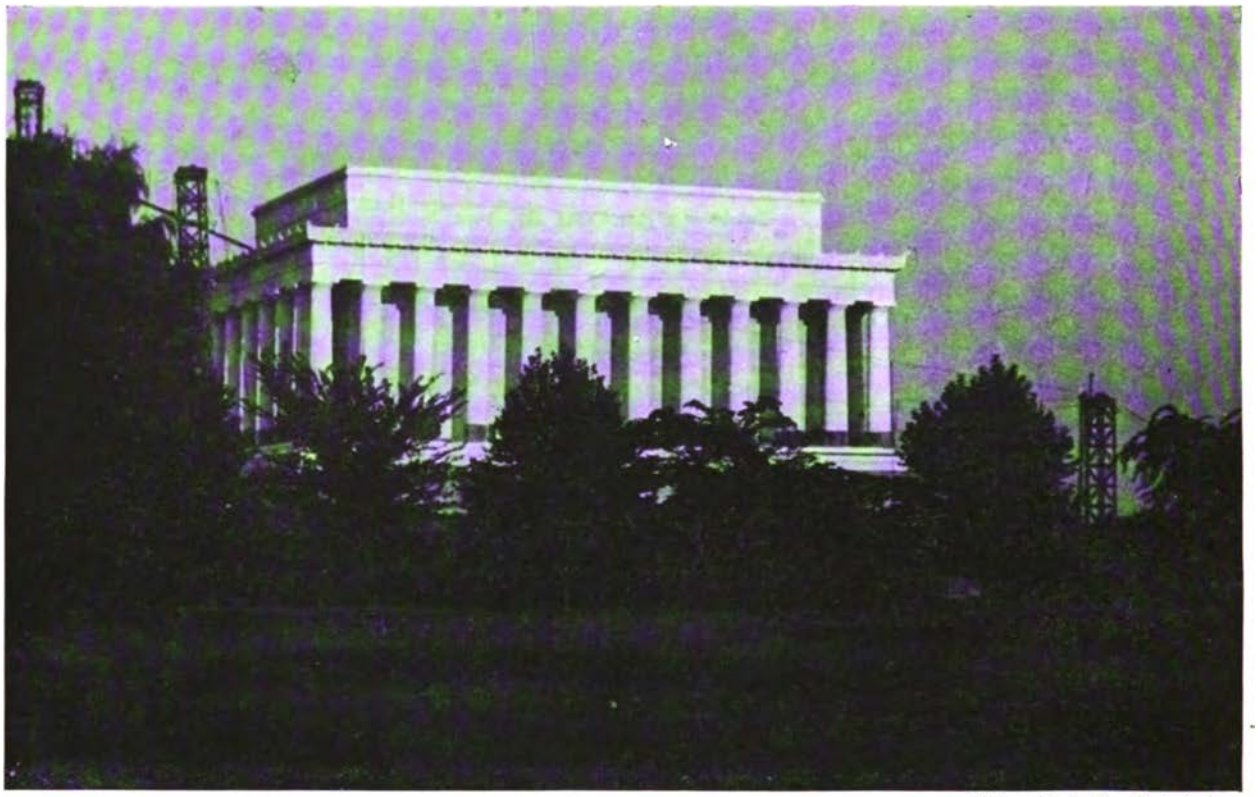

Photograph by Ben J. Lubschez

THE LINCOLN MONUMENT AT WASHINGTON. VERY MUCH AS IT WILL APPEAR WHEN FINALLY COMPLETED

"As I would not be a slave, so would I not be a master. This expresses my idea of democracy. Whatever differs from this, to the extent of the difference, is no democracy."—ABRAHAM LINCOLN

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Vol. V OCTOBER, 1917 No. 10

Shadows and Straws

THE PUBLIC BUILDING SITUATION at Washington has developed to a considerable degree during the last month. The Treasury Annex Building, authorized by the Senate, and the discussion of which by that body was published as a Supplement to the August Journal, has been passed by the House. That body, however, struck from the Senate bill the clause requiring the approval of the plans by the Commission of Fine Arts. This sent the bill into conference, from which it emerged in the form adopted by the House, the Senate conferees receding from the position taken by that body.

MR. COOPER, OF WISCONSIN, defended the valuable work of the Commission, as did Mr. Campbell, of Kansas, and Mr. Green, of Iowa, but the resentment of Mr. Burnett, of Alabama, and of Mr. Cannon, of Illinois, although expressed in terms which clouded the issue by a recital of offenses not at all chargeable to the Commission, prevailed upon the small number of members present, and the Senate amendment was lost by a vote of 162 to 86.

It must be remembered in considering this question that the action of the Senate gave a mandatory power to the Commission of Fine Arts. Under the Executive Order from which it now derives its powers, the plans will still be submitted to it for criticism, but it will have no power to insist upon any changes. As we have before stated, it is understood, we believe, that the design of the building will be such as to make the Lafayette Place façade adaptable to a continuance of the design when future buildings are erected on the site now occupied by the Belasco Theater, the old Cameron House and the Cosmos Club. The building, in all probability, will be begun without delay. It is to cost $1,250,000, and to be finished in about a year's time.

THE JOURNAL ANNOUNCES the departure for England of Mr. Frederick L. Ackerman, of the firm of Trowbridge and Ackerman, of New York City. Mr. Ackerman has served with great ability on the Institute Committee on Public Information and the Committee on Town Planning. He goes to Europe as the special correspondent of the Journal, and particularly for making a study of the vast housing undertakings which have already been carried through by the British Government, as well as those on an even larger scale which are now projected for the re-housing of her working classes after the war.

Mr. Ackerman's investigations will be narrated in the Journal as fast as they are received from him, and will form, perhaps, the most important contribution to the literature of housing which has yet appeared, since it will be based upon the larger governmental interest which the war has forced in this subject. That the policy of Great Britain will be reflected in the reconstruction of France and Belgium may not be doubted, but of even greater moment is the certainty that the United States will also react in like manner. The coöperative idea which is now leading to the rapid formation of National Farm Loan Associations, under the supervision of the Farm Loan Board, has given a great impulse to the possible application of similar principles, with governmental aid, in home building.

The more important countries of the world

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have long accepted this idea as a legitimate and necessary governmental function, and Mr. Ackerman will make important contributions to the existing knowledge of their workings and their further extension as a result of the war. These articles will appear in many issues of the Journal and will be supplemented by others from the pens of the foremost authorities on the subject of housing, both in the United States and abroad.

IN RESPONSE TO THE SUGGESTION for another architectural society to engage in stimulating the perceptions of governmental authorities and legislators in their outlook upon questions of art, there have appeared in the Bulletin of the Illinois Society of Architects some excellent letters, all of which point out the desirability of more devotion to the Institute rather than a division of that which now exists. The letter of Mr. Hubert E. Hewitt, of Peoria, Ill., deserves a wide reading, however, for it is so fine a summing up of all the factors, some of which escape attention in a too general consideration of the problems involved. Mr. Hewitt's letter is as follows:

I have read and I heartily approve of President Malcomson's suggestions to stimulate the Government's appreciation of Architecture, but it seems to me that the real cause of the trouble lies so deep that his suggestions might be supplemented by a remedy more fundamental and more far-reaching than that which he proposes.

The average Congressman is the average man-of-affairs. The average man-of-affairs who has reached middle age or beyond without acquiring that degree of culture which enables him to appreciate Art and the value of Art to life, is not likely to be stimulated to such an appreciation after that time. An appeal to him for better Architecture or better Art of any kind is likely to be in vain. It is sad, but true, that the average man has an appreciation of Art comparable, perhaps, to a cow's appreciation of an automobile. The cow's choice would be one made of clover and grains, with salt trimmings. She "knows what she likes."

May it not be true that the real remedy consists in the cultural education of the people that the Congressman represents? And that means, first of all, the instilling into the child throughout its schooling from kindergarten to university the great fact (which some men realize too late and some never realize at all) that the quickening and development of the soul is of equal, if not greater, importance than the development of our material selves.

The "man in the street" still associates Art, of all kinds, with long hair and "temperament." It is something for the rich and the idle to play with and the "odd genius" to produce. Art in this country at the present time is distinctly not "of the people" and it is difficult to persuade them that it is "for the people." I speak of Art instead of Architecture for the sake of generalization. The Arts go hand in hand.

It is trite to say that the lack of public interest in all branches of Art is due to the essentially materialistic time in which we live. We all know that. But, after the war—will there be an opportunity? I think there will. We shall be sobered, unified, perhaps chastened. Men's minds will turn from material things and the starved souls of men will cry out for food. Is it too much to hope that, if we take advantage of the opportunity, we may have a great Art revival when the war is over?

In an incredibly short time, we have become the greatest nation, materially, in the world. May we not become, with comparable swiftness, the greatest nation in a finer sense? HUBERT E. HEWITT, *Peoria, Ill.*

IN CONNECTION WITH the British Government's study of the technical questions in bearing upon the building of the large number of houses for industrial workers after the war, the President of the Royal Institute of British Architects has, upon request from the authorities, nominated Sir Aston Webb to serve on behalf of the R. I. B. A. on the committee which has been set up by the Local Government Board. A committee of the R. I. B. A. has been constituted by the Council and is now considering the question from the architect's point of view. The committee consists of the President, the Honorary Secretary, Sir Aston Webb, Professor Abercrombie, Professor Adshead, W. R. Davidge, W. A. Harvey, Arthur Keen, H. V. Lanchester, D. B. Niven, G. Gilbert Scott, J. W. Simpson, H. D. Searles Wood, George Hubbard, and Percy B. Tubbs. The allied architectural societies have been asked to nominate representatives to serve on the committee, while the principle of local committees to deal with local problems and keep in touch with the central committee has been recommended for adoption. These activities indicate that the question of living conditions has attained an economic importance which will surely lead to better things in England. We must follow, and the part played by architects, both here and there, in bringing about those betterments which are long overdue, will go far toward determining the position of the profession in a future to which we look forward with such eager hope. Surely human values will be lifted far higher in the new scale; we cannot believe otherwise.

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What Is a House?

By CHARLES HARRIS WHITAKER

I

SINCE the war began, the British Government, under such financial and industrial pressure as never before befell a nation, has spent millions upon millions in building houses of all kinds for its workers. It is one of the most remarkable and deeply significant transformations wrought by War. While her vast industrial expansion and its accompanying congestion of workers are the undoubted causes of England's huge expenditure for better homes, the deeper significance may be found in her plans for carrying on this program as a measure of post-war prudence. War has raised the standard of the house in England for all time. It has given a new meaning to the word.

Great was the pressure under which England labored and pressing was the emergency with which she had to cope. The life of her armies, upon which her own life hung in the balance, was in the keeping of her factories and workshops. Yet as the old ones doubled, trebled, quadrupled their size over night, as new ones larger than any the world had ever seen sprang up like magic, there also grew the parallel need for more houses in which the workers could live. And there also grew the perception that if the workers were to give their utmost in skill and energy they must be given the utmost in home life. The renewal and constant maintenance of vitality meant more ships, more guns, more ammunition. And then came the miracle!

With sound economic foresight, England determined to build permanent houses, except in cases where the emergency was so dire as to compel temporary expedients. She found that taking into account the expense of applying the utilities (streets, water, gas, sewage), the difference in cost between temporary and permanent houses was so little as to be negligible in her calculations. Rather than accept a questionable post-war salvage from temporary structures, with the inevitable temptation to continue their use as slums, she resolved to create a permanent national asset. Thus there have grown up in an incredibly short time whole new towns and villages which will not only remain after the war but which will compel a generally higher standard for workmen's homes, —for permanency is only a part of the miracle.

Having come to this decision, it became necessary to ask what kind of houses to build, in other words, "What is a house?" During the last hundred years of industrial expansion the definition of a house has been sinking slowly to a level where it included almost everything which could claim walls and a roof. The percentage of unsanitary, disease-breeding structures inhabited by men, women, and children in all the so-called civilized countries of the world has been a sad blot on their escutcheon. Without exception, all the great nations except the United States—even the newer lands of Australia and New Zealand are ahead of us—have recognized this condition and accepted the duty of attempting its amelioration by financial aid of different kinds, as a legitimate and just governmental function. It may be said without hesitation that the application of science and governmental aid to home-building for workmen in Germany was one of her vital steps in the great scheme of war preparedness. Her model villages have been cited the world over, while her coöperative home-building and land-owning associations, fostered by the government, have been studied with profit in all other countries. England had begun to deal with this question, of late years, so that when she was compelled to undertake an immediate industrial expansion which should outweigh and outshoot Germany's highly organized machine, the accompanying problem of house-building was not an entire novelty. She had dealt with it before. Her garden cities were among the pioneering movements of modern housing reform. All her communities have large powers in dealing with the question, and the model tenements of London, Liverpool, Glasgow, and other cities, though far from solving the question of "What is a house?" were long steps forward. Of profound significance is the fact that since war began, London has demolished

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acres of slums and erected model tenements thereon. In order to bring the rentals of these within reach of workmen, she has charged off the entire cost of the land against her more prosperous areas!

But in the middle of war, with the determination made to spend millions in new houses, England asked herself fairly and squarely, "What is a house?" Perhaps her answer will do more than anything else toward solving the social, economic, and political problems which the end of the war will lay before every nation with a new and sterner emphasis than ever before. The houses she has built would not do for the United States. They are built in full recognition of certain long-established traditions and modes of life. They have no central heat, for example, but are generally heated with fireplaces, while their interior planning is not after our methods. They range in size from two to five rooms, with bath, with rentals varying from $1.80 to $3.60 a week. For such sums it probably is impossible to rent their equivalent elsewhere in the world, although it is no doubt true that these low rentals are only made possible by governmental willingness to accept a rate of return on the investment such as would not satisfy private capital. It is also possible that England may have to write off, as a war expense, the difference in cost of these houses, at war-time prices and those normally obtaining. Curiously enough, many people exclaim at the idea of such a possible waste, forgetting that war is nothing but a process of throwing away money, and that it does not matter whether it goes into ships, guns, aëroplanes, or houses, so long as the end is attained. But England finds a return on her investment in houses which cannot be measured in money, and it is highly probable that of all her vast expenditures the houses she has built for her workers will remain as one of the very few revenue-producing factors after it is all over.

Private capital failed to provide England with the houses she needed in order to wage a successful war. Building costs were higher than normal, and private capital feared that if it built in war time, it might be left with houses on its hands which could afterward be duplicated for much less money. It also shared in the general uncertainty as to how reconstruction might affect industries expanded under war pressure. The war might leave these, temporarily, without usefulness and the houses in such a locality tenantless. But the Government could not allow any such doubts to jeopardize its success in war. At no matter what cost—or what loss—it had to have houses. In this recognition lies the kernel of a hope that the definition of a house is to be permanently revised.

War has shown the full meaning of the house as a factor in national preservation, for war brings nations face to face with national death, and it is then that nations see themselves. Can it be doubted that Peace will ever again allow the house to sink to the low level of the last hundred years? Can it be possible that the plain business value which has been found to lie in the good house will be ignored by Peace? The measure of a nation's prosperity and strength is shown to lie, not in the size of its factories, the elegance of its public buildings, the luxury of its hotels, but in the small thing known as a house. Germany learned this before the war and applied her knowledge on a vast scale, dastardly as was the end she pursued. Other nations have learned through the need of defeating that end, and will not forget. But woe to the nation which forgets to learn!

In the United States today our industrial war-time expansion, upon which so much depends, is hampered and impeded by the lack of houses. It is further restricted by congestion in the hideous structures which pass under that name. Our expansion has been so rapid that this condition grew up almost unnoticed. Under the pretense of shortage of workers, there come increasing requests for permission to work men, women, and children longer hours than the law permits. The answer, in almost every case, lies in the fact that the real shortage is in houses and rooms. In such cases, increased production is possible only by overworking those who can house themselves, and the end of that would be deplorable. Many factories making war necessaries are not running full because they cannot house the workers. Wherever men and women are working in these centers, their vitality frequently is impaired by the conditions under which they live.

Private capital is failing here as it failed in England, and for the same reasons. The situation has assumed alarming proportions,

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and the approach of winter will render intolerable many of the present makeshifts used for houses all over the country. The conditions in Cleveland, Akron, Bayonne, Bridgeport, Norfolk, Newport News, in fact wherever one turns, are fraught with elements of unrest and discontent which are finding frequent expression. As a consequence there is delay in that industrial production which is so vital—a delay which costs so huge a sum. For every day the end of the war is put off, we may charge ourselves with something like $50,000,000! In the presence of this fact, how shall we answer the question "What is a house?"

The administration at Washington is fully alive to the importance of these conditions and is preparing to cope with them. If it answers the question wisely and with foresight, the United States will learn a great and valuable lesson, for we shall learn that if a decent house is essential to war, it will be equally essential to our economic life after the war. Upon no vital question affecting human welfare and human progress toward that larger democracy for which we are giving our blood and our treasure will the light of war beat with a more enduring flame than upon the one, "What is a house?"

II

In building her new towns and villages, England did not treat the house as an isolated factor. In the first place, she embodied in its design the traditions of that rural domestic architecture which has so much delighted the thousands of Americans who have roamed the English countryside. She arranged them, whether singly or in groups, to form a harmonious whole and to avoid the deadly monotony of straight streets lined with houses of one pattern, no one differing from any other and known only by a number, each possessing as much outward atmosphere of inviting appearance as a row of freight cars. Nothing has contributed more to the slowness with which we respond to questions of civic import than this deadly monotony. The man of means builds a home in which he may give expression to his tastes and inclinations. Slowly, but surely, this kind of domestic architecture has lifted itself out of the slough of the Victorian era and the slavish copying by architects too lazy or too ignorant to study their problems, and begun to claim a place as a distinctly national development of value. But this applies only to an infinitesimally small proportion of our house-building operations. In the main, our towns and cities, and even our rural districts, are made hideous by the multitude of tawdry houses and the ugliness of surroundings which that tawdriness inevitably breeds—bill-boards, dumps, shanties, with waste paper and refuse scattered in indiscriminate profusion. Slowly, but surely, we become accustomed to it; we tolerate it; we ignore it. But all unconsciously we never forget it, for we flee it as a plague. We flee it for the country when we can. We flee it for anything which offers a distraction. And when men, women, and children unconsciously begin to flee the neighborhood of their home, what chance has the community to develop civic, social, or even economic progress? Such flight is the unconscious surrender of a political ideal, the precursor of revolutions.

Yet against the ugliness of our miles and miles of desolate, monotonous streets, we can only point to the one-time picturesque quality of thousands of European communities by reminding ourselves that we have made progress in several important directions.

But why were we willing to accept advances in sanitation, comfort, convenience, with so little thought of the preservation of those other qualities of charm and picturesque attractiveness which we so much admire when we visit Europe, or still find untouched here and there in our own country? The answer involves a long study of our industrial and social transformations, wherein ruthless competition, unchecked by any community foresight, has raised land values unequally, destroyed them by the same ruthless method, and made highly speculative that which should of all things be permanent —realty values.

The full answer, taking cognizance of these things yet denying them their right to lower the standards of a nation by steadily reducing, first, the size of the lot, then the size of the house, then the size of the room, enunciates the warning that this ever more and more relentless compression also squeezes out the moral and physical values which are the only source of national progress.

In her wartime house-building, England has recognized this as a fundamental principle.

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Her houses have ample lot-room and a maximum of light and air. Instead of being monotonous they are as varied in their picturesque character as any of the ancient towns of England. These new villages are striking examples of what may be done when the size of lot and house and room —and their design and arrangement—are not arbitrarily and ruthlessly sacrificed to the financial limitations of private capital. And this is no indictment of the little-understood thing we call capital. It is an indictment of the community and of the nation which is so short-sighted as first to permit and then to compel, as a measure of business salvation to the owner, the erection of structures, houses, tenements, that quickly decline in value through deterioration, ultimately diminish the taxable value of the neighborhood in which they stand, and always lower the standards, moral and physical, of those who inhabit them.

This is the civic crime of the ages—the acceptance by the community of a business principle which every good business man would reject in his own business without the slightest hesitation. Against this condition, of what value are architects and building codes? Their efforts must be directed to cheapening the cost of construction, both by reduction in space area per family and by the use of the least expensive materials and methods of construction which will pass the code, either honestly or by connivance. Today we are in the grip of this inexorable condition; tomorrow, how long deferred we know not, we shall begin to emerge from it, or else one lesson of the war will be lost.

The building of houses is today a speculation. Whether a man builds with the hope of a profit through sale, or rise in value, or with the hope that he will not sustain a loss, does not matter. The speculative idea is there; it cannot be escaped. Worse than this, one man bent upon a speculation which promises large profits to him by taking advantage of the helpless community can erect a type of structure which will so damage a neighborhood as to force others to put their property to the same use. This is only a temporary expedient. In the end the community loses. It suffers the loss in taxable values which is the anxious consideration of the financial authorities of all our cities, and it suffers the moral loss of a descending rather than an ascending scale of life. It is idle to condemn speculative builders and so-called private capital for these practices. The fundamental fault, which must and will be corrected, is the neglect of the community to see that the longer it gives *carte blanche* to the individual to convert land values to his private gain by no matter what means, the larger will be the bill which the community will have to pay in undoing his misdeeds. This is becoming so increasingly evident that the zoning or districting law, which governs the character and occupancy of new structures in a city, is being applied in several of our American cities. New York City welcomed it with open arms, as the only measure of conserving the city's taxable values and of giving any permanency to realty. It undoubtedly offers a large avenue of relief. European countries have applied it successfully, and while it may have a tendency temporarily to diminish the volume of building, in the end it encourages the erection of good buildings as a permanent rather than a speculative investment.

"What is a house?" It is the prime element of national growth. It is the soil whence springs that eagerness in the heart of every man for a home of his own. It is, after all, the physical attribute of life upon the possession or retention of which most of our energy is directed. Because of these things, it is the backbone of the nation. By the quality of its appearance, its convenience, its durability, one may infallibly determine the real degree of a nation's prosperity and civilization.

"What is a house?" It is not a solitary entity by any means. Let us not forget that. Just houses, no matter how well they answer our question, would not suffice. With houses go other things—good streets, for example (although our blind adherence to the old street idea wastes acres of land and involves costs of upkeep which are rapidly challenging attention), gas, water, light, fire protection (which ought to be needed less and less, rather than more and more), garbage removal—all of these things are indispensable in any modern community. But, in addition to these purely physical attributes, there must be provided opportunities for social recreation, for play, for the influences of the school, the drama, music, the dance, the arts in general. That is why England, in building thousands of homes for her workers (as Germany did before her), has

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had the foresight to build, wherever the existing community was incapable of meeting the need, schools, churches, halls, recreation grounds, laundries, and even public kitchens. There are large open areas for the children—and for grown-ups, too.

"Socialism," says somebody. "Fad," says another. "Paternalism," cries a third. But, mark this well, the least important thing about it is the name by which it is called. Those who live principally for the pleasure of hugging words to their bosom long after all spark of life has left the letters which they spell glibly over and over, may continue the pursuit of this childish pastime. Men who have sense enough to recognize human forces and currents—who know that the world is moved by these and that progress comes through them and not by the names they are called—such men will understand that England is putting her house in order by putting the houses of her people in order. In other words, she is getting ready to pay her debts by organizing her commerce and industry on new lines, far in advance of anything else (as Germany did before her). She is preparing for her reëntrance into world markets on a larger scale than before, for it is from those markets that all the nations must collect the money for paying their interest charges and debts. Such an economic measure will be precedent to the payment of national debts by all nations, ourselves included. And in the working out of that program, the house, as a giver of rest and contentment, source of satisfaction, emblem of true community growth, and forerunner of sound community values, will play a part which England seems to understand, at last.

Shall we learn?

(To be continued)

Gothic Art, the War and After

By A. KINGSLEY PORTER

THE cathedral of Reims is in ruins. We all know it. We have grown accustomed—almost callous—to the fact. The cathedral of Reims, unequaled for its façade and for its wealth of sculpture, is destroyed. We shall nevermore study the wonderful glass of the clearstory, with its blazing scarlets and reds, the warmest, the most pulsating, the most daring glasswork in all France. The grave saints that lined the portals with faces so full of dignity and Christian fortitude are broken into bits. Even the wonderful angel of never-to-be-forgotten gentleness, so solicitous, so tender, was not spared. What two fires and the wars of six hundred years had left uninjured our age has annihilated. German cannonading was able to destroy a monument the equal of which fifteen centuries of boasted German culture have been unable to produce.

Nor has the destruction been limited to the cathedral of Reims. The region through which the German armies have swept, leveling all to the ground before them, was the classic region, the Tuscany, the Attica of France.

Gothic art, the most perfect of all expressions of beauty, reached its complete culmination only in a small district. It was in the Ile-de-France, and especially in the region to the east of Paris, that it was born and that it attained its flower. It was copied from one end of Europe to the other, but in its pure essence, at its absolute best, it is to be found only here. Complete knowledge is yet lacking, but it is certain that in addition to the cathedral of Reims, the cathedral of Soissons, with its fairy-like south transept, its noble nave; St.-Remi; presumably Morienval, the Rucellai Madonna of Gothic architecture, over which generations of archeologists have broken their lances; countless other abbeys and parishes lie in more or less complete ruin. Since the barbarian invasions art has suffered no such loss. It is the study of these early buildings that has opened our eyes to the true character and true beauty of medieval work. Each of the country churches of the Soissonnais was a masterpiece of art in its way, each unrivaled, each with its own individual character.

It may be that in the centuries to come the other wrongs of this war will be forgotten. We no longer ask whether the Huns did or did not have a justifiable pretext for overrunning Italy. Today we care very little whether Alaric took

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or did not take Rome, or how long he held it. We have forgotten about the sufferings of the vanquished, the wrongs of the women, the death agony of individuals and peoples. We hardly know even the name of the barbarians who overran Greece. Their conquests, their gains and losses, are recorded only in the obscure pages of dusty histories. What we are acutely conscious of is the fact that Greek art was in great part destroyed, that not a single Greek painting has come down to us, that the works of Menander and Sappho are lost, that the Greek temples are in ruins, that masterpieces of Greek sculpture ended in the lime-kiln. And so it shall be with this war. Other things, however atrocious, time, which heals almost everything, may cure. But the wanton destruction of Gothic art must always remain to the end of time an act which the civilized world can never forgive, a wrong which the Germans have committed not only against France, but against all humanity, against themselves. For centuries still to come the German children must learn that their forefathers, in wantonness and cold blood, destroyed the most beautiful of arts, and they must realize that their own lives have by this act been deprived of a source of happiness which they might otherwise enjoy. The barbarians who sacked Rome might plead one excuse—they knew not what they did. They had no conception of art nor of its value. The Germans can plead no such excuse. The Germans knew what they did. They knew the value of what they destroyed.

When the war ends, the question must inevitably arise, What is to be done with the partially ruined monuments left by the Germans? There is grave reason to fear that the mistake of a century ago may be repeated. French Gothic architecture, it will be remembered, suffered terrible damage in the Revolution, but worse than this were the ill-advised restorations which followed. The question of restoration is an exceedingly delicate one. It is the friends, and the very sincere friends of the monuments, who promote it, frequently at great sacrifices. Their zeal and good intentions are undoubted. It therefore seems ungrateful to point to them as dangers. Since, however, an agitation is already being started to restore the ruined Gothic monuments, it is very necessary to come to a realization of what may only too probably result from misguided enthusiasm.

Gothic monuments are valuable from two distinct points of view. In the first place, they are historical documents, giving us information about past ages, the philosophy, the building methods, the character of the Middle Ages. This may be called their archeological value. Even more important is their purely artistic value, the joy they are capable of communicating as a thing of beauty. Both these values are liable to, nay almost certain of, destruction by restoration.

From the point of view of the archeologist, a restoration puts in his hand a falsified document. It is impossible to be certain of what is old, what is restored upon reliable authority, and what is merely conjecture liable to be entirely misleading. The very fact that restorations are generally cleverly done makes it impossible to disentangle the old from the new. Only one who has worked for years upon medieval monuments can realize the extent of the mischief wrought by modern renovations. Paradoxical as the statement may seem, the better these restorations are, the more deplorable is the archeological result.

A few instances of the way in which the modern restorer has led astray the learned may give some idea of this evil. In the ninth decade of the nineteenth century the church of S. Vincenzo in Prato at Milan was restored. It was rescued from almost certain destruction in being used as a chemical factory, and reopened to the Christian cult. At that time it was believed that arched corbel-tables were characteristic of all Lombard monuments, and the cornice of the façade was rebuilt with arched corbel-tables. As a matter of fact, this motive was not used in Lombardy until the eleventh century, while S. Vincenzo dates from the ninth century. It was forgotten that the corbel-tables had been added by restorers, and archeologists concluded that those of S. Vincenzo were of the ninth century. The entire history of Lombard architecture was consequently confused. Because of the corbel-tables of S. Vincenzo a whole group of monuments of later date was ascribed to the Carlovingian epoch.

Nothing would be easier than to multiply similar instances. The statues of the S. Zeno pontile at Verona are modern, added in the nineteenth century restoration, yet they have been discussed as ancient by every critic of

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Italian medieval sculpture, and whole theories of attribution have been based upon them. The best and most conscientious archeologists have been frequently deceived by restorations. Cattaneo published a modern capital of S. Vincenzo as an example of the Lombard style of the ninth century. Professor Moore was deceived by the modern statues of the façade of Paris. An archeologist of the present day, when he studies a medieval monument, is obliged to spend weeks in tracing the changes wrought in the nineteenth century. Only so can he be certain what is genuine and what is restoration. And in many monuments, even of the greatest importance, it is already impossible to prove what is new and what is old. Such buildings are without archeological value, although they may be nine-tenths genuine. It is impossible to be certain that the particular point in question may not be included in the one-tenth conjecture.

The usual plea for restoration is founded upon the esthetic appeal of a work of art. It is generally felt that the total effect is marred by damaged portions and that the building can be better enjoyed if these are put in harmony with the rest so as not to distract the attention. Yet in point of fact I think even the most tactful modern restoration is quite so pernicious from an artistic as from an archeological point of view. Modern workmen cannot reproduce nor copy Gothic work. The hardness of modern machine-made methods completely ruins that verve and feeling which is the soul of medieval art. Here, again, the restoration is so much the more mischievous that it is not easy to disentangle the new portions from the ancient. Better, a thousand times, a ruin than a restored building. The ruin may have a certain picturesqueness of its own; at any rate it tells no lies. What is there is genuine, is medieval. The eye that is practised may imagine missing portions, reconstructing mentally the building as it was. In the restored building, however, the original beauty is hopelessly and forever lost. Not even the most experienced eye can reconstitute the edifice as it was, strip it of the modern metallic hardness, reinvest it with its ancient poetry. It can not be emphasized too solemnly that restoration of medieval work is destruction of medieval art.

It would be as vain to attempt to restore the ruined Gothic churches as to repaint the lost pictures of Apelles. A Shelley, it is true, might give us, not a lost tragedy of Æschylus (that would, indeed, be impossible), but another poem conceivably as beautiful; but there are no Shelleys among modern architects. The touch of the modern on medieval monuments is a profanation and a destruction. During the last half century the medieval monuments of all Europe have been gradually, little by little, replaced by modern copies under the name of restoration. The inferiority of the copies is so great that I have often felt that it would be better to tear a building down absolutely than to make an unbeautiful misleading copy for the misinformation of posterity. No one—least of all an art critic—suggested, when the Mona Lisa was stolen from the Louvre, that the loss could be made good by having a copy painted and replaced in the frame. Yet how much more nearly would a copy of the Mona Lisa approach the value of the original than a copy of the cathedral of Reims could approach the building which has been destroyed!

We must realize frankly, therefore, that the destroyed churches of France are in danger of a fate even worse than that which has already befallen them. Ill-advised enthusiasm among people whose perceptions are not specially trained, is very liable to result in crowding the competent authority—which is the official *Commission des Monuments Historiques*—into sanctioning or even promoting the restoration of these buildings.

Gothic churches cannot and must not be restored. What is done cannot be undone. The losses caused by the Revolution, in ignorance, were great. Of an important part of the heritage which earlier centuries had already in ignorance depleted, the Germans have in knowledge deprived all humanity. Let us not make the matter worse and still further reduce the patrimony by restoration. Works of restoration should be undertaken only when necessary to prevent further disintegration. Let the destroyed monuments of France stand as ruins, but noble, poetic, beautiful ruins, not machine-made, modern churches. Let them stand a sempiternal reproach and source of shame to the Germans; but let it never be said that their friends destroyed what their enemies had spared.

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Outline of a Tentative Program for Dealing with the Housing Shortage in War Industries*

Preliminary Statement

The essential facts leading to the presentation of this program are the knowledge of the house shortage and congestion which impair our industrial production and which will surely lead to labor unrest and a consequent further impairment, and a study of the methods by which England has coped with a similar condition.

In any consideration of solutions, the question of post-war salvage should not be allowed to enter into the decision of how best to deal with any problem. No loss sustained in building operations can possibly be challenged in the face of the cost of delay involved in a scheme of expenditure so colossal as this war makes necessary, quite aside from the plain duty of conserving the utmost in human life.

A. Legislation Required.

1. The Government shall have power to take land for housing purposes throughout the duration of the war.

[NOTE.—Under the "Defense of the Realm" Act, England has this power under the following provisions:

"to take possession of any land and to construct military works, including roads, whereon, and to remove any trees, hedges, and fences therefrom; to take possession of any buildings or other property, including work for the supply of gas, electricity or water, or of any sources of water supply; . . . to cause any buildings or structures to be destroyed, or any property to be moved from one place to another or to be destroyed; . . . to do any other act involving interference with private rights or property which is necessary for the purpose aforesaid." Nov. 28, 1914.

"If, after the competent naval or military authority has issued a notice that he has taken or intends to take possesion of any movable property in pursuance of this regulation, any person having control of any such property sells, removes, or secretes it without the consent of the competent naval or military authority he shall be guilty of an offense against these regulations." May 10, 1916.]

2. An appropriation of $100,000,000, of which $200,000 is set aside for administrative purposes, for erecting or aiding in the erection of houses for workers engaged in making war necessaries.

[NOTE.—This sum is based on a rough calculation of housing the equivalent of 40,000 families, at a cost of $2,500 per family unit.]

B. Contingent Legislation, submitted as bearing on the whole problem.

1. The right to take over any unoccupied property for housing use.

[NOTE.—Under the "Defense of the Realm" Act, England has this power in the following clause:

"It shall be lawful for the Admiralty or Army Council or the Ministry of Munitions to take possession of any unoccupied premises for the purpose of housing workmen engaged in the production, storage or transport of war material."]

2. The right to prevent the raising of rentals.

[NOTE.—This has been one of the most powerful factors in stabilizing labor conditions in England, and has been in effect since early in the war.]

3. The right to fix prices for canteens or boarding houses.

[NOTE.—England has lately enacted legislation known as the "Billeting Act," which makes it appear that this regulation was found necessary, but the act has not been in force long enough for its value to be determined.]

C. Methods of Administering Funds.

[NOTE.—The pressing emergency requires the discard of all plans based on the coöperative idea, as unequal to any quick action. There are three plans under which the problem may be solved expeditiously.]

1. Making funds available to those manufacturers who are making war materials and who can quickly conduct a housing undertaking of the kind necessary to meet their needs.

[NOTE.—Whether all or part of the money is advanced by the Government, arrangements may be made for the sale of the Government's interest at the close of the war, upon a basis of residual value to be established. In England, advances have been made to manufacturers for housing purposes, but in each case the terms have been arranged according to the circumstances. In all cases, the manufacturer assumes the whole risk.

This plan has the merit of expedition, wherever it can be worked. It has the great demerit of involving house rental with labor problems and is probably the cause of the failure of so many industrial housing operations. As a principle in housing it is generally deprecated by students of the question.]

2. Making funds available to stock companies generally known as housing associations, either by advancing all or part of the money required, with provision for sale by the Government of its interest, after the war, at a residual value to be determined.

This plan has also the merit of expedition, and could no doubt be used quickly enough in certain places. It avoids any relation with the manufacturer, insures a probably good administration, and would undoubtedly work out a high post-war value.

3. Having the Government buy land and build houses.

This method was adopted by the British Government and applied on a colossal scale as indispensable to war production. It should be applied in this country with the utmost celerity as a means of stabilizing labor, relieving congestion, increasing vitality, and augmenting the industrial production which is so vital.

D. Types of Houses Required.

1. Single-family dwellings, whether built in units, of one, two, three, or four.

2. Houses adapted to the taking of boarders by a family or keeper.

[NOTE.—These are far preferable to the hostels built by the British Government, and designed to serve as dormitories. Inability to fix hours or prescribe the character of the occupancy soon developed great objection to their use, and many of those built are today only partially occupied, even in the face of serious congestion in the locality.]

3. Multi-family houses of the urban tenement type.

These offer quick and cheap solutions, wherever possible. They permit centralization of heating, lighting, laundries, etc., and will, in urban centers, house a family cheaper than by single houses or groups of two, three, or four family types.

4. Temporary structures.

These should be built only where the emergency compels. England found that the difference in cost between temporary and permanent construction, taking into account the application of the necessary utilities, made it wasteful to build in other than permanent fashion. Where the temporary structures are erected, their demolition should be made mandatory, since experience demonstrates that such structures develop into slums, as Galveston and San Francisco will bear witness.

E. Rentals.

Rentals should be calculated by taking into account local conditions and without direct relation to the cost of

*Submitted at a joint meeting of the American Federation of Labor and the Section on Housing, Committee on Labor, Advisory Council of National Defense, by Charles Harris Whitaker.

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the houses. The lowest rental consistent with conditions will prove a large factor in establishing labor contentment.

F. Facts to be Ascertained as Necessary to a Decision in Respect to C1, C2, C3, D1, D2, D3, D4, and E.

(1) Number of employees to be housed; (2) probable accessions; (3) number required for war emergency only; (4) proportion of men and women; (5) number of families and their range in size; (6) number of single men and women; (7) variations in race and character; (8) proportion of skilled to unskilled labor; (9) necessities for boarding houses; (10) necessities for providing meals only; (11) land available and its cost and relation to the service needed.

Each investigation should conclude with a suggested program covering:

A. In what manner funds can be utilized to the best advantage with respect to providing housing accommodations.

[NOTE.—Whether C1 or C2 is recommended, the plan of financing should be worked out. If C3 is advised, there should be definite suggestions as to D and E.]

B. The ability of the community to provide the necessary schools, public utilities, recreation, churches, and the usual community accessories which are vital to the success of any building operation. Where these are inadequate or lacking, they must be made a part of the program.

[NOTE.—England found it necessary to build schools, churches, halls, central kitchens, laundries, and other community services, as indispensable to the successful operation of her houses and the satisfaction of her workers.

It would be of the greatest value if these investigations could be made as quickly as possible, in order that they might all be compared at a general meeting, in order that each might have the benefit of the other's experience, and in order that a definite program might be put into effect with the least possible delay and with the greatest assurance of having been analyzed as carefully as the emergency permits. It must be remembered that we are on the verge of winter and that little time remains in which to rectify a situation which will be infinitely worse with the approach of cold.]

G. Central Administration.

There should be established a central authority in charge of every phase of the Government's relations to emergency industrial housing, preferably an independent commission.

No plans for houses, or subdivisions of land, or developments of properties in which the Government has any financial interest under such a program as has been outlined, should be permitted without the approval of the central authority.

Time is the essence of this program. It is impossible to overstress the necessity for taking the promptest action looking to the relief demanded by the necessity for speeding up production.

Industrial organization is the key to the duration of the war. The key to industrial organization is proper living conditions!

September 29, 1917.

Government Aid to Housing in War-Time—and After

By JOHN IHLDER
Secretary Philadelphia Housing Association

SIX MONTHS of war have already produced social and economic changes so great in the present, so much greater in their prophecies for the future, that all pre-war social policies must be tested anew. There is truth in the expression often heard at the National Conference of Social Work last spring, that the social problems of war are but an intensification of the social problems of peace, and that principles proved by long years of peace experience should still guide our action. But while principles remain the same, the intensification of our problems, their mere increase in size alone, make necessary new methods in dealing with them. And to size is added an almost feverish urgency.

In this addition lies our danger. Our problems must be dealt with, not only on an unprecedented scale, but immediately. Delay means such tremendous and immediate cost in life and treasure that we incline to close our eyes to any aftermath of possible mistakes. It is a time when men are prone to accept the Rooseveltian belief in quick decisions, even if nearly half the time wrong decisions. But decisions that are too far wrong can not be quick, no matter how hastily they are made, for they must be unmade. We have already had some notable instances. So before making quick decisions it is well to consider such evidence as is at hand.

In housing, the war has accentuated our problem, and especially along three lines. Along all of these lines the problem had been becoming more and more accentuated during the two or three years preceding the spring of 1917. So we have had some opportunity to study it in its new phases. These are:

1. A rapidly increasing concentration of population in existing industrial centers.
2. The creation, almost over night, of new industrial communities.
3. A rapid increase in the cost of building and of public services.

To these must be added, in many places, particularly the smaller ones, a spectacular rise in land values.

The stories of Bridgeport and of Flint are familiar and are typical of what is now taking place in many other industrial centers. Even Philadelphia, for all its size, has begun to feel the pinch. Two years ago it was overbuilt. Today it has few vacant houses for the wage-earner, and in some districts there is already overcrowding. Yet every day brings news of more factories and plants, of extensions to old ones. Meanwhile, the amount of new building construction is below normal. If present tendencies continue, and there is every evidence that they will unless energetic action is taken, Philadelphia must soon face conditions that will seriously threaten the health and strength of its wage-earning population. Like other old industrial centers it needs a firm enforcement of housing regulations. More fortunate than many, it has a housing code that, enforced,

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will guard it against the worst conditions, but unless the provision of new dwellings keeps pace with the demand, it will face an impossible situation. This provision of new dwellings involves not only house construction but extension of sewer system and water mains, the draining of wet lands, road building.

The problem in new communities does not differ in kind from that in the established industrial centers except in the minds of those who have the making of decisions. They are prone to believe that old methods which have provided wage-earners' housing in established communities will prove equal to the present emergency, forgetting that higher costs of materials and labor have a deadening effect upon an industry whose product is not used up at once but continues to exist over a long series of years, during the greater part of which it may have to compete with newer buildings more cheaply erected. Nor do they, or any others except those directly concerned, yet realize the havoc that has been wrought in some of our city departments by the drafting of the younger men. Munitions makers are exempted for they stand directly behind the men in the trenches. But back of them stand the men whose work means the maintenance of public health. In the newly created communities all this is clear. Where there are no houses it is obvious that houses must be built. Where there are no sewers or water it is obvious that these must be provided. But in the established communities it is assumed that such things grow of their own accord.

In the old days before war booms we had methods of securing these essentials that promised to be adequate, methods the very slowness of achievement of which was an argument in their favor in a democracy where the people should be convinced before being compelled, methods which in spite of their slowness still bade fair to outstrip the evils against which they were applied. But now, with our hothouse growth, with the minds of the people distracted from a study of social problems at home by the great drama abroad, we are in danger of permitting evils to develop so fast that it will be impossible to rectify them, even after the return of peace. As it is, the needs of the National Government that are bringing these conditions about, upon the National Government must be put the chief responsibility for checking them so far as possible. This it can do in three days.

1. With every contract should go a requirement that the men who work on that contract be properly housed. In peace times the progressive community that sought to secure new factories made much of its advantages for the worker; the more progressive manafacturers gave some consideration to the way in which their employees would be able to live. The National Government has a greater interest in the worker than has the employer. It can not discharge its broken-down citizens. An evidence of this interest would stimulate the communities that thrive or hope to thrive on war contracts. It would be tangible evidence that the maintenance of public health is also service to the nation.

2. The Federal Government, state and municipal governments should make capital for house-building available at low rates of interest. The Federal Government now is advancing the money for the building of factories. If there are not proper dwellings for the workers within reach of these factories, money for the erection of such dwellings also should be advanced.

In both the requirements to accompany contracts and the advance of capital for house-building, the Government should set definite minimum standards that must be met. For these houses will long outlast the war, and, both themselves and through their influence on succeeding developments, will affect the lives, not only of the present generation, but of succeeding generations. Moreover, the capital advanced should be surrounded by proper safeguards. We are dealing with an emergency, but what we do now is sure to establish precedents, good or bad. There should be three rules: the interest rates be such as will protect the Government against loss; the use of the money be given only to those who can be held responsible and who are bound not to make large profits; repayment be made in regular instalments over a long period of years.

Recognizing, as we perforce must, the abnormal cost of building at present, the Government might, until it has made good on the third suggestion, charge off a part of the cost as a war cost, leaving the amount to be repaid smaller than the actual investment. This, of course, presents practical difficulties. How much shall be so charged off will be a question, and it will be a separate question in each community, for in each the effect of the war upon building costs has differed. Consequently, it behooves the Government to undertake as quickly as possible the task of setting prices for building materials.

3. We are now setting prices for wheat and coal and iron. If we are to have enough houses for our army of workers we must set prices for brick and lumber, sewer pipes and water mains. Stability, some assurance for the future, is even more essential than a considerable reduction, important as that is, for work is now being held up because men dare not buy at today's prices for fear next week's may be lower and they be put at a ruinous disadvantage.

Speculative rises in land values have an even more definite effect upon housing than does an increased cost of materials. The ideal family dwelling is the detached small house with comfortable open spaces all around it. Every rise in land values makes approximation to this ideal more difficult. Where this rise is due to industrial activity based upon Government contracts, it would seem as fair a subject for conscription as the excess profits of munitions makers. An unearned increment tax taking all or the greater part of this rise would tend to check the rise—an advantage of the first magnitude from the housing point of view—and would supply funds for sewer and water extension and road building.

In our present emergency we are doing things that a year ago would have received scant consideration. Many of these we believe are temporary; with the return of peace we shall revert to old methods. But in no case can we be sure. All we can be sure of is that some of these emergency policies will become permanent. So, engrossed as we are now with meeting present needs, we should give some consideration to possible permanent results. Governmental advances of capital for house-building has long been practised in Europe, and was strongly advocated here before the war. It will meet an immediate need and, properly safeguarded, should be continued after the return of peace.

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An Undisturbed Section Showing the Peaceful Effect Produced by Stones of Uniform Size and Color

New Plans for Arlington National Cemetery

By CHARLES MOORE

AUGUSTUS SAINT GAUDENS made his direct contribution to the report of the Commission of 1901 on the Improvement of the Washington Park System in the shape of six paragraphs dealing with Arlington National Cemetery. That report recognized the fact that by the construction of the contemplated Memorial Bridge, Arlington and Fort Meyer would become a portion of the park system of the Capital.

"Nothing," wrote Mr. Saint Gaudens, "needs proper supervision and planning more than the modern cemetery. . . . Instead of being a place to which one may go with a feeling of respect and peace, as into a church or sacred place, the eye and the feelings are constantly shocked by the monstrosities which dominate in all modern cemeteries.

"There is no doubt that the feeling which pervades the majority of people who erect monuments to their dead is of the tenderest; a sincere desire to do nothing even in the simplest form which is not fitting and in entire harmony with the feeling that prompts the erection of the memorials. This feeling, if properly protected and guarded, would lead to the harmonious and sober treatment so necessary in such places.

"A great example of the effectiveness of such restraint and guidance is the extraordinary dignity, impressiveness, and nobility of the cemetery at the Soldiers' Home and also in that portion of Arlington Cemetery set apart for privates

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EXAMPLE OF THE CONFUSION CREATED BY THE INTRUSION OF HETEROGENEOUS MONUMENTS IN A ONCE QUIET SECTION

A SUPREME CASE OF THE SPOILING OF THE SOLDIERS' QUARTERS IN ARLINGTON

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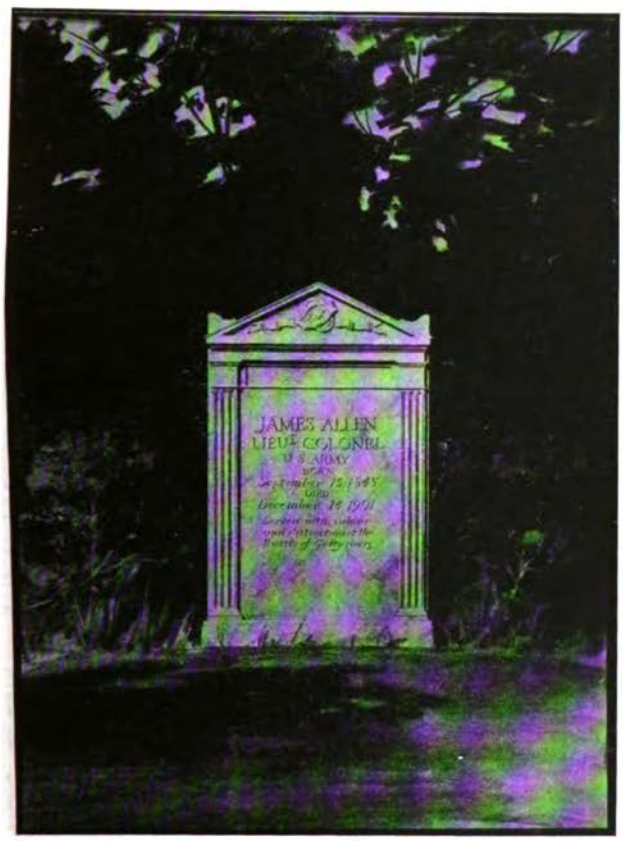
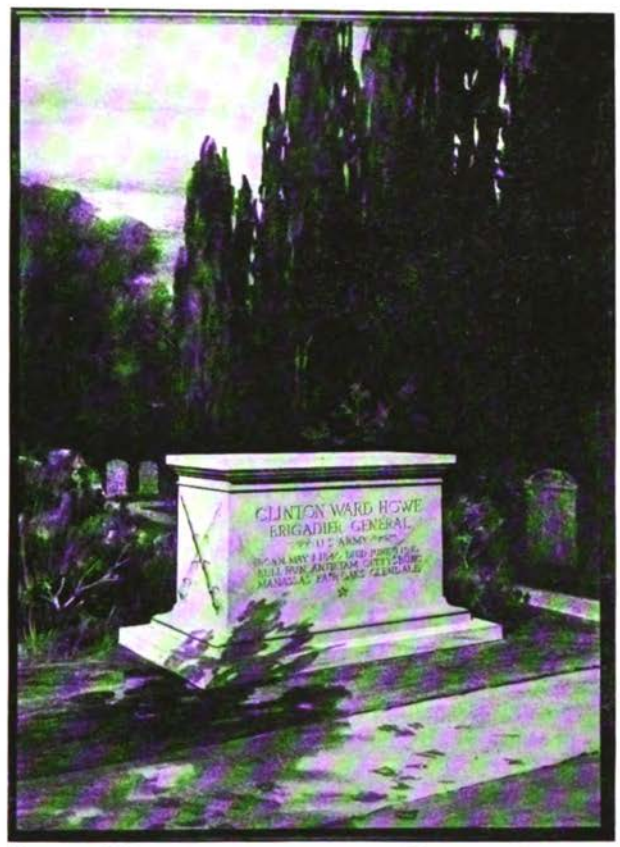
THE TOMB OF PETER CHARLES L'ENFANT, ERECTED IN ARLINGTON BY THE AMERICAN INSTITUTE OF ARCHITECTS. AN EXAMPLE OF QUIET DIGNITY

TYPICAL MONUMENT FOR ARLINGTON NATIONAL CEMETERY. FURNISHED TO THE SECRETARY OF WAR BY THE COMMISSION OF FINE ARTS. Designed by McKim, Mead, and White



TYPICAL STONE FOR ARLINGTON NATIONAL CEMETERY. FURNISHED TO THE SECRETARY OF WAR BY THE COMMISSION OF FINE ARTS. Designed by Charles A. Platt



TYPICAL MONUMENT FOR ARLINGTON NATIONAL CEMETERY. FURNISHED TO THE SECRETARY OF WAR BY THE COMMISSION OF FINE ARTS. Designed by Charles A. Platt

and unknown dead. This is not attained by any large monuments, but by the very simplicity and uniformity of the whole.

"The trouble is that the majority of the monuments now in the cemeteries are produced by firms who make it merely a business affair. To remedy this it is absolutely necessary that the designs of all monuments, from the most modest

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ANOTHER UNDISTURBED SECTION SHOWING THE PEACEFUL EFFECT PRODUCED BY STONES OF UNIFORM SIZE AND COLOR

to the most costly, should be subject to the approval of a commission composed of two or three architects and a landscape architect of the highest possible standing. They should lay out and design the cemeteries and establish rules for their proper supervision, and should control designs for future monuments in the cemeteries now existing.

"Nothing could be more impressive than the rank after rank of white stones, inconspicuous in themselves, covering the gentle wooded slopes [of Arlington] and producing the desired effect of a vast army in its last resting-place. Those spaces reserved for burials of officers, however, exhibit all the heterogeneous forms which disturb those very ideas of peace and quiet which should characterize a spot sacred to the tenderest feelings of the human heart.

"In particular, the noble slopes toward the river should be rigorously protected against the invasion of monuments which utterly annihilate the sense of beauty and repose. This is one of the most beautiful spots in the vicinity of Washington; it should not be defaced or touched in any way, and a rule or law should at once be passed forbidding the placing of any monuments on this hill."

No one of the pilgrims to be found, on any day, seated in contemplation of the memorial designed by Mr. Saint Gaudens in memory of Mrs. Henry Adams, in Rock Creek Cemetery, Washington, will question his authority on such a subject.

There is another more prosaic consideration. The admission to Arlington of any kind of a monument offered produces in this cemetery the domination of wealth as well as of bad taste. In a place where such distinction as is permitted should be governed by quality of service to the country, both wealth and favoritism vie with

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A Noble Slope Badly Disturbed and Defaced

eccentricity in forcing the attention of the visitor. So strong are these influences that they have already invaded even the soldiers' portions, so that the well-ordered ranks have been broken by replacing the simple stones with others which are marvels of bad taste. The effect is similar to that which would be made by permitting some of the soldiers on parade to appear in the nondescript garments of civil life.

Moved by the spirit of Mr. Saint Gaudens' forcible comments, the Commission of Fine Arts approached the Secretary of War, the Quartermaster General, and the officials directly in charge of Arlington. The response was immediate and in entire sympathy with the objects in view.

Rules have been promulgated limiting new monuments to 5½ feet in height and 7 feet in length, and providing that the designs shall be submitted to the officials before permission is given for their erection. Rock-faced and highly polished surfaces have been forbidden. Moreover, further substitutions in the soldiers' quarters are not permitted in cases where such changes would disturb the present good order. As was to be expected, these rules have brought forth objections from persons who desire the display of individuality or eccentricity or wealth, and sometimes, also, by well-intentioned people who do not or will not understand the spirit which has prompted the new regulations.

The Amphitheater now approaching completion will have crypts for the reception of the remains of those who have served their country in a signal manner, and hereafter there will be no excuse for conspicuous monuments. Probably the distinction of a place in this amphitheater will make it possible to free the slopes toward the river from the monuments which now deface them.

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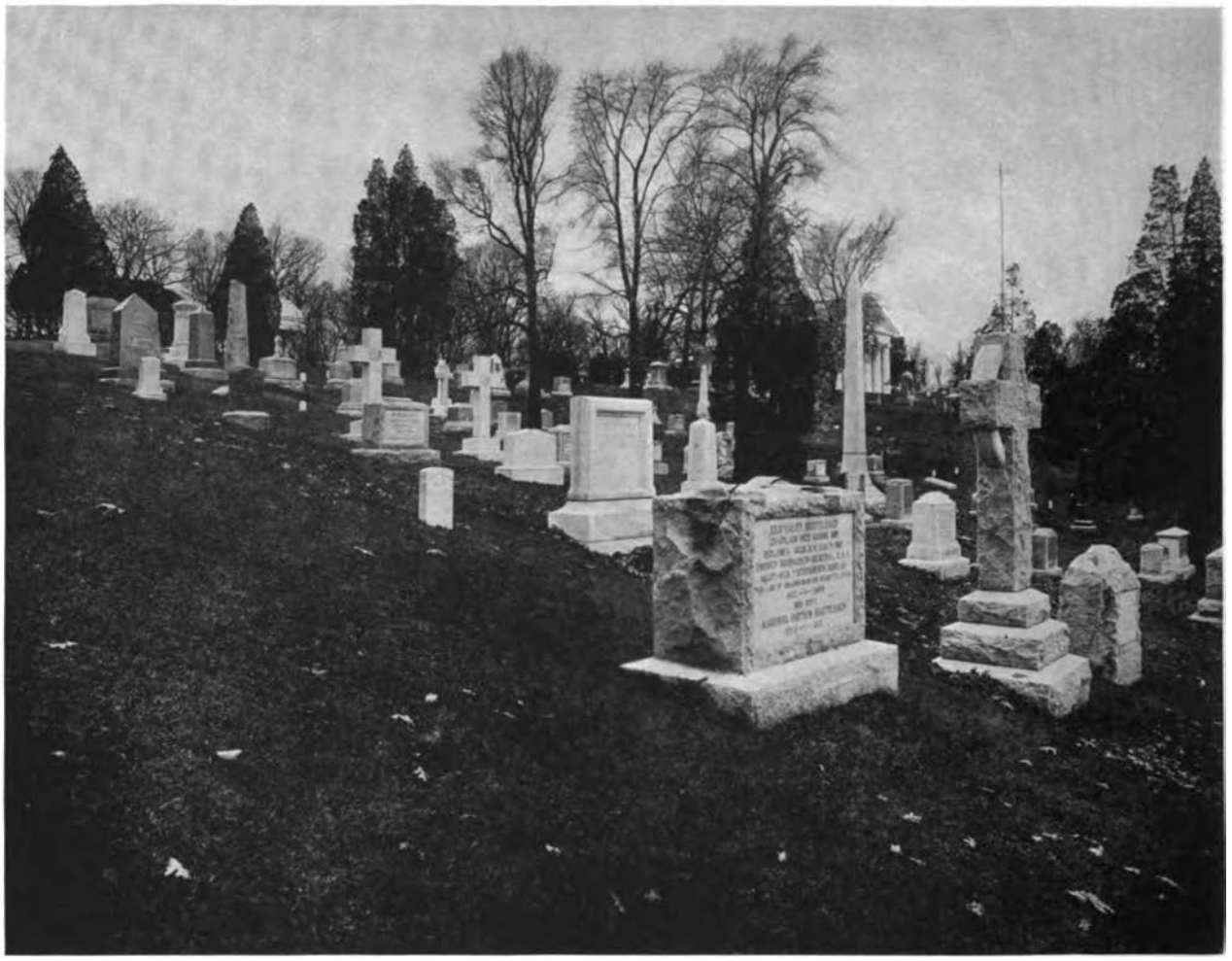

RIOTOUS CONDITIONS IN THE OFFICERS' QUARTERS AT ARLINGTON

The portions of Arlington occupied by officers' graves can never be brought into entire harmony. There is, fortunately, a considerable area to the east which has not even been plotted. In the midst of this area the remains of Admiral Dewey will rest. Here, then, is an opportunity to lay out a considerable portion of Arlington and to improve it along lines dictated by good taste, dignity, and respect. Moreover, the enormous increase in the Army, and the certainty that the present war will have its dire results, makes it imperative to provide a much greater area than is now available. The time to begin this work of planning and enlargement is now, before emergency causes hasty action and thereby forces bad results. The Government has undertaken to provide burial-places for its defenders. It should do so in such manner as to show due respect both to them and to itself.

The best practice of today minimizes the monument and emphasizes the landscape. By the use of native trees and shrubs the place of the dead is made quiet and peaceful. In the newer portions of Arlington the quiet of hill and vale, of wooded slopes and green plains, should be preserved that the cemetery may perform its true function as a resting-place for the warrior and also for those who would pay respect to his memory.

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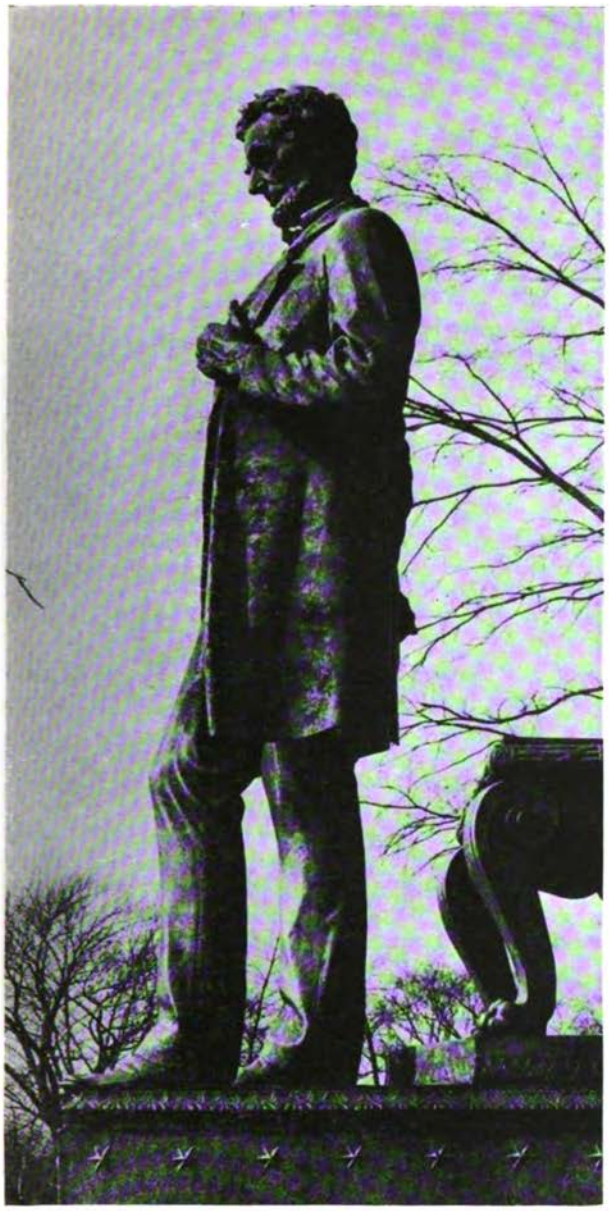

St. Gaudens' Lincoln
Photograph copyrighted 1909 by J. E. Yoreman
Courtesy of the Commission of Fine Arts

Barnard's Lincoln
Photograph copyrighted by the Perry Studio, New York

The Barnard Lincoln to Go to London

IN THE discussion aroused over the proposal to send to London a replica of the statue of Lincoln by George Gray Barnard, the arguments for and against have been nowhere brought forward with greater clearness than in the editorial columns of the New York *Tribune* and the Philadelphia *North American*. From these editorials we reprint, on the following page, such portions as are possible within the space limits at our disposal, although each argument is so carefully built up as to suffer somewhat by abridgment. While it is unfortunate that the writers' names are unknown, since the personal equation, as it rests upon a general attitude, should always be known in valuing a criticism, these two opinions are so synthetic of the general arguments which have been advanced as to lose less in their anonymity than would otherwise be the case. The British Parliament have now accepted the Barnard replica.

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On Monuments

From the New York *Tribune*

In the controversy over the statue of Lincoln which it is proposed to erect in London, much heat has been expended in denunciation of Mr. Barnard's production as a portrait. This is natural and proper. The sculptor's uncouth conception of his subject offers a point of attack as vulnerable as it is obvious. But it is not by any means the only invitation to criticism. This episode revives in acute form the whole question of what we can only describe as artistic manners. These—if the testimony of civilized peoples in all ages is worth anything—are explicit on the dignity essential to a public monument. Consider the largeness, the grandeur, of every great statue that has really withstood the test of time. Consider the majestic, impersonal character of Greek sculpture and the severe stateliness of Roman, the nobility superadded to the realism of heroic statuary in the Italian Renaissance, and the measured, orderly style predominant in modern France. This uniform tendency through the historic schools has never been determined by any vulgar triumph of academic formulas over individual creative genius. It has expressed, simply, mankind's innate sense of things, the natural human conviction that a public monument, as distinguished from the statue in a private gallery or from the purely decorative work of art, should be, above all things, monumental.

We are not playing with words, bringing "monumental" forward as a sort of esoteric mumbo jumbo, behind which we might mean anything we chose. This particular word has not only a fixed meaning, but certain inalienable associations. The same lexicographer who defines a monument as "anything erected to perpetuate the memory of a person or an event," is careful to indicate that what is "monumental" is, among other things, "impressive," thus recognizing the eternal play of that universal instinct to which we have referred. How clearly the poets drive at this point! How consistently they portray their hero with an effort to detach him from his ordinary surroundings, to charge their every stroke with at once the truest and the loftiest meaning, to free the core of his character from petty details, to synthesize his traits and thereby to simplify them—to idealize him, in a word, and by virtue of so doing to make immediately comprehensible to the world, not alone his outward seeming, but the very soul of him.

It is, then, not alone because Mr. Barnard's Lincoln is revolting as a portrait that . . . the donor of the bronze, should . . . ponder, also, this large question of artistic manners, this principle of framing a public memorial with a decent respect for the opinions of mankind, for the unchanging traditions of a special form of art. He is known as a collector of old masters, a connoisseur of fine things. Let him, in that capacity, ask himself which statue comes the nearer to matching the Lincoln of Lowell's ode—Barnard's or the masterpiece by Saint-Gaudens in Chicago, a replica of which could surely be procured. Before which one of them will the people of Great Britain pause in recognition of the true representative of this country in the Civil War, set before them purged of all unimportant traits, made manifest in truly heroic mould—a figure not of Illinois and yesterday, but of America and all time?

Which Lincoln Shall We Send?

From the Philadelphia *North American*

If a Lincoln is to stand in the shadow of those venerable walls (London), by all means let it be Barnard's Lincoln. Not because it is Barnard's—but because it probably is the nearest possible approach to that rarest of achievements in imagery—the exposition in one figure of both the physical and the spiritual stature of the subject.

. . . . . .

If there is to be shown in the land of Magna Charta a likeness of the great apostle of freedom, let it be as nearly as possible a real one. . . .

For if ever there lived a man who hated even the small and commonly overlooked deceptions, that man was Lincoln. It would be hard to conceive a personality more free from any desire to look or seem what it was not. Indeed, it is one of the bases of his greatness that he had no affectation of voice, glance, or manner. The very essence of his nobility is to be found in his own complacent acceptance of his gnarled physical nature. It was this as much as anything else that lent force and power to him.

. . . . . .

Already the world is overweighted with sand-papered "ideal" effigies of men and women whose work and worth make them worthy of such perpetuation. . . .

Why any American should—how any American could—object to the setting up in other lands of this real likeness is not easy to understand.

If it be that the showing of big bony hands, broadened and toughened by grasping the ax and lifting heavy burdens, should displease peers whose manual digits are soft and tapering, let it be remembered that most of the common people Lincoln loved and blessed are themselves possessed of hands akin to this kind and that their hearts must be quickened and their souls uplifted by the sight of such in one whose name is immortal. . . . . .

If the idea of these objectors is to export some fictional figure expressive of freedom, let them plead for an idealized Goddess of Liberty, which will mean just as much in front of the houses of Parliament as it does on the quarters and halves and dollars of our national currency. But if we are going to send a Lincoln to voice silently the meaning of freedom, let us send that Lincoln who lived its meaning and through whom the God of freedom made manifest to mankind the essentials of democratic personality.

The very fact that Barnard's Lincoln does accentuate the homeliness and soul-kinship of the man is the best argument in behalf of its selection for this purpose. It is that which makes of this unique likeness an inspiring and enthusing influence. For a majority of those who will pause before it in London will be homely men, and made more so by years of toil and struggling. And these may be led by this Lincoln to a larger, truer estimate of their own and their children's possibilities. . . .

On that face and in that figure, as Barnard has preserved them for all time, is written enough to tell the most ignorant peasant something worth knowing about the humanity of democracy. If this is not the purpose behind such a gift, then let the gift remain ungiven. And if there be any higher purpose, let some spokesman step forth to outline the manner in which it may be expressed.

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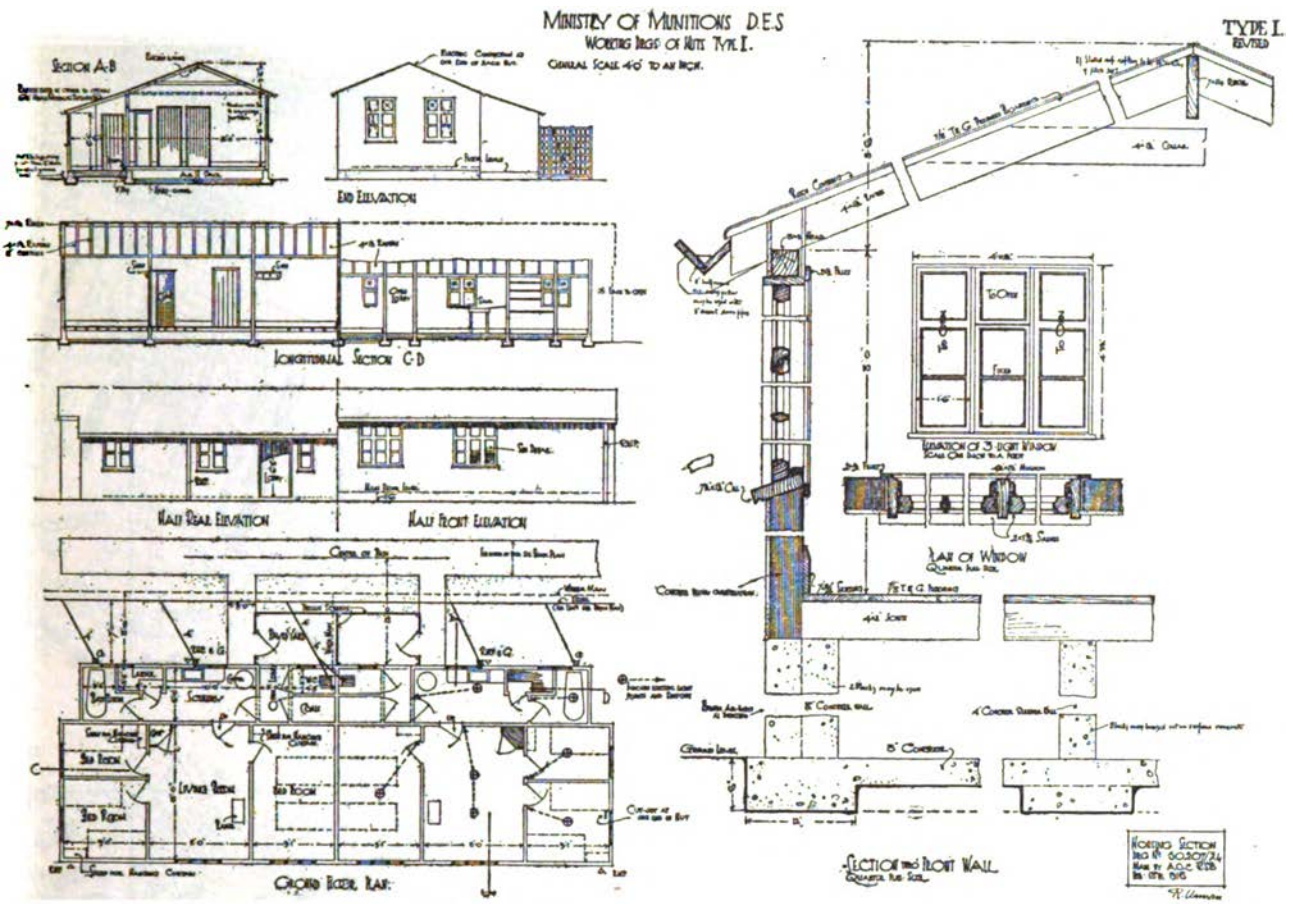

CLASS 1, TYPE I. TEMPORARY HUT FOR TWO FAMILIES — EASTRIGGS

Eastriggs

AN INDUSTRIAL TOWN BUILT BY THE BRITISH GOVERNMENT

EASTRIGGS is another of the British Government's housing operations and of quite a different character from Well Hall, illustrated and described in the September Journal. Whereas Well Hall consists entirely of permanent dwelling houses, Eastriggs consists also of temporary and semi-temporary huts, permanent cottage shells temporarily connected and used as hostels, and temporary hostels of various sizes. Altogether, the buildings are of four classes: (1) Huts, (2) cottage shells used as hostels, (3) completed cottages and staff houses, (4) shops, schools, churches, recreation buildings, and other accessories of a small town.

The huts of Class 1 include all buildings of temporary or semi-temporary character, built of concrete in blocks or slabs and wooden framing covered with stucco or weather-boarding on the outside and lined with wallboard or asbestos sheets on the inside. These huts are of three types: (I) Pairs of semi-detached family huts each having three bedrooms, living-room, scullery, bath, and other accessories. (II) Small hostels containing ten beds, which may be used for single lodgers or for a family taking in lodgers. These are readily converted into Type I and are very popular, being used by operatives, members of the staff, and often as larger houses by officials of higher grade. (III) Large hostels in which about 100 single men or women may be lodged, either in open dormitories or in dormitories fitted with cubicles. Inability to fix hours or prescribe the character of occupancy soon developed great objection to the use of these large hostels, and many of them are today

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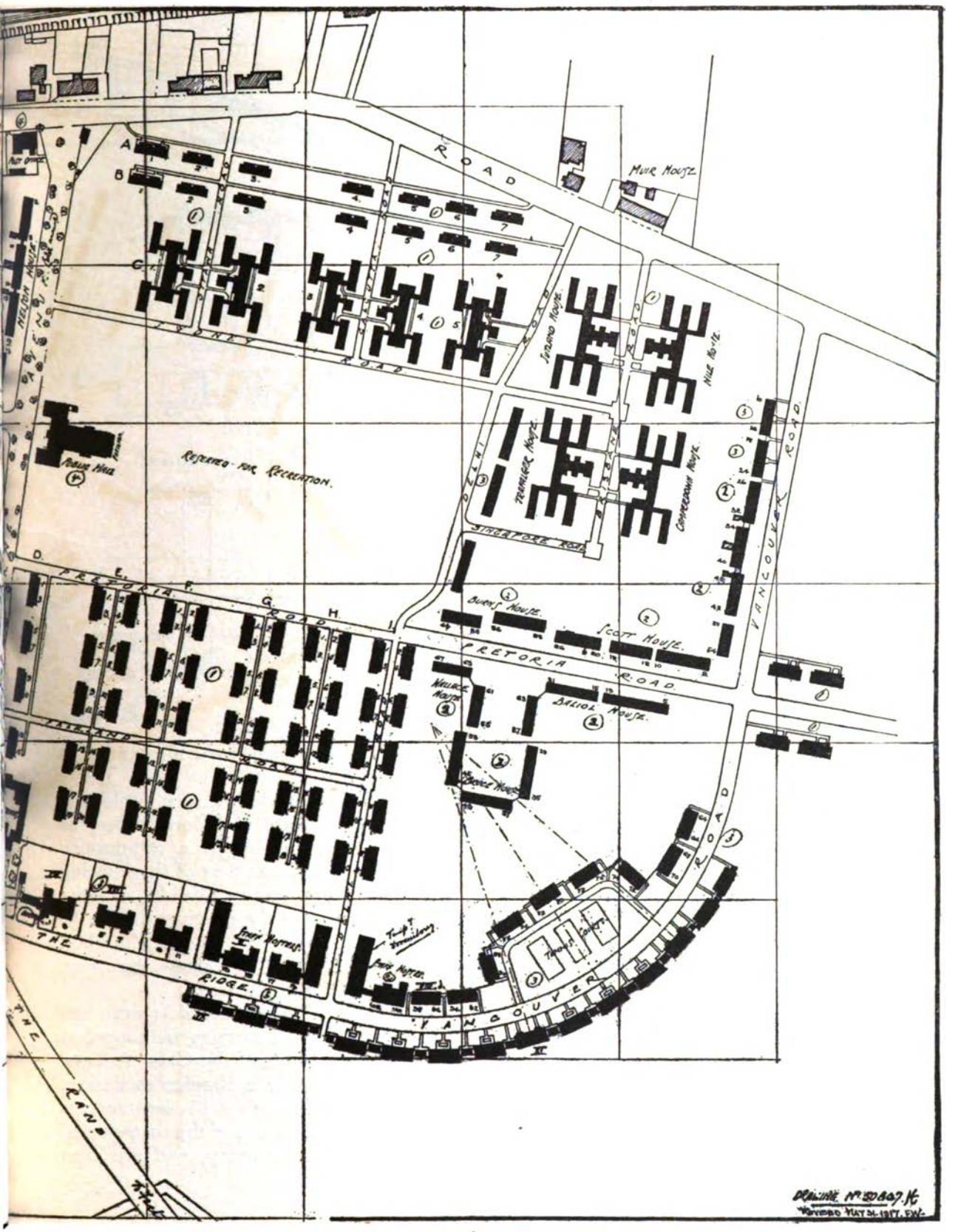

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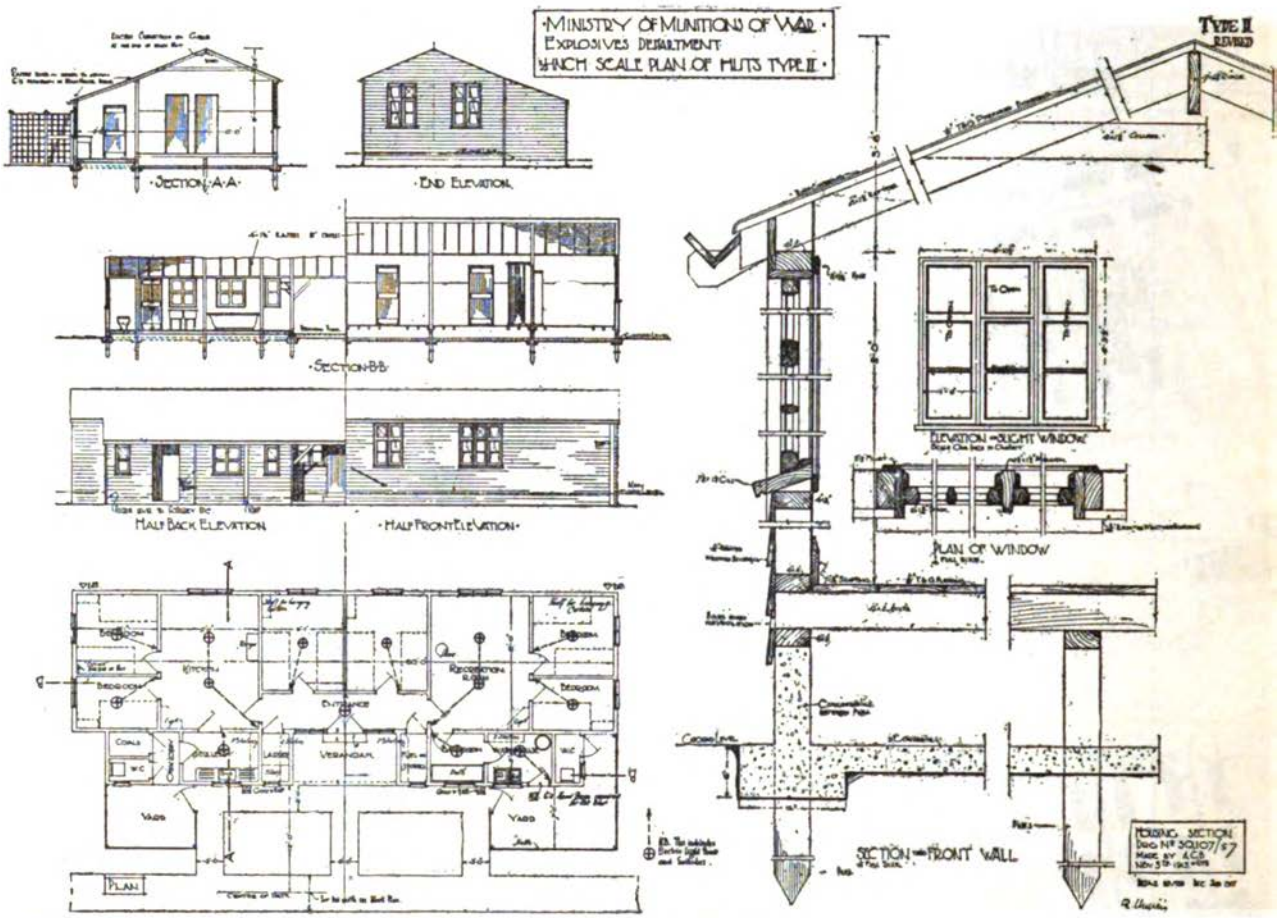

CLASS 1, TYPE II. TEMPORARY SMALL HOSTEL CONVERTIBLE INTO TYPE I — EASTRIGGS

only partially occupied, even in the face of serious congestion in the locality.

Cottage shells temporarily used as hostels, Class 2, can easily be converted into permanent family cottages. These were adopted because it was found that the cost of temporary buildings as described under Class 1, was, after taking into account the necessary expenditures for water-supply, drainage, and road-work, so little less than that for permanent buildings that it was poor economy to erect temporary houses except only where urgence of the short time available demanded it.

These hostels usually consist of groups of three blocks of four cottages each, the blocks being connected with temporary corridors and arranged either in a row or around three sides of a quadrangle.

The completed cottages and houses, Class 3, are quite similar in plan and construction to those of Well Hall, which were illustrated in the Journal last month.

Under Class 4 are included such buildings, outside of actual houses and dormitories, as may be needed for the life of a community center. These were built as part of the housing scheme where the adjacent already existing town did not conveniently provide them. In this class are included not only schools, churches, and recreation buildings, but shops, bakeries, laundries, and central kitchens.

It is very interesting to note that even the most temporary of the Eastriggs buildings, as shown in the illustrations of the Class 1, Type I, huts, although they are simpler in design, will compare very favorably in construction with permanent small houses of the cottage and bungalow type in this country, and are even better than many of these.

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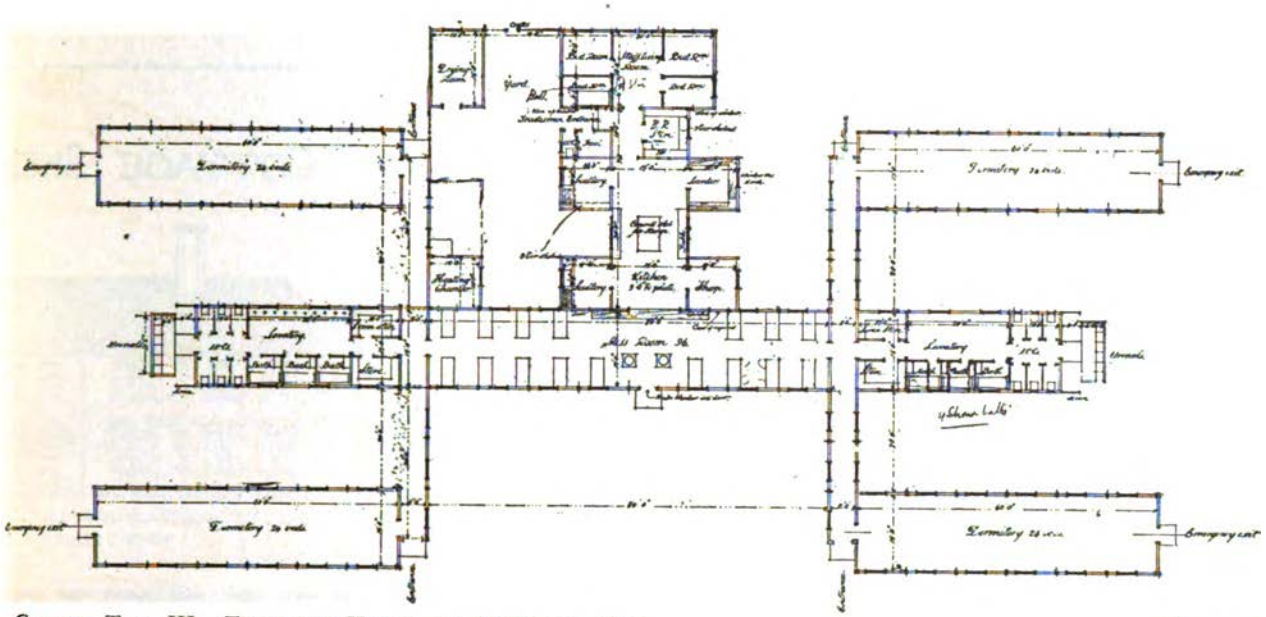
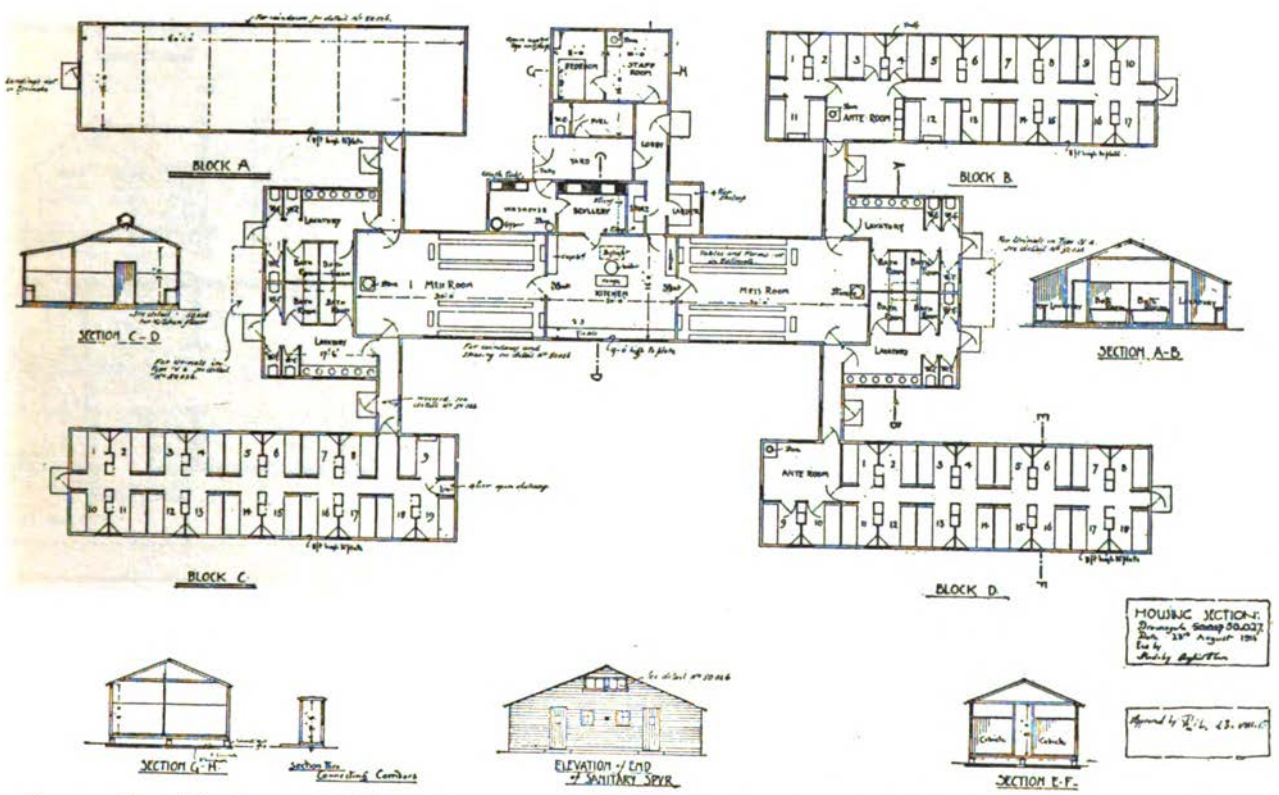


CLASS I, TYPE III. TEMPORARY HOSTEL FOR NINETY-SIX MEN

EASTRIGGS



CLASS I, TYPE III. TEMPORARY HOSTEL SHOWING FOUR ALTERNATIVE ARRANGEMENTS OF CUBICLES

EASTRIGGS

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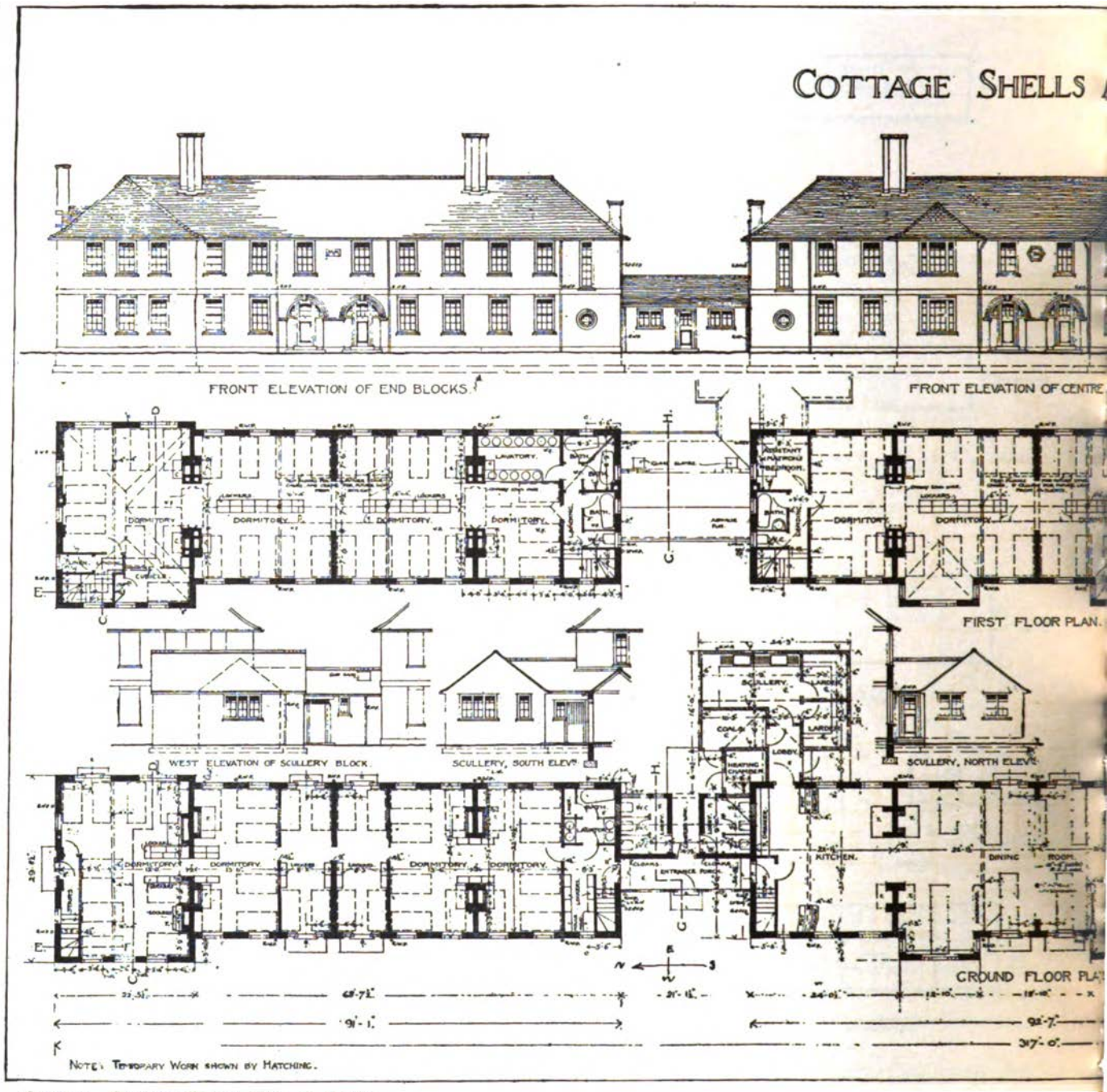

CLASS 2. COTTAGE SHELLS USED AS HOSTEL

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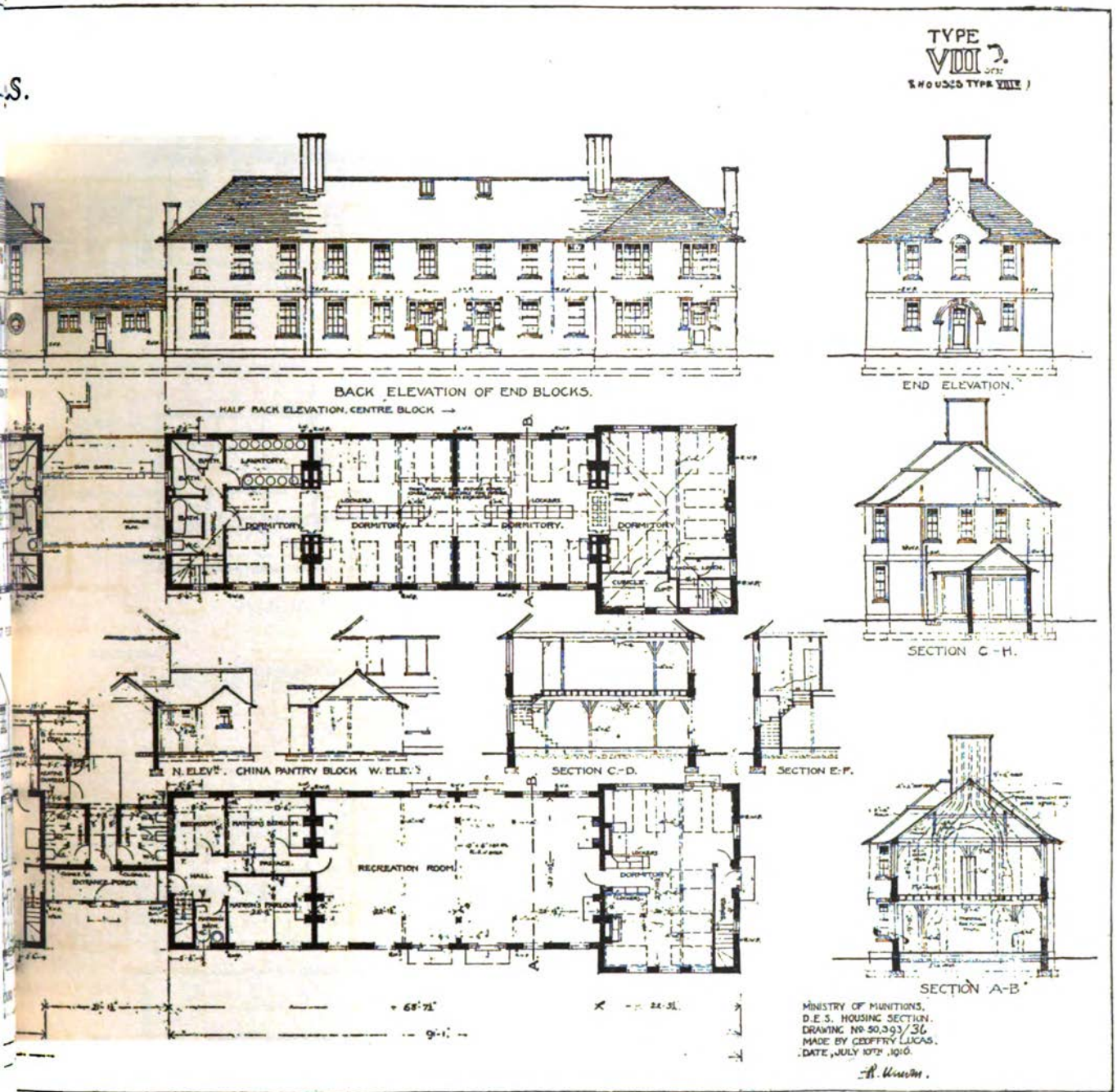

EASTRIGGS

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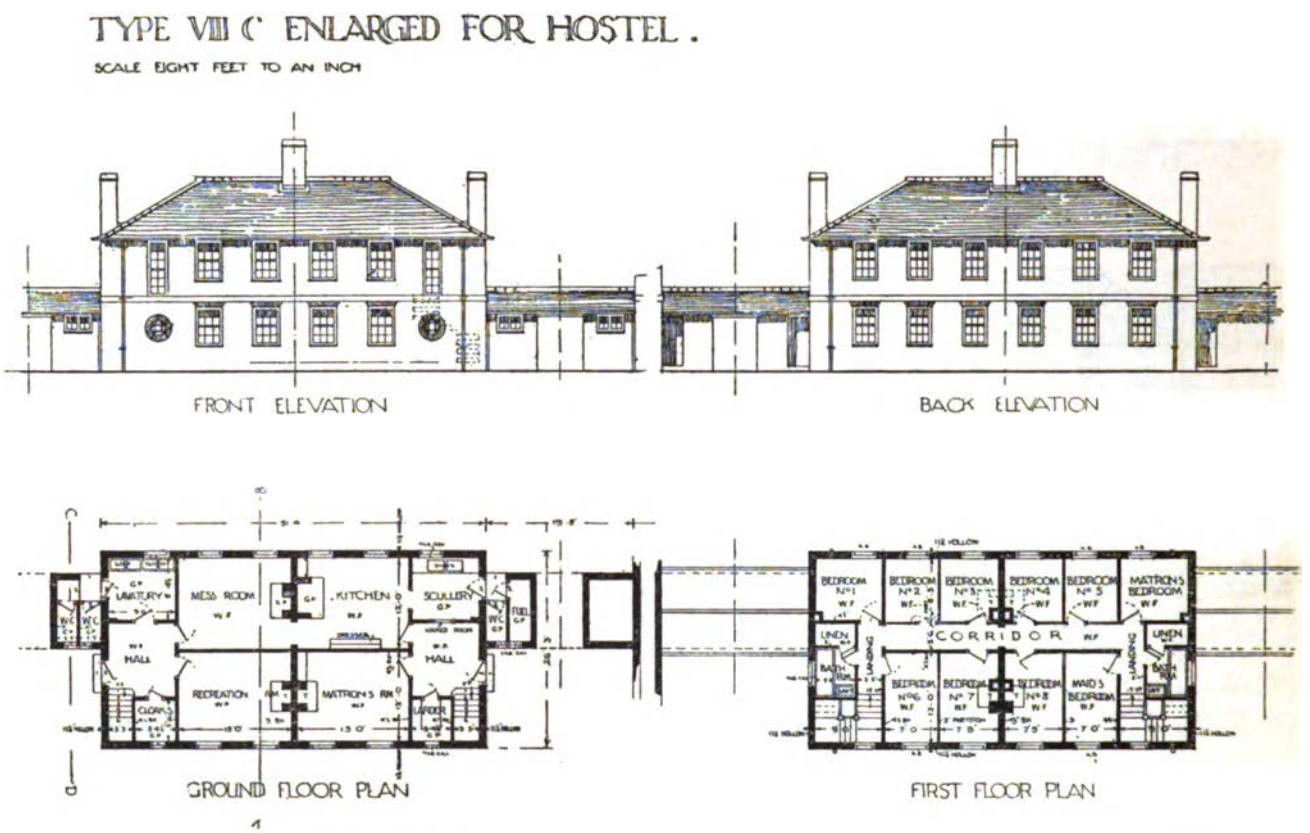
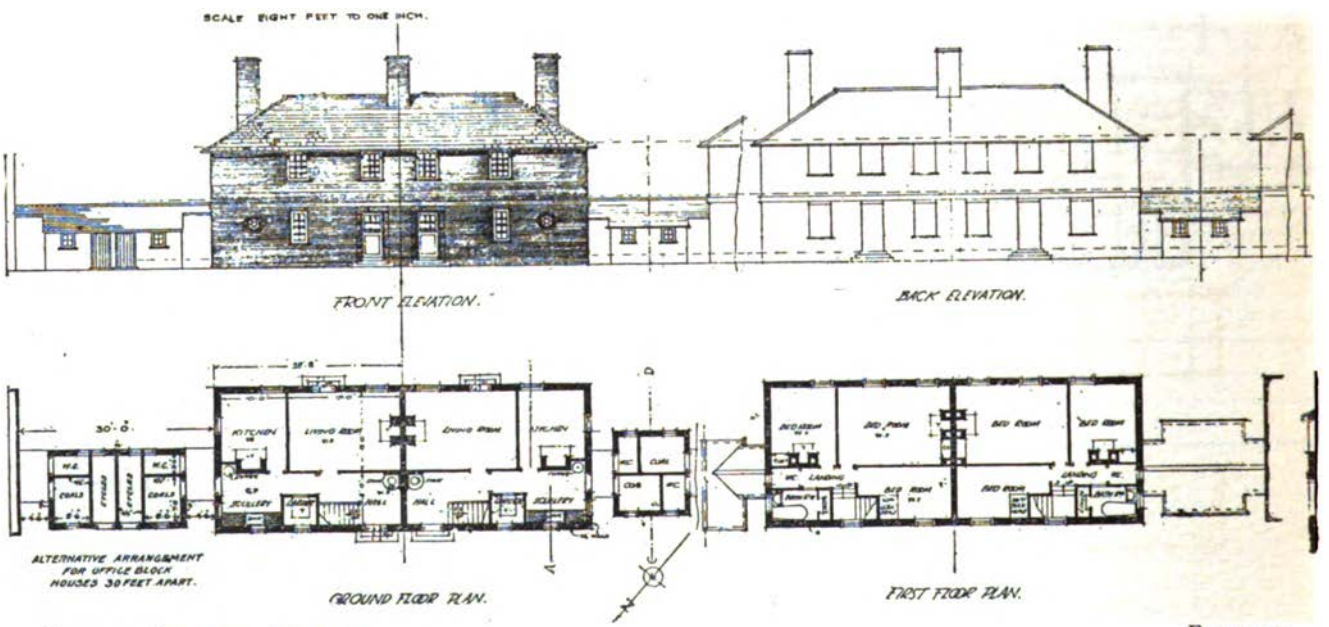


CLASS 2. COTTAGE SHELLS USED AS HOSTELS

EASTRIGGS



CLASS 3. PERMANENT COTTAGES

EASTRIGGS

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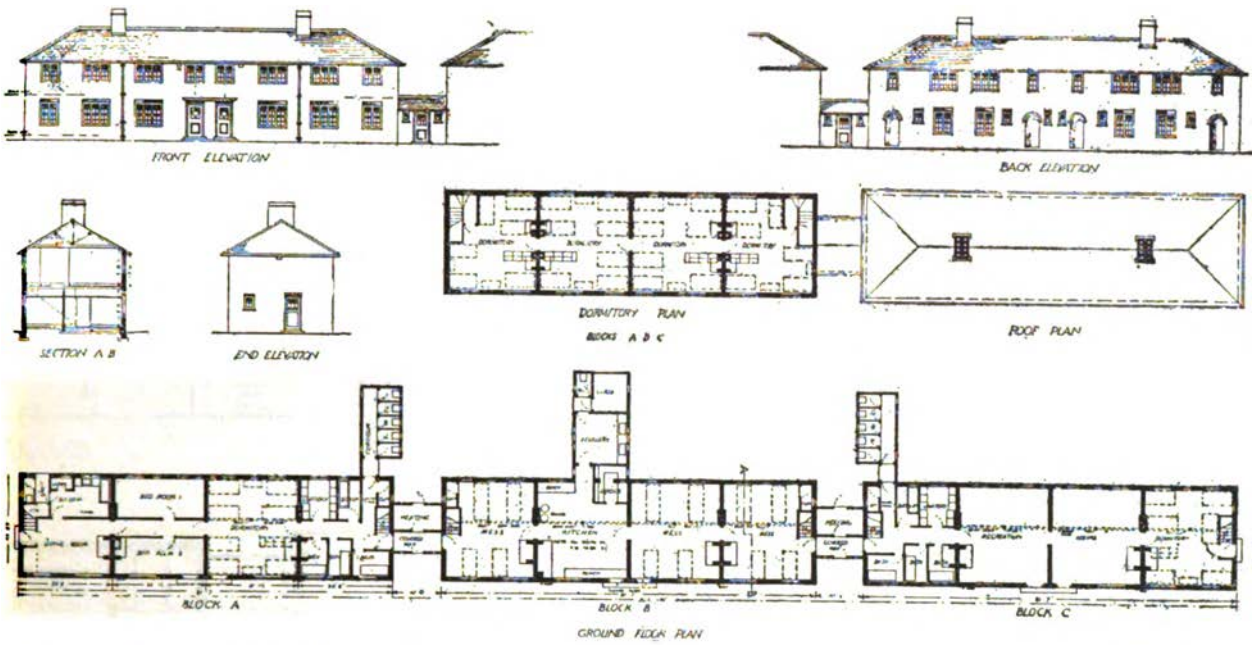

CLASS 2. COTTAGE SHELLS USED AS HOSTEL — EASTRIGGS

CLASS 3. PERMANENT HOUSES — EASTRIGGS

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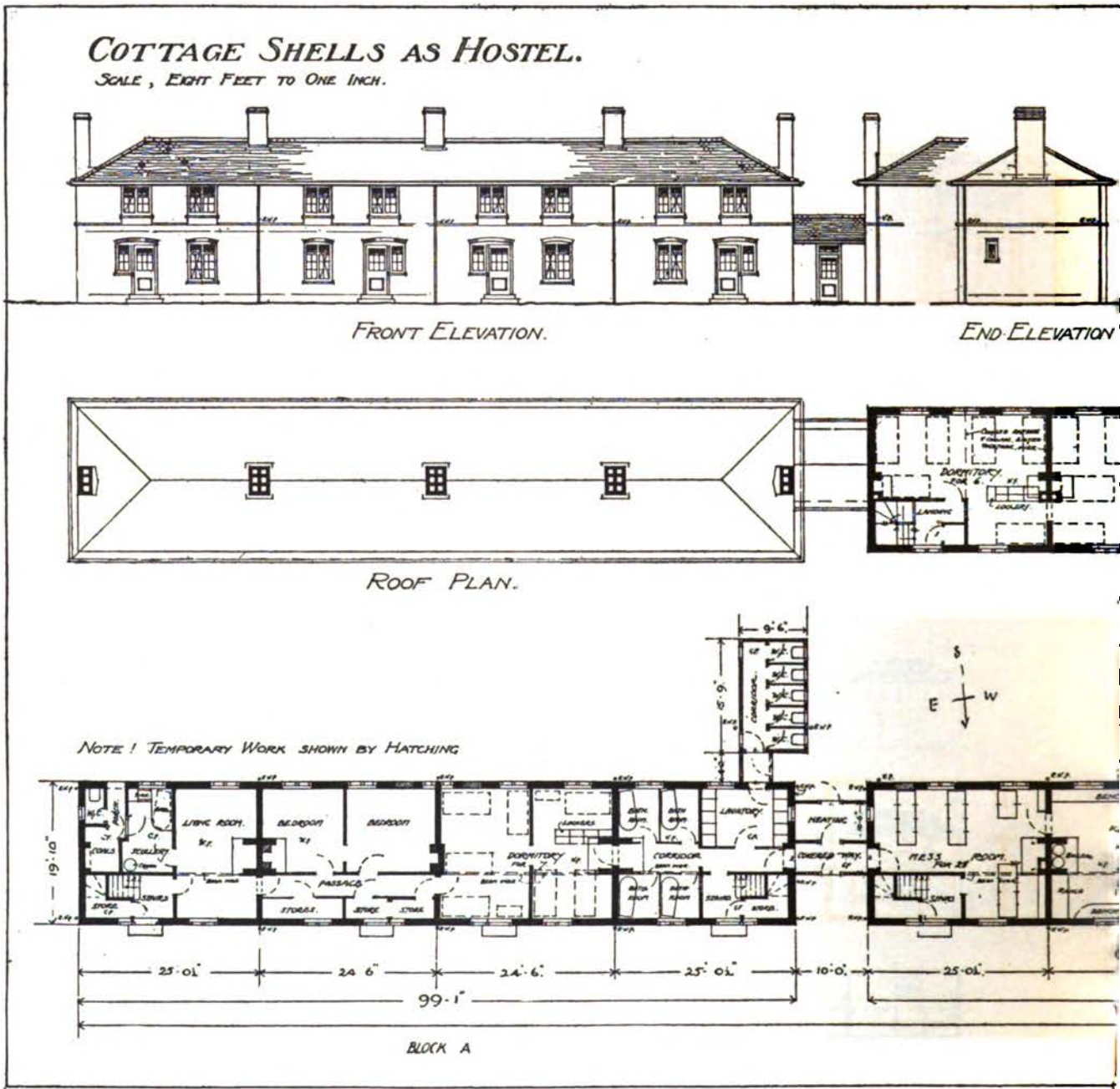

CLASS 2. COTTAGE SHELLS USED AS HOSTEL

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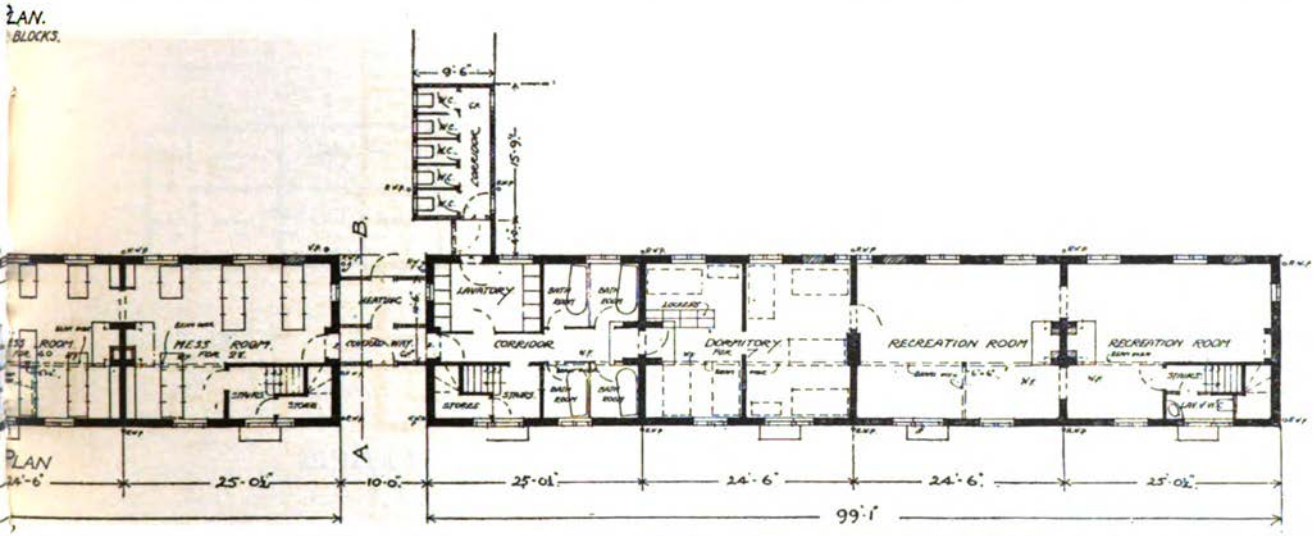
TYPE VB.

V. SECTION A-B. BACK ELEVATION.

LAN.
BLOCKS.



PLAN

BLOCK C

MINISTRY OF MUNITIONS.
D.E.S. HOUSING SECTION
DRAWING NO 50.A.4.6.
HOUSE BY A.O. CORE, CLOSTER LUCAS
REVISED AUGUST 31ST 1916.

EASTRIGGS

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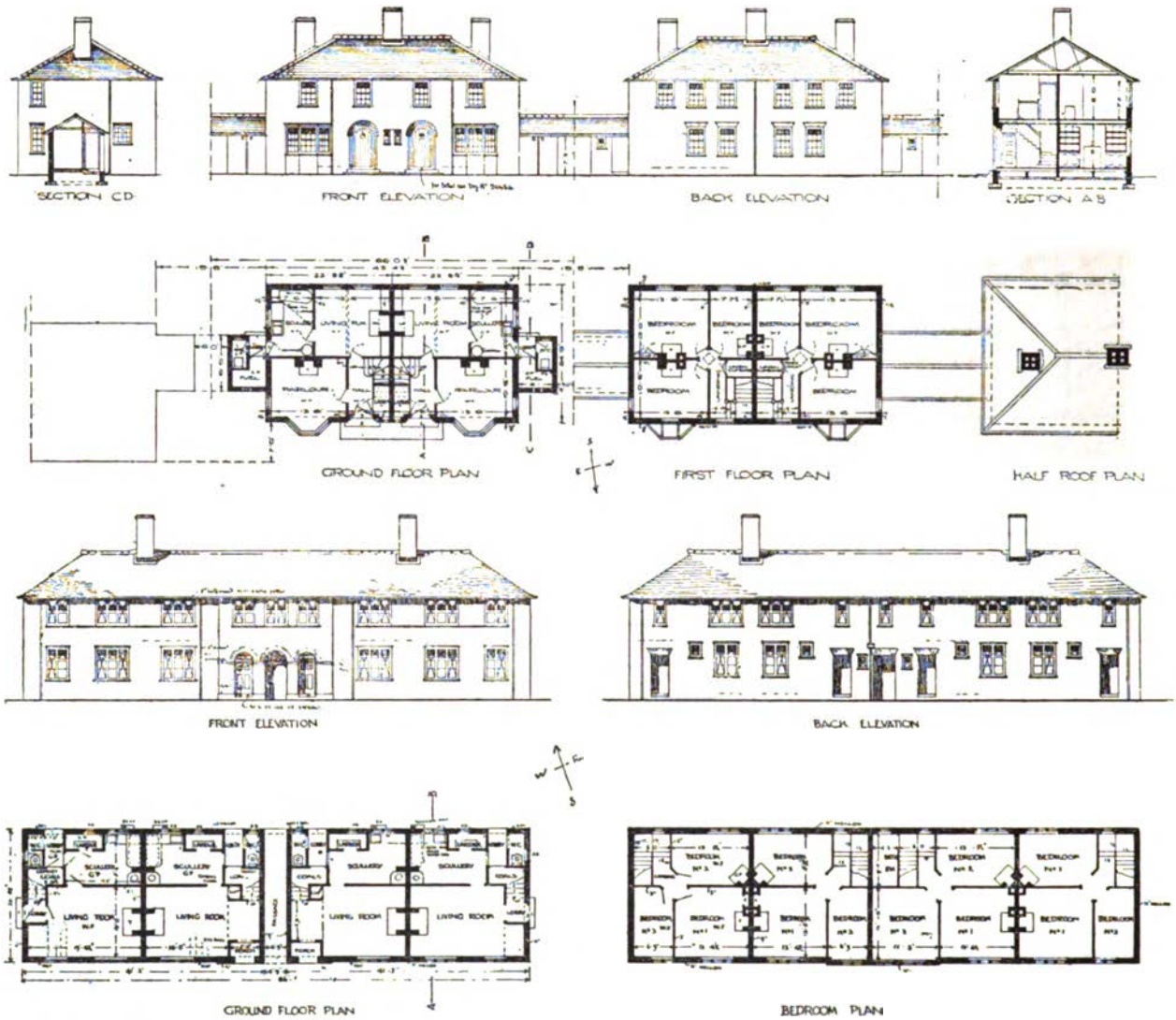


CLASS 3. PERMANENT COTTAGES

EASTRIGGS

Bibliography

SELECTED LIST OF REFERENCES ON INDUSTRIAL HOUSING

Periodicals

Journal of the American Institute of Architects. Washington. Vol. 1, January, 1913, to date. Monthly.

Garden Cities and Town Planning. Garden Cities and Town Planning Association. London. Vol. 1, October, 1904 to date. Monthly.

The Town Planning Review. The Journal of the Department of Civic Design at the School of Architecture of the University of Liverpool. Liverpool. Vol. 1, April 1910 to date. Quarterly.

Gardenstadt. Mitteilungen der Deutschen Gartenstadt-Gesellschaft. Karlsruhe. Vol. 1, 1907 to date. Monthly. Vol. 4 to date in New York.

Conservation of Life, Public Health, Housing and Town Planning. Commission of Conservation, Canada. Quarterly.

Societies

International Garden Cities and Town Planning Association. (Formation and meeting, August, 1913.) Garden Cities and Town Planning, September, 1913. Vol. 3, pp. 224–226.

Garden Cities and Town Planning Association, London. Report, etc.

Town Planning Institute (British).

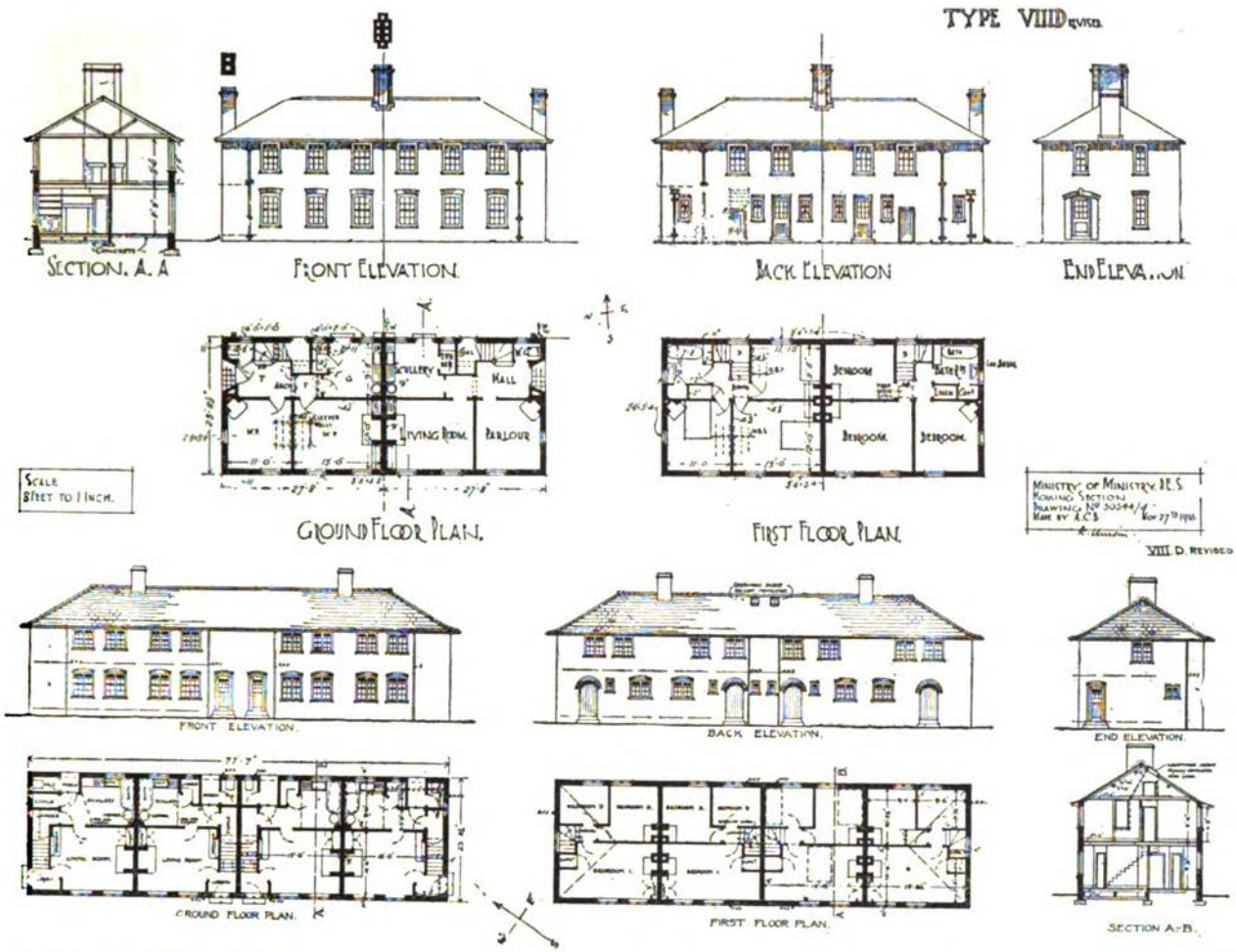
Deutsche Gartenstadt-Gesellschaft.

Congresses. Conferences

National Conference on City Planning. Proceedings, published by the Conference. Boston.

National Housing Conference. Proceedings, published by the Conference, New York.

Digitized by Google



CLASS 3. PERMANENT COTTAGES — EASTRIGGS

Garden City Association, London. Town Planning in Theory and Practice. A report of a conference arranged by the Garden Cities Association, held at the Guildhall, London, on December 10, 1909. Edited by Ewart G. Culpin, London. P. S. King & Sons. 1910. 72 pp.

Royal Institute of British Architects. Town Planning Conference, London, 1910. London, The Institute, 1911. 812 pp., illustrated plans.
Notices of conference may be found in Town Planning Review, October, 1910, Vol. 1, pp. 178–219, which has text of several papers, and in Landscape Architecture, January, 1911, Vol. 1, pp. 91–93.

Liverpool Town Planning and Housing Exhibition, 1914. Transactions of Conference. University Press, Liverpool. 1914. Fully illustrated.

General Works

Unwin, R. Town Planning in Practice: an introduction to the art of designing cities and suburbs. London. T. Fisher Unwin. 1909. 416 pp., valuable illus. and plans. 2d edition, 1911, and 3d impression, 1913, with revised introduction. Page references to body of text (used in this list) hold good for all editions.
Also translated into German, 1910.

Nolen, John, Editor. City Planning: a series of papers presenting the essential elements of a town plan. D. Appleton & Co., New York. 1916. 447 pp., illus.

Birmingham, Eng., General Purposes Committee. Report to the General Purposes Committee of the deputation visiting Germany and Austria in May and June, 1910, for the purpose of studying town development. P. Jones. Birmingham. 1911. 54 pp., illus. plans.

Bird, Charles S., Town Planning for Small Communities. D. Appleton & Co., New York. 1917. 492 pp., illus.

American Academy of Political and Social Science. Housing and Town Planning. The Academy, Philadelphia. 1914. 296 pp. (Annals, Vol. LI.)

Nettlefold, J. S., Practical Town Planning. London. 1915. 200 pp., illus.

Unwin, R. What Is Town Planning? (An extract from a lecture.) Garden Cities and Town Planning, January 1912, n. s. v. 2, pp. 11–15.

Aldridge, Henry R. The Case for Town Planning. National Town Planning and Housing Council, London. 1915. 600 pp., illus. and plans.

Cadbury, George, Jr. Town Planning with Special Reference to the Birmingham Schemes. Longmans, Green & Co., New York. 1915. 201 pp. illus.

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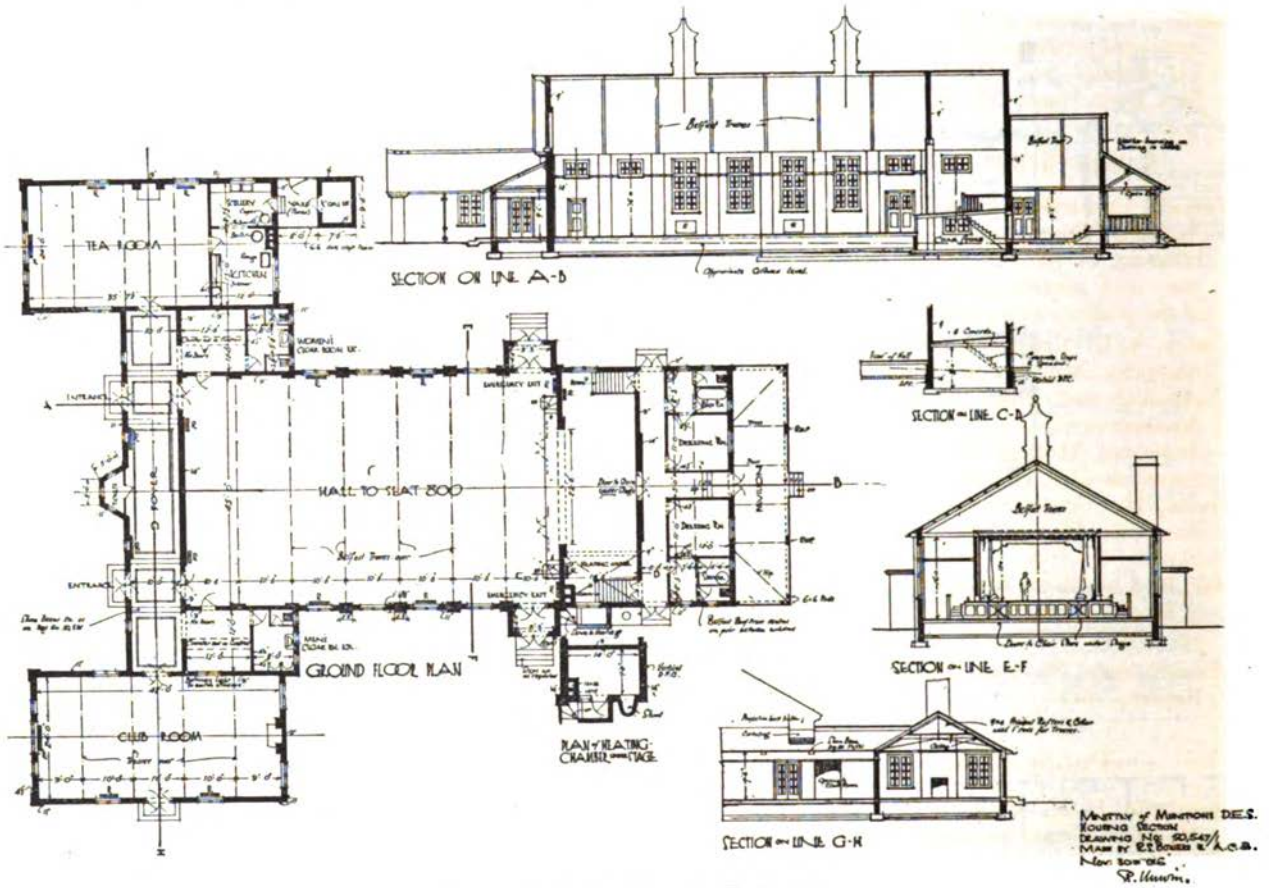

CLASS 4. PUBLIC HALL AT EASTRIGGS

General Acts

Great Britain. Parliament, 1909. Housing, Town Planning, etc., Act, 1909. Eyre & Spottiswoode, London. 46 pp. The Local Government Board has published annually a Memorandum on the progress of the Act. Manuals of the Act have been prepared by Barrow, Bentley and Taylor, Casson, Glen, Howkins, Jack, Nettlefold, Thompson, White, and others.

Adshead, S. D. The Town Planning Act; its administration and possibilities. Town Planning Review, April, 1910, Vol. 1, pp. 44–50.

Dowdall, H. C. Procedure Regulations of Town Planning Act. Town Planning Review, July, 1910, Vol. 1, pp. 129–131.

Shurtleff, F. The English Town Planning Act of 1909. In Proceedings of second National Conference on City Planning, 1910, pp. 178–182.
Also in American City, Nov., 1910, Vol. 3, pp. 229–231.

Town Planning and Town Training. The scope and limits of the Town Planning Act. In Royal Institute of British Architects, Town Planning Conference, London, 1910, pp. 524–533, plans.

U. S. Department of Labor. Government Aid to Home Owning and Housing of Working People in Foreign Countries. Bulletin, whole Number 158 Miscellaneous Series, No. 5. 1915. 450 pp.

Massachusetts Homestead Commission. Report of 1916.

Technical Procedure

Massachusetts Homestead Commission. Information and Suggestions for City and Town Planning Boards. November, 1914. 12 pp. (Bulletin No. 2.)

Bentley, F., and S. P. Taylor. A Practical Guide in the Preparation of Town Planning Schemes; with appendices containing text of the Act, Procedure Regulations, etc. G. Philip & Son, London. 1911. 159 pp., model set of colored plans.

A panorama of the first stage of a scheme under the Town Planning Act, 1909. Town Planning Review, April, 1911, Vol. 2, pp. 1–6, plans and facsimiles.

Royal Institute of British Architects. Town Planning Committee. Suggestions to promoters of town planning schemes. Journal of the Royal Institute of British Architects, Series 3, August 26, 1911, Vol. 18, pp. 661–668. Also reprinted.

Social Aspects

Marquis, F. J. Some Sociological Aspects of Town Planning. Town Planning Review, April, 1910, Vol. 1, pp. 66–71.

Marsh, B. C. City Planning in Justice to the Working Population. Charities, February 1, 1908, Vol. 10, pp. 1514–1518.

Digitized by Google

BIBLIOGRAPHY

Zueblin, C. American Municipal Progress; chapters in municipal sociology. The Citizen's Library of Economics, Politics and Sociology. The Macmillan Co., New York. 1902. 380 pp.

Coöperation in Housing-Finance

National Conference on Housing. Housing Problems in America. Proceedings of the National Conference on Housing, 1st–5th. 1911–16. The proceedings for the year 1916 contain papers of special value in a study of the problem of industrial housing.

Comey, A. C. Coöperation for Housing in America. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 140–147. Also reprinted.

——Improved Housing Finance—the Coöperation Plan. American City, December, 1913, Vol. 9, pp. 521–523.

Vivian, H. Co-partnership Housing in Great Britain. American City, May, 1914, Vol. 10, pp. 433–439, illus.

Hall, B. Cutting the Roots of Congestion. In Proceedings of Second National Conference on City Planning, 1910, pp. 96–98.

Massachusetts Homestead Commission. First Annual Report. 1914.

Public Health and Safety

Fremantle, F. E. Public Health and the Garden City Movement. Garden Cities and Town Planning, September, 1914, n. s. v. 4, pp. 207–210.

Economic and Financial Conditions

Howe, F. C. Municipal Real Estate Policies of German Cities. In Proceedings of Third National Conference on City Planning, 1911, pp. 14–26.

A Symposium on the Municipal Ownership of Land. Town Planning Review, January, 1913, Vol. 3, pp. 232–239.

Town Planning and Land Purchase; Mr. T. C. Horsfall on Germany's Experience: How to Keep Rents Low. Garden Cities and Town Planning, March, 1908, n. s. v. 3, pp. 27–28.

Unwin, R. The Relation of Land Values and Town Planning. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 17–24.

Taxation in Relation to Development

Fels, J. Taxation, Housing and Town Planning. Landscape Architecture, October, 1913, Vol. 4, pp. 1–11.

Howe, F. C. Municipal Taxation and Its Effect on Town Planning, City Building, and the Housing Question. In Proceedings of Second National Conference on City Planning, 1910, pp. 87–95.

Wilcox, D. F. Taxation of Real Estate Values and Its Effect on Housing. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 34–40.

Residential Districts and Relief of Congestion

Adshead, S. C. The Economics of Estate Development. Town Planning Review, January, 1913, Vol. 3, pp. 273–276.

Causes of Congestion of Population. Papers by B. C. Marsh, W. S. Bennet, G. E. Hooker, G. A. Weber, E. T. Hartman. In Proceedings of Second National Conference on City Planning, 1910, pp. 33–63.

Marsh, B. C. Can Land Be Overloaded? In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 54–58.

Newman, B. J. Congestion and Rents. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 59–67.

The Prevention and Relief of Congestion of Population. Papers by Grosvenor Atterbury, Laurence Veiller, G. B. Ford, M. D. Morrill, F. C. Howe, B. Hall, W. H. Manning, R. A. Pope, E. E. Pratt. In Proceedings of Second National Conference on City Planning, 1910, pp. 65–112.

Unwin, R. Nothing Gained by Overcrowding! How the Garden City Type of Development May Benefit Both Owner and Occupier. P. S. King & Son, London, for the Garden Cities and Town Planning Association, 1912. 24 pp., illus. plans.

——Appeared also in Garden Cities and Town Planning, September–November, 1912.

Atterbury, Grosvenor. Model Towns in America. National Housing Association. Publication No. 17. (Reprinted from Scribner's Magazine, July, 1913.) New York, 1913. 18 pp. illus.

Aronovici, Carol. Suburban Development. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 234–238.

Wright, H. C. Rapid Transit in Relation to Housing. In Proceedings of Second National Conference on City Planning, 1910, pp. 125–135.

——Transit and Housing. In Proceedings of third National Conference on Housing, 1913, pp. 68–74. With discussion, pp. 173–183.

City Club of Chicago. City Residential Land Development, Studies in Planning. University of Chicago Press. 1916. 138 pp., illus.

Low-Cost Housing

Atterbury, Grosvenor. Garden Cities. In Proceedings of Second National Conference on Housing, 1912, pp. 106–113. With discussion, pp. 232–239.

Baumeister, R. Bauordnung und Wohnungsfrage. Stadtebauliche Vortrage, 1911, Bd. 4, Heft 3. 41 pp. plans

Comey, A. C. Billerica Garden Suburb. Landscape Architecture, July, 1914, Vol. 4, pp. 145–149, plan.

Crawford, A. W. Where City Planning and Housing Meet. In Proceedings of Second National Conference on Housing, 1912, pp. 129–144. With discussion, pp. 261–273

Digitized by Google

Ford, George B. City Planning and Housing Reform. Address at New Jersey State Housing Conference, 1914. Journal of American Institute of Architects, March, 1914, Vol. 2, pp. 145–148.

Ford, James. Fundamentals of Housing Reform. From the Smithsonian Report for 1913, pp. 741–754. Publication 2311. Washington, 1914.
Enlarged from article in American City, May, 1913, Vol. 8, pp. 473–480. Also reprinted.

Manning, W. H. Villages for Workingmen and Workingmen's Homes. In Proceedings of Second National Conference on City Planning, 1910, pp. 71–76 and pls. 41–46, illus. plans.

Nichols, J. C. Housing and the Real Estate Problem. In American Academy of Political and Social Science, Housing and Town Planning, 1914, pp. 132–139.

Nolen, John. More Houses for Bridgeport. Report to the Chamber of Commerce, Bridgeport, Conn. 1916. 62 pp. illus.
An excellent outline of procedure in obtaining more and better homes.

Slater, E. C. The Planning of an Industrial Suburb. In Institution of Municipal and County Engineers, Housing and Town Planning Conference, 1911, pp. 223–233, plans.

A Symposium on Housing Reform. Abstracts of seven papers presented at Second National Conference on Housing in America, 1912. American City, January, 1913, Vol. 8, pp. 17–34, illus.

Veiller, Laurence. A Model Housing Law. Survey Associates, 1914. 343 pp., illus. plans. New York. (Russel Sage Foundation Publications.)

Industrial Cities and Industrial Suburbs

Industrial Villages in America. Garden City, July, August, 1906, n. s. Vol. 1, pp. 142, 150, 194.

Meakin, B. Model Factories and Villages: Ideal Conditions of Labour and Housing. T. F. Unwin, London. 1905. 480 pp., illus.

Taylor, G. R. Satellite Cities: A Study of Industrial Suburbs. D. Appleton & Co., New York. 1915. 333 pp., illus.

A Model Mining Village. Garden Cities and Town Planning, September, 1908, n. s. Vol. 3, pp. 125–128, illus.

Goodyear Tire and Rubber Company. Goodyear Heights, Akron, Ohio. 1917.

Toronto Housing Company, Limited. Better Housing in Canada, "The Ontario Plan." 1913.

Journal, American Institute of Architects, January, 1917. Indian Hill, A Garden Village Near Worcester, Mass. April, 1917, Housing Developments in Flint, Mich.

Architectural Review, January, 1917. A special issue devoted to workingmen's and low-cost housing.

Architectural Review, April, 1917. Successful examples of low-cost housing in England and the United States.

Garden Cities

Benoit-Levy, G. La cite-jardin. Paris, Citis-Jardins de France. 1911. 3 vols., illus. plans.
Vol. 1. Garden City.
Vol. 2. Villages-jardins et banlieues-jardins.
Vol. 3. Art et coöperation dans les Citis-jardins.

Abercrombie, P. Modern Town Planning in England. A comparative review of "Garden City" schemes in England. Town Planning Review, April, July, 1910, Vol. 1, pp. 18–38, 111–128, illus. plans.

Berlepsch-Valendas, H. F. Die Gartenstadtbewegung in England, ihre Entwickelung und ihr jetziger Stand. Munchen, R. Oldenbourg. 1912. 190 pp., illus. plans.

Culpin, E. G. The Garden City Movement Up-to-date. Garden Cities and Town Planning Association (1913). 1914. London. 82 pp., illus. plans.
The latest edition of annual publications of the same title.

Deutsche Gartenstadt-Gesellschaft. Aus englischen Gartenstadten, Beobachtungen u. Ergebnisse einer sozialen Studinreise. R. Federn, Berlin. 1910. 188 pp., illus.

Deutsche Gartenstadt-Gesellschaft. Die deutsche Gartenstadtbewegung. Zusammenfassende Darstellung über den heutigen Stand der Bewegung. Die Gesellschaft, Berlin-Schlachtensee. 1911. 112 pp., illus. plans.

Hooker, G. E. Garden Cities. In Proceedings of Third National Conference on Housing, 1913, Vol. 3, pp. 13–28. With discussion, pp. 89–100.
Also in Journal of American Institute of Architects, February, 1914, Vol. 2, pp. 80–91., illus.

Howard, E. Garden Cities of Tomorrow (being the second edition of Tomorrow: A Peaceful Path to Real Reform). S. Sonnenschein & Co., London, 1902. 167 pp., illus. This book began the "Garden City Movement."

Kampffmeyer, H. Die Gartenstadtbewegung. B. G. Teubner, Leipzig. 1909. 116 pp., illus. Aus Nayur und Geisteswelt. 259.

Purdom, C. B. The Garden City: A Study in the Development of a Modern Town. J. M. Dent & Sons, London. 1913. 329 pp., illus. plans.
Letchworth, England, the first garden city.

Pratt, E. E. Garden Cities in Europe. American City, December, 1912, Vol. 7, pp. 503–510, illus. plans.

Salomon, H. Gartenstädte. Stadtebauliche Vortrage. 1913. Bd. 6, Heft 3. 47 pp., illus. plans.

Sennett, A. R. Garden Cities in Theory and Practice, being an amplification of a paper on The Potentialities of Applied Science in a Garden City. Bemrose & Sons, London. 1905. 2 vols., illus. plans.

Some Notes on German Garden Villages. Town Planning Review, October, 1910, Vol. 1, pp. 246–250, illus. plans.

George, W. L. Labor and Housing at Port Sunlight. Alston Rivers Limited, London. 1909. 218 pp., illus.

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Architecture and Civilization

AT the Sixth Informal Conference of the Royal Institute of British Architects on the subject of education, there took place a discussion which bears no less lightly upon the problem in the United States than upon that in England. The war has accentuated that slow dawning perception of the whole problem of education as applied to both the practice and the enjoyment of architecture, or to anything else, for that matter, for the world is now commanded to think as never before. Under the influence of this stern and well-deserved edict, by the rays of that light which is now borne homeward and heartward from the flaming path of death and destruction, shall we not first of all decide forever to relegate to oblivion that pompous, snobbish, supercilious phrase "Educating the Public"? Shall we not, on the other hand, approach the problem of our own education with a renewed appreciation of our careless ignorance, and in seeking to revitalize our educational system, let us be humble and admit that we are only students, even the wisest of those who look patronizingly upon their less "educated" fellows. No man who has not braved the mechanistic hell of modern warfare ought ever to dare again to look contemptuously upon that great public which, lacking though it may have been in an appreciation of even the least of the arts, has given evidence of its sublime courage in defending those things in which it has had only the minor share.

From the discussion to which we have referred, we reprint the following from the Journal of the Royal Institute of British Architects:

MR. W. E. VERNON CROMPTON [*F.*]: * * * * *

The relation of civilisation and architecture is one of cause and effect: the intellectual life or civilisation will give the intellectual architecture. The sensuous life will produce the sensuous art, and so on. If the architecture of the present time is anarchic it shows that the civilisation of our time has muddled ideas and an irrational way of thinking. To seek to improve the architecture of this country by improving the education of architects is excellent as far as it goes, but it is a more essential if less obvious duty, not only as citizens but as architects, to put our energies into altering ideas about elementary and public school education and all those other matters which direct the currents of our civilisation. Only by so regarding things can we avoid the error of putting the cart before the horse.

Although the relation of life and architecture is one of cause and effect, it would be a mistake for us to consider that the condition of architecture in any country at any time is a *primary* effect of life or civilisation: it is merely a *secondary* effect produced by secondary causes. If we are dissatisfied with the condition of architecture and wish to get at the real reason for its lamentable state we must pass over these secondary relations, such as the influence of the competitive contract system, the decline of technique in the crafts, building for the purpose of profiteering and dividends, etc., upon architecture, and get back to those that are primary. This is what I shall try to do. * * *

If we wish to have a clear idea as to what is wrong with architecture at its root we must cease to confine our discussions to styles, education, or æsthetics, the disorder of our streets, sound building, etc., for to do so would be merely to consider effects, leaving causes untouched. That which has thrown architecture off its balance is synonymous with that which has dislocated our civilisation.

As architects in search for this economic cause, let us recall to mind the nature of eighteenth-century civilisation. We see there the gradual extinction of an aristocratic class with the power and wealth, having a modicum of scholarship sufficient to keep alive a tradition which it was able to impose upon a people who had for the most part a definite status. Everything was homogeneous and oriented in the same direction: the means of the civilisation—as regards the art of building—were sufficient for the end in view. At the present day there is no aristocracy to speak of, but a plutocracy with no particular scholarship and no particular tradition: a plutocracy unable to impose anything but a stray fashion upon a common people who, in their turn, are mainly wage-earners, without status.

It is difficult to find a condensed and general formula to describe the economic cause for this change, a cause behind which it is not necessary, here and now, for us to go; but it may be sufficient to formulate the cause by saying that since the latter half of the eighteenth century man's control over certain physical forces has developed with extreme rapidity and at the expense of his powers in other directions. Hence the want of balance, the dislocation in our civilisation, and the chief reason—speaking in general terms—of the troubles we are discussing. Bergson, in *L'Evolution Créatrice*, touches upon this idea as follows: "Nos habitudes individuelles et même sociales survivent assez longtemps aux circonstances pour lesquelles elles étaient faites, de sorte que les effets profonds d'une invention se font remarquer lorsque nous en avons déjà perdu de vue la nouveauté. Un siècle a passé depuis l'invention de la machine à vapeur, et nous commençons seulement à ressentir la secousse profonde qu'elle nous a donnée. La révolution qu'elle a opérée dans l'industrie n'en a pas moins bouleversé les relations entre les hommes. Des idées nouvelles se lévent. Des sentiments nouveaux sont en voie d'éclore. . . . Elle servira à définir un age."

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The economic situation arising from man's control over certain physical forces, developing with extreme rapidity and at the expense of his powers in other directions, coming as it did in a relatively sudden manner, resulted in giving great wealth to some and, as a consequence, poverty to others in directions where there had been no great wealth or abject poverty previously. Wealth accrued to a class of the community to whom the planning of Bath and Bloomsbury made no appeal; in whom the down-at-heel contrivance of modern life produced no jar.

Considered economically, wealth is power over the lives of others; considered also economically, civilisation is a method of distributing wealth. Understanding this will enable us to appreciate that herein lies the factor which brought about the gradual extinction of the aristocratic influence of the eighteenth century—the Bladesover tradition of Wells—that aristocratic tradition which gave us Bowwood and Prior Park, a tradition which can never return in spite of the hopes of some. Herein, also, lies the factor which has produced Holborn and the Strand, which has destroyed the craftsman with his status under the aristocrat and has given us the hand under the plutocrat. All this is of vital importance to architecture; but, judging from the amount of attention given to the subject by this Institute, it might not concern us at all. We have the means whereby an income of £50,000 can be accomplished, but we have not the means whereby it can be spent properly. We have the means whereby half a million can be earmarked for building, but we have not the means whereby to avoid sweating our labourers.

I do not overlook the fact that similar conditions have prevailed in civilisations which produced great art. But if the matter be studied in detail, I think you will find that the difference in degree between these present and past phases is so great as almost to amount to a difference in kind. All civilisations can withstand, and have withstood, the strain arising from unstable conditions up to a point; that point was passed in England early in the nineteenth century. Hence the result! Architects must grasp clearly and without evasion, shuffle, or compromise the nature of the economic cause which has produced the primary effect of dislocation which in turn produces the secondary effect upon architecture.

By all means let us hammer at the political administrators and the municipal authorities, but in nine cases out of ten you will find ignorant and unsympathetic ears and eyes, because they are the ears and eyes of those who from their elementary or public school life onward have not been bred to attach much importance to many of those things which, I trust, we in this room consider as vital to our survival as a great nation. The machinery is there to do a great deal, but not the knowledge or goodwill. The whole lump of things must be leavened, but the day has gone by when the upper portion of the lump can be leavened and the lower portion left.

Half a century of spade-work is ahead of us in a State at present but partly democratised, slow work with meagre results, before a foundation can be prepared upon which a civilisation can be raised which will not misbehave itself continually and be open to Professor Lethaby's just indictments. The aristocratic age is gone for good; in the democratic age before us we shall not be able to produce excellent architecture unless the people live an excellent life. It is, therefore, time for this Institute to lay aside its aloofness and to go down into the arena as a propagandist body anxious to ally itself with engineers, master builders, and trades unionists, having a lively faith which it should set forth in a tractarian literature thoroughly well written. We have spread ourselves very agreeably over the English Renaissance, the formal garden, and such-like important pleasantries; we should now voice our convictions not only upon the five or six excellent suggestions mentioned by Professor Lethaby, but also upon the relation of the architect and his work to all the vital economic problems by which we are being stifled.

Architecture for some time past appears to have slipped off the true line of the evolution of things, partly because great architecture cannot exist in an irreligious civilisation, but partly because we ourselves have shut our eyes to the reality of things.

The Royal Institute of British Architects Extends Its Hospitality to American Architects on War Service Abroad

To Members of the American Institute of Architects:

I beg to call your attention to the offer of hospitality extended to members of the Institute by the Royal Institute of British Architects, notice of which is conveyed in the following letter.

W. Stanley Parker, Esq.
Secretary,
The American Institute of Architects
Washington, D. C.

Dear Sir:

In sending you the letter from the Council of the Royal Institute of British Architects a few weeks ago expressing the satisfaction of the architectural profession throughout the British Dominions at the entry of America into the war, I was requested to write to you independently to offer the hospitality of the Royal Institute to American architects on military service who may find themselves on this side of the Atlantic and within convenient reach of London. I am to state that the Council has much pleasure in conferring upon them the privileges of membership of the Institute as far as the use of the Library and premises is concerned and the attendance at meetings and other public functions. The use of the Library would include the right to borrow books from the Loan Collection. The Council would be greatly obliged if you would kindly make this offer known to the members of the American Institute. I should add that it will always be a pleasure to the officials of this Institute to be of use to American architects and to render them every service in their power.

I am, dear Sir,
Yours faithfully,
G. Northover,
Editor Journal R.I.B.A., on behalf of the Secretary.

Any member of the Institute in military service abroad may be sure of finding a cordial welcome if he takes advantage of this thoughtful and gracious action of the Royal Institute.

Although it is not essential, as any means of identification will be adequate, I will be glad to furnish any member who so desires with a letter certifying his membership in the American Institute of Architects.

William Stanley Parker, *Secretary.*

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Obituary

Robert Swain Peabody

Elected to Membership 1874; to Fellowship 1889.
President of the Institute 1900-1901.
Died, Peach's Point, Marblehead, Mass., October 3, 1917.

Robert Swain Peabody, past President of the American Institute, and the most distinguished of the older generation of architects, died at Peach's Point, Marblehead, on October 3. Mr. Peabody, apart from his skill as an architect, was a facile draughtsman, a great lover of the sea, and particularly happy in his ability to draw all that moved on the waters. It was peculiarly fitting that he should have died in the home he loved, on the shore of the picturesque harbor of Marblehead.

Mr. Peabody's career as an architect was so long and so varied that it is useless to attempt either to catalogue his works or to mention those most prominent in a list which covered every class of buildings from cottages to works of monumental size; nor would it help to explain the man and the artist. Much of the work which one fancies he loved best was unimportant from a worldly standpoint. As with all true artists, his love for his work meant often that his true personality and charm appeared most in work of small money value.

He was born in New Bedford, February 22, 1845, a son of the Rev. Ephraim Peabody who from 1846 to 1856 was minister at King's Chapel. His mother was Mary Lane Derby; so there was the best New England stock on both sides. He graduated from Harvard in 1866 and later served his alma mater fifteen years on the Board of Overseers and did most valuable service for the Department of Fine Arts and the School of Architecture. After graduation he studied in France and England and was among the early group of Americans who discovered for us the Ecole des Beaux-Arts—that school which has done so much to form and develop our power to design.

On his return in 1870 he associated himself with John G. Stearns, and that partnership was practically terminated only by the death of the two partners, for Mr. Stearns died the Sunday before Mr. Peabody. This firm then was active for nearly fifty years, and during this time, which was a most vital period in the growth of the profession, Mr. Peabody had been in many ways a leader, and always in the forefront of every movement toward better standards of design. He was a lifelong friend of McKim, and both were in that small group of architects who put the stamp of high achievement on the World's Fair at Chicago. The monumental group about the grand court marked a very clear step in the forward progress of the arts in the United States, and Mr. Peabody was a force in this great initial step.

It is sufficient evidence of Mr. Peabody's disinterested work for the profession he loved and for the arts he practised, to say that he had been not only President of the Institute and President of the Boston Chapter, but also for years the head of the Park Department of Boston, an unpaid position, and largely responsible for the report of the Committee on Public Improvements with its far-seeing suggestions and plans for transportation, the development of the suburbs, and the development of the port of Boston. Many of the projects then initiated he lived to see take form. Despite his seventy-two years he was before this last fatal illness a young man in every way, full of the joy of living, and a constant inspiration to all with whom he came in contact. When his serious trouble began, and he was for months recovering from an operation at Johns Hopkins Hospital, his vivid imagination carried him away to all the places he had known and sketched abroad, and he spent his convalescing days in drawing memory records, a set of sketches full of his characteristic vigor and executed with his sure touch. One mentions this because it is so characteristic of him and shows the true courage.

It was equally characteristic of him that, as soon as partial restoration to health made it possible, he resumed his duties in the Park and Recreation Department and this very spring put through important changes in the Common to recognize the great changes made in the State House by the addition of the wings.

He leaves a host of friends behind him, not only those who have passed through his office, but all artists who know him, who will always remember him for his buoyant enthusiasm, his joy in his profession, and his quick sympathy with all. It is not only his works which will live after him; his influence on others is even more valuable and more enduring.

R. Clipston Sturgis.

John Goddard Stearns

Elected as a Fellow, 1894

John Goddard Stearns died at Duxbury, Mass., September 16, 1917. He was born in New York City, May 18, 1843, but lived most of his life in Brookline, Mass. He was graduated with the Class of 1863 from the Lawrence Scientific School in Cambridge.

December 5, 1866, he married Ellen Elizabeth Abbott, whom he survived by less than a year. A son, Frank A. Stearns, associated recently with his father in his profession, and a daughter, Mrs. William H. Young, of Brookline, survive him.

Mr. Stearns had several years' experience in the office of Ware and Van Brunt. In 1870, in Boston, began his partnership with Robert S. Peabody, which, under the name of Peabody and Stearns, lasted for forty-five years.

Mr. Stearns' contribution to the firm and to his profession was of signal importance. His counsel in matters not strictly within his own chosen province, his sound business judgment, and his genius for quick decision and direct statement were always to be depended upon. He had not only the training of an engineer but also the true engineer's instinct that could "sense and overrule," and combined with these an appreciation of order and proportion in planning and design that made him the true architect as well. He was untiring in his attention to the superintendence of the many important works that his firm designed and constructed. He saw not only that the work

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was going right, but also that it *did not go wrong*. He often said that the secret of successful superintendence was to know that something must be wrong, to find it, and to make it right.

His great service to the firm and to his profession lay in this insistence on the quality and thoroughness of the work done under his direction. The specifications, drawings, and contracts must be so complete as to enable him to carry the work through as designed without recourse to any other authority than the "documents." Such an attitude, simple and commonplace as it seems at present, required, fifty years ago, a marked change from the loose relations that had often, and perhaps as a rule, existed between architect and builder. Plans and specifications had generally been so incomplete that no one could say when they were complied with, much less insist on a high standard of performance. To make a firm stand and to insist that drawings and specifications should say what the architects meant and the owner was entitled to (and that only), and that what was thus set forth should be done, required thorough and expert knowledge of construction and of building materials and methods, a considerable degree of tact, and, above all, the power to insist on the right, which only an honest man can exert.

Mr. Stearns brought these qualities to his task. He was never willing to secure good work by asking it as a favor. He was a just man. He would always forgive an honest mistake and give freely of his time and advice to correct or overcome it. Builders and their assistants, as well as draughtsmen (many of them now successful architects), gratefully testify to the value of their experience with him as director and instructor.

Mr. Stearns was not so well known personally to members of his profession, especially in his later years, as many architects of lesser accomplishment. His home, his strong family affections, and his warm lifelong friendships made up his chief and absorbing interests.—F. A. K.

Joseph A. F. Cardiff

Elected to Membership, 1914
Died October 9, 1917, in New York City

In the death of Joseph A. F. Cardiff, the profession of architecture loses a man of singular capacity in his chosen field. Mr. Cardiff was born February 19, 1882, in Jersey City, N. J., and was educated in the public schools. He entered the profession through the office of Hugh Roberts, and, after years of increasing usefulness and power in the offices of Ernest Flagg and Carrére & Hastings, he became the business manager and associate of H. Van Buren Magonigle. During these periods he found time to write for the architectural magazines, to found and publish the architectural index on file at the Avery Library, Columbia University, and to render valuable service in committees of the Institute, the New York Chapter, and the City Club of New York.

He brought to bear upon his work an encyclopedic knowledge of building materials, appliances, and methods, a keen and analytical mind, courtesy, probity, and justice in all his relations to professional and private life.

H. V. B. M.

Henry Vaughan

Because for a long time it was my privilege to be employed and instructed by a very remarkable personage in American architecture, the late Henry Vaughan; and because, besides Mr. Robert Casson and Mr. John Evans (who always had his profound respect and friendship), I was one of the very few who came into intimate personal relations with him, I desire to utter a word of tribute to a man who succeeded in America notwithstanding his direct and intentional violation of American methods.

Henry Vaughan came to the United States as a stranger without friends, influence, money, or "pull," having given up a prominent, important, and remunerative position in England. He apparently buried himself in the two little rooms over the Criminal Investigation Department in Pemberton Square. He made no effort to get work; yet there was seldom a time when he did not have all that he could do. His attitude may be best explained by the following anecdote.

Filled with the American desire to "make things hum," I went to him once with advance information concerning a new church building, a "good job,"—and told him with pride and joy that some influential friends of mine had promised the office the first "show in," if he would make a preliminary sketch for the proposed building. I can remember now my disappointment and surprise when he merely replied, "Why, certainly not. If my work is good, and they want it, it will come to me."

His life was apparently lonesome in the extreme. From his rooms to his office, from his office to Marston's restaurant and back again, was practically his entire life. According to American standards it was dull, uninteresting, dreary. It was, however, full of a sweetness and richness which, while un-American, was still very good for America.

Although he himself spent practically every evening in his office, he never asked his draughtsmen to work overtime, no matter how great the pressure of work. Once, when I knew a set of drawings to be overdue, I expressed to him my willingness to come and work at night. He thanked me but declined my offer. However, determined to finish my own elevation at least, I returned to the office. I had hardly seated myself at my board before he appeared in the doorway saying with almost anger, "I told you not to come back." My explanation that I wanted to finish my own drawing caused a wonderful softening in his cold, steel-blue eyes; but, though thanking me, he said, "You scared him away." Some hours afterwards I heard him whisper from his private room, "Barton, come here." And going in, I found him at his board indeed, but not drawing. He was pushing crumbs from a roll (which he always brought from his dinner) out to a little mouse which, sitting upon his T square, seemed perfectly contented. I think my first intimate acquaintance with Henry Vaughan began upon that night when I also approached the drawing board without scaring his mouse away. And later, months afterwards, after he had accepted me as a nightly co-worker, when I called to him to come to me, and he found one of his mice eating on my drawing board, the last barrier between us was swept away.

I realize that I learned a large proportion of what little

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I know of architecture from Henry Vaughan, and I am grateful to him for that. But I learned from him certain essentials of life, so far removed from American thought and custom as to be difficult of attainment by American youth.

From him, and later when in London I became acquainted with the traditions of the office of Mr. George Bodley, his old master, a new understanding of work and of life came to me. The memory of these men, unobtrusively working in silence for the good, the true, and the beautiful, has been a constant help throughout many difficulties. And the efforts of such can never fail to stretch out over the world for the maintenance of the highest standards of the profession.

GEORGE EDWARD BARTON.

(From the Bulletin of the Boston Society of Architects)

Institute Business

Meeting of the Board of Directors

A meeting of the Board was held at Cleveland on September 6 and 7. There were present President Mauran, First Vice-President La Farge, Second Vice-President Willcox, Secretary Parker, Treasurer Waid, Directors Coolidge, Faville, Favrot, Fenner, Jensen, Lubschez, Kimball and Sellers, the Executive Secretary and the Editor of the Journal. The following is a brief digest of the minutes of the meeting:

Disciplinary Procedure in Chapter By-Laws

Formal approval was given to the principle proposed that Chapter executive committees be empowered to dispose of cases not involving expulsion or suspension; when either of these penalties is involved, the Committee must report the case and its investigation thereof to the Chairman of the Institute Committee on Practice. But in all cases, regardless of or in lieu of such action, there may be a final appeal to the Committee on Practice of the Institute as provided in its By-laws. Chapter committees must report the record of all investigations and the decisions made to the Secretary of the Institute for record. The Secretary was instructed to prepare and submit for definite approval a clause covering the above principles.

Contracts and Specifications

The General Conditions of the Contract (Standard Documents) have been revised by the Committee and the revisions have received the approval of the Board and that of the various national associations is now being sought.

The Form of Agreement between Contractor and Owner and the Cover of the Standard Documents have also received minor revisions and will be issued with the General Conditions as the Third Edition, all of which the Board has approved.

The Agreement between Owner and Architect, Fee Plus Cost Basis, with an accompanying circular of explanation, has been approved by the Board and will soon be ready for general use.

The proposed Form of Agreement between Contractor and Owner, Fee Plus Cost Basis, has been circulated as a first draft, and a second draft is now in preparation.

The proposed "Standard Indications of Materials for Architectural Drawings" is now in its third draft form. It appeared in the September Journal, with explanatory text, and a final form will later be submitted to the Board for approval.

The Handbook on Architectural Practice has been distributed, as a first draft, to members of the Board, members of the various Institute Committees, professors in architecture, and the presidents of Institute Chapters.

The Secretary stated that Messrs. Day, Medary, and he, were of the opinion that all of the Standard Documents should be issued under the title of the Third Edition, though no changes have been made in the Sub-contract or Letter of Acceptance, and it was so resolved.

House Committee

There has been no meeting of the Committee this year, but the ordinary upkeep, including minor repairs at the Octagon, have received the attention of the Chairman. Major matters, such as the installation of the sprinkler system and the storage vault, have been handled under the direction of the Treasurer. There have been no new steps in the furnishing of the drawing-room because the Committee has not felt justified in advocating expense in this direction while the building itself is so sorely in need of attention.

Replicas of the McKim Medal have been made at a most reasonable cost, through the interest of Mr. Max Voigt, of Philadelphia. Three sets of casts, at a total cost of $10 are now ready, and it is suggested that one set be placed at the Octagon, one presented to Miss McKim, and another to the New York Chapter.

It is proposed to remove the portraits at the Octagon from the entrance hall and rearrange them, including the one of Mr. Pond which is soon to arrive, either in the drawing-room or on the second floor of the building.

Education

The work of the Committee has consisted chiefly of correspondence bearing upon the schools of architecture and their work, entrance examinations and degrees, and upon the subject of general education in the arts in preparatory schools and colleges. With the advice of President Mauran two additional subcommittees have been arranged to cover the South and Southwest, thus making in all thirteen subcommittees on education. As long as the war continues, educational work will be much hampered by lack of instructors and scholars, and it is doubtful if the Committee can make any definite advance in this work until conditions are more nearly normal.

Competitions

The report commented upon the inquiry from the Boston Society of Architects as to whether the responsibility of applying discipline to Institute members who have taken part in unauthorized competitions rests primarily with the local Chapter or with the Institute, and upon the reply which has been made to the effect that the general custom has been to bring violations of such a nature before the Committee on Practice of the Institute where the offenders were Institute members. Other inquiries of the like nature from other Chapters have been answered in the

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same way. Proposed competitions in Buffalo, Kansas City, New York, South Carolina, and Wisconsin were reviewed. The report also referred to the circular proposed by the Minnesota Chapter and intended to apply to work of lesser magnitude. The matter is still pending for final consideration. In conclusion it was stated that the duties of the Committee are largely becoming advisory, which speaks well for the constructive work done by the Committee in the early years of its service. The effort has been made to devise some practical method of carrying out the Convention suggestion that the Committee collect and preserve documents relative to competitions which have been satisfactorily conducted under the Institute's Code—such documents to be used for reference purposes. While the Committee has been successful in filing much correspondence and many programs as finally approved, it has found considerable difficulty in carrying out the plan. As a rule, the subcommittees are faithful in performing their work up to the approval or rejection of a program, but after the award has been made it is sometimes impossible to get a copy of the program. It has been the policy to leave the solution of local problems to the subcommittees wherever possible, although the effort is made in each case to point out special features which require attention.

Publication

The report reviewed the excellent condition of the Journal finances and the constant and steady growth, which has been unaffected by the war. In reply to a question as to the Structural Service Department, Mr. Whitaker explained the keen interest which had been aroused in this work, especially by those at work upon emergency construction for the Government, as evidenced by their coöperation in the columns of the Journal. Foreign architects, societies, and institutions of research have evinced a remarkable interest, and plans are under way for developing a more intimate relationship in the matter of scientific research in building materials. The Committee's report reviewed the publication of "City Planning Progress," and Mr. Whitaker explained at length the plans which the Journal has under way for increasing its usefulness, among which is the departure for England of Mr. Frederick L. Ackerman as the Journal's special correspondent in Europe.

Fire Prevention

The work of the Institute has not been vigorously prosecuted because of the pressure of other work on the Chairman, who is serving as a member of the Committee on Industrial Safety of the Council of National Defence.

The most important thing done by the Committee was attendance in person by Messrs. Plack and Kohn at the annual meeting of the National Fire Protection Association, in Washington, early in May. Mr. Boyd and Mr. Waid were also present and took part in the proceedings, and Mr. Waid was elected First Vice-President of the Association.

Preservation of Historic Monuments

Mr. Horace Wells Sellers, Chairman, reported that there have been no further developments in the proposed Washington Park project. The resolution of the Board at the January meeting, which was presented to the International Forestry Conference, was not given extended consideration on the ground that the project was a local issue.

The Committee has kept in close touch with the Jackson barracks development at New Orleans, and from recent advices it appears that the War Department has called upon the Levee Board to adopt a plan for levee construction that will encroach as little as possible on the barracks property. The Committee is taking steps to obtain full support for the U. S. Engineers' plans, which are opposed by the Levee Board.

The Committee commends the action of the New York State Association of Architects in suggesting prizes from the Institute to those students in architecture who make surveys and drawings of ancient buildings which may be recommended by committees of the various Chapters of the Institute. This is in line with a custom long established by the Philadelphia Chapter.

The Committee is also studying the situation at Niagara Falls, where the demand for increased power threatens a serious decrease in the flow.

Town Planning

The most important accomplishment of the Committee during the year was the preparation of "City Planning Progress, 1917."

The coöperation of the Journal of the Institute in many ways expedited the publication.

The Committee believes that the volume has been a great success and that it has reflected credit on the Institute.

Restoration of the Octagon Stable

The report of the Building Committee dealt with the tentative cost of repairs to the stable. Mr. Fenner, in presenting the report on behalf of the Chairman, then stated that the sum necessary therefor had been contributed by three members of the Institute, and that Mr. Glenn Brown had offered to supervise the work without remuneration. The thanks of the Board were extended to the contributors and to Mr. Brown, and it was ordered that the work be begun without delay.

Mr. Waid raised the question of the deterioration of the sandstone facing on the exterior walls, and it was directed that arrangements be made, if possible, for their repair.

Registration

Mr. Waid, reporting for Mr. Bannister, reviewed the general situation with especial emphasis upon the educational requirements which should ultimately prevail as a basis for admission to practice, and expressed the hope that model standards of educational requirements should be formulated by the Institute, a work which is already under way in coöperation with the Committee on Registration.

State Building Methods

Mr. Favrot reported at length upon the work of this Committee and renewed the necessity of a definite uniform building policy for the country.

[NOTE.—It is expected that a fuller statement on this question will be made by Mr. Favrot in the columns of the Journal.]

Advertising

Mr. Kimball reported for this Committee, reviewing the origin of the Committee's appointment and of the incidents which culminated in the desire of the Board to clearly define the position of the Institute on advertising by its members. The Committee had agreed upon the definition of undesirable advertising as "self-laudatory publicity procured by the person advertised or with his consent."

Mr. Kimball then presented his own report, which recommended that the subject of advertising be dropped

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from among the punishable offenses in the Canons of Ethics, and that the Circular of Advice be revised accordingly. The report was the subject of a lengthy discussion, and it was resolved that in order to determine just what is to be done the Board shall call upon the officers of all Chapters to report every case of infringement of the law in order that the Canon may be fully enforced, and that the question should be further considered by the Board and brought to the attention of the next Convention.

[NOTE.—The Board adopted two resolutions on advertising in professional treatises and in architectural catalogues. These were printed in the September Journal.]

Institute War Service

President Mauran reported that committees of the Institute were now at work upon plans for the marine barracks at Philadelphia and on work at the Brooklyn Navy Yard.

President Mauran also reported upon the important work in Camouflage undertaken by Major Evarts Tracy, an account of which appeared in the Journal for August and it was

Resolved, That the Board of Directors of the Institute desires to express to Major Tracy its interest in the splendid work which he is doing, and to say that the coöperation of the Institute may be counted upon at all times, and that it congratulates him upon his appointment and upon the program which he has initiated and wishes him the fullest success.

The register of architects and draughtsmen prepared under the direction of Mr. Tracy's Committee on Preparedness has been kept intact at the Octagon, and its value is being proven more and more.

[NOTE.—The Institute is now issuing a call for a considerable number of architects and draughtsmen for service in France with the Aviation Corps, and it is expected that the services of architects will be in constantly increasing demand both at home and abroad, in view of the vast construction work which is now under way and in process of planning.]

Letters from the R.I.B.A.

The President formally presented the letter from the R.I.B.A. (published in facsimile in the Journal for August), and also a later letter (printed elsewhere in this issue), together with the reply to the former. The letters were deeply appreciated by the members of the Board, and the Secretary was directed to acknowledge the second letter and to express the thanks of the Institute, on behalf of the architects of America, for the cordial and generous sentiments of hospitality contained therein.

Emergency Government Building at Washington

President Mauran reported at length upon the various projects which have matured in Washington in the face of the serious congestion which has prevailed since the outbreak of war. All of these projects were carefully considered, and it was

Resolved, That while the Board of Directors of the American Institute of Architects is deeply appreciative of the serious congestion in the departments in Washington, and recognizes the necessity of giving the quickest possible relief, it cannot but be gravely concerned lest the effort to provide the needed space shall permanently injure the appearance of the Capital and perhaps make impossible the ultimate development of the Washington Plan; and it therefore urges upon Congress that except in cases where emergency leaves no alternative, and then only upon approval of the plans by the Commission of Fine Arts, no permanent building be erected by the Government until the Public Buildings Commission, now engaged in studying the present and future needs in order to report a comprehensive program for erecting public buildings in Washington, shall have laid its report before Congress.

[NOTE.—An account of recent events in this connection appears in our editorial pages.]

The Treasury

The Treasurer reported that the financial condition of the Institute was very satisfactory and that collections had been better than during the same period last year. It was resolved that the dues of those engaged in active service in the Army, Navy, Marine Corps, Aviation Corps, Red Cross and related services be remitted for the year beginning with January, 1918. The Board has no power of remission for a longer period, but it is to be understood that such remissions will be made from year to year so long as the war lasts.

[NOTE.—The Journal has already notified subscribers that it will be sent free to those on service during the war, or retained at the Octagon for transmissal when requested.]

Some slight revisions of the budget were made in view of the emergency expenses of the Preparedness Fund.

Standard Chapter Constitution and By-Laws

The Secretary presented the final draft of this document, which was approved and its issuance to Chapters authorized.

Entertainment by the Cleveland Chapter

On the second evening of the meeting, the Board of Directors, together with architects from the Chapters in Ohio and nearby states, were the guests of the Cleveland Chapter at dinner. After the address by President Mauran and the subsequent exchange of greetings by the guests, the members of the Cleveland Chapter provided a whimsical entertainment, wherein the spirit of Michaelangelo returned to earth, seeking a brother architect upon whom he could lay his long unworn crown of laurel. His search for such a one offered the vehicle for many amusing comments upon the qualifications of those present, and the part was admirably taken by Mr. Richardson, with Mr. Briggs as interlocutor. On the following morning the Chapter acted as host in an excursion throughout the city, ending at the Mayfield Club for luncheon, which concluded a meeting of much pleasure.

At a meeting of the Brooklyn Chapter held September 24, the following resolution was adopted:

"*Resolved*, That every member of the Brooklyn Chapter be notified, that, in the event that he be called into the military service of the Government, the Chapter will provide for the continuance of his business on a basis of cost, without commission for such services."

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Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

HEATING AND VENTILATING AND MECHANICAL EQUIPMENT IN GENERAL

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated see the General Index, page 530)

10A Societies, Associations, and Other Interests.
10B Educational and Research Work.
10C Boilers and Heating in General.
10D Warm-air Heating, Stoves, Ranges, and Dryers.
10E Blowers, Fans, and Ventilation in General.
10F Air Conditioning, Temperature Control.
10G Natural Ventilation.
10H Chimneys, Flues, and Fireplaces.
10J Pipes, Valves, and Fittings.
10K Radiators, Registers, and Grilles.
10L Metal Work, Ducts, Chase Lathing.
10M Air-Leakage, Guarantees, and Formulæ.
10N Heat Transmission, Insulation, Coverings.
10O Mechanical Equipment in General.

10A Societies, Associations, and other Interests

The publications and activities of the following Societies in the development of mechanical equipment will be mentioned wherever possible in connection with the main heading or subdivision under which they would naturally fall.

1. AMERICAN SOCIETY OF MECHANICAL ENGINEERS
   Secretary: Calvin W. Rice, 29 W. 39th Street, New York City.
2. AMERICAN SOCIETY OF HEATING AND VENTILATING ENGINEERS
   Secretary: C. W. Obert, 29 W. 39th Street, New York City.
3. AMERICAN INSTITUTE OF CONSULTING ENGINEERS
   Secretary: F. A. Molitor, 35 Nassau Street, New York City.
4. NATIONAL ASSOCIATION OF MASTER STEAM AND HOT WATER FITTERS
   Secretary: Henry B. Gombers, 50 Union Square, New York City.
5. NATIONAL DISTRICT HEATING ASSOCIATION
   Secretary: D. L. Gaskill, Electric Building, Greenville, Ohio.
6. NATIONAL WARM AIR HEATING AND VENTILATING ASSOCIATION
   Secretary: A. W. Williams, Columbus, Ohio.
7. AMERICAN ASSOCIATION OF REFRIGERATION
   Secretary: J. F. Nickerson, 431 S. Dearborn Street, Chicago, Ill.
8. AMERICAN SOCIETY OF REFRIGERATING ENGINEERS
   Secretary: W. H. Ross, 154 Nassau Street, New York City.
9. AMERICAN UNIFORM BOILER-LAW SOCIETY
   Chairman Administrative Council: Thomas E. Durban, Erie, Pa.
10. AMERICAN BOILER MANUFACTURERS' ASSOCIATION
    Secretary: H. N. Covell, 191 Dikeman Street, Brooklyn, N. Y.
11. NATIONAL BOILER AND RADIATOR MANUFACTURERS' ASSOCIATION
    Secretary: F. W. Herendeen, Geneva, N. Y.
12. MAGNESIA ASSOCIATION OF AMERICA
    Secretary: C. J. Stover, Bulletin Building, Philadelphia, Pa.
13. LOW PRESSURE COVERING MANUFACTURERS' ASSOCIATION
    Secretary: C. J. Stover, Bulletin Building, Philadelphia, Pa.
    There is also record of the
14. BOILER TUBE MANUFACTURERS OF AMERICA
15. NATIONAL TUBULAR BOILER MANUFACTURERS' ASSOCIATION
16. NATIONAL ASSOCIATION OF VALVE MANUFACTURERS

10B Educational and Research Work

(See, also, 1B3*g* and 3C2*a*).

1. In the *Heating and Ventilating Magazine*, April, 1917, it is stated that President Lyle, of the A.S. of H. and V. Engineers has appointed a committee to investigate the matter of the establishment of a bureau of research to be conducted under the auspices of the Society. When John Bartlett Pierce, one of the founders of the American Radiator Company, and its Vice-President, died at his home in Lynnfield, Mass., June 23, 1917, his will was found to create a substantial surplus fund to be used for the establishment of the John B. Pierce Foundation for technical research in heating, ventilating, and sanitation "to the end that the general hygiene and comforts of human beings and their habitations may be advanced."

10C Boilers and Heating in General

10C1 *Departments of U. S. Government*

Issue publications concerning heating, ventilation, and mechanical equipment, both as scientific, technical papers on the production, combustion, and utilization of fuel, and popular literature on home conveniences and economies.

(*a*) Fuels. See 2A3, 2A1*c* and *d*.
(*b*) **Bureau of Mines:** Technical Paper 97, "Saving Fuel in Heating a House." 1915. 35 pp., illus.
(*c*) **Bureau of Standards:** "Investigation of Fusible Tin Boiler Plugs," 1915, and other Technologic Papers; also Bulletins and other publications (1A2*b*) for index to which see "Publications of the U. S. Bureau of Standards," May 8, 1917.
(*d*) **Navy Department** issues specifications in large number for many kinds of materials, pipes, tubing, valves, and other apparatus and devices, and for mechanical systems and appurtenances. Read the "Index to Specifications" (3A1*a*1), for titles and Navy Department serial numbers.
(*e*) **War Department.** (See Journal for September, pp. 423–424.)
(*f*) **Treasury Department**, office of Supervising Architect (see 8B, p. 412). Specifications are issued, but not for general distribution, as mentioned under 5D2*b*.
(*g*) **Department of Agriculture:** For one of the many interesting publications, see 10D1.
(*h*) **U. S. Weather Bureau** compiles for the *Heating and Ventilating Magazine* complete records of the weather in five different localities, which are published, with charts and complete data.
(*j*) **Department of Commerce:** "Abstract of the Census of Manufacturers, 1914," but actually taken in 1915. Contains data on hot-air furnaces, radiators, cast-iron boilers, stoves and ranges, steam and fittings. Price 65 cents, from Superintendent of Documents, Government Printing Office, Washington, D. C.

10C2 *Boiler Standards*

(*a*) While the Constitution of the A.S.M.E. states that "the Society shall not approve or adopt any standard or formula," the Report of the Boiler Code Committee, commonly known as the "Boiler Code," was accepted by the Council of the Society on Feb. 13, 1915, and ordered printed. It is now recognized as a Standard and has been printed by some states, either *in toto* or with modifications, as the law of the commonwealth. It has also official recognition by the important insurance companies featuring this class of protection.
The official title is "Report of the Committee to Formulate

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Standard Specifications for the Construction of Steam Boilers and other Pressure Vessels and for Their Care in Service, Known as the Boiler Code Committee." These "Rules for the Construction of Stationary Boilers and for Allowable Working Pressures" are divided into Section I, Power Boilers; Section II, Heating Boilers.

The A.S.M.E. Boiler Code was issued over the signature of twenty-four experts, representing every phase of steam-boiler practice, and this body has been continued as a committee to interpret the Code when occasion requires. Thus far 172 rulings and interpretations of importance to engineers have been published. (See Journal of the A.S.M.E. for the monthly reports of "The work of the Boiler Code Committee".) The Boiler Code is now undergoing its first revision.

(*b*) Many of the specifications for materials comprised within the Code are identical with or modifications of separate standards of the A.S.T.M., which see.

(*c*) The A.S.M.E. also issues reports containing specifications for boiler plate, rivet steel, steel castings, and steel forgings.

(See 10O for reference to the A.S.M.E. Power Test Code which includes Boilers.)

(*d*) See **"Standard Specifications for Boiler Steel,"** adopted by the Association of American Steel Manufacturers, revised 1914, known as Manufacturers' Standard Specifications (1F3).

(*e*) **Cast Iron** with respect to its use in boilers, radiators, etc., see publications of the American Foundrymen's Association, Inc. (1F1).

(*f*) The American Uniform Boiler-Law Society exists for the purpose of promulgating the A.S.M.E. Code as the legal boiler construction code for all the states. It has now been made operative in nine states and eight municipalities. There has been published (87 pp.)

"Condensed Report of The American Uniform Boiler Code Congress," held under the auspices of the Industrial Commission of Ohio, December, 1916, and issued by the American Uniform Boiler-Law Society.

(*g*) The National Boiler and Radiator Manufacturers' Association issues Part I, Section II, of the A.S.M.E. Boiler Code, which deals only with boilers for low-pressure steam- and hot-water heating and hot-water supply.

(*h*) "Universal Safety Standards," Workmen's Compensation Bureau of New York, 1914. Contains section on **Boilers, Valves, and Fittings.**

(*j*) **"A Textbook of Engineering Thermodynamics,"** Charles Edward Lucke and John J. Flather. 688 pp., illus. Gives a numerical answer to the everyday problems of design and performance of heating, refrigerating, and power apparatus.

(*k*) **"Steam Boilers,"** E. M. Shealy. 374 pp.

(*l*) For illustrations and description of **Ideal Smokeless Down-Draft Boilers**, see page xv in Industrial Section, by American Radiator Company.

(*m*) For illustration, table of tests, and other information on **Mills Water Tube Boiler**, see page xiii in Industrial Section, by The H. B. Smith Company.

(*n*) **Inspection and Testing of Steam Boilers**, see information on page x of the Industrial Section, by Robert W. Hunt & Company.

10C3 *Rating and Testing of House-Heating Boilers*

[NOTE.—House heating is the term applied to all boilers not used for power and does not apply merely to residences.]

(*a*) In **"History, Aims and Achievements"** issued 1916 by the N.A. of M.S. and H.W.F. (10A4), it is stated: "About the year 1909 this Association first took up with the manufacturers the question of a proper and uniform rating of house-heating boilers. Later on the A.S. of H. & V. E. joined in the negotiations, with the result that today the National Boiler and Radiator Manufacturers' Association has an accepted basis for the rating of house-heating boilers."

The commonly accepted method of rating has been on the basis of the amount of radiation which it is claimed a given size of boiler will serve. Much has been written and said on this subject.

(*b*) See **"The Testing of House-Heating Boilers"** in the *Heating and Ventilating Magazine*, December, 1916, by L. P. Breckenridge and D. B. Prentice, as presented before the A.S.M.E. In this it is stated that "originally the foot of radiation meant a square foot of radiating surface, but improvements in design and arrangement enabled manufacturers to secure this condensation with less surface, and consequently less iron. The result has been a variable and decreasing value in square inches for the 'foot of radiation.' In fact, the unit has become, as it should, dependent entirely on condensation of steam, which means a heat transfer, rather than on any particular area of metal."

The authors propose, therefore, the following definition of a unit for stating the capacity of radiators and heating boilers; *The "foot of radiation" shall be a quarter of a pound of steam condensed from and at 212° F. per hour.*

(*c*) See, also, discussions which followed this paper, printed in March, 1917, issue of this same magazine.

(*d*) In a letter to the Editor from a prominent manufacturer of boilers, connected with an important association, it is stated:

"If the American Institute of Architects could bring about the establishment of **a standard method of rating heating boilers** it would mean a great step forward in boiler manufacturing.

"Practically every boiler manufactured today, no matter what its catalog rating, will actually develop its catalog rating, but the manufacturer does not tell how it has to be handled to develop its rating. Some boilers, to deliver their rating, have to be fired every four hours with a draft so intense that it almost equals a forced draft, so great is the rate of combustion per square foot of grate. Such a condition, of course, is not reasonable for a heating plant, and the only way to eliminate it is to surround the definition of how a boiler should be rated with certain safeguards.

Amount of Heating Surface Required on House-Heating Boilers

"For maximum economy with any kind of fuel, a boiler should be proportioned so that at least one square foot of heating surface should be given for every 3.45 pounds of water to be evaporated from, and at 212° F. per hour.

"For each 100 square feet of standard direct cast-iron radiation in still air, or its equivalent, 7.25 square feet of heating surface should be used, or that each square foot of heating surface in heater take care of 13.8 square feet of standard direct cast-iron radiation or its equivalent, which is 3.45 pounds of water per hour from and at 212° F.

"The above figures are based on the calculation that for each square foot of direct radiation, ¼ pound of water is condensed per hour from and at 212° F. The heating surface is as recommended by the American Society of Mechanical Engineers.

"Due to the wide difference in coal, it is impossible to specify the exact ratio of grate to heating surfaces, but the following will cover the situation.

Grate Area

"That a grate area or its equivalent be furnished so that a firing period of not less than eight hours may be obtained."

(*e*) The A.S. of H. & V. E. has a Committee on "Code for Testing Low-Pressure Heating Boilers" and is working on this subject. (See 10C4.) In its *Journal* and "Transactions" will be found many interesting and valuable contributions, some of these, issued as reprints are:

1. **"Testing and Rating House-Heating Boilers,"** Wm. Kent. 1909. 10 cents.
2. **"Standards and House Heating Boilers,"** Report of Committee. 1910. 10 cents.
3. **"Basis for Rating House-Heating Boiler,"** F. L. Busey. 1911. 10 cents.
4. **"Definition of a Unit of Heat,"** R. P. Bolton. 1912. 10 cents.
5. **"Code for Testing House-Heating Boilers,"** Report of Committee. 1913. 10 cents.

10C4 *Heating in General*

(See 6J for Heating by Electricity and 7J for Heating by Gas.)

(*a*) The following Pocket Books and Handbooks, which cover the whole range of this issue, will not be referred to again under the subjects into which this issue has been subdivided. Other publications or articles devoted principally to those subjects are separately listed.

1. **"Mechanical Engineers' Pocket Book,"** William Kent. 1916.
2. **"Mechanical Engineers' Handbook,"** Lionel S. Marks. 1916.
3. **"Architects' and Builders' Pocket Book,"** Frank E. Kidder. 1916.

(*b*) The following books contain information on many of the subjects treated in this issue:

1. **"Civil Engineers' Pocket Book,"** J. C. Trautwine. 1913.
2. **"Fire Prevention and Fire Protection,"** J. K. Freitag. 1912.
3. **"Crosby-Fiske Handbook of Fire Protection,"** fifth edition.
4. **"I.C.S. Handbooks,"** and books included in Index to International Library of Technology.

(*c*) See **"Review of Current Technical Literature"** and *Journal* of the A.S.M.E. for information on all phases of this subject. Also reports of committees in that Society. See, also, Standards recommended in reports of committees received by the Council of the A.S.M.E. as follows:

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On Standard Tests and Methods of Tests, covering, among other things, the subject of testing of steel.

(*d*) See **"Proceedings"** of the A.S.C.E. for lists of "Current Engineering Literature."

(*e*) The A.S. of H. & V.E. is conducting investigations to determine the relative efficiency of a heating plant during the different periods of the heating season, dividing it up into periods of twenty days for each period and considering a heating season as 160 days, more or less, the first ten days and the last ten days being considered as one period and so on; this will determine the efficiency of the plant at slow, medium, and maximum combustion, and thus determine the relative efficiency of each rate of combustion from a number of such tests.

Through committees and in coöperation with other organizations, it is considering problems affecting all phases of heating.

The A.S. of H. & V.E. issues these reprints of papers:

1. **"Design of Indirect Heating Systems—Maximum Economy and Operation,"** F. L. Busey, and W. H. Carrier. 1913. 20 cents.
2. **"Heating and Ventilating of Federal Buildings,"** N. S. Thompson. 1910. 10 cents.
3. **"Development in Heating and Ventilating Industrial Buildings,"** E. L. Hogan. 1915. 10 cents.
4. **"Office Practice in Estimating Heating and Ventilation,"** J. D. Small. 1912. 10 cents.
5. **"Heating a Swimming-Pool,"** C. Teran. 1912. 10 cents.
6. **"Report of Committee on Steam Heating Residences."** 1910. 10 cents.
7. **"Hot Water Heating System** of Crane Co., Chicago Works," F. E. McCreary.

(*f*) See the following in the *Heating and Ventilating Magazine.*

1. **"Notes on the Rise of the Smokeless Boiler."** October, 1916.
2. **"Relative Economy of Heating by Steam at Different Pressures,"** A. Bement. February, 1917.
3. "The Care of a **Vacuum Heating System** in the Summer Months." August, 1917.
4. "A Survey of **Operating Costs in Thirteen School Buildings,"** Jamestown, N. Y., J. M. Cushman. November, 1916.
5. **"The Comparative Effects of Wind and Sunshine on Buildings,"** D. B. Prentice. June, 1916.
6. **"Fuel Economies in House Heating,"** H. R. Johnson. December, 1916.
7. **"Failure to Heat Premises—Tenant's Remedy."** February, 1916.
8. "An extensive **Open-Tank Gravity Hot Water Heating System,"** George Stumpf, Jr. October, 1914.
9. **"Hot Water Heating** on a Large Scale," New York State School of Agriculture, November, 1915.

(*g*) "Lefax" issues, among others, the following data sheets:

1. **"Heating,"** from "Mechanical Equipment of Federal Buildings," N. S. Thompson, Chief Mechanical and Electrical Engineer, Supervising Architect's Office. (3–52.)
2. **"Design of Steam and Hot Water Heating Systems,"** M. William Ehrlich. (4–96.)

(*h*) See **"Mechanical Equipment of Buildings,"** a reference book for engineers and architects, by Louis A. Harding and Arthur C. Willard.

1. Volume I: **"Heating and Ventilation."** A reference book for architects and engineers. 1916. 619 pp. The authors have found it necessary, in their own experience, to make extensive use of manufacturers' data in designing the various mechanical systems or plants required in modern buildings. They have therefore not hesitated to include such data in the text, in order to illustrate and facilitate the design of similar systems in each subject treated.
2. Volume II: **"Power Plants and Refrigeration."**

(*j*) **"School Architecture,"** W. G. Bruce. Fourth edition. For architects and school authorities. Chapter on Heating and Ventilating treats most of the subjects in this issue.

(*k*) **"Handbook for Heating and Ventilating Engineers,"** James D. Hoffman. With tables and charts, on design and installation, widely used in colleges.

(*l*) **"The Heating and Ventilating of Buildings,"** Rolla C. Carpenter.

(*m*) **"Manual of Heating and Ventilation,"** F. Schumann.

(*n*) **The Mechanical Equipment of Federal Buildings under Control of The Treasury Department,** N. S. Thompson, has chapters on:

I. Heating and Ventilation. II. Commercial Practice in Regard to Heating Factory and other Buildings. III. Commerical Practice in Regard to Heating by forced Circulation of Hot Water from a Central Station.

(See, also description under 6L.)

This book, written by the Chief Mechanical and Electrical Engineer, office of Supervising Architect, is especially interesting as an exemplification of the practice in that office and contains, besides data elsewhere referred to, discussions on general practice, schedules of piping sizes, sample specifications of the office, estimating data for apparatus in new federal buildings, ducts, flues, tables, and other information applicable to all features of heating and ventilating in all kinds of buildings.

(*o*) **"Heating and Ventilating Plants,"** Charles L. Hubbard. Covers heating and ventilation as applied to all classes of buildings, from the small, furnace-heated dwellings to structures of the largest size. 300 pp., illus.

(*p*) **"Heating and Ventilation,"** C. L. Hubbard. A practical manual of hot-air, steam and hot-water heating, and of modern systems of ventilation. 256 pp., illus.

(*q*) See **"Heat Engineering,"** Arthur M. Greene, Jr.

(*r*) "Notes on **Heating and Ventilation,"** Prof. John R. Allen. A résumé of lectures delivered to classes in heating and ventilation at the University of Michigan. 272 pp.

(*s*) **"Mechanical Equipment of School Buildings,"** Harold L. Alt. 112 pp., illus. Contains Chapters as follows (other Chapters referred to elsewhere):

I. Heating and Ventilating. II. Ducts and Flues. III. Heating and Ventilating Special Rooms. IV. Ventilating Toilets and Laboratories. XIV. The School Power Plant. XVIII. Vacuum Cleaning.

(*t*) **"The Ventilation, Heating and Management of Churches and Public Buildings,"** J. W. Thomas. 148 pp., illus.

(*u*) **"Modern Theatre Construction,"** Edward Bernard Kinsila. Contains information **on Heating and Ventilation.**

(*v*) **"Heating by Hot Water, Ventilation and Hot-Water Supply,"** Walter Jones. 360 pp., illus.

(*w*) **"Hot-Water Heating and Fitting,"** William J. Baldwin. 306 pp., illus.

(*x*) **"Warming Buildings by Hot Water,"** Frederick Dye. 319 pp., illus.

(*y*) **"Practical Steam and Hot-Water Heating and Ventilation,"** Alfred G. King. Contains rules, tables, and 300 illustrations, showing in detail all the various heating systems, with pipe, radiator, and boiler connections.

(*z*) **"Steam Heating for Buildings,"** Wm. J. Baldwin, M. Am. Soc. C. E. Descriptive of steam heating apparatus for warming and ventilating large buildings and private houses. 404 pp., illus.

(*aa*) **"Heating by Steam and Hot Water,"** Charles B. Thompson. Has short rules for computing radiation, heat-losses, charts, illustrations, and descriptions of how best to heat water for baths, swimming-pools, etc. 265 pp., illus.

(*bb*) The Engineering Experiment Station of the University of Illinois issues:

1. **"The Economical Purchase and Use of Bituminous Coal for Heating Homes."** A new bulletin. 2. A circular on the installation of a house-heating system, showing the most economical methods of firing soft coal and operating a house-heating plant.

(*cc*) See *"Building Code"* recommended by the N.B. of F.U., 1915. Part XXVI, pp. 173–184, entitled **"Chimneys, Flues and Heating Apparatus,"** contains Sections 178–185 on Chimneys, Smoke-Flues, Gas-Flues and Fireplaces; Smoke-Pipes; Heating Furnaces and Appliances; Stoves and Ranges; Hot-Air Pipes and Registers; Steam and Hot-Water Pipes; Vent-Flues and Ducts; and Dry Rooms. Includes diagrams.

(*dd*) See "Field Practice," Inspection Manual of the N.F.P.A., 1914. Contains sections as follows:

1. Sec. II: **"Heating Hazards."** Treats of Radiation and Conduction of Heat; Effect of Continuous Heat upon Heating Devices; Furnaces and Heating Devices of a Fixed or Stationary Type—Grading of Furnaces—Setting and Mounting—Clearance—General Features of Installation; Furnace Stacks, Chimneys and Flues, Breeching-Features of Installation; Hand or Movable Furnaces; Special Treatment of Miscellaneous Heating Devices; Common Miscellaneous Hazards, in connection with Use of Heat (including: Blower Systems for Heating, Ventilating, Stock and Refuse Conveying).
2. Sec. III: **"Power Hazards,** including Refrigeration." Treats of Steam Boilers; Electric Power—Electric Motors; Gas and Gasoline Engines; Fuel-Oil under Boilers and Furnaces, and for Domestic Use; Refrigeration.
3. Sec. VII: **"Chimneys and Flues."** Treats of proper construction of chimneys and flues and gives Instructions for Repairing Old Chimneys.

(*ee*) **"A Handbook for Superintendents of Construction, Architects, Builders, and Building Inspectors,"** H. G. Richey. 357 pp. Superintendent of Construction, U. S. Public Buildings.

(*ff*) **"Building Foreman's Pocket Book and Ready Reference,"** H. G. Richey. 1,118 pp., 656 figures.

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(*gg*) See **"The Building Estimator's Reference Book,"** Frank R. Walker. 1917. Contains a Chapter on "Steam and Hot Water Heating," pp. 3,200–3,207, which gives data for Estimating Steam and Hot Water Heating, Sizes and Costs of Boilers, Pipe and Fittings, Radiation and Bronzing.

(*hh*) **Principles of Heating,** Wm. G. Snow. 224 pp., illus.

(*kk*) See also Industrial Section, page xiii, The H. B. Smith Company.

10C5 *Separate Letting of Contracts*

(See 9G*a* for Resolution A.I.A. Convention, 1913.)

10D Warm-Air Heating, Stoves, Ranges, and Dryers

1. The U. S. Department of Agriculture has issued Farmers' Bulletin No. 270, **"Modern Conveniences for the Farm Home."** 1916. 48 pp., illus. (Hydraulic and Sanitary features described under 9G37.) Gives a description of a hot-air furnace installation.
2. See "Saving Fuel in Heating a House," of the Bureau of Mines, listed under 10C1*b*.
3. The Federal Furnace League, which disbanded some five or six years ago, published, previous to that time, **"The Warm Air Furnace,"** a handy reference book containing a compilation of rules and formulæ to aid in estimating and installing warm-air furnaces. It was the official Handbook on warm-air furnace heating adopted by the National Association of Master Sheet Metal Workers. Cloth bound, 96 pp., including diagrammatic illustrations and tables.
4. The latest publication of this kind is: "Formula and Rules for Installation of **Warm Air Heating**" issued by the National Warm Air Heating and Ventilating Association (10A6). 1917. 10 pp. Contains Full Rule for Determining Heat Requirements; Rules for Pipe; Table of Pipe and Register Sizes; Results of Tests on Wall Pipe and Fittings; Directions and Rules for Cold Air Supply; Fresh-Air Room; Chimney Flues; Desirability of Shapes with Table of Sizes and a Short Rule for Determining Heat Requirements with table of Exposures and other tables.
5. The A. S. of H. & V.E. is gathering data from tests to determine the economic value of stoves for heating purposes. Tests will cover different rates of combustion and transmission at different temperatures to determine the actual value of these appliances for utilizing the heat in the fuel used.

   Tests of hot-air furnaces will be conducted under the auspices of the Society to determine the best ratios for these appliances, in every particular, including the ratio of size of grate to flue area, ratio of grate to chimney area and height, the ratio of heating surface to grate surface, and the relative value of cast-iron or wrought-iron surfaces on different operations.

   Read the *Journal* and "Transactions" of the Society for current reports.
6. The following reprints of papers by the A.S. of H. & V.E. are of interest:
   (*a*) **"Engineering Data for Designing Furnace Systems,"** A. C. Willard. 1915. 10 cents.
   (*b*) **"Rational Methods of Warm-Air Heating,"** Roy E. Lynd. 1915. 10 cents.
   (*c*) **"Design of Furnace Heating Systems—10-Room Residence,"** J. D. Hoffman. 1909. 20 cents.
   (*d*) **"Hot-Air Furnace in Cellarless Houses,"** R. S. Thompson. 1908. 10 cents.
   (*e*) **"Report of Committee on Furnace Heating."** 1910. 20 cents.
7. See the *Warm Air Heating and Sheet Metal Journal*, monthly, National Association of Sheet Metal Contractors. (Serial No. 11.) Contains articles of interest on heating in general.
8. **"Furnace Heating,"** William G. Snow. A practical and comprehensive treatise on warming buildings with hot air. 259 pp., completely illus.
9. **Progressive Furnace Heating,** Alfred G. King. A practical manual of designing, estimating, and installing modern systems. Supplemented by a treatise on construction and patterns of furnace fittings by W. Neubecker. 280 pp., illus.
10. The **Furnaceman's Hand Book,** contains 58 pages of Practical, Simplified Rules and Tables for Warm-Air Furnace Heating, by M. H. Smith.
11. **"Drying Machinery and Practice,"** Thomas G. Marlow. A handbook on the theory and practice of drying and desiccating, with classified description of installations, machinery, and apparatus. 388 pp., illus.
12. See "Heating of Water" (9F) for other information of collateral interest, and Industrial Section, p. xvi, Humphrey Co., for heating of water by gas.

10E Blowers, Fans, and Ventilation in General

(See the references under Heating in General (10C4), the majority of which contain sections covering the subjects included in this heading.)

1. The A.S.H. and V.E. is coöperating with biologists, physiologists, sanitarians, and psychologists to determine, if possible, whether the air in buildings is necessarily less healthful than the outer air, and if so, why. This work is covering a wide range of research and a thorough investigation into every phase of the subject.

   It is investigating the question of improvements in washing and conditioning the air to further improve the art of ventilation and is conducting experiments to standardize the various operations necessary to furnish adequate ventilation.

   Its committees are at work formulating requirements for ventilating buildings to guide the various state legislatures in making up codes for the regulation of such requirements in public and semi-public buildings.
2. See "Report of Committee on **Minimum Ventilation Requirements for Public and Semi-Public Buildings** for Legislation Purposes" of the A.S.H. and V.E. Contains General Suggestions on Compulsory Ventilation, applicable to all classes of buildings, and Special Minimum Heating and Ventilating Requirements applying to all Schools, Colleges, Factories, Workrooms, Theatres, and Motion-Picture Houses. 23 pp.
3. Reprints of papers by the A.S.H. and V.E.:
   (*a*) "Report of Committee on **Blower Systems,"** A. M. Feldman. 1914. 10 cents.
   (*b*) "Report of Committee on **Fan Blast Heating** (1)." 1909. 10 cents.
   (*c*) "Report of Committee on **School-room Ventilation."** 1913. 10 cents.
   (*d*) "New York State Commission on **Ventilation**—1915," Geo. T. Palmer. 1916. 20 cents.
   (*e*) "Open Windows with Mechanical **Ventilation,"** R. C. Taggert. 1912. 10 cents.
   (*f*) **"Ventilation of Telephone Booths,"** R. L. Douglass. 1914. 10 cents.
   (*g*) "The **Centrifugal Fan,"** F. L. Busey. 1915. 20 cents.
   (*h*) "Report of Committee on Method of Taking **Anemometer Readings."** 1913. 10 cents.
4. See "Suggested Regulations of the N.B.F.U. for Blower Systems for Heating and Ventilating, Stock and Refuse Conveying as Recommended by the N.F.P.A." (3A3*a*1 and 3A3*h*.) These have also been published in the *Heating and Ventilating Magazine* as Standard Heating and Ventilating Data Sheets, August, 1917.
5. **"Ventilation Laws** in the United States," published by the Heating and Ventilating Magazine Company. Contains Board of Health Requirements and Regulations of N.B.F.U., together with Model Ventilation Requirements as Promulgated by the A.S. of H. & V.E. 178 pp.
6. "Some **Modern Methods of Ventilation,"** R. Grierson. 187 pp. With special reference to public buildings. Contains information for health authorities, architects, heating, sanitary and electrical engineers, sheet-metal workers, and others who may be called upon to install ventilating apparatus.
7. See "The Design of **Blower Heating Systems** for Factory and Shop Buildings," L. A. Harding and J. A. Moyer. Published by the Pennsylvania State College Engineering Experiment Station in Pennsylvania State College Bulletin, June, 1913. 60 pp.
8. **The Ventilation Hand Book,** C. L. Hubbard. 218 pp. and diagrams relating to Ventilation as applied to Furnace Heating; Ducts, Flues, and Dampers for Gravity Heating; Fans and Fan-work.
9. **"The Ventilation of the School-room,"** Wm. J. Baldwin, M.E. 46 pp., illus.
10. "The **Ventilation, Heating and Lighting of Dwellings,"** J. W. Thomas. Illus.
11. **"The Fan,"** Charles H. Innes. 1916. 302 pp., illus. Includes the Theory and Practice of Centrifugal and Axial Fans, revised by W. M. Wallace and F. R. Jolley.
12. See **"Motion-Picture Houses** in New York City Inadequately Ventilated," *The Heating and Ventilating Magazine*, May, 1916.
13. For notes on **"Air Cooling of Houses,"** from an address by Alexander Graham Bell in *National Geographic Magazine*, see The Builders' Guide of Philadelphia, October 10, 1917.

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10E 14 *Duct Charts*

(See, also, all references under 10L.)

(*a*) "Tables for **Ventilating Ducts**," Chouteau E. Pearce, M.E., published on stiff cards by the Heating and Ventilating Magazine Company. These tables are useful in rapidly estimating superficial area and weights of galvanized sheet-iron rectangular ducts, as usually employed in ventilating work. 50 cents.

(*b*) "Chart for Figuring Round and Rectangular **Ventilating Ducts**," Chas. A. Fuller. *The Heating and Ventilating Magazine*, August, 1916.

(*c*) See **Pipe Fitting Charts** (10J15) for section on Galvanized Iron Work, Weight of Ducts, etc.

(*d*) See Pehl's Everready **Pipe and Elbow Chart.** 54 pp.

10F Air Conditioning, Temperature Control

Publications listed under Heating in General (10c), but especially many of those in the preceding subdivision on Ventilation in General will be found to treat of these subjects.

1. These are also embraced within the activities of the A.S. of H. & V.E. in connection with Ventilation investigations, and in the Report of the Committee on Minimum Ventilation Requirements it is stated:
   "Temperature control, preferably of an automatic type, shall be required for all heated and ventilated rooms. The temperature regulator, whether by automatic or hand control, shall be so arranged that its operation will not decrease the required volume of air-supply for ventilation."
2. The A.S. of H. & V.E. is investigating to determine the best method of dust prevention and humidifying the air from furnaces, and to regulate or control the same. Also to test and determine the value of temperature-controlling devices for hot-air apparatus.
3. The following reprints of papers by the A.S. of H. & V.E. are of interest:
   (*a*) "Report of Committee on **Air Washers.**" 1910. 10 cents.
   (*b*) "Preliminary Report of Committee on Standardizing the **Testing of Air Washers**," A. E. Stacey, Jr. 1914. 10 cents.
   (*c*) **"Humidity in Relation to Heating and Ventilation,"** L. C. Soule. 1912. 10 cents.
   (*d*) **"Improved Air Conditions** in a Boston Residence," F. I. Cooper. 1913. 10 cents.
   (*e*) "Studies in **Air Cleanliness**," G. C. Whipple and M. C. Whipple. 1915. 10 cents.
   (*f*) "Problem of **City Dust**," R. P. Bolton. 1915. 10 cents.
   (*g*) **"Temperature Equivalents of Wind Velocities,"** H. W. Whitten. 1912. 10 cents.
4. See *Heating and Ventilating Magazine:*
   (*a*) "New Ideas in **Air Conditioning**," W. E. Watt. February, 1916.
   (*b*) **"Air Conditioning for Factory Offices."** May, 1917.
   (*c*) **"Tests of Air Conditions** in an Illinois School," E. V. Hill, M.D. May, 1916.
   (*d*) **"Heating and Ventilation of School Buildings."** Washed recirculated air compares favorably with fresh air. September, 1916. (See, also, correspondence, October, 1916.)
   (*e*) "A Simple Method of Figuring the **Economy of Humidity.**" May, 1917.
   (*f*) **"Fuel Economy** with Increased Humidity." March, 1917.
   (*g*) **"Humidity and Automatic Control,"** Harold L. Alt. July, 1916.
   (*h*) "Re-establishment of **Temperature Control** on a central Station Hot Water Plant." April, 1917.
5. The literature of manufacturers of these specialities will usually be found to go fully into details.

10G Natural Ventilation

This term is used to differentiate between forced ventilation and that of skylights and continuous sash and of those forms of metal ventilators used to accelerate and accomplish ventilation without other mechanical accessories. These will also be referred to in Serial No. 11 under Metal Products.

1. Attention is directed, however, to the following information in the Industrial Section especially prepared for presentation in connection with this issue as pertaining to Ventilation.
   (*a*) Description, illustrated, of Sawtooth Ventilating as well as lighting by continuous steel sash—with reference made to the booklet, "Air, Light and Efficiency," David Lupton's Sons Company, p. xvii.
   (*b*) Specifications for and illustration of Swartwout Rotary Ball-Bearing Ventilators with reference made to Data Card published by The Ohio Blower Company, p. xiv.
   (*c*) For reference to the "Star" Fire-Retarding Ventilator, see page xxiii, Industrial Section, Merchant & Evans Co.
2. **"Natural Ventilation** in the Federal Hill School," Harold L. Alt, in the *Heating and Ventilating Magazine*, June, 1916.
3. See, also, references under 10L "Metal Work," and many of those under 10E "Ventilation in General."

10H Chimneys, Flues, and Fireplaces

In the design of these, efficient proportions and construction tightness should be the first considerations, as a protection against fire and to afford a proper draft. The successful operation of any installation may be greatly impaired, if not entirely defeated, by inadequate size or lack of tightness in the joints of the flue.

The N.F.P.A., and the N.B.F.U. have issued valuable illustrated literature on the subject. Drawings and descriptions are to be found therein and in many of the handbooks and other publications heretofore listed, as follows:

1. Terra Cotta, Hollow Tile and Brick (3D).
2. Walls, Chimneys and Flues (4C).
3. The Suggested Municipal Ordinance for Regulating Fire Hazards of the N.F.P.A., entitled "Chimneys and Flues, to Provide for the Safe Construction of Chimneys, Flues and Fireplaces" listed under 3A3c1 and the recommendations of the N.B.F.U. for chimneys and flues in;
4. "Dwelling Houses—A Code of Suggestions for Construction and Fire Protection (3A4d3) will also be found printed and illustrated with line constructional drawings in;
5. "Clay Products for Building Construction" issued by The Sewer Pipe Manufacturers' Association (9B7c); also describes and illustrates fire-clay flue-linings and chimney-tops.
   Valuable data for calculating the area, height, design, erection, and successful use of chimneys and flues will be found in many of the publications listed under Heating in General and Hot-Air Heating and in some of the handbooks and literature of manufacturers who are alive to the necessity of providing adequate draft as a precedent to satisfactory operation of any plant.
6. The A.S. of H. & V.E. proposes experiments to determine a standard for the size and height of chimneys and the strength of draft needed for a given operation; the value of round and square chimneys; the relative efficiency of smooth tile-lined flues compared with the ordinary brick flues; the effect on the draft of diving and underground flues, the friction and heat-loss necessary to overcome the extra travel; the explanation in a practical manner of the laws governing drafts in chimneys and for formulating a standard method of building chimneys to prevent defective drafts.
7. Read **"Chimneys:** Their Design and Construction," by Harold L. Alt, in the *Heating and Ventilating Magazine* for March and April, 1917. Mentions common errors in chimney work, describes the use of draft gage and methods to obviate chimney leakage, gives recommendations for construction, making connections and a table for calculating sizes of flues for residences in proportion to cubical contents of building. Contains illustrations and table of commercial sizes and areas of flue tile. Gives designing data for chimneys and power plant stacks, frictionless charts for brick and steel stacks, and a theoretical draft chart for stacks.
8. **"Chimney Design and Theory,"** W. W. Christie. A book for engineers and architects. 200 pp., illus. Contains Formulas; Tables; Wind-Pressure; Flues; Lightning Protection; General Information.
9. **"Chimney Design,"** edited from various sources, by Walter Loring Webb, C. E. "Lefax" Data Sheet No. 4–106.
10. See *Heating and Ventilating Magazine:*
    (*a*) "Things to Remember about **Chimneys**," E. C. Molby. October, 1916.
11. "The Ideal Fitter" of the American Radiator Company gives, in connection with each boiler described and illustrated, the size and height of chimney flue required. It also contains "Notes on Chimney Flues" with a table of commercial sizes of tile and unlined brick flues.

For information concerning Colonial Head, Throat and Damper for Fireplaces, see page xxiii, Industrial Section, Colonial Fireplace Co.

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10J Pipes, Valves and Fittings

1. The A.S.T.M. has adopted "Standard Specifications for **Welded Steel and Wrought Iron Pipe**," Serial Designation A-53-15.
2. See **Navy Department**: Specifications 10C1*d* and Standards of Water Works Associations, The American Gas Institute, and other Standards which have been referred to under different subdivisions in previous issues, including Sprinkler Equipments (4F3*c*).
3. Tests, reports and discussions on the treatment and corrosion of iron and steel in pipes will be taken up in the next Serial Number (11), under Metal Products.
4. A.S.M.E. Standards recommended in reports of committees received by the Council of the Society and separately published on:
   (*a*) Standard pipe, pipe-threads and pipe-unions.
   (*b*) Identification of power-house piping.
   (*c*) Standard threads for hose-couplings.
   (*d*) Standardization of pipe-thread gages.
   (*e*) The American Standard for pipe flanges, fittings, and bolting.
5. The National Association of Master Steam and Hot Water Fitters issues:
   (*a*) The 1915 U. S. Standard Schedule of Flanged Fittings and Flanges, on which is stated: "The dimensions of the 'American Standard' are identical with the above, and this Schedule was adopted March 20, 1914, by a joint committee of this Association, the A.S.M.E., and the Committee of Manufacturers on Standardization of Fittings and Valves." Cardboard. 24 x 35 inches. $1.
   (*b*) The same as a Chart, 9 x 12 inches.
   (*c*) A folder giving separate schedule of the "Standard" flanges and "extra heavy" flanges.
6. The N.F.P.A. prints in "Proceedings:"
   (*a*) Reports of Committee on Standardization of Pipe and Pipe Fittings.
7. The A.S. of H. & V.E. has issued Reports of Committee on Corrosion in pipe, which will be referred to in next issue, and is now collecting data relating to sizes of pipes used in steam- or water-heating plants; will tabulate such data that the sizes needed for any part of a plant will be readily understood, and continue experiments to add what data may be needed to complete the subject.
8. "**Dimensions and Weights of Pipe and Fittings**," compiled by the Editors of *Power*. Covers all standard pipes and their fittings.
9. See "Lefax" Data Sheets, as follows:
   (*a*) "**Economical Design of Steam Piping**," A. Langstaff Johnson, Jr.
   (*b*) "**Resistance of Pipes to Internal and External Pressure**," K. F. Adamson.
10. "The **Friction of Water in Iron Pipes and Elbows**," paper by F. E. Giesecke, of the University of Texas, read before A.S. of H. & V.E., July, 1917.
11. See *Heating and Ventilating Magazine:*
   (*a*) "**Pipe Symbol Chart**," T. W. Reynolds. February, 1916.
   (*b*) "A Handy Chart for Determining the **Weight of Pipe**," W. F. Schaphorst. March, 1917.
   (*c*) "**Pipe Hangers**," Harold L. Alt. March and April, 1916.
   (*d*) "A British Tribute to the **Superiority of American Pipe**." October, 1916.
   (*e*) "**Importance of Supervising Piping** in Customers' Buildings," D. E. Karn, of Consumers' Power Company, Grand Rapids, Mich. August, 1917.
12. "**A Handbook on Piping**," Carl J.. Svensen. 350 pp., illus. Has convenient information and data on piping, fittings, pipe joints, valves, piping drawings, pipe lines, and their accessories.
13. "**Pipes and Piping**," Hubert E. Colling. Included in the contents are: Steam-pipe conduits; pipe fittings; sizes of pipe; how to distinguish steel from iron pipe; a color scheme for pipe lines; effect of superheated steam on cast-iron valves and fittings.
14. "The **Design of Valves** for Use in High Class Buildings," M. W. Link. Paper No. 172 in the *Journal of the Society of Constructors of Federal Buildings*, March, 1915, pp. 133–142.
15. **Pipe Fitting Charts**, Wm. G. Snow. 284 pp., 220 figures of piping and apparatus for hot-water, steam, and other types, including ducts.
16. For data on Inspection and Tests of Pipe, Valves and Fittings, see the information concerning such services printed on page x in the Industrial Section by Robert W. Hunt & Company.
17. For reference by A. M. Byers Company to book on pipe issued by that Company, see Industrial Section, p. xviii.

10K Radiators, Registers and Grilles

For many references to these subjects see other divisions, particularly Heating in General (10C) and Hot Air Heating (10D).

1. The A.S. of H. & V.E. has special committees, to Determine the Most Effective Place for a Radiator in a Room and to Recommend a Standard Method of Testing Radiators. Investigations are being conducted to determine:
   (*a*) The relative value or ratio of one-, two,- three- and four-column radiators; (*b*) the relative value or ratio of different heights of radiators from 18 to 45 inches; (*c*) the effect of painting, bronzing, or enameling radiators; (*d*) the loss in efficiency when the radiator is enclosed in a recess with only the front exposed, with the front covered with a grill, with the radiator all enclosed with only an opening at the bottom for air and a register in the top of the enclosure, to determine the size of openings at the bottom and size of register at top in proportion to the surface in the radiator; (*e*) the ratio of efficiency of a window radiator enclosed under a seat; (*f*) the ratio of fresh-air inlet and warm-air outlet per square foot of indirect surface; (*g*) the ratio of register to indirect surface, to determine the frictional resistance of the ornamental face of a register.
2. The following reprints of papers by the A.S. of H. & V.E. are of interest:
   (*a*) "**Wall Radiators vs. Long Pipe Coils**," J. A. Donnelly. 1906. 10 cents.
   (*b*) "**Effect of Painting Radiating Surfaces**," J. R. Allen. 1909. 10 cents.
   (*c*) "**Determining Volume of Air Passing through Register**," J. H. Kinealy. 1897. 10 cents.
   (*e*) "**Comparison of Pipe Coils and Cast-Iron Sections for Warming Air**," Prof. J. R. Allen. Contains tests demonstrating that condensation for both types of surface depends upon friction of air through the heater.
3. See *Heating and Ventilating Magazine:*
   (*a*) "**Determination of Radiator Sizes for Hot Water Heating Plants**," Freywid Wegelius. January and April, 1916.
   (*b*) "**Best Position for a Radiator in a Room**," September, 1916.
   (*c*) "**Requirements for Radiator Humidifiers**," E. P. Lyon. August, 1917. Contains description of a new type capable of evaporating 2.9 gallons per sq. ft. of hot water radiator per day.
   (*d*) "**Apparatus for Testing Heat Transmission from Radiators**." May, 1916.

10L Metal Work, Ducts, Chase Lathing

See especially the references to Warm-Air Heating, Ventilation, Indirect Heating and the Section on Duct Charts (10E14) and the reference to *The Warm-Air Heating and Sheet Metal Journal* (10D7).

1. See *Heating and Ventilating Magazine:*
   (*a*) "**Practical Sheet Metal Duct Construction**," William Neubecker. July, 1916.
   (*b*) "**Standard Practice for Sheet Metal Work in Ventilating Systems**. "T. W. Reynolds. December, 1916.
   (*c*) "Comparison of various methods of Figuring Duct and Flue Sizes," Harold L. Alt, October, 1916.
2. Of the publications under 10E, see particularly "The Ventilation Handbook" (10E8) as a complete exposition of the metal work features pertaining to all forms of heating and ventilating.
3. See, also, "Sheet Metal," the publishers of which also publish:
   (*a*) "**Practical Sheet Metal Duct Construction**," W. Neubecker. 194 pp., diagrams.
   (*b*) "**Practical Exhaust and Blow Piping**," W. H. Hayes. 160 pp., illus.
   (*c*) "**Elbow Patterns for all Forms of Pipe**," F. S. Kidder. 73 pp., 35 figures.
4. See, also, *The Sheet Metal Worker*.
5. For reference to alloy steel for galvanized sheets and to other products of American Sheet and Tin Plate Company, see Industrial Section, p. xxix.
6. **Furring and plastering** over heat-pipes and ducts in chases, walls, or partitions: The importance of using metal as a protection against fire is evident. Suggestions and data pertaining to the use of metal lath for this purpose will be found in the Industrial Section on page xi of the Associated Metal Lath Manufacturers.

For information on Target and Arrow Roofing Tin, see Industrial Section, page xxiii, N. & G. Taylor Co.

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10M Air-Leakage, Guarantees and Formulas

1. In an address before the N.A.M.S. and H.W.F. in June, 1916, the Editor of the S.S.D. said:
   "Can you not, in coöperation with the A.S. of H. & V.E., work on developing a basic formula, or officially approving one of those in existence, for computing the amount of radiation recommended in proportion to cubical contents, to outside wall area (for different kinds of walls and different exposures), to window and door openings, etc., and make this available to all architects for instant reference?"
   Several formulas have been put forth for calculating the amount of **radiation required to heat given spaces** under varying exposures, but until of late years not much data was obtainable with respect to transmission of heat and other factors affecting the materials of construction.
2. One that has been largely used was promulgated by John H. Mills in his work "Heat" published over twenty years ago. Others in use known as Carpenter's, Thompson's, or Holbrook's formulas will, with others offered by various authorities, be found in the references under Heating in General.
3. C. B. Thompson, in a pamphlet published in 1909, entitled **"Heat Transmission,"** completely discusses the subject and offers his formula, giving a chart for ready use, with an accompanying diagram for making quick calculations.
4. Particular attention is directed to the complete and extensive tables and formulæ, based on Professor Woodbridge's calculations, in "The Mechanical Equipment of Federal Buildings" (10C4*n*), being the **Basis for Calculating Radiating Surface** used in the office of the Supervising Architect, Treasury Department.
5. See next following Section on **Heat Transmission** for activities of the A.S. of H. & V.E., which will have an important bearing on developments of formulas.
6. With respect to performance affecting guarantees, the A.S. of H. & V.E. is conducting investigations to determine what constitutes a standard performance of a steam- or water-heating apparatus and to determine a standard method by which any heating apparatus may be tested in any weather at or below 50° F. that will be equivalent to a performance of 70° inside in zero weather, or below.
7. **"Heat Loss from Buildings and How to Reduce It."** *Engineering and Contracting*, March 28, 1917. An editorial advocating and describing the double glazing of windows.
8. See "Lefax" Data Sheets, as follows:
   "Calculating Heat Losses from Buildings," Charles L. Hubbard. From *Power* (4–158), May 19, 1914.
   "Cubical Contents of Rooms" (5–346). Giving tables for instantly calculating same.
9. Experiments to determine the relative heat lost through single- and double-glazed wood, steel and hollow metal sash have been conducted recently under the direction of A. N. Sheldon. In a paper before the A.S.M.E., printed in January, 1917, "Proceedings," Mr. Sheldon gives the results of his tests.
10. In Bulletin of Building Data League, (2A5*d*) April, 1916, is printed the results of tests, entitled **"The Leakage of Air through Windows,"** initiated and directed by Mr. Stephen F. Voorhees, with apparatus purchased by the New York Telephone Co. The general results are given in relative form only, as further tests are in progress to determine absolute values, if possible. The results show how serious the leakage of air may be.
11. See Reprints of papers by the A.S. of H. & V.E.:
   (*a*) **"Formula for Radiation for Hot Water Heating,"** Jas. A. Donnelly. 1914. 10 cents.
   (*b*) **"Effect of Wind on Heating and Ventilating,"** H. W. Whitten. 1909. 10 cents.
   (*c*) **"Performance of Heating Guarantees,"** Wm. Kent. 1910. 10 cents.
   (*d*) **"Report of Committee on Heating Guarantees."** 1912. 10 cents.
   (*e*) **"Window Leakage,"** Stephen Voorhees and Henry C. Meyer, Jr. 1916.
12. See *Heating and Ventilating Magazine:*
   (*a*) "Contractor's **Guarantee of Heating Installations."** January, 1916.
   (*b*) "Contractor's **Guarantee for Heating System."** August, 1916.
13. See **"The Control of Air Leakage Around Windows,"** H. McGeorge, in Furnace Heating (10D8) pp. 237–246.
14. **Metal Weather Strips.** Building Data League conducted investigations and issued "Preliminary Specifications and Notes," September, 1916, for discussion among members.
15. It is of especial interest to note that in the calculations of the office of the Supervising Architect (10M4) a different formula is used for buildings equipped with **metal weather strip** equal to about a 10 per cent reduction in the amount of radiation.

10N Heat Transmission, Insulation, Coverings

(See, also, 10M and 10O, as well as the Heating and Cooling of Water 9F).

1. The A.S. of H. & V.E. is collecting and tabulating data of all tests relating to heat-losses through building materials. It will collate the results of new tests till the heat-losses of all materials used in a modern building have been ascertained, and then maintain authoritative data for use as a basis in determining the heating surfaces necessary for buildings of various types.
   It will collect data relative to the heat-loss through covering materials and make tests to verify them and determine the value of insulating materials used for insulating buildings, boilers, pipes, cooling pipes, cooling machinery, and other apparatus.
2. In an address before the N.A.M.S. and H.W.F. in June, 1916, the Editor of the S.S.D. then said: "In the matter of sectional covering and banding on lateral runs, plastic covering on flanges, couplings and fittings, and on the heating apparatus itself, surely some standards of practice could be developed which would greatly aid in establishing a uniform basis of estimating."
3. See "Specification for 85 per cent **Magnesia Non-Conducting Coverings** for Power and Heating Systems" (received March 8, 1917, but not dated), described in a letter, from Prof. Thomas Nolan, Chairman Committee on Materials and Methods, A.I.A., quoted under 4K2.
4. The Low Pressure Covering Manufacturers' Association has under consideration the recommendations of its Standard Committee for a specification on **Air Cell and Wool Felt Covering.** It is expected that specifications for the uniform proper application of such coverings will be given consideration later on.
5. See "List of Inspected Mechanical Appliances," published by Underwriters' Laboratories, for **Heat Insulating Coverings** and Pipe Coverings.
6. See "Mineral Resources of the U. S.," issued by U. S. Geological Survey, 1915, Part II, "Nonmetals," for Chapter on **"Asbestos."**
7. See **"Practical Laws and Data on the Condensation of Steam in Covered and Bare Pipes,"** C. P. Paulding. To this is added a translation of Péclet's "Theory and Experiments on the Transmission of Heat Through Insulating Materials." 107 pp., illus.
8. See **"Transmission of Heat Through Cold-Storage Insulation,"** C. P. Paulding. Formulas, Principles, and data relating to insulation of every kind. 41 pp., illus.
9. See Reprints of Papers by the A.S. of H. & V.E.:
   (*a*) **"Heat Transmission with Pipe Coils and Cast Iron Heaters,"** L. C. Soule. 1913. 10 cents.
   (*b*) **"Heat Losses through Building Materials,"** L. A. Harding. 1913. 10 cents.
   (*c*) **"Heat Losses and Heat Transmission,"** Walter Jones. 1906. 10 cents.
   (*d*) **"Heat Transmission through Building Materials,"** John R. Allen. August, 1916.
10. See *Heating and Ventilating Magazine:*
   (*a*) "Government Experiments on **Heat Transmission through Walls."** September, 1916.
   (*b*) **"Effect of Velocity and Humidity of Air on Heat Transmission through Building Materials,"** J. A. Moyer. February, 1916.
   (*c*) "The **Heat Insulating Properties of Commercial Steam Pipe Coverings,"** L. B. McMillan. January, 1916.
11. The Bureau of Standards, in addition to several commercial tests, has been making investigations upon about twenty-five different kinds of materials, the samples being purchased in the open market. These include flax, asbestos, and cork products, and a wide variety of special materials. An investigation of the thermal conductivity of wood is in progress, several varieties having been measured. The very great importance of confined air-spaces in the construction of insulating walls led to an extended investigation of the laws governing heat transmission by confined air, which is being continued.
12. For illustrations and specific data with respect to **Insulations and Coverings**, see pages in the Industrial Section, as follows:
   (*a*) H. W. Johns-Manville Co., p. xx.
   (*b*) Magnesia Association of America, p. xix.

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10 0 Mechanical Equipment in General—Power Houses and Cold Storage Plants

Concerning the various features of same there is, in addition to the many publications already listed in this issue, such a vast array of literature that no attempt is now made to do more than mention a few of the books generally applicable and list some of the controlling factors.

10 01 *Information Obtainable.*

(*a*) For many features of Mechanical Equipment, see Serial No. 4, Fire Prevention and Protection; No. 6, Electricity; No. 7, Gas; No. 9, Hydraulics and Sanitation.

(*b*) "**Engineering of Power Plants,**" Robert H. Fernald and George A. Orrok. 1916. 596 pp., illus.

(*c*) "**Steam Power Plants,**" Charles L. Hubbard. 299 pp., illus.

(*d*) "**Combined Power and Heating Plants,**" Charles L. Hubbard. 408 pp., illus. Contents include: Power, heating, and ventilating requirements for different types of buildings; hot-blast heating and ventilation; central plants.

(*e*) "**Small Power Plants.**" See, "Mechanical Equipment of Federal Buildings," Chapter IX, described under 6L*ij*.

(*f*) "**Steam Power Plants,**" Henry C. Meyer, Jr. 219 pp., illus. Includes new data on chimneys.

(*g*) "**Heat and Thermodynamics,**" F. M. Hartmann. 346 pp., illus. Home study book, based on the course which the author gives at the Cooper Union Schools.

(*h*) "**Heat,**" E. M. Shealy. 265 pp., illus. Treats of the steam engine, gas engine, refrigerating machine, and air compressor. Elementary.

(*i*) "**Heat Engines,**" J. R. Allen and J. A. Bursley. 320 pp., illus. A book of practice (not design).

(*k*) "The Method of the Future **Central Station Heating,**" A. Williams. *Heating and Ventilating Magazine*, August, 1916.

(*l*) "**District Heating,**" S. M. Bushnell and Fred. B. Orr. 1915. A brief exposition of the Development of District Heating and its Position among Public Utilities. 290 pp., illus.

(*m*) "Lefax" issues among others the following data sheets:

1. "**Central Station** Hot Water Heating by Forced Circulation," Leon A. Warren. From "Mechanical Equipment of Federal Buildings" (6–264), N. S. Thompson.
2. "**Vacuum Cleaning** in Large Buildings," Charles L. Hubbard. From *Practical Engineer* (4–111), March 15, 1914.

(*n*) See "**Vacuum Cleaners,**" described under 6K.

(*o*) "**Hydraulic Elevators,**" William Baxter, Jr. 300 pp., illus. Various makes of elevators fully described.

(*p*) See "**Electric Elevators and Dumbwaiters,**" under 6F.

10 01q *Refrigeration and Cold Storage*

See, also, Heat Transmission, Insulation, Coverings (10N), and for information on cooling of water, see 9F.

1. The American Association of Refrigeration issues:
   (*a*) "Proceedings." Reports of committees, papers, and discussions.
   (*b*) "Bulletins." Reports of investigations made by various committees and commissions of the Association.
   (*c*) Translation in three languages of the entire Proceedings of the Third International Congress of Refrigeration is now in preparation.
2. Data pertaining to the publications of The American Society of Refrigerating Engineers not yet received.
3. See, "Mechanical Equipment of Federal Buildings," N. S. Thompson. (10C*4n*.)
4. See "Power Plants and Refrigeration," L. A. Harding and A. C. Willard. (10C*4h*2.)
5. "**Refrigeration,**" Chas. Dickerman and Francis H. Boyer. A guide to the principles, details, and practice of modern systems of artificial cooling, including construction, equipment, and operation. 128 pp., illus.
6. "**Pocket Book of Refrigeration and Ice-Making,**" A. J. Wallis-Tayler. A reference book on refrigeration and cold storage. illus.
7. "**Refrigeration, Cold-Storage and Ice-Making,**" A. J. Wallis-Tayler. 590 pp., diagrams.
8. "A Practical Treatise on the Production of Low Temperatures as Applied to the Manufacture of Ice and to the Design and Operation of **Cold Storage Plants,**" M. W. Arrowood. 1916. 290 pp., illus.
9. "The Elements of **Refrigeration,**" A. M. Greene, Jr. 478 pp., illus. Contains, in logical order, data from which to design, construct and operate refrigeration apparatus.
10. "Elementary Mechanical **Refrigeration,**" F. E. Matthews. 172 pp., illus. A treatise for the person who is not a specialist but needs concise working data.
11. "Principles and Practice of Artificial Ice-making and **Refrigeration,**" L. M. Schmidt. 232 pp., illus. Comprises Insulation of Cold Storage and Ice Houses, Refrigerators, etc.
12. "**Ice-Making Machines,**" M. Ledoux. The theory of the action of the various forms of cold-producing machines. 258 pp.
13. See "**Air-Cooling and Refrigeration,**" being Notes on Air-Cooling Practice in *Heating and Ventilating Magazine*, May, 1917.
14. **The Bureau of Standards** is conducting extensive investigations, with the coöperation of committees of the American Association of Refrigeration and the American Society of Refrigerating Engineers. These investigations relate to ice, ammonia, brines, the thermal conductivities of insulating materials, and will form the subject of papers.

(*r*) See A.S.M.E. Condensed Catalogs of **mechanical equipment** with general classified directory and an engineering data section.

(*s*) See Sweets' Catalogue, **Engineering Edition,** comprising Materials of Construction, Contractors' Plant and Power-Plant Equipment, indexed and cross-referenced, and containing Specification Digest and Checking List.

(*t*) For data on **Capacity and Efficiency Tests** of Power Plants, and on Acceptance Tests of Power Plant Equipment, see the information concerning such services printed on p. x in the Industrial Section by Robert W. Hunt & Company.

10 02 *Practice Recommended and Standards to be Followed*

(*a*) See the various publications of the N.F.P.A., the N.B.F.U. and A.F.M.F.I. Co. concerned with mechanical equipment as listed in the Journal for March, pp. 144–146, which includes:

1. "Cold-Storage Warehouses: Suggestions for Their Improvement as Fire-Risks" (3A*3d*44).
2. See, also, other recommendations of these authorities mentioned under Heating in General (10C).
3. N.F.P.A. "Index" (3A*3h*5) contains references to Refrigeration and other forms of mechanical equipment.

(*b*) See, also, the appliances and devices pertaining to Mechanical Equipment inspected and labeled by the Underwriters' Laboratories embraced within:

1. List of Inspected Mechanical Appliances (3A6*b*).
2. List of Inspected Electrical Appliances (3A6*c*).
3. List of Appliances Inspected for Accident Hazard (3A6*d*).

(*c*) See Bulletins of the American Association of Refrigeration (10O1*q*1*a*).

(*d*) See Navy Department specifications (3A1*a*2) for "Refrigerators for U. S. Navy (except torpedo craft and tugboats)," Serial designation 12R6, March 10, 1913. Others mentioned under 10C1.

(*e*) See "Boiler Standards" 10C2.

(*f*) See "Pipes, Valves and Fittings" (10J) for the standards mentioned thereunder.

(*g*) See Reports of Committees of the A.S.M.E., the A.S.H. and V.E., and others listed under various subdivisions.

10 02h *Power Test Code*

1. The A.S.M.E. Power Test Code, entitled "Rules for Conducting Performance Tests of Power Plant Apparatus" is a new set of testing codes of the Society to replace those in force up to the present time, relating to boilers, pumping engines, locomotives, steam engines in general, and apparatus and fuels therefor, and extended so as to apply to such power-generating apparatus as the present codes do not cover, including water power, bringing them into harmony with each other and with the best practice of the day.

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ROBERT W. HUNT JNO. J. CONE JAS. C. HALLSTED D. W. McNAUGHER

ROBERT W. HUNT & COMPANY

Engineers · Inspectors · Chemists · Metallurgists

Chicago New York Pittsburgh St. Louis San Francisco Montreal Toronto Vancouver London

CAPACITY AND EFFICIENCY TESTS OF POWER PLANTS

Our Testing Department is fully equipped with the necessary instruments and trained observers for conducting all tests to determine the capacity and efficiency of Steam, Gas, and Electric Power Plants; and tests to determine the evaporative power of Boilers and the combined efficiency of Boilers and Furnaces in accordance with the rules of the American Society of Mechanical Engineers and the American Institute of Electrical Engineers.

The Power Plant Tests include tests of the efficiency and capacity of the various units, as well as the combined efficiency of the entire plant.

The services of the Engineering Staff are available for the interpretation of specifications and the arbitration of contested questions.

ACCEPTANCE TESTS OF POWER PLANT EQUIPMENT

Our Testing Department is prepared to witness and report upon performance tests of Oil and Gas Engines; Generators, Motors, and other Electrical Apparatus; and Centrifugal or Reciprocating Pumps at the manufacturers' works, thus securing the purchaser against the acceptance of Power Plant Equipment which does not comply with the requirements of the specifications.

INSPECTION AND TESTING OF STEAM BOILERS

The advantage of Boiler Inspection during construction is emphasized by the many failures reported each year due to hidden defects. In the interest of Public Safety, thorough inspection cannot be too strongly insisted upon when ordering new boilers.

The inspection service this Company offers includes the Inspecting and Testing of the Plates and Tubes at the Mills and supervision of the Boiler during construction by competent men experienced in Plate Manufacture and Boiler Construction.

INSPECTION AND TESTS OF PIPE, VALVES, AND FITTINGS

This material is inspected at the manufacturing works while being fabricated for power plant use. All pipe, valves, and fittings are subjected to hydrostatic pressure test and carefully inspected for proper dimensions and quality of workmanship.

TESTS OF FLOORS, WALLS AND COLUMNS

The constantly increasing use of Reinforced Concrete and of Terra Cotta Tile as a protective and structural material necessitates the testing of full-sized floor and wall sections, in order to obtain authentic data for the Designing Engineer and to demonstrate the durability, strength, and reliability of these materials in service.

Load Tests of floors in new buildings are frequently required by Architects and City Building Departments to demonstrate that the deflection under load does not exceed that permitted by specifications or by the rules of the Department.

The Testing Department is prepared to witness and report upon Load Tests of slabs and floors, Compression Tests of walls and columns, and Tests by fire and water on floors and walls.

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What's Behind Your Plaster?

The answer to this question often determines the success of your building.

Is the base for your plaster fireproof?
Does it prevent cracking of the plaster?
Does it stop falling of ceilings?
Is it verminproof?
Does it eliminate streaking of plaster?

If it accomplishes all these results, then you have the ideal plastering base—in short, you have

METAL LATH

Metal Lath thoroughly re-enforces the concrete with a steel mesh which expands and contracts with the plaster. It thus prevents the cracking of plaster with its ruination of decorations. Plaster on Metal Lath does not streak or stain, nor does it fall off. Metal Lath is fire-resisting, permanent, does not decay nor provide a lodging place for mice and vermin.

Use Metal Lath in all work, large or small, inside or outside. Its cost is not much more than the cheapest, poorest materials. Besides, it saves its cost many times over in the saving in decorations, repairs, up-keep, etc.

The Associated Metal Lath Manufacturers has been organized to secure proper standards and uniform success in the use of Metal Lath. Do you know about the tests conducted by the Bureau of Standards, United States Government, on plaster and stucco? We will send you this report on request.

ERRATA

Note omission of decimal point in weights of lath in our advertisement in the September issue. This should read:

24 G. 3.40 lbs. 25 G. 3 lbs. 26 G. 2.50 lbs. 27 G. 2.33 lbs.

THE
ASSOCIATED METAL LATH MANUFACTURERS
901 Swetland Bldg., Cleveland, Ohio

AMERICAN ROLLING MILL CO., Middletown, Ohio
BERGER MANUFACTURING CO., Canton, Ohio.
BOSTWICK STEEL LATH CO., Niles, Ohio.
CONSOLIDATED EXPANDED METAL CO'S, Pittsburgh, Pa.
GENERAL FIREPROOFING CO., Youngstown, O.
MILWAUKEE CORRUGATING CO., Milwaukee, Wis.
NORTHWESTERN EXPANDED METAL CO., Chicago, Ill.
PENN METAL COMPANY, Boston, Mass.
SYKES METAL LATH AND ROOFING CO., Niles, O.
TRUSSED CONCRETE STEEL CO., Detroit, Mich.

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Why Gild "Fireproof?"

"Fireproof," popular fancy synonymizes with safety from fire; invests incombustible materials of construction with mysterious power to impart their characteristics of fire resistance to completed and occupied "fireproof" buildings.

"It's absolutely fireproof; it cannot burn," is the familiar chatter of the owner of a "fireproof" building containing enough fuel in combustible contents to steam a mammoth ocean liner several days.

The Triangle Waist Factory fire which took a fearful toll of human life in a "fireproof" building, and the Edison Works fire which blazed unrestrained through nine "fireproof" buildings in seven hours, completely gutting them, are sufficient examples of the fact that it is

not the function of a "fireproof" building to safeguard contents

The merits of "fireproof" construction are beyond question, but whatever these merits they cannot comprehend incombustible building materials as a sufficient assurance of safety from fire in an occupied "fireproof" building.

"Maximum fire protection," a manufacturer of an incombustible building material announced, would be assured by the use of it. How so, when maximum protection against fire comprehends not only the incombustion of construction materials but also active control of fire, and all that can be expected of incombustible construction materials is passive resistance? They cannot, by any stretch of fancy, be considered as having any effect whatever on the burning of combustible contents.

Complete Fire Resistance

is made possible by automatic sprinklers. The fire-activated automatic discharge of water right where it is needed most, in the heart of a fire, not only actively resists the flames in combustible contents but also fortifies the passive resistance of the materials of construction.

Last fall, in a New York suburb, a seven-story "fireproof" storage warehouse experienced a fire which is comprehensively epitomized in this conclusion in a report prepared by Ira H. Woolson, consulting engineer to the committee on construction of buildings, National Board of Fire Underwriters:

> "The one fact which stands out above all others in connection with this fire is that a suitable sprinkler system would have saved the concrete building with its contents and probably have controlled the fire in the frame building. It is one more demonstration of the folly of depending upon fire-resistive construction alone to protect inflammable contents of a building from fire. The owners had evidently made sincere efforts to have a very safe structure. It was in general well built; wired glass windows were provided on all sides; the protection of vertical openings was standard; double approved fire doors were provided on communicating doorways; sets of fire pails properly filled were scattered about each floor, but were useless because of the smoke which entered the building preceding the fire. With all these precautions the building is today badly wrecked; a large proportion of the contents is ruined either by fire or water, and a total property loss of $125,000 or more has been sustained. Only a portion of this is covered by insurance and the business of the owners will be more or less paralyzed for many months. All this could have been saved by a comparatively small investment in sprinkler protection."

A "FIREPROOF" BUILDING IS—COMPLETELY—WHEN SPRINKLERED

Information Service Department

National Automatic Sprinkler Association

80 MAIDEN LANE, NEW YORK, N. Y.

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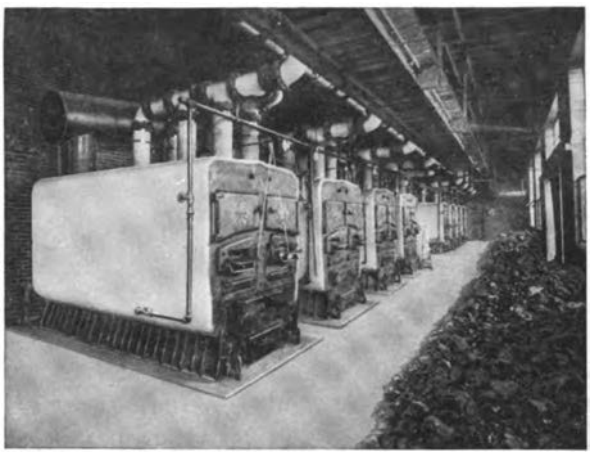
Smokeless heating boilers which burn cheap soft coal

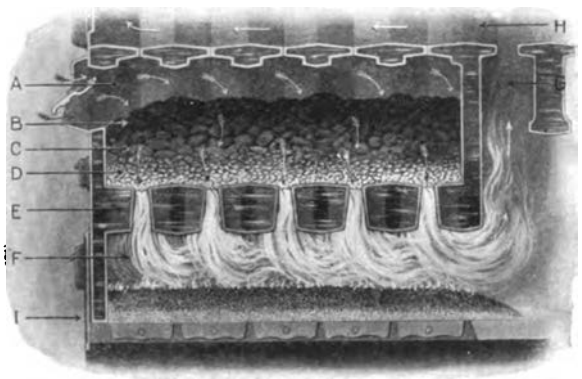
For factories, warehouses, hotels, etc., in districts where soft coals are plentiful and low in price IDEAL Smokeless Down-Draft Boilers will prove a big factor in cutting down overhead expenses.



Battery of eight IDEAL Smokeless Down-Draft Soft Coal Boilers in Curtiss Aeroplane Factory at Buffalo. Self-contained; no brick-setting. Burns soft coal without smoke.

IDEAL Smokeless Down-Draft Boilers

Save on the coal bill and give plenty of heat



Cut-away view of the side of an IDEAL Smokeless Down-Draft Boiler, showing ample gas-spaces through the water grate, and the processes of smokeless combustion of soft coal between the double grates.

are made of everlasting cast-iron, outwear steel boilers many years. Meet all requirements of smoke ordinances. Easy to run and clean. Tested in the leading soft coal markets for past five years and approved by all Smoke Inspectors.

Ask for catalog "Ideal Smokeless Down-Draft Boilers"—and let us refer you to present installations of these famous boilers—to know first-hand about their cleanliness and economy.

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First, the sawtooth continuous sash is top-hung and unbroken, therefore rainproof when open. Stale air can escape, rain or shine.

Second, similar continuous sash over the windows admits fresh air constantly.

Third, both inlets and outlets are uniform the entire length of the floor.

Fourth, a single electric motor in each wing controls simultaneously all the sawtooth lines in that wing. One operation opens or closes all the inlet sash on either side.

Results: (a) Fresh air reaches every part of the floor; stale air goes straight up and out; no pockets or back currents; (b) Ventilation is controlled by foreman; it is not dependent on the workers' caprice; (c) Abundant lighting over entire area of 1⅛ acres.

This principle of weatherproof, equally balanced inlets and outlets, with all outlet lines simultaneously controlled, can be applied to great advantage wherever numerous workers are employed on intensive production and the building width is not too great to permit the central bays to be reached by fresh air.

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Lupton Steel Sash
- Pivoted Factory Type
- Counterbalanced Type for factories
- Counterweighted Type for offices
- Power House Type

Pond Continuous Sash for Pond Truss, sawtooths, monitors and side walls

Pond Operating Device for long lines of sash

Lupton Rolled Steel Skylight

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Lupton Steel Shelving

This and many other notable factories where our coöperation with the architect or engineer has produced better-than-ordinary results, are described in a booklet, "Air, Light and Efficiency." It's free.

Let us help solve your lighting and ventilating problems.

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Bldg. No. 40, B. F. Goodrich Co., Akron, Ohio. A. P. Lohman, Mgr. Engineering Department, Osborn Engineering Co., Cons. Engineers.

14 sawtooth lines 70 ft. long over one wing; 3 sawtooth lines 140 ft. long over the other, all with Top-Hung Pond Continuous Sash. Underlapping storm panels at ends

Lupton Steel Sash, Counterbalanced Type in windows throughout; equal top and bottom openings ensure ventilation on floors 1 to 4.

STEEL SASH — PARTITIONS — DOORS

LUPTON

"INVESTMENT VALUE"

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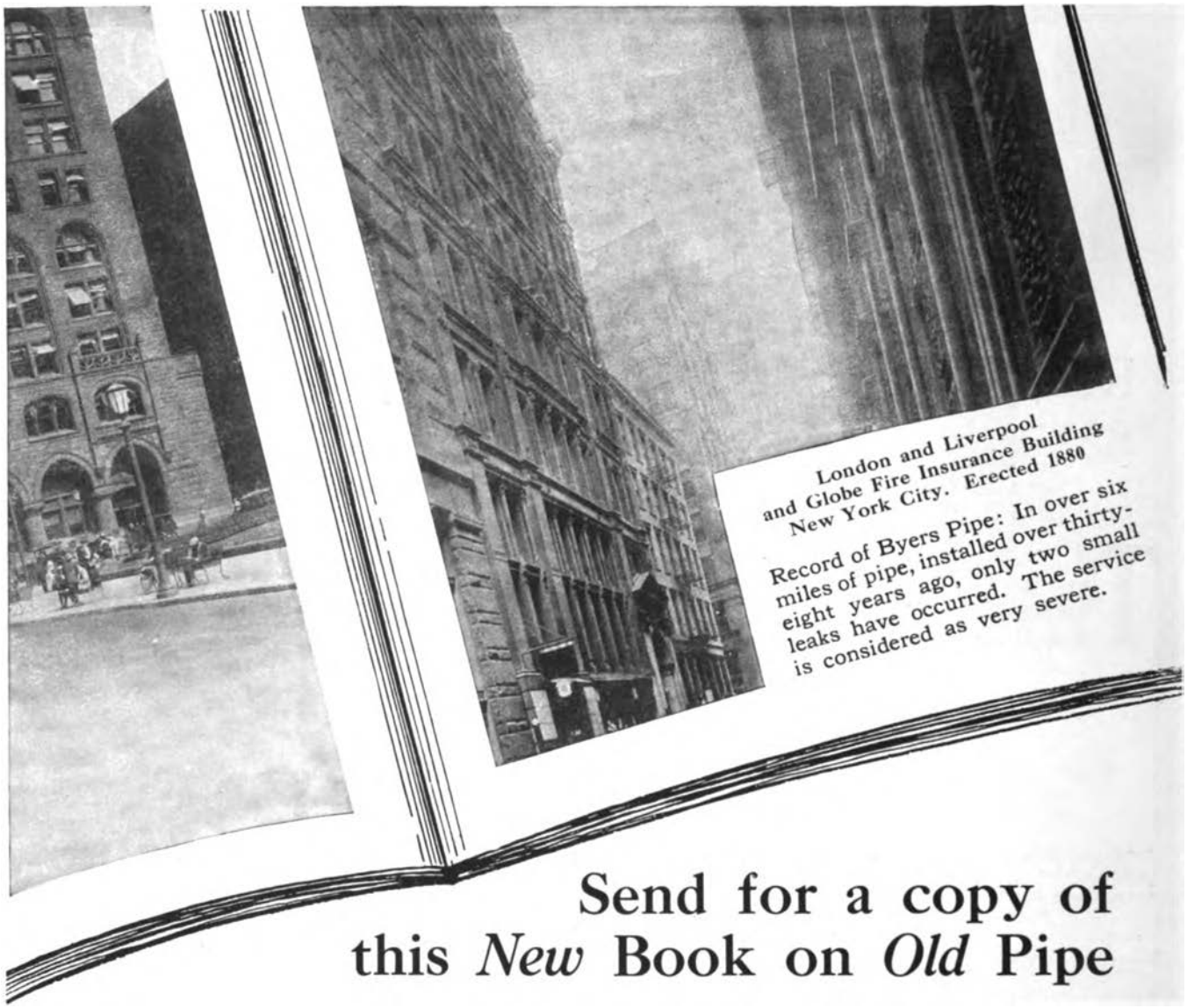

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It tells an illuminating story of pipe service in dozens of old buildings, giving an opportunity for instructive comparisons of the relative life of various kinds of pipe in similar service.

These are records of more than ordinary value, collected by personal investigations on the ground; and their lesson can be ignored by builders only at a heavy future penalty in pipe replacements, impaired values, and inconvenience to occupants.

The buildings include such famous structures as the Masonic Temple, Chicago; Cooper Union, New York; National Military Home, Dayton, Ohio: Cleveland Arcade; Iroquois Hotel, Buffalo; St. Louis Post Office, and dozens of others, all illustrated.

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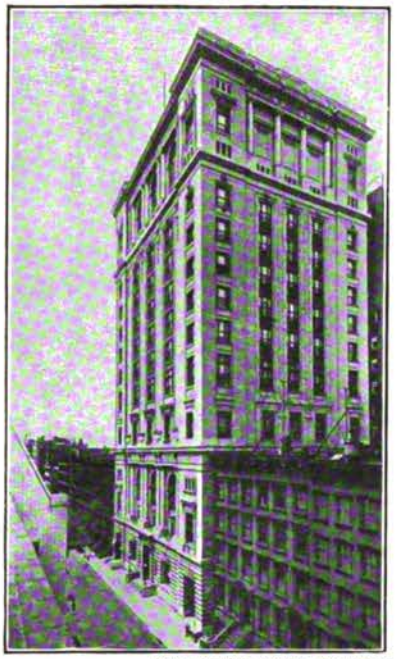
For more than a quarter of a century "85% Magnesia" coverings for pipes and boilers have been regarded as the highest standard of Heat-Insulation.

The Engineers' Building in New York and the new Massachusetts Institute of Technology here pictured, *both fully equipped with "85% Magnesia" coverings*, are pertinent illustrations of the attitude of the highest engineering authorities towards "85% Magnesia" as the perfect insulation.

The exclusive use of "85% Magnesia" coverings in the U. S. Navy, its almost exclusive use on locomotives, its predominant use in power- and heating-plants, its use in most of the sky-scrapers, terminals, public buildings and big hotels, all give ample proof that Architects and Engineers fully recognize that the insulation value of "85% Magnesia" is far in advance of any other material practicable for this purpose.



Engineers' Building, New York

Economy and Efficiency

The real value of a pipe and boiler covering can be measured only in terms of actual B. T. U. of heat saved, and in every test of this character "85% Magnesia" coverings have amply proved their superiority over all other coverings. The actual saving in coal, spread over a short term of years, will not pay only the whole cost of the installation, but also a handsome permanent dividend on the investment cost thereof.

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"85% Magnesia" coverings show no deterioration or loss of efficiency over a very long period. Instances are common where after as long as twenty years they are just as efficient as the day they were applied. This is a point of supreme importance which every Architect and Engineer will readily recognize.

Standardization

"85% Magnesia" coverings are made to standard sizes to fit all regular-sized steam- and hot-water pipes.

The Magnesia Specification

The absence of well agreed upon and authoritative standards for the application of pipe and boiler coverings led the Magnesia Association to prepare a standardized specification for the use of Architects and Engineers. It is sent free on request.

This scientific Specification embodies the practical experience of the members as indorsed by the leading heat and power engineers of the country. It is complete in detail for every kind of application, and should be kept in your files for reference.

"Let '85% Magnesia' Defend Your Steam"

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is one of the big problems of industry that touches us all. The economy with which coal is burned is as important in regulating the price of life's necessities as the cost of raw material or the price of labor.

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Satisfaction: This is attested by hundreds of prominent architects who are consistently specifying Hydrated Lime Plaster because its claims are proved on every job.

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BUILT IN SECTIONS PROVIDING FOR EXPANSION AND CONTRACTION SEE SWEETS INDEX PAGES 1320-21 SEND FOR BLUE PRINT

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Patented

have been installed on the Supply Depot of the Great Lakes Naval Training Station. The selection of "Star" Ventilators for this important post is a thorough recommendation of their ability to keep a constant supply of fresh air in circulation.

"Merchant's Old Method" Roofing Tin Evans "Almetl" Fire Doors

MERCHANT & EVANS Co

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Target-and-Arrow Roofing Tin

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Specify Taylor's Target-and-Arrow Roofing Tin, either IC or IX thickness, as desired. This Roofing Tin is sold at a fixed resale price.

Our catalogue is in 'Sweet's,' all issues. We have full-size working drawings describing in detail the method of applying heavy ribbed tin roofing, and shall be glad to send these to any one interested, upon request. These drawings will also be found among the Service Sheets contained in the portfolio issued by the Architectural Service Corporation, Philadelphia.

N. & G. TAYLOR COMPANY of Philadelphia

Headquarters for Good Roofing Tin Since 1810

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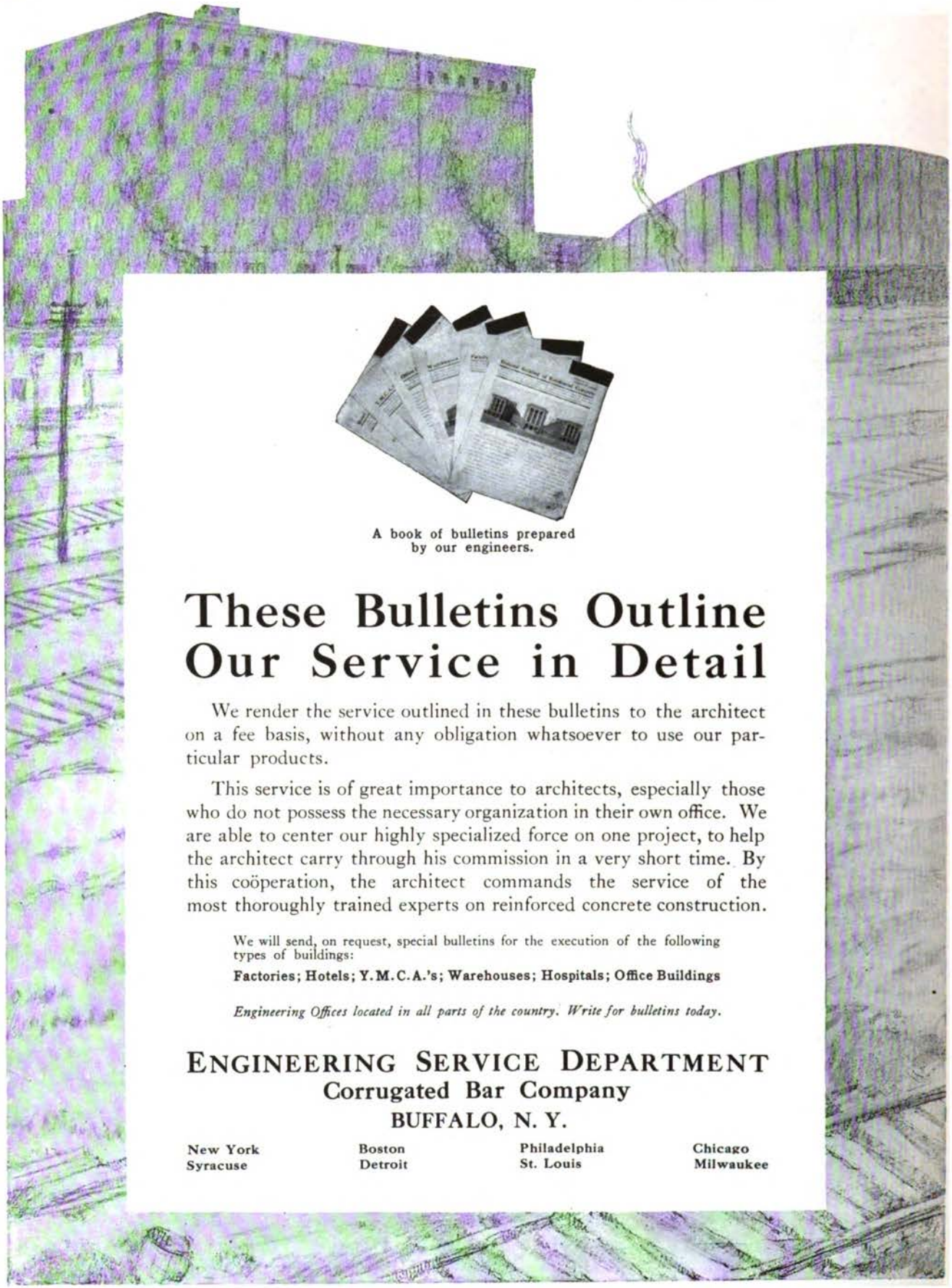

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THE Morrison R. Waite High School, illustrated above, and the Jessup W. Scott High School, designed in the same style, are probably the two finest school buildings in Toledo, Ohio. Both are the work of David L. Stine, Architect.

Both schools are of colossal size, faced with red rough-faced Bokhara brick, with Gothic decoration of Northwestern Light Grey Standard Terra Cotta. The color combination is unusually effective.

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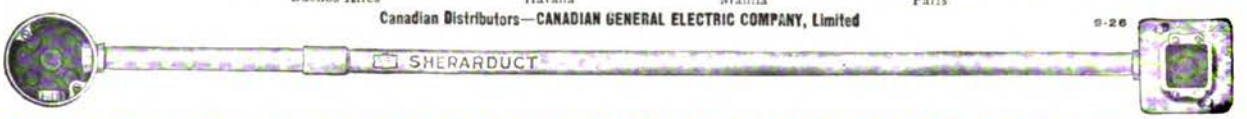

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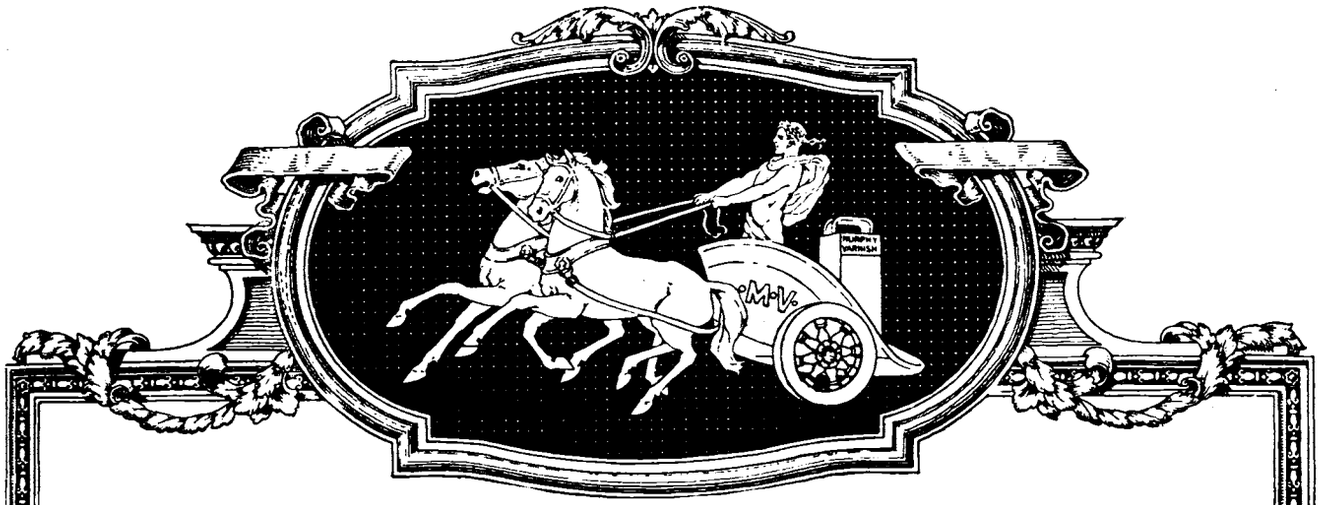

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"the varnish that lasts longest"

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Instead of ordinary mortar, use a mortar containing 2% of this dry collodial powder, and you will have no trouble at all.

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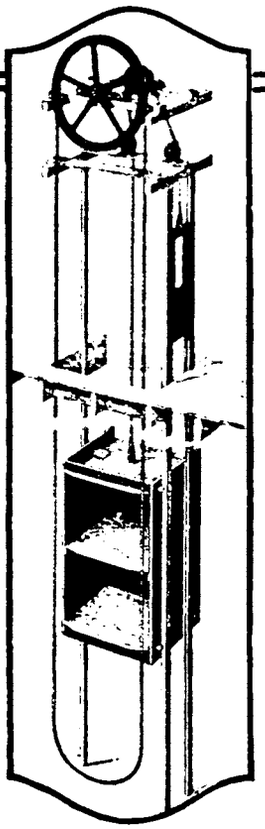

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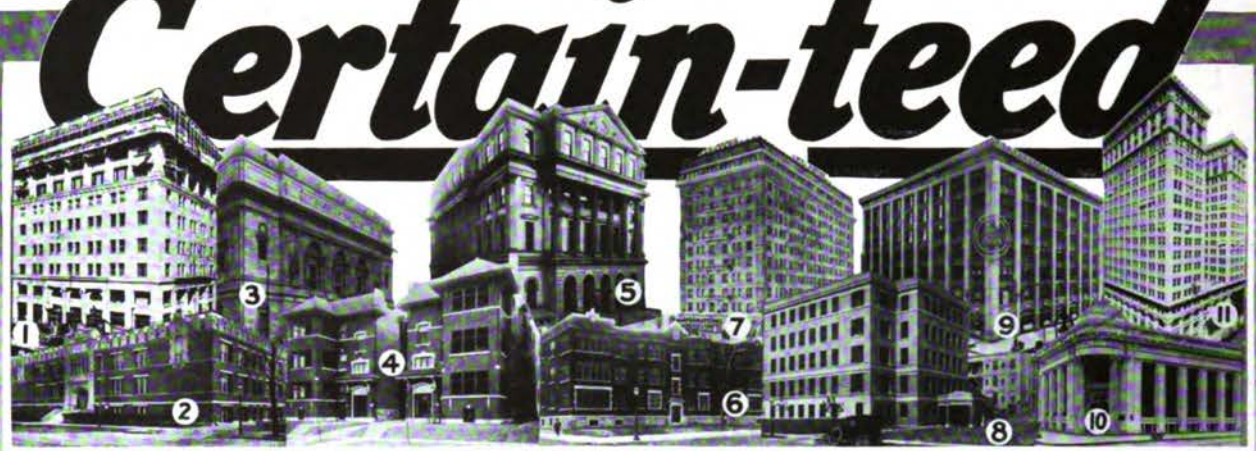

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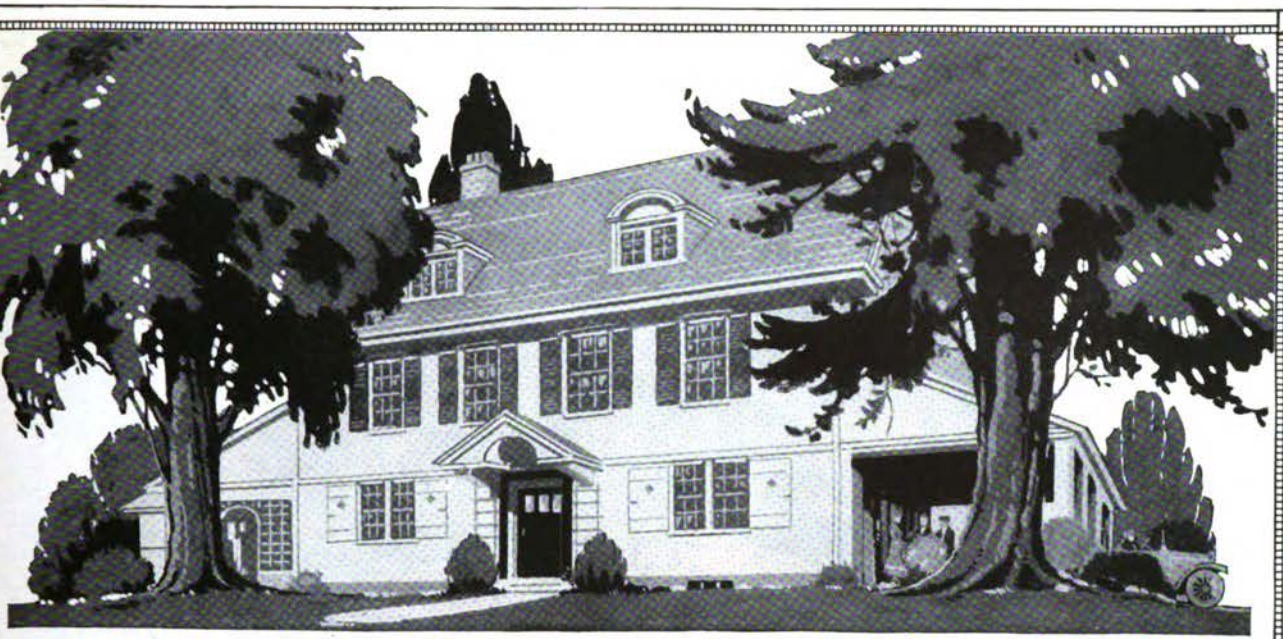

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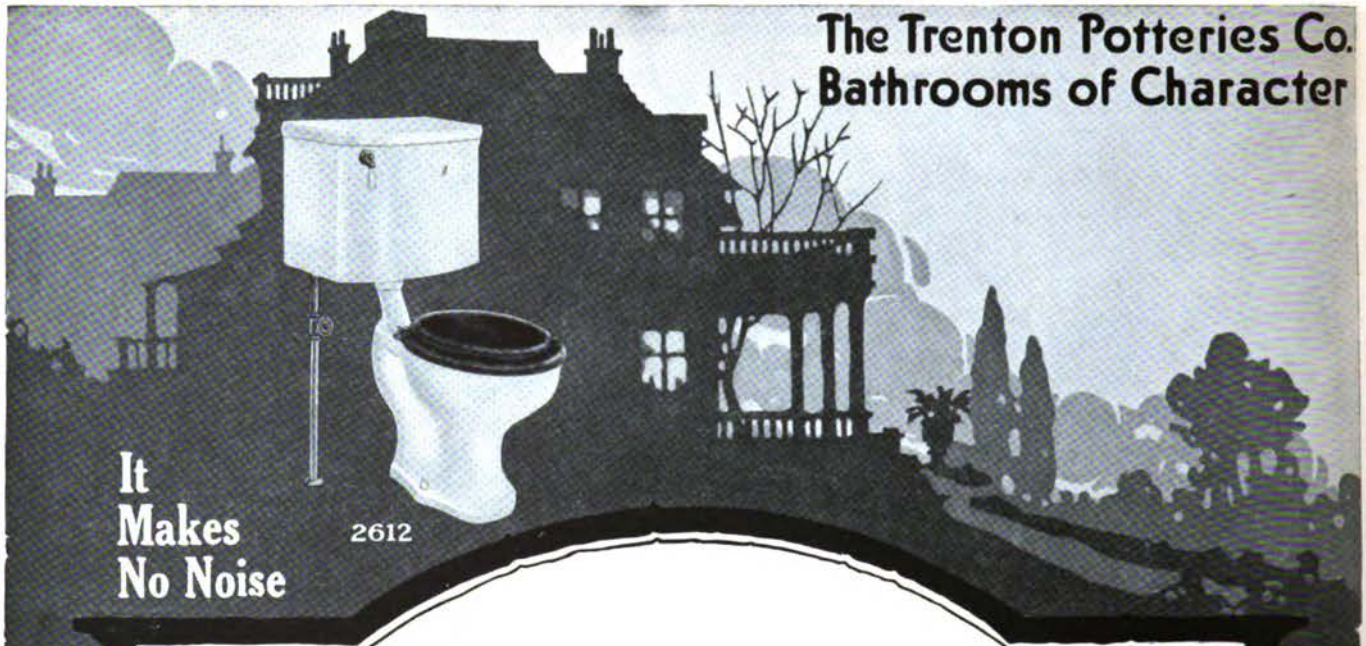

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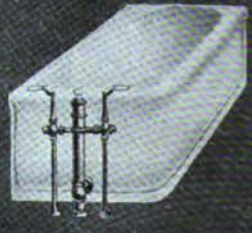
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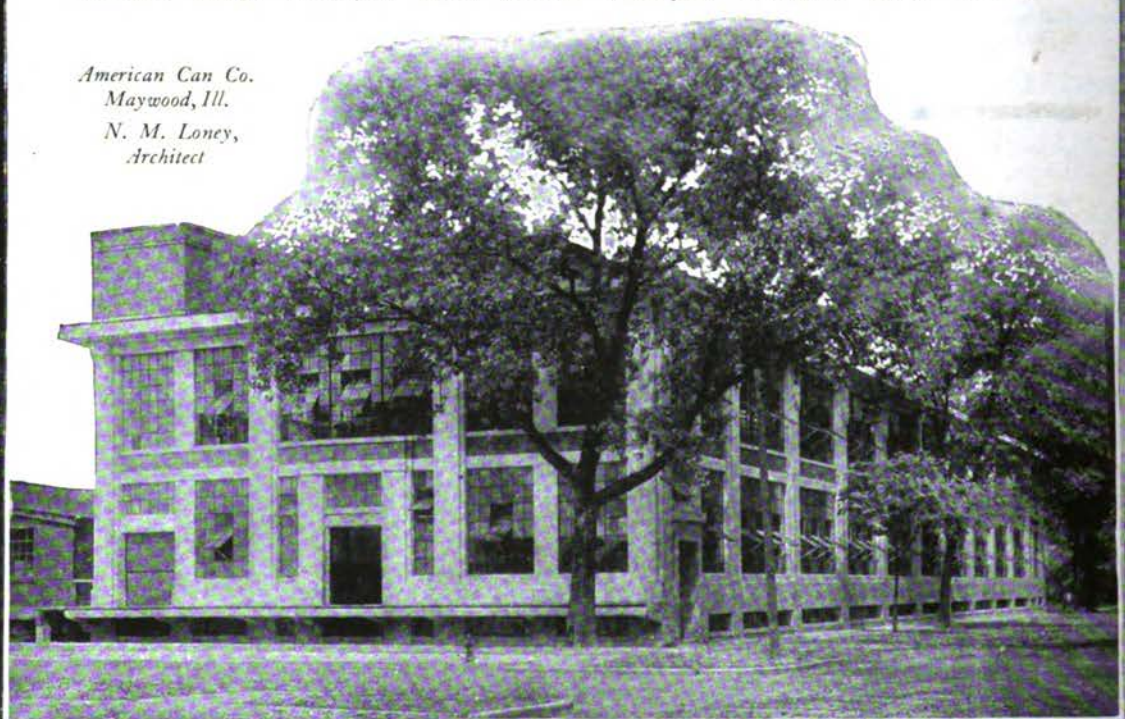

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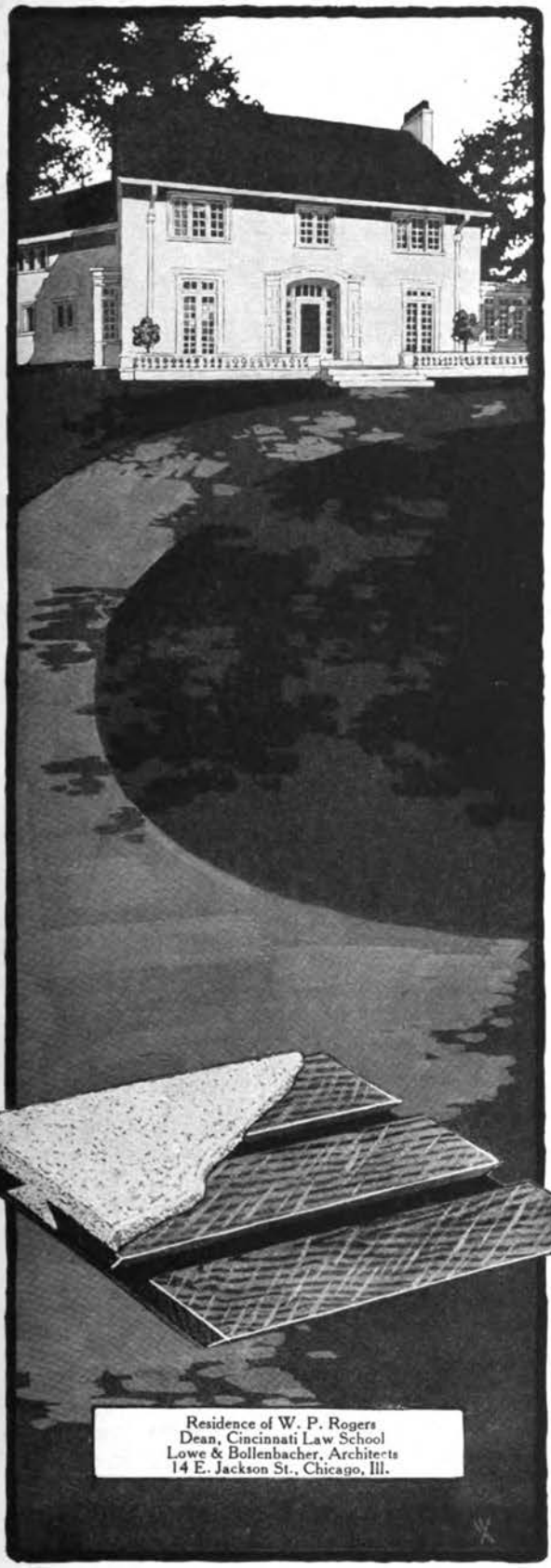

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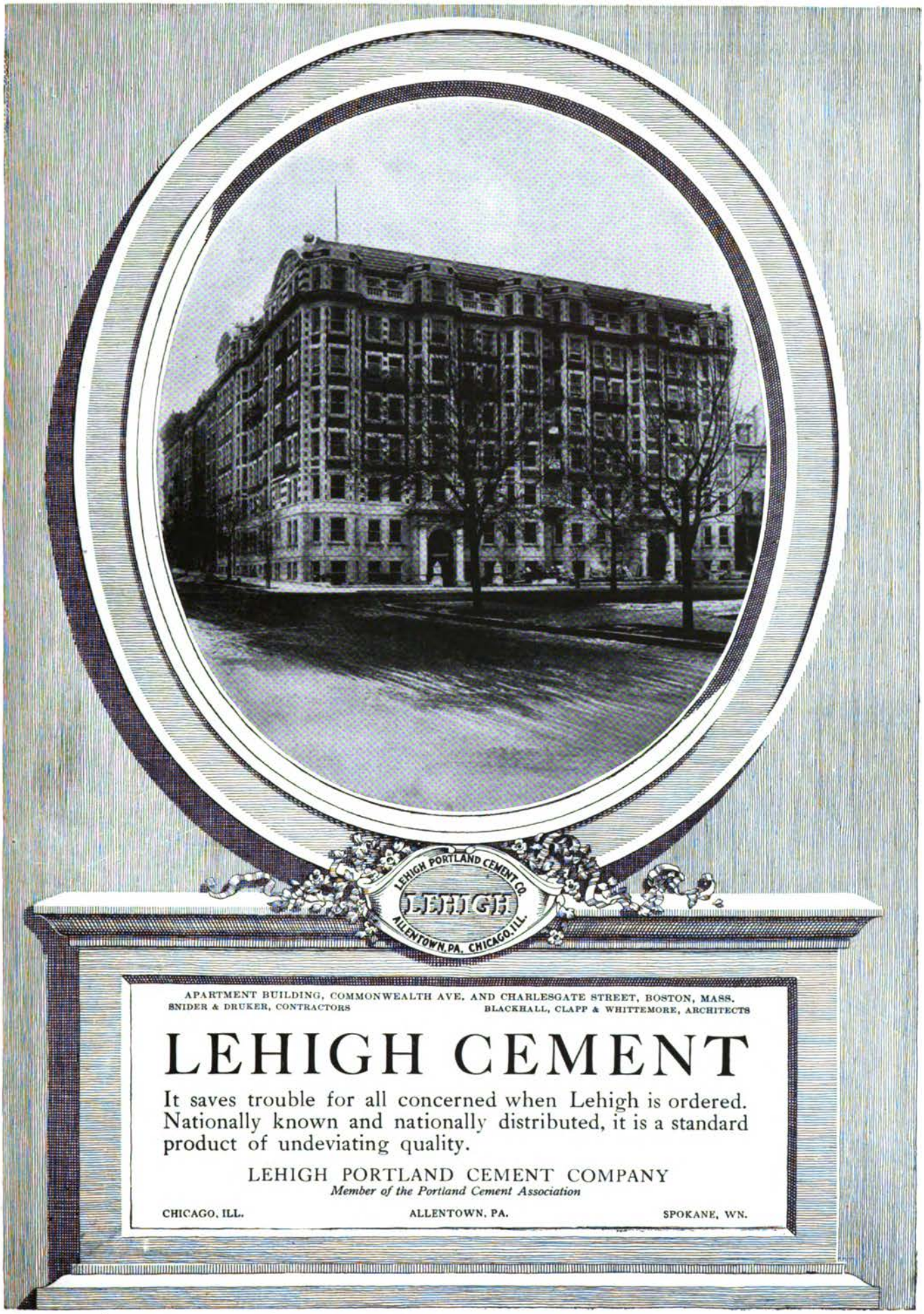

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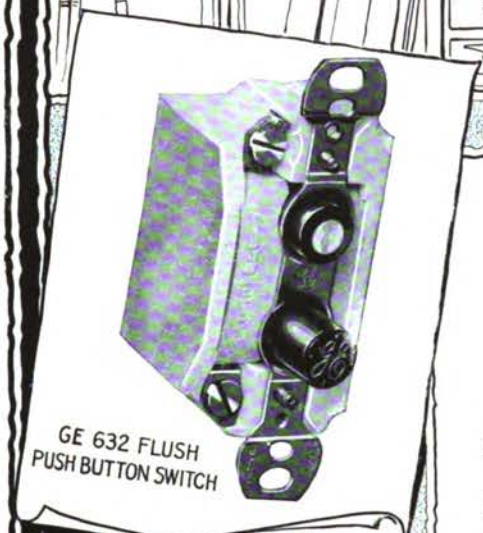

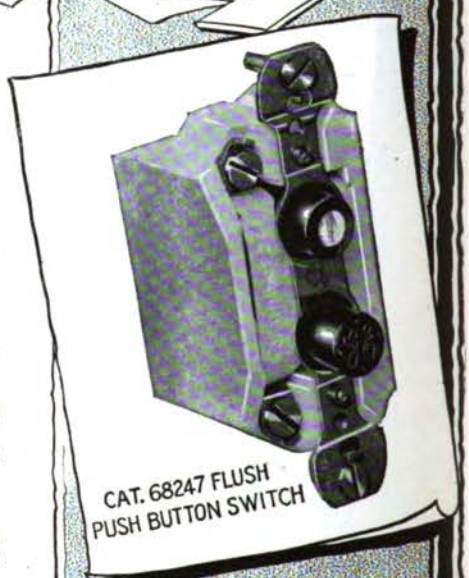

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JOURNAL OF THE

AMERICAN INSTITUTE OF ARCHITECTS

Vol. V NOVEMBER, 1917 Number 11

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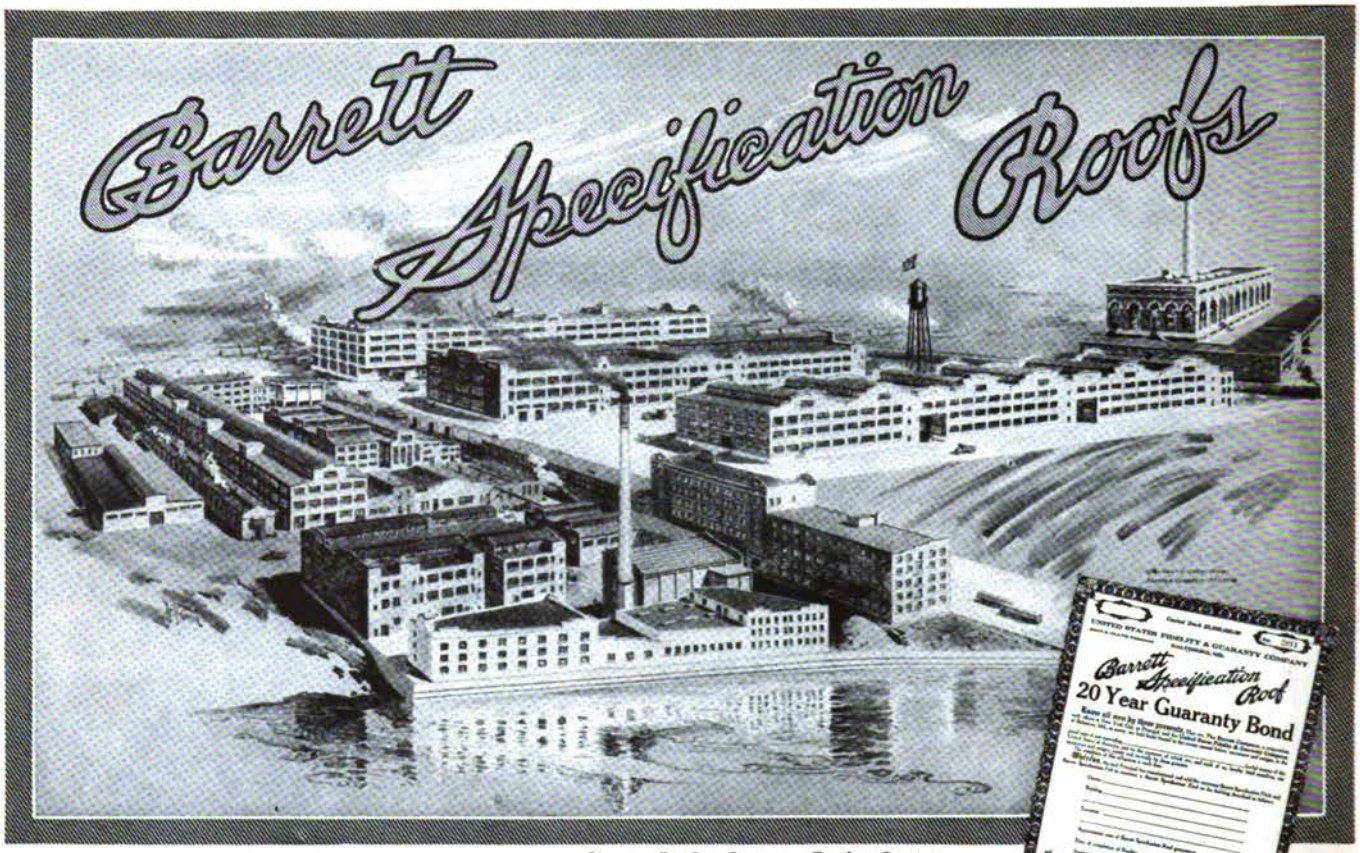

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St. Louis Carrying the Holy Crown of Thorns in Procession to Notre Dame

Drawn and lithographed by Jules David

Old Paris (1250)

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JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Vol. V NOVEMBER, 1917 No. 11

Shadows and Straws

THE INDUSTRIAL HOUSING EMERGENCY, in its relation to the war, seems to be involved in a maze of obscurity. The original committee of the Council of National Defense, charged with the task of investigating the situation, made its report to that body more than two months ago. Its findings must have been either incomplete or unsatisfactory, for the Council immediately began holding hearings which apparently had no other object than the verification of the evidence presented by the committee. This process did not produce any tangible result, and we may suppose that it still left the whole question where it was at the beginning, since a third committee, of which Mr. Otto Eidlitz, of New York City, was made chairman, was charged to cover the same ground. This committee reported directly to the President and his cabinet, we believe, and while the substance of the report has not been made available, press reports indicate that it carried definite recommendations and made plain the fact that a shortage of houses was seriously interfering in the production of many vital necessities of war. Subsequent to that report, there have been rumors to the effect that financial aid would be extended to one or two housing undertakings which had been begun, or which were ready to begin, but which had been stopped by shortage of money. Other rumors were to the effect that the whole matter, with the possible exception of such action as we have mentioned, would be left to be dealt with by Congress at its next session.

THE SHIPPING BOARD, which has separate authority for dealing with the house-shortage, has, according to a press report, enlisted the services of Mr. Flannery, President of the American Vanadium Company, whose task will be to see that housing accommodations are provided, as fast as possible, for workmen in the shipbuilding centers. On the other hand, it is also rumored that the Shipping Board's Committee on Housing will be merged with a general Commission or Administration, which will deal with all housing undertakings in which the Government has an interest. What the policies of this Commission will be is still left largely to conjecture, although current opinion inclines to the belief that it will devote most of its effort to financing private undertakings with government funds, and will commit the Government to actual participation in land-purchase and house-construction only when no other solution can be found. In contrast with such a procedure, assuming it to be the one to be followed, we have the experience of England, as narrated elsewhere in this issue by our special correspondent, Mr. Frederick L. Ackerman.

EXPERIENCE IN THE REGISTRATION of architects is developing at a rapid rate. The annual report of the State Board of Registration in New York state presents some very definite data upon which to base preliminary conclusions.

Total applications received during the first two years since the law went into effect number 1,991; of these, 175 were withdrawn, 1,367 have been approved, 358 have been disapproved with the recommendation that they be not given certificates without examination, and 89 remain to be given final consideration.

No examinations have been held for the admittance of new practitioners. Only two applications as yet have been received for registration upon examination.

During the year the Board has approved 350 applications for registration, making the total registration on September 13, 1917, 1,367. One hundred and eight applicants appeared before the Board during the past year for personal hearings, most of them in appeal from previous disapproval of their applications, and some upon request

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of the Board to present proofs of qualifications. Eighteen appeals were granted, leaving the net total disapprovals for two years 358, as stated.

The Board examined several hundred sets of drawings and specifications submitted at its request by applicants as evidence of competency.

The Rules for the conduct of the Board which, including a syllabus of examinations submitted last year, were given further careful consideration by Chancellor Sexton and Dr. Downing, and finally adopted by the Regents May 31, 1917, will be printed shortly in booklet form.

The Board of Examiners, after two years' experience with the operation of the Registration Law, and, after examining the work of scores and hundreds of architects who are not a credit to their profession, is confirmed in its belief that the most important function of the Registration Law is its tendency to raise the standard of education and technical qualifications. The Registration Law does not prevent engineers and others from doing building work, but it does forbid any new practitioner to assume the title of "architect" until permission is granted, for reasons which in effect make "architect" a degree and the certificate a diploma of achievement. The law does not in any way compel the public to patronize architects, except as it may command respect by fixing high standards of ability and qualifications for those permitted to use the title. The Board believes that it has evidence of a strong impulse toward higher education on the part of young men ambitious to practise, and, with the assistance of architectural schools willing to coöperate with the Board, has confidence that the law will justify its beneficent purpose.

Fourteen states of the Union have passed laws regulating the practice of architecture. It is strongly to be hoped that, as other states enact similar legislation, all influences will tend toward a common standard which will permit reciprocatory arrangements between states.

The Significance of England's Program of Building Workmen's Houses

By FREDERICK L. ACKERMAN

IT* was during a cold drenching rain that I viewed England's colossal munition plant, which extends for many miles over what was but two years ago a vast area of agricultural land with only here and there an occasional farmhouse or settlement. Much of this I saw in detail during my visit, but, early in the day I was taken to a little wooden platform from which the King had viewed this truly remarkable achievement but a few months previous. From this vantage-point the magnitude of the undertaking could be seen, but, extending far beyond the limits of the eye to distinguish form, there was, one realized by the tone of the landscape, a continuation of what one so clearly saw in the foreground.

In the extent of this operation I felt that for the first time I sensed something of the magnitude of what must be the scale of the operations at the front. Surely here, with this vast fabric of war industry spread out before me, I could sense the tremendous power which is accumulating in the world to the end that the Hun shall be crushed.

Of the intensely interesting details and processes of this establishment I am not at liberty to speak, but this I surely may say: there was expressed in its well thought out and ordered arrangement, in the permanent character of the structures, the well-made roads—in a word, the thoroughness of it all—the attitude of the British people toward this awful task which is now our task also. Not alone in these respects was there expressed the broad imaginative concept which must have preceded, but in the scheme of management and in the management's attitude toward the value and absolute importance of adequate housing and environment, recreation and the general welfare of the workers, one witnessed the actual fulfilment of a hope. New values had been assigned to industrial processes and to the entire range of the factors contributing. It was evident that no longer was the aim of industry focused upon intensive processes and volume (important as are these today) and profit; but the aim was, first, national security and the well-being of all to enjoy that security when it shall have been attained. Surely there must have been some such concept of the task in the beginning, else in the complex processes of execution and management such results could not have been obtained. This industrial community, brought into being during two short years under the tremendous handicap of war, presents the

*NOTE.—Elsewhere in this issue will be found special correspondence from Mr. Ackerman bearing upon the broad financial and technical aspects of the British Government's extraordinary building developments.—THE EDITOR.

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appearance of—in fact is—a well-governed city of many thousands. There are unusually comfortable buildings in which to work; excellent homes and comfortable hostels in which to live—and gardens to plant; institutes and recreation buildings in which the workers meet in social intercourse; churches in which those of various denominations may worship; moving-picture houses where popular American films may be seen for a sixpence; schools, hospitals, stores, markets, and last, but not least, an environment wherein there is everywhere expressed a quality of taste which is not only remarkably high, but thoroughly appropriate. This unique community stands as a permanent exhibit of what the State can do when it acts with the full power of its rightful authority and with a broad enlightened conception of its aim and purpose. It is an exhibit of what may be accomplished by delegating to imaginative men the necessary power and authority; and it is also an example of what any enlightened community can achieve by surrendering its burden of fallacies regarding super-individual rights and the rights of property.

It was refreshing to talk with those who had been responsible for the development of this remarkable organization, particularly he who had been knighted for his services in this industrial field of the war's operations, and to receive from him first-hand what he deemed to be the essential contributing factors to fruition. He emphasized again and again the need of an almost unlimited scope at conception, for who can foresee and forecast the extent of war's demand for munitions? Here, where the initial plan extended far beyond the borders of the then conceived probability, we find within two years the fulfilment of the remotest possibility. And he emphasized, in particular, the vital importance, at the very outset, of a broad program looking to the immediate provision of all the factors and elements related to the comfort and the welfare of the workers; for he said that even here, where all these had been included in the original concept, the tremendous call for munitions and more munitions had forced progress upon the purely industrial elements in advance of those related to the workers' well-being. He warned us against giving way to such pressure, for their experience had demonstrated that in the end it was a fallacy to assume that conditions looking to well-being and the provision of amenities (he used this term) could even for a short time be dispensed with. He cited as proof of this certain difficulties with labor, and the temporary character (a black eye he called it) which resulted from the lack of certain provisions of this sort at the start, and he recalled the summoning of every available resource to provide the things which had always been known to be essential to the comfort and the health of workmen and workwomen, but of which war experience had shown the value in so striking a manner that it will never again be forgotten in the industrial future of England.

In his description of the structure of the organization I was greatly inpressed with the scope and the simplicity of it all, and, in particular, with the fact that the organization did not limit itself to the work within the factories, but that it was essentially one in which the values related to work, rest, and recreation, had been carefully balanced and adjusted.

It is true all activities and interests were focused upon a single purpose, but that purpose was not allowed to overshadow nor to crush others of vital importance. The axis about which this huge mechanism revolved seemed to be the thought that here it would be shown that industry need not crush the souls of men; that huge production may be accomplished, while, at the same time, the condition of the workers may be improved. In other words it was to demonstrate that high social, moral, and physical standards are essential to a nation's well-being in war or during peace.

It was not necessary for him to tell me this, for as I went about the plant and the towns created just outside the fenced-in areas, the thought that such had been the purpose was quite evident. The technique of this accomplishment involves a detailed description of building as well as methods of operation; all that would require many pages—a word must suffice.

At the plant I was greatly impressed with the well-arranged change-rooms; these were not small congested affairs, but extended over a large area and presented in plan the appearance of an architectural project. They were of permanent materials, arranged for men and women, each of the three shifts being provided with an independent unit. There were drying-rooms for wet clothes, the most generous bath and wash-

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up facilities, with cheerful lunch-rooms. It was evident here, and throughout the plant, that the comfort and convenience of the workers had been given a consideration quite as serious as that given to the housing of machines.

The streets of the towns had been laid out (in haste to be sure) by one of England's foremost town planners, Raymond Unwin. Along these streets were disposed the cottages, hostels, shops, and where appropriate in location, churches, schools, institutes, recreation buildings, and all of the essential features of a well-ordered community. In the main, all except the hostels and barracks were of permanent material, and in the spirit of the designs and in the disposition of the various elements there was a charm and, at the same time, a frank recognition of the problem. The work is, on the whole, simple and more direct than the English garden city work with which we are familiar, and I am inclined to think that it is, in many respects, of a higher order of merit than much that was executed in the days of peace. The cold, bitter rain through which I saw this was not sufficient to kill my enthusiasm—I saw it in contrast to our rather stupid efforts at industrial housing. In its rough outlines, with few trees, and almost no hedges (these were being planted), it was a most significant witness of a new attitude of mind toward the contributing factors to industry. A standard had here been established which would surely give direction to the work of reconstruction throughout the years to come.

To be sure, not all of the buildings are permanent; there are temporary cottages for families, built in the first mad rush of construction. There are temporary hostels for girls, but, in the main, the cottages are permanent, as are the stores, markets, schools, churches, recreation buildings, and hospitals; and repeatedly I was advised against the temporary structure, for it is a dead loss at the end or is sure to become an unsightly element. The cottages built without partitions, and used as hostels for single workers, have proved to be an excellent temporary measure.

It is a pity that I must omit details of the life in such a community. It is not the depressing sort of existence one is apt to assume it to be. Many interesting and vivid impressions remain of my visit, and among them none more interesting and significant than that of a hostel where some two hundred girls are housed. There was in this an orderliness, a tidiness, and an expression of home comfort created by mere colors and inexpensive curtains, and, above all, the home odor of the kitchen, which I passed through while a meal was being prepared, which not only whetted my appetite, but made me realize that there must be a brighter future for not a few as a result of these influences and associations.

To actually see this; to know that it was a reality; to witness an enormous industrial community in which law, order and arrangement prevailed; to see no slums and to realize that in this community there would be no slums; to sense the balance which it is possible to maintain between intensive industry and the normal life of the worker—is to feel a thrill such as one seldom experiences. To realize that this great war is the impulse which brought this thought into being gives to war an added significance, for we know now, long before the end, that it has not been in vain.

As I glanced back for a last impression of this great enterprise, I asked myself, why is it that labor has limited the scope of its endeavor (I assess this by the popular opinion created by its recognized activity) to the question of higher wages and shorter hours? Of shorter hours we know the value, but of the value of higher wage, we may well ask—does it provide that for which it aims? A higher wage does not necessarily bring more adequate housing, nor a better environment, nor social contact, nor the amenities of life. Wages is something easily dissipated or absorbed in higher costs of living, whereas these other elements are of a permanent nature. No possible scale of wages given to the workers in this great establishment, nor in the others I have seen, could have produced the permanent asset to be enjoyed by labor that is founded in these communities.

Would not much more accrue to labor in the end if, in America, a greater emphasis were to be placed upon a program for adequate housing and the provision of the amenities? Were this made the central theme of activity, it is quite possible to forecast that what has been accomplished here might also be accomplished in America, and that whatever gain accrued to labor, from time to time, that gain might be established as a permanent enduring value.

London, October 27, 1917.

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The Great Chance!

WHAT IS A HOUSE? III

By CHARLES HARRIS WHITAKER

"The State is a physical body prepared for the incarnation of the soul of a race. The body of the national soul may be spiritual or secular, aristocratic or democratic, civil or militarist predominately. One or the other will be most powerful, and the body of the race will by reflex action affect its soul, even as through heredity the inherited tendencies and passions of the flesh affect the indwelling spirit. Our brooding over the infant State must be dual, concerned not only with the body but the soul. . . . What we require more than men of action at present are scholars, economists, scientists, thinkers, educationalists, and litterateurs, who will populate the desert depths of national consciousness with real thought and turn the void into a fullness."

THESE words were written by A. E.* in his prophetic summing up of the case for what he calls, the "infant State of Ireland." They are so clear an answer to all that frantic questioning which asks why men do not appreciate architecture, and why art has fallen upon such troubled days, that there seems little more to be said. Yet these phrases which are so prescient with the slow transformation of thought, as war whips and goads us to face the truths which we let sleep for so long, cannot be dismissed with a sigh of relief. In summing up a great synthetic truth, they only point the way for more thinking. All states are in their infancy today, for they stand at the threshold of an opportunity which no man can measure. The wild currents of national life have been caught up in a seething whirlpool. All have been drawn into the vortex. None will emerge to flow along the path by which it entered. We are all given the Great Chance!

What is that chance? How can we translate the vague utterances which come to us on every hand, from our economists as from our poets, from plain men in all lands who have caught the vision of something to be won from the sacrifice and who grope with words in trying to express their faith that "things will never be the same again." Of a surety, things will not be the same, and our faith is that they will be better; that we shall win to a higher form of life; that somehow or other we shall wring great good from great evil. Now all is confusion. Resolution to win is dominant, and necessarily so. The Chance is not yet here but only on the way. Yet we are forced, in many ways, to see that it is in some manner connected with our sacrifice, and that it is from that sacrifice that we must learn how to seize it and use it rightly when at last we have won to it.

If we ask what part the House will play in this new opportunity, we relate the Chance directly to architecture; but we cannot at the same time detach our thoughts from the economic aspects of the world in which we live, for they are the governing factors and will continue so to be. To attempt to solve the problem in architectural terms would be mere stupidity. All of our skill in design and construction is utterly without avail, except as we can fit it into the fabric of that better thing in which we have faith and for which we are making the sacrifice. Indeed, the very future of that art which we hold so dear is locked up in the Chance which is before us. Perhaps this may make it clear that the Chance is not for one thing, or one group, or one nation, but for all. It is a world Chance, then, and just as we have found that no nation can be free until all are free (and as we ought thereby to see that no man can be free until all men are free), so we must understand that we are only part of a world which cannot be right until the whole is made right. The chain of nations is no stronger than the nation which is the weakest link. The whole moves forward no faster than the slowest. Merely to seize upon the Chance as ours alone would gain us nothing. Any bigness of strength or wealth to which we might attain at the expense of others and through selfish use of the Chance would only bring the whole structure in ruins about our heads. That is what Life

*The National Being. By A. E. (George Edward Russell).

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has written on the wall of history, over and over again. It is that message which the Chance reveals to us, and nothing else. The letters are so large—how can we fail to read?

Our problem, however, is our own, even though we cannot solve it by ourselves. Let us look backward for a moment and survey one aspect of it in certain figures. Not architecturally, as we are so prone to do when we scan the disorder of our communities and lament the evil which seems to have fallen upon our time, but by striving, harder than we have ever striven, to cut our way through the discouraging symptoms and come at the real disease. Let us begin with the Thirteenth Census of the United States, which will tell us, in economic terms, the whole story of those growing pains which so dismay us when we think of art. There the ethnologist may trace the tale of the colossal migration and the process of race fusion which has been characterized as the "melting-pot" of men. There the economist may read the story of our mounting wealth and of our equally mounting poverty. It is the pity of pities that this laborious work may not be reduced to elementary form and be used in our schools to make the real picture of our country. Its facts should form the basis of discussion between all men and women who really care deeply about the vague ideal which we find so difficult to formulate in words, but which still attaches us to our land so strongly. Ah! that vague ideal! What a task it is to reduce our cumbrous political and economic terminology to words of human import! Yet, unless our national ideal can be translated into words which deal with the everyday lives of men, women, and children, it lacks the foundation upon which we can rear any structure that will be either beautiful or durable.

Let us be humble as we look upon the structure we have raised, and remember that it is not with pride that we should contemplate our vast charities and philanthropies, but with humiliation. They are in themselves a signal confession of our failure to set free the channels through which life must flow if it is to attain to dignity and beauty. In the great epic of America we have been thrilled with the first coming of the pioneer. As he took his way westward into the depths of the wilderness, we have journeyed with him, breathless, in the great adventure. Is there not then a profound significance—a deep reproach—in the fact that where we once tingled with joy over the picture of the rude "home," the family "fireside," the welcoming "hearth-fire," the sheltering "roof-tree," we are now content to dismiss the picture from our minds and utter platitudes about "housing"? We even include it in our philanthropies and consign to the pathetic field of charity that which we once glorified as the very essence of our American spirit and courage—the quest of a home!

Bearing these things in mind let us return to the Thirteenth Census, and particularly to the chapter entitled "Ownership of Homes," for here we are confronted with facts which seem to be a denial of one of the elements that once helped to make up our national ideal. For a whole century at least the United States was the goal of the landless and the houseless of all nations. Some weeks since Mr. Roosevelt uttered a warning over the decline in the number of owned farms and the consequent increase in tenant-farmers. No one who has studied this question in the last decade has ignored its deep significance, but the same fact is equally patent when we study the house. Here, ownership by the occupant has declined in a far greater proportion than has farm ownership. The census of 1910 tells the story in the table on the following page.

The figures for Alaska and Hawaii are of the greatest interest, because they reveal the swifter strides of the same transformative process of ownership in an earlier stage. The difference in the ten-year periods is marked by great descents. In the United States we note a slight increase in home ownership, other than farms, for the period from 1900 to 1910. This is traceable to the middle sections of the country and is probably due to economic causes connected with the first stages of industrial expansion. On the whole, there is every reason to believe that the Census of 1920 will show a further decline, rather than a temporary increase such as that to which reference is made. This assumption, however, is based upon the opinions of those who have studied the question deeply and also by reading from the history of land development throughout the world.

As to the causes which have produced this result there can be but one general answer.

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AREA AND CENSUS YEAR	ALL HOMES						FARM HOMES						OTHER HOMES					
	Per cent of total				Per cent of owned homes		Per cent of total				Per cent of owned homes		Per cent of total				Per cent of owned homes	
	Owned	Rented	Owned free	Owned encumbered	Free	Encumbered	Owned	Rented	Owned free	Owned encumbered	Free	Encumbered	Owned	Rented	Owned free	Owned encumbered	Free	Encumbered
UNITED STATES																		
1910	45.8	54.2	30.8	15.0	67.2	32.8	62.8	37.2	42.5	20.3	67.7	32.3	38.4	61.6	25.7	12.7	66.9	33.1
1900	46.1	53.9	31.7	14.5	68.7	31.3	64.4	35.6	44.5	19.9	69.0	31.0	36.2	63.8	24.7	11.5	68.3	31.7
1890	47.8	52.2	34.4	13.4	72.0	28.0	65.9	34.1	47.3	18.6	71.8	28.2	36.9	63.1	26.7	10.2	72.3	27.7
ALASKA																		
1910	65.2	34.8	64.2	1.0	98.5	1.5	90.5	9.5	90.5	.....	100.0	.....	65.0	35.0	64.0	1.0	98.5	1.5
1900	80.8	19.2	80.5	0.3	99.7	0.3	(1)	(1)	(1)	(1)	(1)	(1)	80.7	19.3	80.5	0.2	99.7	0.3
HAWAII																		
1910	13.1	86.9	11.4	1.7	87.3	12.7	30.1	69.9	27.3	2.9	90.5	9.5	11.9	88.1	10.3	1.6	86.7	13.3
1900	19.1	80.9	17.6	1.5	92.3	7.7	69.9	30.1	64.4	5.5	92.2	7.8	17.1	82.9	15.8	1.3	92.3	7.7
PORTO RICO																		
1910	56.7	43.3	55.1	1.5	97.3	2.7	88.5	11.5	84.5	4.0	95.5	4.5	45.4	54.6	44.7	0.7	98.5	1.5

(1) Per cent not shown where base is less than 100

Under our economic system we have denied the political and social ideal upon which the nation was founded. We have refuted democracy by beguiling ourselves with crude attempts to solve it in political terms, the while we gave ourselves unbridled license to exploit our land and all that it contained with no thought of what might be the ultimate effect upon ourselves as a nation and upon the democracy we professed to seek. The result we shall have to reckon with. Landlordism has steadily increased until we are in a fair way to actually repeat the very cycle from which men of other nations wished to escape by coming hither. It was an inevitable outcome of the individualism which has passed current for freedom, and constitutes a national acceptance of the doctrine that the whole welfare of the nation is subservient to the right of the individual to pursue his path as he pleases. We have struggled to curb this individualistic wilfulness by legislation, but without appreciable effect. War comes to us with a flaming warning. It tells us that the Whole Welfare must take precedence over the rights and wishes of the individual.

It tells us this by pointing to the spectral figure of national death standing across our path. The figure has always been there. It is always standing across the path of every nation. One by one it has gathered them in since Time was born. It bore away that glory of Greece, the fragrant beauty of which still fills us with awe and reverence. Egypt and Babylon had gone before. Then came Rome, the Gothic Age, the Renaissance—and all are gone. Today, by the light of that flaming torch which carries horrible death and desolate destruction before it, we see the age-old figure looking silently in our faces. Yet we believe in our national destiny so deeply that we are willing to lay down our lives rather than that death should bring that destiny to an end. But Death does not want us, as a nation. Its will is that we should continue to live in full acceptance of our mission and our task. It will only swing the scythe when we have shown by our national life that we have not fulfilled our destiny. Then it will take us, whether we go down unassailed, save by our own inherent weaknesses, or in a supreme but futile struggle against something in which life has renewed the ardor of that purpose which we once had. It is the unconscious perception of such a fate which has led so many men to exclaim: "This war will be the saving (or the making) of the United States." Their realization of this is shadowy and obscure. It is almost wholly within the depths of their subconscious being. They feel instinctively that we must change much if we are to carry out the purpose to which they cling with so sublime a devotion and yet which is almost as obscure, in their conscious minds, as the dim and haunting knowledge that somehow or other we have lost the way, and that we shall find it again through War. It is all vague because it has not been thought out, for thinking on these things, in Peace, is the last task which men permit to engage their minds. War supplies the stimulus and also

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shows us the cost of our failure to think. But the processes by which we attain clearness of thought and fearlessness of analysis cannot be summoned by a wish. They die through disuse and may not be called back. Yet "thought is the chief glory of man," and it is upon clear thinking that nations win their right to endure.

But we shall fail disastrously if we do not see that the silent figure is pointing to the disease that is within us, as it is within all nations. It is that with which Death would bring us face to face. It is that which we realize vaguely. If we care to know this, we can learn it plainly by analyzing the fact that modern war does not depend upon individual valor. Instead, we have entered upon a struggle of mechanism against mechanism, and that which we call victory will lie with the side which puts forth the greatest industrial energy. It is our discovery of the colossal need of ships and more ships, of guns and more guns, which also discovers to us the fact that our ability to manufacture is limited by the conditions under which workmen and their families live. This has always been so and always will be so, but War gives us a standard by which we may measure the loss involved in the national disease of wretched houses—of abominable houses.

In Peace, we do not try very much to measure this national loss in any terms. We know vaguely that it is there, but human life has not yet attained to economic stature and dignity, and so we do not care to know the loss. War makes us far more careful of our men, as soldiers, than we are of them as workers. We know that soldiers cannot be as easily and quickly replaced as workmen, and thus they assume a definite value. Slowly, here and there, little by little, in Peace, it is true that we have begun to compute the economic waste of disease, of accidents, of fire, of incompetence, of degeneracy, of crime, of insanity. By these efforts we perceive the economic value of manhood and womanhood to a nation. War forces this perception to a maximum which we do not get in Peace, because it sets before us a task which compels us to face it with economic vision. We have a daily national expenditure made for a common purpose. Every day of delay means a loss which can be computed in terms of money. The daily waste could be computed in Peace, if only we cared. War makes us care! All life assumes a fuller value, both human and economic. Why should it ever have a lesser value? If life and the conditions which govern it become our anxious care in War, why should they not be our more anxious care in Peace? For what other reason does the state exist? What more vital task has it than to interfere when its citizens set up a condition which destroys life, not only physically, but spiritually? But this is the function with which no state has ever grappled successfully. All have put the sanctity of property ahead of the sacredness of life.

Thus, in coming back to life and living conditions, we return to the House, for it is in large measure the prime governing factor in all that pertains to our physical existence. But in examining its history in our land, during the last two hundred years, we find that we have all unconsciously traversed the path of landlordism which the founders of the nation marked out as the very one to be shunned. The time has come when we must decide whether we shall go on or whether we shall try to discover a way out.

If we ask whether it is best, in any country, that the land and the buildings should be owned by a minority which inevitably grows smaller and smaller, we may safely answer that it has never yet yielded national stability. If, however, we assume, as so many do, that it is the unavoidable result of the struggle between men whose abilities are so unequal in carrying on business, industry, and commerce, then we must admit that life consists merely of an endless and hopeless repetition of cycles, each with its débâcle and rebirth. But does the faith that these cannot and ought not to be prevented still claim so large a body of adherents, now that we are in the throes of the most violent convulsion the world has known—when we can see more clearly than ever before through eyes to which science has lent a new visionary power?

It is upon our answer to this question that the problem of building houses for workmen depends for the right solution, and it is this which also gives such emphasis to the importance of dealing rightly with the present dire emergency of shortage in houses and the consequent congestion to which so many thousands of our workers, with their wives and families, are condemned. War has made this so vital a question that we must now face it whether we

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will or no, but we cannot in any way find the right solution without asking ourselves these questions; they weave themselves into the figures in the Census with an insistence which almost implores us to find the answer.

Can it be true that the instinct for possessing a house has become a declining factor in our life? Has the acceptance of the rented substitute, in a steadily increasing measure over a long period of years, supplanted that desire to an extent which indicates its permanent passing? Do we admit that the "efficiency" of our life demands subservience, for the great majority, to a landlordism which cannot be escaped? Must we pursue to its cataclysmic end a system which decrees that the workman must relinquish his wish to own a home in order that he may conserve to himself the largest possible measure of economic freedom? The facts offer relentless evidence of the condition to which we have arrived, and the right solution of what we have pathetically termed the "industrial housing" problem depends utterly upon our resolve to study the problem with open minds and with all the facts squarely before us.

In general there are two main solutions, differing perhaps in method only, each of which has its own ardent advocates. One is based upon the premise that we must continue every form of ownership through the minority system until the state takes it over. This means governmental ownership of all land, ultimately, and a resulting control which will put an end to the appropriation of the unearned increment by the individual, end the disasters of land speculation, and make all land-tenure subject to right use for the common good. The other insists that we shall break up minority ownership, including that which takes the form of landlordism, by democratizing industry and thus conferring economic freedom upon all workers. The negation of the question is found in the answer of those who wish to perpetuate the present system and who adhere firmly to the principle of "vested rights." Perhaps this way will make them see that no system is imperishable and that the larger meaning of democracy will compel further rearrangements, such as those which have taken place in England, in Germany, in New Zealand, and even in our own country, where recognition of the problem has manifested itself in our regulatory acts governing the use of property and the kind of buildings which may be built.

In trying to convert that larger meaning of democracy into terms of everyday life, we shall, however, have to face the dual problem. We cannot concern ourselves solely with the body of the state. We must give equal, even greater, consideration to its soul—to that soul which can be no greater than the sum of our own souls. We must ask ourselves fairly and squarely, without cant, hypocrisy, sophistry or casuistry, what kind of men and women do we intend to make in our offices, shops, factories, mines, and fields? What kind of wives and mothers do we intend to make in the homes of those workers? What kind of children do we intend to make in the desolate monotony of our urban streets and amid the tawdry ugliness which blights our communities, large and small, as with a plague? No nation has ever asked or sought the complete answer to those questions. Yet that is the first answer we must seek. There is no larger meaning to democracy until we do seek it. It is the only worthy concept of our right to existence. Until we have fearlessly, and with the purest patriotic fervor, searched out all the facts in our national life, and bravely grappled with and destroyed every cancerous growth, there is no solution of any problem, and all our palliatives do but heighten the fever of unrest under which we labor—the same fever which has swallowed up empire after empire, kingdom after kingdom, state after state.

Yet, as we contemplate them lying stark and cold in their physical death, we are made aware of the immortality of their soul. The fragments of their life which have come down to us in art and letters are only messages of their soul to ours, so rich in their import, so frail in their being that we treasure them tenderly as the most precious of our inheritances and cry out with bitter anguish when the hand of man ruthlessly shatters the vessel in which their beauty is imprisoned. Is that message no more than a passing emotion?

How are we to cultivate the soul of our land that it shall bear such fruit? Where lies the key with which we may unlock those latent yet potent deposits of national life, in which alone can be nurtured the flowers of a superior civilization? We cannot search for the key in any museum, or university, or church, or in

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any political institution or form of government. No! It is amid the mazes of our modern mechanistic development that we must look, in our factories, our shops, our mines, our fields. In the great highways and byways of commerce and industry, of invention, of engineering, of transportation, in the wonder of the aëroplane, the automobile, the telephone, the blast furnace, the ocean liner, the dynamo, the rotary press, the awe-inspiring process of making a watch, of tunneling the Hudson, of bridging the St. Lawrence. Into all of these things we have poured the treasure of our soul in a sublime effort to reduce matter to the service of mankind, and we have let our soul go awandering because we forgot the man in the process!

In the driving processes of production, we failed to count the cost of our forgetfulness of man, which, unchecked, means national death. No period in history has ever made so brilliant an achievement in the service of men—none has ever more thoughtlessly, ruthlessly, and brutally inflicted suffering upon mankind. For we must remember that suffering is more acute when it is long drawn out and when men see and ask why their life and the life of their children should be broken and swallowed up, unlived, in the process of making others comfortable. Such suffering, which means spiritual starvation, embitters the springs of our national being with doubts, suspicions, and disloyalties.

In War, we think in terms of human beings. We do not try to measure the misery of Belgium, of Servia, of Poland, in dollars and cents. We measure it by anguish of mind, by suffering of soul, by the weeping of women, the hunger of children, the agony of fathers, the crushing of Life! We are struck to the very heart with a mounting groan of human beings crying out in the pain of that which is worse than death. Can we not think in these terms in times of Peace? Can we not learn to think of industry in terms of human import?

It is not that we wish to make the struggle easy. We want it to be hard—even to the breaking-point—so that life may be full of flame and fire. But we want the reasons for it to be fine and full of beauty. We want all life to be lived in its richest fullness and to make its uttermost contribution to the life of today and of tomorrow. Be not misled into thinking that such a standard of measurement has no connection, save a sentimental one, with our economic structure. No graver error could ensue than to dismiss the thought as one without practical value, for in freeing life for this service we also multiply its economic usefulness a thousandfold! As we raise the standard of quality in men, so do we inevitably raise the standard of quality in all that they make and buy and use. No unexplored depths of our economic house offer so rich a field for adventure and recompense as the dark cell in which we long left the soul of the nation! But, if we are to seize our Chance and find that soul, we must approach all problems over a new path, and it is in trying to make such an approach that we shall endeavor further to study the problem of building houses for workmen, both in War and in Peace.

"I do not put my faith," says Tagore, in his preface to Paul Richard's "To the Nations," "in any new institution, but in the drainage of those stagnant moral pollutions which give rise to poisonous vapor. For this we are to look to individuals all over the world who must think clearly, feel nobly, and act rightly, and thus become the channels of universal truth. For this truth once introduced goes on with its own living creation, overcoming all hindrances. Our moral ideals do not work with chisels and hammers, but like living seeds in proper ground spread their roots in the soil and their branches in the sky without consulting architects for their plans. What is necessary is purity in thought, and feeling, and will, and the rest will follow."

(*To be continued*)

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Government Aid to Housing in the Light of Foreign Experience

By FRANK BACKUS WILLIAMS

WITH the sole exception of the United States, all the progressive countries of the Western world—Great Britain, France, Germany, Italy, little Belgium, Holland and Denmark, far away Australia—and many others that we are inclined to regard as less advanced—Spain, Roumania, India, Chile, Cuba—have for many years, as a part of their normal peace policy, given public aid to the housing of those classes in the community requiring small dwellings at low rates. The reason why this policy has become so general is because everywhere in the civilized world there is a scarcity of dwellings of this character, which the efforts of the commercial builder, supplemented by those of the philanthropist, have failed to relieve; and government aid seemed to be the only remaining solution of the problem.

Before the War

The aid which European governments have given to housing in times of peace has been continued, and in many cases increased, during the present war. That this has occurred is most remarkable, in view of the unprecedented demands upon the resources of these governments which the war has made. The war seems to have brought home to Europe as never before the need of proper housing for all classes in the community and the necessity of government help in obtaining it.

Prior to the beginning of the war in Europe, in spite of the fact that the need of the cheap house in this country was acute, and the prospect that private initiative would supply this need adequately was at best remote, there seemed to be little probability that our government would give financial aid. The reason for our failure to adopt the remedy regarded as necessary by practically all the rest of the world was twofold: In spite of much expert opinion here in its favor, we did not as a people regard housing as an activity in which our government should engage; and we did not believe that, however desirable it might be, we could in this country legally adopt such a policy.

The Effect of the War

The effect of the war upon the housing situation in the United States has been very marked. Soon after the struggle began in Europe, the cost of materials and labor, and the rate of interest and profits, rose sharply. The effect of these increases varied greatly in the different parts of the economic field. The production of goods for immediate consumption, although decreased, continued to be sufficient to meet most of the immediate and pressing needs; since the consumer paid for these goods at once, their price could at once be increased to meet the higher cost of production; and the fear of lower prices of material and labor after the war did not lessen the output. In the field of housing, however, the situation was radically different. A house is constructed to last many years, during the whole of which period, if an adequate return on the investment is to be obtained, adequate payments for its use must be coming in. In housing, therefore, lower construction costs after the war, and the competition of cheaper houses which it would ensure, would make houses built at present prices a losing venture. The result of this possibility was therefore an almost entire suspension of construction of the more moderate-priced houses.

Soon after the war started, European governments began to place huge war orders in this country. The filling of these orders necessitated the enlargement of many existing factories and the building of new ones, partly in localities already built up, partly in places where there was no provision whatever for housing. The corporations receiving these orders, and the localities where they were situated, neglected at first to make anything like adequate provision for the large numbers of workmen who, with their families, would be necessary in the conduct of the business; and later, on account of increased costs and increased demands of every sort, were utterly unable to do so. The resulting hardships to the workingmen and those dependent upon them, and the social unrest, disorder and crime, inevitable under these circumstances, which ensued, are so familiar to the readers of these columns that they need not be restated.

The Situation in the United States

Recently, since the United States Government has entered the war, it has enlarged many of its works, built new ones, placed large orders with existing factories, and given contracts to corporations, necessitating the building of new factories, all without provision or regard for the housing of the labor essential to these undertakings. Already the result has been greatly to aggravate a situation which was very grave before, and, unless relief on the huge scale commensurate with the existing and threatened evils is speedily provided, the cumulative result will be intolerable. It is in this crisis that earnest students of social conditions in this country and the general public are asking themselves more seriously than ever before whether or not this country should, perhaps, as a part of its normal activities in times of peace, perhaps only as a war measure, adopt the policy of government aid, state or national, in the housing of its working classes of more limited means, and, if so, whether it is possible under our law to do so. It is the legality of such a policy, and the best methods in the light of foreign experience of carrying it out, with which this article is concerned.

Financial aid, given by the Government to housing or any other activity, involves the use of public money. This money in this country must be obtained by taxation.

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The consideration of the legality of Government aid to housing in the United States is therefore the consideration of the legality of the use of public money and of the power of taxation for that purpose.

The Field Conflict of Federal and State Authorities

In a federated government like ours, certain matters of national importance are within the jurisdiction of the United States, and others, of local importance, are entirely within the control of the individual states, or the local governments subject to them. Normally, housing within the separate states is exclusively a matter to be dealt with by state laws. Thus, prior to the entry of the United States into the war, the housing evils due to the placing of war orders from abroad in various localities were a matter of state concern. The only power which the Government of the United States would seem to have in such questions is that of investigation and advice. Thus, although the cultivation of the soil in the various states is a state matter, the United States has a Department of Agriculture which, by its researches and its advice given to agricultural colleges and individual farmers within the states, has done a work of great importance. There is need of similar assistance to the municipalities of this country, not only in housing, but in city and town planning and many other municipal affairs; and the National Government is the authority best fitted to render such assistance. The suggestion has been made of late that the United States should have a department or bureau of local affairs, with power of investigation, publicity, and advice. Actual, direct financial aid to remedy housing evils within the states with which as a government the United States has no relation would seem to be beyond the legal power of the central government.* Is it within the power of the states?

As a general proposition it is well settled that a state may raise money by taxation, appropriate money, or authorize any local government within its limits to raise or appropriate it, for any public purpose but not for private use. To the layman it would seem clear that money employed to assist in providing a necessity like houses, when otherwise they would not be forthcoming, or in providing them at a more reasonable price for a class that otherwise would not be able to obtain them, was used for a public purpose, especially when it is universally admitted that the home is essential, not only to physical, mental, and moral well-being, but to good citizenship, and therefore to the very existence of the state. In many of our states, however, the courts have decided that aid to a private person, in his private affairs, is not a public use of money, even in those cases in which this private advantage is for the welfare of the state. The decisions, however, seem to depend upon what, at various times in the past, has been, and has been admitted to be, public policy rather than upon reasoning that has any intrinsic soundness. For instance, it has been held that a municipality may be authorized, under existing state constitutions, to supply the citizen with light and heat in his house, but not with coal. Recent decisions of the Supreme Court of the United States, too, have held, contrary to this state doctrine, that the promotion of a private use may be so evidently for the public interest as to be public. These decisions do not overrule the decisions of the states, sovereign in the interpretation of their own constitutions (except in so far as they may infringe the Constitution of the United States), but only tend to weaken them.

*The National Government has, however, under legislation passed in 1916, established farm-loan banks for the purpose of lending money to associations of farmers in the various states.

The Massachusetts Experiment

The state of Massachusetts, since the war in Europe began, has thought it necessary to pass an amendment to its constitution in order, tentatively, and on a small scale, to undertake state housing, and Pennsylvania has appointed a commission to consider the advisability of doing likewise. These states are undoubtedly wise in amending their constitutions before attempting, ever so slightly and tentatively, to extend aid to housing; and it is probable that other states, wishing to adopt such a policy, will follow the same course.

Powers of States

Amendments to the constitutions of the states, authorizing public aid to housing, to be valid, must be in accordance with the Constitution of the United States, as interpreted by the Supreme Court of the United States, and that court will sustain them only if it holds that such expenditures may fairly be said to be for a public use. It seems evident that the Federal court would so decide for two reasons: The decisions of that court already referred to indicate that this is its opinion; and, moreover, in deciding what may be upheld, under state authority, as a proper use of public money and the power of taxation, the court has uniformly paid great respect to the judgment and will of the state, as expressed in these enactments and the decisions with regard to them. Indeed, a profound student of the subject, after a careful examination of the cases available, has found that, "In its decisions of this question the Supreme Court [of the United States] has never overruled the decision of a state court that a given purpose, for which state taxes had been levied, was public in character."*

The amendment of state constitutions is a much easier and quicker process than a similar change in the constitution of the United States. Nevertheless, it is evident that if state aid must await the passage of amendments to state constitutions, and legislation under them, aid from this source will not be available in the present crisis. The central government, as we have seen, has probably no power to give such aid in time of peace; does it possess that power in time of war?

The Federal Government and the War Emergency

Under the national constitution it is the Government of the United States which is given the right to declare and wage war. Ever since the great decision by Chief Justice Marshall of the Supreme Court of the United States, in the case of McCulloch vs. Maryland† it has been unquestioned law in this country that the powers necessary and proper to carry into execution the powers expressly given by the constitution, or, as Marshall puts

*Prof. Frank J. Goodnow in "Social Reform and the Constitution," The Macmillan Co. 1911. p. 295.

†4 Wheaton (U. S.) 316.

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it in one passage in his opinion, all rights "incidental to the power and conducive to its beneficial exercise" are as much granted as those expressly enumerated. The legal question whether it is necessary and proper for the United States, in time of war, to give its aid in order to secure proper housing conditions of the people directly, or indirectly employed by it in war preparations resolves itself, therefore, into a question of fact. Previous practical and legal decisions of this question, based as they necessarily were upon the situation as it existed before August, 1914, are out of date; it must now be regarded in the light of the radically different situation as it exists at present. So viewed, there would seem to be but one answer to it. Labor is now, as always, an essential part of the productive process; a provision for the reasonable needs of labor is a part of the industrial plant essential to the prompt and economical production of equipment for war use; a fair treatment of labor, in this as in other respects, is essential to the welfare of labor and of the community; private initiative, whether that of labor or that of capital, does not and cannot, under present conditions, supply this requisite. Therefore, it is not only "conducive to the beneficial exercise" of the war power, but "necessary and proper" to its efficient exercise that this requisite, like any other, should in default of any other means of supplying it, be furnished by the Government as a part of its preparation for and conduct of the war.

If it be admitted, as many are now inclined to admit, that a remedy for the more serious housing evils connected directly or indirectly with the conduct of the war must come from the National Government, it nevertheless remains true that there are serious difficulties and disadvantages which threaten us if we adopt as a remedy the granting of the aid of the National Government to industrial housing. These difficulties and disadvantages, however, may in large part be overcome by the choice of proper methods of extending this aid, and in the absence of experience on this subject in this country, much may be gained by the study of foreign procedure.

One difficulty in all government undertakings is the absence of those incentives and restraints incident to private initiative. This is especially marked in enterprises involving small details in large number and variety, such as the building of many individual houses of small size, in many different localities, for different classes of tenants and owners, the designs of which should vary to fit the varied individual needs. This difficulty has been met abroad by the policy, becoming more and more general as time and experience have proved its value, of making loans for buildings rather than actually constructing them. These loans, in peace times at very low rates of interest, are granted to corporations, in England called public utility companies, which agree to limit their dividends to 4 per cent or 5 per cent and to devote any surplus to new construction. Such corporations are able and compelled to give close attention to details and thus keep their rates and prices at a minimum and still remain solvent, and in so far as they themselves build, to adapt construction to individual needs and tastes. In some cases the government simplifies its task still further by lending to a few large corporations, which in turn lend to the smaller ones.

In this country a few companies similar to the foreign limited dividend companies have been formed at various times, and individuals and groups of corporations have founded or financed them. They are not, however, general here. Perhaps the building and loan associations, so numerous in the United States, could be induced to undertake a share of the work, and, in the present dearth of houses, with the advantage of sufficient government aid and encouragement, no doubt corporations for the purpose would be founded in greatly increased numbers, not only by public-spirited persons, but by enlightened industrial corporations embarrassed in their work by lack of such facilities for labor. From many points of view the system of the recent Federal Farm Loan Act, under which the Government, through banks created by it, loans directly to associations of farmers in the various states, would be advantageous in the field of industrial housing. A plan under which government loans were made to associations of laborers would not only eliminate intermediaries but would tend to check the increase of landlordism, which has been found so formidable an evil in Europe and which is growing so alarmingly in this country.* To this plan, however, there is the serious objection, referred to later in this article, that unless modified and adapted to its new use, such a plan tends to lessen the mobility of labor.

Methods of Financing

In peace times the various European governments have lent money to limited dividend corporations at from 2½ to 3½ per cent. In England, I am told, the rates have now risen to 5½ and even 6 per cent. The amounts advanced in peace times in the different countries have been all the way from 50 per cent of the value to 90 per cent of the cost of the house and land. In England the proportion advanced by the Government was in peace times usually about two-thirds of the cost or value, and, I am told, as a war measure, the amounts have been increased to 90 and even 100 per cent (and more) of the cost. It is probable that we in this country at this time, if we adopt any such methods of aiding housing, will be compelled, under the industrial and financial conditions now prevailing, not only to advance the entire cost, but to agree to allow the companies to write off a portion of it, as has been done in various ways as a war measure in England, for, otherwise, after the war, when construction has become less expensive, the companies would be compelled to repay more than the worth of the houses. Such an arrangement would still be advantageous to the Government, for the values of the houses, if publicly owned, would decrease just the same; the plan suggested would secure to the Government the gains incidental to private initiative, and if the companies were bonded or the share-holders were made individually liable to the amount of their subscriptions, the Government would be sure of repayment of the amounts due it.

Another danger which the policy of public loans, rather than public construction, tends to obviate, is the lessening of private construction which public competition usually causes. The Government is not obliged to rent or sell its houses at the market rate, and often in its attempt to relieve the situation as much as possible, or on account of

*See the chapter on Home Ownership in the Thirteenth United States Census.

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political pressure, accepts less than the market return, covering up the loss, perhaps, by juggling with the figures. The fear of this unfair competition discourages and greatly lessens private building, and, thus, often government assistance, unwisely given, decreases the available housing supply rather than increases it; for the number of houses publicly built will always be very few in comparison with those due to private enterprises. Where, however, the Government lends to private parties for construction, this danger is, to a considerable extent, avoided.

One exception to the growing tendency abroad to aid housing conditions by loans, rather than by construction, is in the housing of the Government's own employees. In this field, national, state or provincial, and city governments have always followed the plan of themselves building houses for sale or rent to those whom they employ, national or state governments often lending to cities to enable them to pursue this policy. It is probable that our Government would be compelled, to some extent at least, to build the houses for those whom it directly employs, in so far as there is a lack of such housing.

A second disadvantage likely to occur in housing enterprises undertaken by a central government is a lack of adaptation to local conditions, due to lack of local knowledge and control. Abroad this danger is in part met by the policy already mentioned of loans to individual corporations, rather than government construction. In Belgium (in the days before the war) and France, even now, this difficulty is further overcome by the formation of local committees of control. Housing is not only an individual matter but a local one, and should fulfil local needs and conditions in the communities in which the houses are constructed. In these days, when the need of intelligent city and town planning in conformity with local needs and conditions is—in theory at least—so generally recognized, the importance of such conformity will be generally admitted, and, evidently, in a democratic country like ours, local representation is the proper method of securing it. In the limited time at the disposal of the Government in this crisis, it may not be possible or necessary to form local committees for this purpose, as was done abroad in the more leisurely times of peace, to meet the less urgent needs of a more fortunate period. However, this branch of activity of the general Government should at least be in charge of a large committee, so appointed as to be drawn from all parts of the country where the war preparations of the Government have, directly or indirectly, caused a housing famine, a small executive committee, of course, being chosen for effective control.

The Position of the Workman

In any housing policy which we may adopt for the benefit of labor, we must be careful to follow courses which commend themselves to the labor which we are attempting to serve. Employees, in this country and England, feel that by living in houses owned by their employers they are placing themselves in the power of these employers individually; and that by buying homes they are rendering themselves immobile and unable to seek their best interests, wherever this search may lead them, thus putting themselves in the power of their employers collectively. Nevertheless, it is clearly a part of the employer's duty, under a régime in which the employer is responsible for the direction of the enterprise as a whole, to see that the men have an opportunity to obtain suitable housing. In England, a way round this impasse has, to a limited extent, been found by the formation of housing copartnerships in which the laborer owns, not his home, but shares representing it, that he may hold as an investment, or sell, if he moves away.

The laborer in this country is not as yet accustomed to the ownership of a part interest in property, and so has not been favorably inclined toward the copartnership idea. To a limited extent, groups of employers, seeking to do their duty toward those they employ, to secure the advantages to be derived from well-housed help, and to avoid the difficulties arising from the suspicions of the employees that the housing plan is a means of control, have formed housing corporations, with charters so drawn as to prevent any one corporation, or all together, from dominating or using it to the disadvantage of their laborers. In small numbers, too, independent limited dividend housing corporations have been formed. Apparently no sufficient solution of this problem has as yet been found in this country. There is not this difficulty, however, in the housing by the Government of its own employees, for representatives of labor undoubtedly would be given their share of representation in the management of the property.

Hard as it is at all times to extend government aid wisely to the housing of our workers, and especially hard as it is to do so at this time, nevertheless, in this crisis such aid is imperative. War, today, is an industrial struggle, and all experience shows us that a proper provision for the needs of labor, of which necessary housing is the most important, is essential to its success.

The Necessity for Wise Action

In this housing which we shall undertake, we should see to it that the established principles of housing and city and town planning are followed. To ensure this result, the national committee should contain experts in housing and city planning. In this crisis the National Government, with its great power, in its haste and impatience, is all too likely to neglect all such considerations. Already, in many cases, it is locating its works in places where proper provision for housing is difficult and expensive, if not impossible; failing to plan for housing as a part of its general plans; violating plain principles of economical and efficient planning; and inflicting expensive and inefficient makeshifts for all time upon localities powerless, in the present state of public feeling, of preventing the imminent injury. In the keen competition, more severe than ever before in the world's history, which will so surely follow the war, these obvious blunders will cost us dearly. Foreign governments that formerly made these mistakes occasionally are making them no longer. Even in the stress that is so much more severe for them than for us, they are not needlessly, as we are, overlooking the future. There is still time for us to avoid many of the impending mistakes, and the only method of doing so is to proceed on the principles which the experience of the world has proved to be sound, efficient, and economical.

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Sixth National Conference on Housing in America

Chicago, October 15 to 17

Legislation establishing minima of mere decency in human habitation and the enforcement of such, even when successful, are like the perfume used two centuries ago by the French dandies to neutralize the bad odors which common soap and water might have removed. Many of the discussions of the Conference, whose sessions were rather prolonged, hinged on just such superficial matters rather than the fundamentals. One did hear less than usual, however, of minimum ceiling heights and window areas and other physical details of the usual housing legislation, and there were some highlights and sparks of hope which promised well for the future.

Mr. Armstrong, of Canada: The problem seems to be not to *cheapen* workingmen's houses but to *increase* workingmen's wages so they may be able to afford *better* houses.

Mr. Parker, of the Massachusetts Homestead Commission: The problem is more than the adjustment of the cost of the house; it is the building of a house which will return the largest dividend in the character of the family, the neighborhood, and its citizens!

Mr. Dana, of New York: Good housing is now recognized as good business rather than philanthropy. The good house must be planned sympathetically and should be good enough for anyone to live in, not merely good enough for the worker. Everyone should have a chance to live not only decently but attractively. Attractive building does not depend on elaboration but rather on good proportions and good color-schemes, neither of which need involve any additional expense over poor proportions and hideous color-schemes.

Miss Marcia Mead, of New York: In reducing the cost of workingmen's homes, we begin at the wrong end. We usually begin with the very minimum of a human habitation and add such flourishes and enhancements as can be afforded. Far better results might be had by beginning with a well-equipped house of good quality and eliminating such things as are not absolutely necessary and which cannot possibly be afforded.

The Conference was getting more hopeful every hour when there came upon the scene a representative of a company selling "ready-cut" wooden houses such as are "made by the mile and sold by the yard," and told us of the remarkable achievement of his company: Until 1916, England had refused to consider the ready-cut wooden house in any way, but such were the virtues of his particular proposition that recently 600 ready-cut houses were sent into England and 600 more were ordered and ready to be sent as soon as boats were provided. It looked as if England had abandoned her partiality for brick and similar materials. He was proud of the achievement. To me it seemed like desecration.

At the evening sessions various reports were made. Mr. Hiss reported that the Government was at work on the solution of the grave problems involved in the industrial housing shortage in this country, and that progress was being made. Miss James gave an interesting review of the housing activities of England, which are being illustrated in the Journal, and Mr. Whitaker's keenly analytical paper on "Housing as a War Problem" was read. Major Starrett gave an interesting talk on the "Housing of the New Army." This was illustrated by moving pictures and lantern slides of the cantonment building operations and was discussed by Mr. E. H. Bennett, who assisted in planning the Rockville cantonment, and by Messrs. John Ihlder and Lawrence Veiller, who were consultants in the housing details of the cantonments.

The last two luncheon meetings were the most interesting and valuable meetings of the conference. The first was devoted to "Chicago's Housing Problems." Mr. George Hooker, of the Chicago City Club, argued that Chicago's housing problems were too big for Chicago, that the housing problems of any city were too big for that city, that proper housing regulation was a national problem and should receive national attention. Dr. Graham Taylor discussed the relation of the house to the neighborhood; how our community institutions—the voting precinct, the school, the church—all were really neighborhood institutions and so, "back to the neighborhood must we hark for the progress of our citizenship and our nation." Mr. T. Arnold Hill made an earnest plea for the provision of special negro housing. He showed by actual figures how the negro was being exploited, how the only houses available to him were those which had been discarded by whites and that, when these houses were given over to negro occupancy, the rents were usually raised 25 to 30 per cent over those of the former tenants. The result of this was, of course, extreme overcrowding with its consequent delinquency, immorality, and disease. Last came Miss Harriet Vittum with her simple dramatic story of "The House and the Delinquent Child." She said that, under the existing housing conditions in the slums of Chicago, young girls—future mothers—must become unmoral if not immoral, that proper housing was absolutely essential for proper future citizenship, and pointed to the significant fact that in Chicago the spot maps for juvenile delinquency, tuberculosis, high death rate, and bad housing, all pretty nearly coincided as to spotted areas.

At the last luncheon meeting, Mr. Lawson Purdy, of New York, spoke on the "Zoning of Cities." In the most simple and lucid way, he discussed the philosophy of zoning, its necessity and its advantages. Mr. Purdy asserted that "it can and must be so regulated that every building should be a sound, stable investment and a suitable working or dwelling-place for human beings," and that "the individual who builds a home in a neighborhood in good faith has a right to say to the community that it should protect him in the use of his home." As to the constitutionality of zoning, it was largely a matter of education of the courts and if, in any state, zoning were found unconstitutional, the thing to do was to change that particular constitution!

Comparing such statements as were made repeatedly by delegates from different parts of the country, the following conclusions may be made from the discussions and reports of the Conference:

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(*a*) The housing conditions in our industrial centers, especially those busy with emergency war work, are inexpressably bad (some places report beds being used 24 hours a day in three shifts, this having been going on for months!) and that the prompt relief of this condition is absolutely essential for the content of the workers and our conduct of the war. Labor turnover in some of these centers was reported as high as 240 per cent for the past year!

(*b*) That housing developments should be carried on strictly as a business and not as a charity or philanthropy. That no company goes into housing except as a necessity and last resort. It is extremely difficult, almost impossible, to convince workers that a company's motive in providing houses for its workers is not mercenary. This attitude is largely due to companies who in the past have built houses for the purpose of exploitation and coercion.

(*c*) No decent worker wants or will accept anything for nothing. He wants to be treated justly and fairly and to be given the chance to pay as he goes. "Charity and philanthropy have done more harm than good."

(*d*) The well-built house of good permanent materials is the most economical and stable investment because of the satisfaction given, its low maintenance cost, and long life.—B. J. L.

Chicago, October 15 to 17, 1917

Multi-Family *versus* Individual Houses

II

A REPLY TO MR. HENRY ATTERBURY SMITH BY MR. JOHN IHLDER

MR. HENRY ATTERBURY SMITH, in the September number of the Journal, asks us if we "have ever pushed down to the fundamentals 'of' "this stuff about the individual house for the employee in the industrial town." Presumably we have not, so he pushes for us. But first he asks if we are "sure that the lowest paid in the factory are being housed at all, or are they boarding, rooming, or crowding? If not, they soon will be." Let us assure him at once that there is no "if" or "will" about it; they be. And then, as even the most patient readers and other worms occasionally do, let us turn and ask him for figures to accompany his drawings demonstrating that the poorest paid can be housed in his ideal multi-family buildings at "five families per acre" with "heating, sewage, domestic hot water, lighting, power (for sewing and other light machines)." These are all most desirable, and figures, showing how they may be obtained by the man who earns $15 a week or under, would make us all join the ranks of the late Governor Bliss' "optimilists."

But still we do not gather from all this any indication of why the multi-family house is superior to the single house, except that the accompanying illustrations are of multi-family houses. The argument apparently is contained in the fifth paragraph. "In cold climates how can each family shovel coal, or in warm, have enough energy left after a day's work to look after plumbing, shutters, gutters, and leaders? Why should we foist all this work upon the individual occupant . . . when he or she or both have had a hard day's work in mill or factory or mine, and who are supposed to have a family of children besides? The answer is to be found in the word exploitation at times. . . ." "How can the general run of house occupants know how to take care of their real estate in such manner as will cause it to last and not become a source of expense? Even the most intelligent of us seem not to understand how to make a house hold out year after year. No, the answer is a multi-family house, with expert repairmen constantly on the job, men who like such work, just as other men, like myself, hate it. . . ." There is a little more about tinsmiths and plumbers and painters and garbage incinerators and women to collect rents "and coöperate with the families in regard to their varying necessities."

Surely there never was a more logical and convincing—and entertaining argument than this. Yet, if it were not for the words, "No, the answer is a multi-family house," I would be willing to offer a prize to anyone who could guess what the writer was driving at. Except for those seven words, every contestant would declare that he was inveighing against home-ownership. For everyone would know that single houses may be, and often are, rented as well as sold, and many would know that with single houses central heat, hot water, garbage collection, repairs by tinsmiths, plumbers, painters, and others, are sometimes supplied to the tenant. As for women rent-collectors, one of the best known in the country works in Mr. Smith's own city of New York and the houses under her care are nearly all single houses.

It is to be regretted that Mr. Smith did not demonstrate the superlative excellence of multi-family houses for the families of children whom he mentioned in passing.

JOHN IHLDER.

A Small-House Competition

In connection with the Real Estate and Building Show at Columbus, Ohio, on January 21 to 30, 1918, the Columbus Chapter of the Institute is conducting, in coöperation with the Columbus Real Estate Board and the Builders and Traders Exchange, a competition open to all architects, the subject of which is a house to cost $6,000. There are seven prizes, ranging from $200 to $5. Particulars may be obtained by addressing the Columbus Chapter of the A. I. A., Columbus, Ohio.

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L'intelligence dessine mais c'est le
Cœur qui modèle

Auguste Rodin

A Last Message from Auguste Rodin to the Artists of America

A SHORT time ago when M. Rodin was asked to write an article for the Journal, he pleaded, not so much the temporary fatigue which had brought him to Rome for rest, as the depression under which he suffered keenly. To him the war was a constant sorrow from which he could not free himself, and that it hastened his death, which occurred at Meudon on November 17, scarcely may be doubted. "But I will give you a thought for the Journal," said M. Rodin, "and a greeting to my friends in America." Perhaps if he had written the article we so much wished it could not have more faithfully conveyed his message than the few words which he wrote for us upon a sheet of letter-paper, and which we print in facsimile above.

The illustration at the left is from a very recent photograph of M. Rodin and his wife, taken at the home of Mrs. John Marshall in Rome; that at the right is of M. Rodin in his studio.

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SAINTE GENEVIÈVE

OLD PARIS (1860)

Drawn and lithographed by Ph. Benoist, the figures by A. Bayot

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THE INVALIDES

OLD PARIS (1860)

Drawn and lithographed by Ph. Benoist and Eugène Cicéri, the figures by A. Bayot

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THE CHURCH OF SAINT PAUL AND SAINT LOUIS

OLD PARIS (1860)

Drawn by Chapuy, lithographed by Fichot, the figures by J. Gaildrau

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THE TOUR ST JACQUES AND THE RUE DE RIVOLI

OLD PARIS (1860)

Drawn and lithographed by Ph. Benoist, the figures by A. Bayot

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THE BOULEVARD AND GATE OF ST. DENIS

OLD PARIS (1860)

Drawn and lithographed by Ph. Benoist, the figures by A. Bayot

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PARC DE MONCEAUX

OLD PARIS (1860)

Drawn by Felix Benoist, lithographed by Eugene Ciceri

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PLACE VENDOME AND RUE DE CASTIGLIONE

OLD PARIS (1860)

Drawn and lithographed by Ph. Benoist

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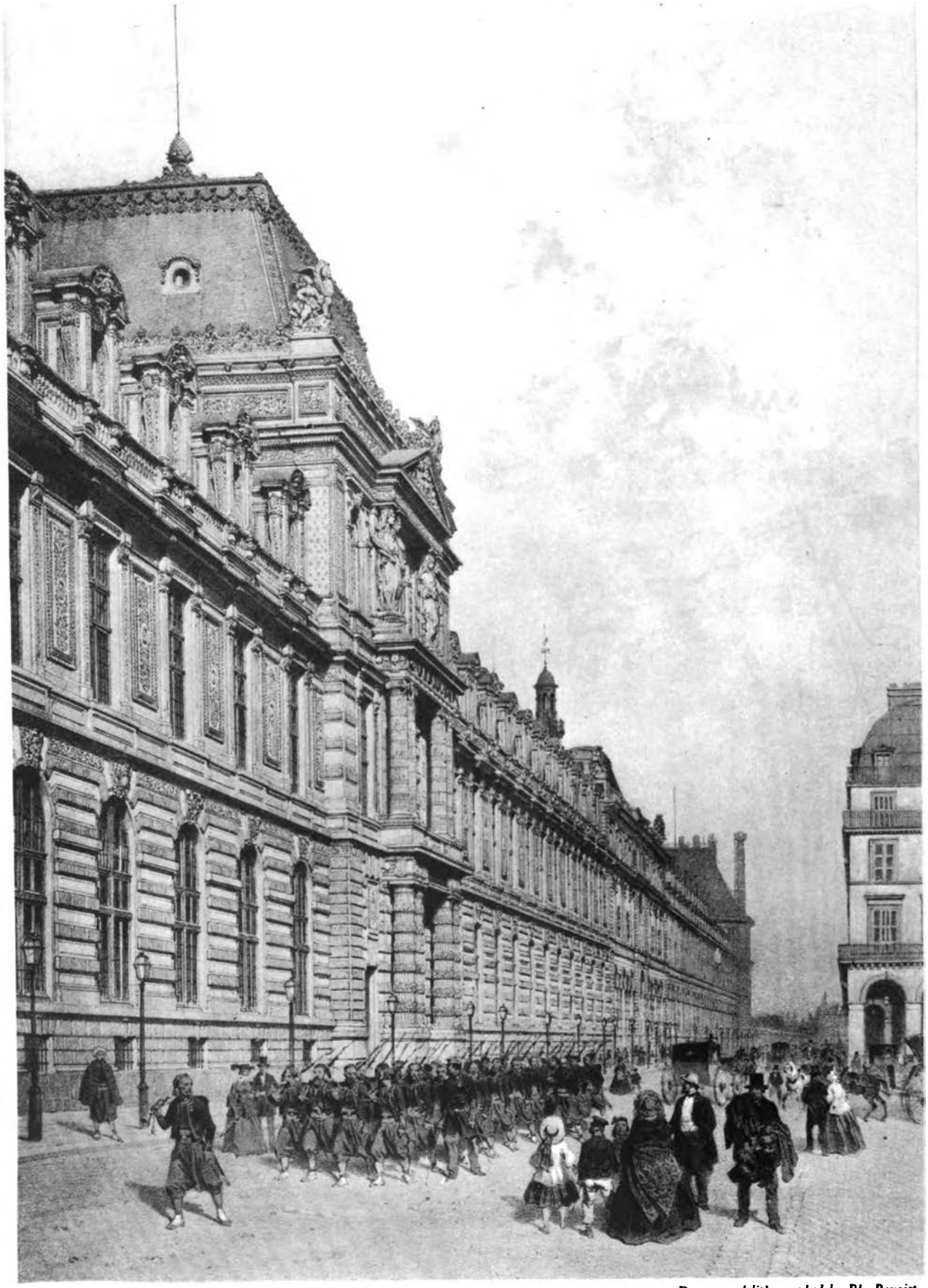

THE LOUVRE — OLD PARIS (1860) — *Drawn and lithographed by Ph. Benoist, the figures by A. Bayot*

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From Our Special Correspondent in England

I. THE STATE AS THE ABSOLUTE AGENT OF CONTROL IN WAR

IN England's program of industrial preparation, visioned in the Defence of the Realm Act, there are four factors of tremendous importance. These warrant emphasis, for three years of experience have demonstrated that it is absolutely necessary for the State to exercise the powers therein set up. Broadly speaking, the first relates to that power which enabled the State to take for its own use whatever it required. That was an arbitrary power, but it was necessary. The long, involved processes of formulating all of the complex conditions surrounding the terms of acquisition and settlement were left for future consideration. It was not until 1916 that the Defence of the Realm (Acquisition of Land) Act, which set up the mechanism for handling this phase of the problem, was passed. This is an important piece of legislation, for in its scope it includes such details as:

> Continuation of possession of land occupied for purpose of the defence of the realm;
> Power to remove buildings and works;
> Power to acquire land permanently;
> Power to sell land acquired under the Act;
> Provision as to highways;
> Provisions as to water, light, heat, and power companies and authorities;
> Payment of compensation and purchase-money;
> Application of building laws,

and sundry other details, together with a schedule consisting of a number of modifications of the long-standing Land Clauses Act. Then Number Six of the Schedule is of vital importance, and I quote:

> "In determining the amount of compensation, the value of the land acquired shall be taken to be the value which the land would have had at the date of the notice to treat if it had remained in the condition in which it was at the commencement of the present war, without regard to any enhancement or depreciation in value which may be attributed directly or indirectly to any buildings, work, or improvements, erected, constructed, or made on, over or under the land, or any adjoining or neighbouring land for purposes connected with the present war wholly or partly at the expense of the State, or, with the consent of the occupying department, at the expense of any person not being a person interested in the land."

The second outstanding factor is that the State immediately assumed the initiative in production of munitions of war, and it is interesting to note that under the broad definition of munitions there are very few things produced which are not so included. The scope, therefore, of State activities in production was very wide. There was no waiting upon individual initiative; land, factories, houses, hostels, heat, light, power, clothing, and transportation were provided. As yet, I have had but a glimpse of this great fabric of industrial preparation, but what I have seen leads me to state without hesitation that we have in America no alternative but to follow a similar course. It was the full and complete acknowledgment of this simple truth that led to the development of the remarkable program of industrial housing. For the moment it does not matter how many people have been housed, or what it has cost, or what proportion of the expense was borne by State, local authority, or private capital. The point is simply this: As rapidly as materials and human energy could be collected and directed toward this end, adequate housing was provided.

The last point of emphasis is that which relates to supervision and control of workers both within and without the factory. Here, by a remarkable system of inspection and supervision the State has extended its powers far beyond any hitherto conceived limit.

Control of Living Conditions

The control of living conditions in towns and cities where it has not been necessary or possible to erect cottages or hostels has been achieved by the passage of the Billeting of Civilians Act, 1917. Through a Central Billeting Board, operating through a local authority and committees, surveys of housing accommodation have been made wherever conditions warranted, and civilian workers have been billeted upon the civil population. I will later take up in detail the operation of this Act. For the present it is important to note that it is possible in some cases to billet a working population equal or greater than the population disclosed by the census. It has been possible through the powers conferred to relieve congestion and increase the capacity in towns where it was assumed that conditions were very bad. While this seems at first thought to be a very drastic measure, yet experience shows that such is not the case, that it may be operated to the actual advantage of the entire civil population, that through the control thus established the exploitation of the worker is entirely eliminated. It has the tremendous advantage of conserving materials, for if workers can be adequately housed in structures already erected, the great saving of labor and materials thus effected is obvious.*

It may be difficult for us to accept the idea of almost absolute State control over affairs which we have hitherto deemed to be essentially private; but I repeat with emphasis my opinion, based upon a knowledge of our capacities and traditions and on a very rapid survey of results accomplished here, that we shall fall short of doing our share, that we shall fail in our purpose, if we in any way hamper or deflect the State from assuming absolute control, and of directing the sum total of our energies toward the immediate purpose of bringing this war to a close. This is the lesson I have learned in my few days in England, not alone from my interviews, but from all whom I meet, and above all from the temper of a people who have learned through three years of bitter experience the meaning of "war!"

London, Oct. 8, 1917.

(*It will be recognized that conditions in the United States both as to the heterogeneous nature of our industrial population and density of settled area would make the operation of such an act more difficult than in England.—THE EDITOR)

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II. GENERAL ASPECTS OF FINANCING EMERGENCY HOUSING IN ENGLAND

The following memoranda relate merely to the larger financial aspects and the general policies pursued by the British Government in its effort to provide such housing accommodation as was found necessary to meet the conditions surrounding the manufacture of munitions of war.

No statistics as regards total or unit cost, nor of the total number housed, are included; and the statements made express the consensus of opinion among the many with whom I have discussed this question of policy in the Ministry of Munitions. It is important to note that the opinions expressed are the result of three years of experience, and are therefore of tremendous value as regards the solution of our similar problem.

At the outset, it is of the greatest importance that we should keep clearly in mind the fact that England had already created in the Housing of the Working Classes Act of 1890 and the Housing and Town Planning Act of 1909, a certain mechanism for dealing with the housing problem under normal conditions. At the beginning of the war, therefore, England possessed in this respect certain powers and authorities for which we have no parallel. In a certain sense, surely as far as public opinion was concerned, the additional authority created by the Defence of the Realm Act was but an extension of already existing powers. The program of social legislation extending over a considerable period prior to the war was a very important factor in giving direction to the work of adequate industrial preparation.

In discussing the subject of housing, the Englishman thinks in terms of 'Local Authority' and 'Local Government Board,' and to omit these two bodies from consideration in any program of housing is to him like suggesting the building of a house without a foundation; for we must not forget that prior to the war in these two bodies was lodged the power to provide adequate housing. They were not bodies acting with police powers alone, as is the case with our departments: they could act also in the initiative.

It is therefore quite impossible to translate the terms and conditions under which the housing of munition workers has been accomplished in England into terms which would have anything like a similar meaning in the United States. It is true that, prior to the war, by far the greater proportion, in fact most of the housing had been provided, as in America, by private enterprise—speculative building—and to a lesser extent by industrial capital; but there was always in the background the Local Authority and the Local Government Board with its authority to loan money and initiate where private enterprise failed.

The Failure of Existing Machinery

At the outbreak of the war it was but natural that the Government should first look to the already existing mechanism for the necessary supply of housing accommodation to meet the demands of the rapidly expanding private plants. Efforts were made along this line, but it was soon discovered that it was quite impossible to thrust this burden upon private enterprise, and that, owing to the precarious nature of the investment, nothing was to be had from the speculative builders. Prices were mounting rapidly; labor was scarce; and materials were in demand by enterprises conducted by the Government. In addition to this, Local Authorities were not fully equipped to deal with the problems, for they were far greater in magnitude than had heretofore been conceived.

Even when the Local Authority was ready to assume the responsibility—and the cases were few where it did—the nature of the enterprise was such, and the cost so high, that the Government had no alternative but to give a subsidy, which, in the majority of cases, amounted to 25 per cent of the investment. With the constantly advancing prices there followed a series of bargainings between the Government and private enterprises or Local Authority, as the case may be. A great variety of arrangements was made between the Government and the Local Authorities, both as regards subsidy and the disposition of the property after the war. Even today, the exact basis of transfer has not been standardized. In some cases the Government advanced the total cost of the operation, with the agreement that the entire cost become an obligation of the Local Authority, and that at the close of the war, or within a certain specified time thereafter, the Government would write off a part of the obligation, and thereby reduce the same to an amount which would equal the value were the buildings to be erected at that time. The general policy has been to make such loans mature in forty years.

The details of such operations as outlined above are necessarily complex; yet the principle involved is simple and workable under normal conditions. The idea or purpose in such an arrangement is obvious. If the activity of a Local Authority is involved, and if the financial arrangement is such as will not produce an abnormal increase in rates, or place the Local Authority in an embarrassing financial position, a stimulation of local interest is sure to follow.

The British Government Obliged to Assume the Task

At the outset of the war, it was through the above roughly outlined process that the Government sought to provide the vast amount of industrial housing required. To a certain limited extent this method is being carried on now; but the bulk of housing—all of that in connection with the larger Government-owned plants—is now being produced by Government funds and by governmental machinery. Where the requirements for housing were small, Local Authority was called upon; but wherever the operation was of considerable magnitude, or where conditions were such as not to warrant the erection of permanent structures, the State assumed the initiative and bore the entire cost.

Translating this last statement into equivalent terms related to our political organization, we have this: After three years of experience the British Government has found that the only method by which adequate housing can be provided to meet the incalculable expansion of war industry is to provide all of the funds and initiate the entire enterprise.

I have not, as yet, seen the various housing schemes in operation, but I have examined the details of practically

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all that has been done, and I do not hesitate to state that by no other conceivable technique could the remarkable result have been accomplished. Surely, if the result could not have been accomplished in England under the most favorable conditions, what can we hope for in America where the only means of accomplishment is through private enterprise, working under the handicap of excessive costs and with capital being absorbed in other more profitable ways?

The Colossal Character of the Work

Seen in total, as I see this from within the Ministry of Munitions, the undertaking assumes the most colossal proportions—and I grow impatient to actually see this work undertaken in the United States. It represents nothing less than an epoch-making step, not alone from the angle of what it means in housing and in town planning, but in the broader field of social progress.

It is difficult to grasp the magnitude of this undertaking, and it is harder still to realize that all this has been accomplished during a time of stress when the people of England are waging their greatest war.

Hackneyed as is the phrase 'epoch-making,' I use the term advisedly, for it has been my great privilege to have had a glimpse down the vistas thus opened to the future, and to have seen something of the broad outlines of the plans which are surely crystallizing. Writing of this accomplishment here in London, filled with the spirit which this war has brought forth, vaguely sensing the accumulating momentum of social and industrial reform—it is not in the spirit of emulation that I say we must not do less, but rather that I feel, with all of our efforts expended, we shall then fall short of doing our full share.

Memorandum Relating to a Survey of Housing Needs

In discussing the subject of how best to survey the situation as regards the probable needs for housing accommodation which are bound to result from rapid industrial expansion accompanying modern war, and also the formulation of plans for providing for the needs thus arising, emphasis was repeatedly laid upon the inherent difficulties—the impossibility—of forecasting with any degree of accuracy the location of the greatest needs, the total number of workers to be involved, and the extent to which women would be employed in various phases of fabrication.

Experience indicates that these are all variable factors which three years of experience and trial have not eliminated. The program is constantly changing as the exigencies of the time dictate: the employment of women is being constantly extended to new fields of fabrication, with the result that original calculations are constantly upset. The essential elements, therefore, to possess are: first, a central body or authority having powers to initiate and execute the details of this constantly varying program with the utmost rapidity and without the hampering conditions surrounding coöperation with many and sundry departments of the Government, and also, and of equal importance, a mobile reservoir of materials and labor which can be put into immediate use.

London, October 11, 1917.

III. ENGLISH ADMINISTRATION

One cannot fail to be impressed with the fact that among those into whose hands has been given the execution of the various governmental housing schemes, there are few indeed who do not appear fully qualified to perform the service. One and all seem to have a broad grasp of both the social and the economic problems with which they have to deal, and, what is more, they understand quite thoroughly the genuine technique of town building and planning. This knowledge is not academic but is of the sort gained primarily through experience and a keen interest in the question. For the moment, I am not debating the relative merits of dealing with the problem by State or local authority, or copartnership enterprise; I am simply recording the impression that the State or municipal machinery under present conditions in England commands a high degree of ability, and, in consequence, is producing most creditable results.

Private and copartnership building enterprise failed in the war because of economic conditions, but we must recognize that the garden city movement and the copartnership idea, during the several years of struggle and experience in England prior to the war, created a background of public opinion and developed much of the technique which made possible the program and its accomplishment during the war. This is a fact of tremendous importance for us to grasp; one may safely infer that without that background and the technique and power coincidently set up, England, today, in all probability would be building temporary houses or tenements to become, after the war, a barren waste of shacks and slums of the worst sort. Thus, the war has created another tradition which will tremendously raise the standard of workmen's houses and the town-planning procedure involved, for all time. The garden city is to be not a dream but a reality, and in England, restricted as it is in area, the slum and the tenement are to go!

This is a prophecy which well may take years for realization, but if I judge rightly of the trend of public opinion, as expressed in many and various ways, of the widespread agitation for a saner and more wholesome life for all, and of the nature and scope of legislative and educational programs, it would be obstinate pessimism to assume that achievement will not come to pass.

How Shall the United States Meet the Test?

Can we in the United States inaugurate a similar program? This I repeatedly ask myself. For the moment, looking back at our country with its super-individualistic theories of government, our distrust of governmental mechanism, our utter misinterpretation of the real economic norm by which accomplishment should be measured, and the indifference of our Government, federal, state or municipal, to the fundamental values surrounding the question, I am fearful of the future. Must we forever be content with a legislative program which limits its field of activity, in relation to the houses where

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wage-earners live, to the exercise of police powers only? Must we continue to assume that progress will be accomplished by restrictions? Effort confined to this narrow conception of government is doomed to failure. By restriction and districting we have made attempts to distribute our population here and there; by technical building laws we attempt to provide proper houses and well-arranged cities. But England has long since learned that elements of this sort have a negative as well as a positive value. They work to retard as well as to advance. England has also learned by experience that wealth is not to be measured in pounds, shillings, and pence, but in the physical and social status of all of her people. If intensive individualism has brought about a division of wealth which makes it impossible for the humblest worker to maintain himself to the economic and social advantage of the nation, then it is the duty of the State to readjust the distribution in such a manner that this absolutely essential element to the whole well-being of the nation will be maintained at maximum value.

The war offered a lesson in economics to England, and she has taken the lesson to heart. Economic factors so grouped themselves shortly after the war began that a large proportion of her workers lacked homes (this was due to the cessation and increased cost of building). There was but one thing for the State to do—provide homes! That the State did at a loss in money if reckoned by the usual methods of accounting—whereas it was really a simple and highly beneficial redistribution of the wealth or resources of the nation; that was all. I admit the socialistic slant in such a statement, but I hold, as I have long held—and the idea has been demonstrated clearly to me over here—that the basic idea involved in any program of raising the standard of living conditions or of applying the principles of town planning must be a recognition by the State of the fact that the problem is primarily a problem because modern industrialism has created false and abnormal values; and that in consequence any real serious effort to restore normal values must in some manner include some readjustments of wealth. By England's program of home-building and of town-planning there has been not only a readjustment in this direction, but a permanence of value has been given to that readjustment not possible by the process of raising wages.

FREDERICK L. ACKERMAN.

Edinburgh, October 29, 1917.

Letters from an American Architectural Student in France

THROUGH the kindness of Mrs. Austin M. Purves, the Journal is permitted to publish the letters of her son, Mr. Edmund Randolph Purves, now in France with the American Ambulance Corps. Mr. Purves was a student at the University of Pennsylvania and went abroad in April of the present year. Many letters of this nature have appeared in other publications, but we believe that the readers of the Journal will appreciate these narratives of the experiences, impressions, and observations of a young member of the architectural profession, who, like thousands of his confrères in England, France, and our own country, have laid down their chosen pursuit and given their services to the cause of the Allied forces. The task of editing these messages from a son to his mother has been one of rare pleasure, for the letters naturally contain much that is of necessity eliminated in their publication. In renewing our expression of appreciation for the kind opportunity that has been conferred upon the Journal, we ask the indulgence of our readers for the sincere effort we have made to keep the letters, as nearly as possible, as intimate as they are in the original.—THE EDITOR.

On Board, April 22, 1917

. . . There is not much to do on board but play bridge. The ship carries no lights and the deck at night is pitch dark. The lifeboats are carefully inspected and the davits unlocked; the guns are in good working order. The course is not published, so that nobody but the captain knows where we are. . . . We have seen no other ships, and we are, to all purposes, "alone on a great wide sea," yet no one knows but that, perhaps, quite near, death is awaiting us in a rather dreadful form. I used to think, after reading those inspiring but misguided sea tales, that to be shipwrecked and picked up in a lifeboat was not only interesting and exciting, but also healthful. I have talked to a fellow who was on the ship that picked up the survivors of an English liner. In one boat there were seven dead from exposure, and the rest, but three, had gone mad and tried to kill their rescuers.

Last night the nervous tension on board reached a maximum, due to the fact that we were nearing land, and also because they have been making more careful preparation for the speedy evacuation of the ship. The lifeboats have been swung out, rope ladders placed along the deck at intervals, and powerful lights have been put up at important places, immediately to be turned on in case of need. It was the night in which most people seemed to have returned to the state of a childish terror of the dark. They seemed to think that the end had come, for they scrambled down to their cabins, put on coats, sweaters, and lifebelts, brought blankets and slept conveniently near the lifeboats. I noticed that the Frenchmen on board (there are a great many) did not do this, so a number of us in the Ambulance decided that the best place was a comfortable bed in the cabin. We reduced our preparations to getting out our passports and taking the lifebelts down from the racks over the beds. After sitting up and talking till midnight, we turned in and had a good night's sleep in warm beds and in negligé.

The Ambulance men (about 60) are in the main a fine bunch, not much of the ne'er-do-well type in evidence; mostly athletic fellows with a common purpose to serve France and the United States to the best of their ability. They represent all degrees of intelligence, from the Middle Western farmer's son who spent a good hour the other evening with a bottle tied to a string, trying to catch

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phosphorus, to the New Yorker who lies back and affects to be bored with the whole procedure. I get along famously with my cabin mates, two brothers from Brookline, one in Technology, the other in Harvard.

I met Comte de ——— the first night on board. He was looking for me and I, having found him out, went and introduced myself to him. He is most delightful, about fifty years old, but thin and wiry, with a little moustache, getting gray. He is the kind of Frenchman I have always wanted to meet, ever courteous and pleasant, and seems just as glad to talk to the common soldiers, of whom there are a great many on board, as to the nobility, which is also well represented. I talk to him in my execrable French as much as I can, but I am afraid we have to resort to English too often. His son has just been decorated, and he feels justly proud, as French medals are a little more rare than Iron Crosses.

At our table there are a number of French and Belgian officers, all exceedingly nice and kindly; they do their best to teach us French, yet I must say they probably find the task difficult. One of them, Dr. ———, a cavalryman of the Belgian army, who was in the siege of Antwerp, is very pleasant and was very glad to talk to one who knows something of his own land. He talks often about the beauty that was Belgium's and the courage of that little country. On the other side of him sits the Comte ———, a young Belgian whose father was killed by the Germans at the beginning, and who himself spent a frightful winter in the trenches on the Yser, in the cold and wet, without food and without ammunition. He is very quiet, and one would never dream he was of the nobility, at least not of the nobility that plays so prominent a part in society novels.

April 28

The voyage ended beautifully and on even keel, though for a time it appeared somewhat dubious. The night of the concert they had a lottery, and the next morning there was a second concert, during which an elderly Frenchman recited some original verses, in French, about the grand union of France and the United States. It was quite good but the poor man got so excited and was so overcome that he came near to breaking down, the last verse being practically sobbed out in the lulls of the thunderous applause with which it was greeted.

That night we whiled away the weary hours in a 6 by 10 cabin talking and joking, when someone came down and said there were flashes on the horizon. We then imagined that they must have lighthouses on the land, and that we were off the Spanish coast. Later we found that there had been an engagement of some sort in the vicinity and that we were considerably north of Spain. However, a trifle exciting, for we were running with all lights extinguished, even running lights, but there was a bright moon which lighted everything quite distinctly so that we furnished a good target for any meandering *U*-boat. Thank Heaven, there were none, and the next morning found us safely anchored at the mouth of the Gironde, waiting for a favorable tide, which came at 2 o'clock in the afternoon.

The mouth of the river contained lots of mine trawlers and cargo ships, all painted battleship-gray. The country roundabout was flat but very interesting, a welcome sight, believe me. In the morning, during the wait, the French officers on board gave us a rousing reception and welcome there with speeches by Capt. ——— in French and the Comte de ——— in English; there were cheers, and, as a finale, the "Star Spangled Banner," the "Marseillaise" and the "Brabançonne" were lustily sung. We finally started up the river, which becomes more and more beautiful as it nears Bordeaux. I can readily say that that voyage was one of the most beautiful trips I have ever made in my life. The sun went down gloriously after a perfect day, leaving that wonderful, wonderful twilight. The channel goes very near the shore, so that practically we brushed the trees that border the river. We glided along quietly, uncannily close to old farmhouses, chateaux, vineyards, woods, and towns, scrupulously clean, clustering about some old Romanesque church. It was like coming home again. I have about decided to take a crack at those Beaux-Arts examinations; this old country is good enough for me, the way things look now, although this is only the beginning, and I really know nothing about circumstances or the future. I think we had all better come here and live. You may have a hard time persuading me to come home again.

At suppertime I scarcely ate, but sat watching the river through the portholes, like a continuous cycle of circular "Corots" or "Daubignys." Finally, I could stand it no longer, but rushed up on deck. As I was about to step out of the door, there was a slight jar, and the old S. S. ——— quietly but firmly planted herself on a mud-bar on which we resided until the friendly tide lifted us off again. By that time (about an hour later) it was quite dark, and we continued our way, arriving in Bordeaux at 10 P.M., where we saw the first real signs of war. Quite a crowd met the boat, principally consisting of women and children. (The absence of men is very noticeable.) The gangplank was no sooner lowered than a squad of soldiers, bayonets fixed, marched on board to guard the ship. We were told by the Ambulance man who came to meet us that there were no rooms at all to be had in the town, and that we should spend the night on the boat.

Billy, his two cabin mates, and myself, decided that we had spent as many nights on that boat as we cared to, and also that we would take a chance on getting accommodations. It was then about 10 o'clock, 9 o'clock really, as the "daylight-saving" scheme of setting the clocks ahead one hour is now practised here. (It is an excellent scheme and would greatly benefit the U. S. A. in summer when the days commence early.) So we went on shore and looked for a taxi; there were none. We then looked for a fiacre; there were none to be had, all "complet." Finally we heard some old vehicle come rattling along the quay and ran along to secure it first. It turned out to be a hack which must have been in its prime during the war of 1870, and belonging to the "Chemin de fer d'Etat." We tried to make its driver (also a relic) take us to the Hotel Terminus, but he insisted on the Hotel de France; we did not argue the point but climbed in, thankful to be on land. He finally drove up to that handsome hotel where we found rooms—good rooms with hot and cold running water and real beds and everything. It was "ambrosia." The hotel turned out to be the best in Bordeaux.

The morning in Bordeaux was very interesting. Women car-conductors, motor-women, women everywhere in

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men's places. I took a stroll about the town and passed a military hospital. I could not resist the temptation to look in. There were many convalescents wandering about or lying in the sun, all quite cheerful. I passed a smithy where they were busily engaged on munitions. One sees many wounded, blind men, legless men, armless men, men with their faces covered, but no one seems discouraged, and nothing would induce them to part with their uniforms, and many wear medals.

The train left for Paris at 11.05 A.M. Our military passes entitled us to third class, but every one paid the difference and rode second. Nine hours in third, and very third at that, did not appeal to me; moreover, second entitled one to eat in the "wagon-restaurant," which I did. It was good and reasonable. The ride from Bordeaux to Paris is absolutely wonderful, right through Poitiers and the châteaux country, Tours, Amboise, Chaumont and Blois. Every station contains a Red Cross department, and there are nurses and wounded everywhere. I talked (in French) to a Zouave for quite a while. He had two bad head wounds and lost a leg, but he had the "Croix de Guerre" and the "Medaille Militaire," which seemed to console him considerably. They patched him up wonderfully well. One sees soldiers, soldiers, everywhere.

We passed several large prison camps—long wooden sheds with a slight fence around them. The prisoners evidently do not want to escape. We saw many of them working on the railroads. They appeared quite content with their lot, healthy and clean (except their uniforms, which were in rags). They were principally Austrians and Bulgars—the French do not take many German prisoners, for good reason.

At that little junction above Orleans, Les Aubrais (if you remember), we stopped for a while. On the next track was a carload of real live German prisoners. They must have been officers, for their uniforms were quite good-looking and neat. They seemed exceedingly healthy, contented, and cheerful. (I think they had been prisoners a long time.) We climbed out of our carriage to have a better look at them and flaunted American flags in their faces. They laughed at this but did not say anything, just grinned behind their German pipes, which they never removed from their mouths. Before leaving, someone in the crowd gave them some chocolate for which they thanked him courteously. Their French guards seemed to be treating them pretty decently, far better, no doubt, than they in any way deserved. On the way we saw a large Aviation School, truly a wonderful sight, like a huge beehive. There must have been at least twenty machines up in the air at the same time.

We finally pulled into Paris at 9 o'clock and were driven in ambulances to our quarters. They are not palatial, but are quite good—about what I expected. I am not living in Rue Raynouard but in an annex about four blocks away on Rue Lekain. I suppose I will be here about three weeks or more.

Paris is so interesting; just to watch the people on the streets is very absorbing. One sees every kind of uniform (except German)—French, British, Russian, Canadian, Belgian, Moroccan, Anzac, and even, think Heaven, I saw a U. S. Captain today in uniform. There seem to be a good many Russian officers quartered near us.

The women are a sad sight; really none of them are not in mourning, except those of that large mob who ply their trade so openly now. There are many shops for mourning clothes and artificial limbs—quite necessary articles these days. I saw a party of blind officers being led along the boulevards this morning; it was pathetic. There are many "poilus" back on leave, with their helmets and ragged, buttonless uniforms and shoes whose original color is not discernible—far from the conception of the soldiers of a victorious army.

The Louvre is closed. About the most popular place now is the Invalides, where they have all the latest German trophies—aëroplanes and fragments of Zeppelins, trench turrets, mortars and everything.

Somewhere in France, May 8

Twenty-four hours ago I was calmly sitting in Paris, and now here I am in a blasted village, quartered in a shelled house with a peculiar odor in the air (somewhat a cross between a morgue and a manure heap). My bed is beside a shell-hole, and I am in imminent danger of falling into it.

Really, I hated to leave Paris. I could willingly have stayed for two more weeks (as I had expected to). It is the most wonderful city in the world, and the people in it the finest I have ever met. But alas, I have been caught napping. You see, I had expected to stay in Paris at least three weeks, and until I got my uniform, I hated to go about much. To be in Paris without a uniform is to be somewhat of a fish out of water. Paris, in wartime, is a wonderful place. After I was fully clothed in all my regalia, I had to work from 8 A.M. to 6 P.M. on a delivery truck, running errands around Paris—very interesting work. I was to have been laid off in a day or so, and then I would have had all the time in the world to present my letters. When lo! and behold, yesterday noon I got my orders to be ready at 8 A.M. (this morning) to go immediately to the front, and so here I am.

I was assigned to an old Section (Section 4) which is attached to the crack division of the French Army and will be right in the thick of it. I came by train, which is much better than going in an ambulance convoy. It was a beautiful, beautiful ride and intensely interesting, past army posts and aviation centers. It becomes quite exciting as one nears the front. Soldiers, soldiers everywhere.

This little hamlet where we are staying is pretty well knocked up. Over the hills the guns are booming in a nightly "strafe," and everywhere is that peculiar sickening odor of war. Tomorrow, I believe, we move into real dugouts. I have now a tin hat and a gas-mask and make quite an imposing figure.

There is a large base hospital here which I went through tonight. It was a cheerful place. The "poilus" called out "vive l'Amerique" as we went past their beds. I did not hear a single groan in the whole place.

Evening, May 9, Sorting Hospital

The excitement has come sooner than I thought it would. For three hours I sat in a dugout today while 8-inch shells burst within 100 yards. But I will write about that later when I am in some quiet spot, for they are now shelling this village with 3-inch shells, and I can talk about Paris easier.

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LETTERS FROM AN AMERICAN ARCHITECTURAL STUDENT

Morning, May 10

I had to stop this letter last evening to come out here to the lines and wait for the "Blessés." It is now 9 A.M. and I have not taken off my clothes since yesterday, nor had any breakfast. One eats and sleeps when one can. I am going to write you about my first two days pretty soon. They have been intensely interesting, dangerous, and exciting, as I almost got a place in the casualty column.

I cannot tell you what a great pleasure it is to meet and learn to know well French gentle people. They are the most charming people in the world. At dinner that night there were: M. de B——, his sister-in-law, her two daughters, her son, and myself. It was one of the best meals I have ever eaten in all my life. They really treated me like one of their family. I suppose that you will be shocked to hear that I wore a soft collar there; but then everyone does with a uniform, even King George and Sir Douglas Haig. Dress suits are absolutely taboo, thank Heaven. I find French people are a great deal more cordial, entertaining, and far better hosts than a great many Americans.

May 12

Last Sunday I had a wonderful time. Comte B——— took me out to spend the day at his brother's château at M———, a beautiful spot. We took the train for about twenty miles outside of Paris and got off at S———, where we were met and driven through the quaint old French town (in which was quartered a regiment of Ammonites) to the château.

The château itself is a splendid example of the period of Louis XIII and the beginning of Louis XIV. The Comte's brother was not there but his sister-in-law was. She is an American and exceedingly nice, and is going to send me a watermelon when they get ripe. The war has, as everywhere, left its mark on the place. The Comtesse and her three children, two girls and a boy, live in one corner of the house. The rest is closed; you see there are no servants to be had. She has only one for that big old place, and that one rather incompetent. Really, these women are remarkable, for she seems to run the town, too, while her husband is away at the front. After a delicious lunch we walked around the Park, which was planted, right up to the walls of the château, with wheat and potatoes. His automobiles are comandeered, also any good horses. I got lots of first-hand information about the German atrocities, French unpreparedness, and the filthiness of the Germans—really indescribable. You can believe all you hear, and even use imagination, and you will come pretty near to the truth.

France, May 14

I have a day off today, thank Heaven, for I have never worked so hard in my life. The working-day here at the front is twenty-four hours long—1 P.M. to 1 P.M. next day, and then a rest. We leave quarters at 1 o'clock, drive out to the posts and carry wounded from there back to the hospital until 1 o'clock the next day, when we are relieved. Then "home," a bath, if one is fortunate, supper and bed, and one sleeps well in spite of all the guns.

It is beautiful, as I sit here on a little hill, with a slight breeze in the shade, looking across the valley at the German trenches, and what is more pleasing still, seeing high explosives from the French guns dropping into them. This may sound blood-thirsty and horrid to you, but then you see I have seen what the Germans have done, and are still doing, and there is mighty little mercy left in me as far as they are concerned. One does not realize over there in America what war is—not in the slightest.

Over here, where there are no money, no comforts, homes desecrated, men dying by the score, men hideously maimed, there is never a word of complaint. "C'est la guerre." It is truly a wonderful privilege to be able to come into contact with such people, where they are striving toward the same goal, and not each one seeing how much he can get out of the other one. And it is a country where little faith is pinned on silvery speeches. It is action and deeds that alone count here. The uniforms are not spick and span, the men don't bustle about in the old-fashioned military way. There is only one ambition here—to do your job well and finish it. There are no parades, martial music, glittering equipment. The French are essentially fighters and workers, not clothes-horses. Everyone is candidly sick of the war, but they realize that it cannot stop yet. It would be wicked beyond all thought to give in now. Yet one cannot feel sorry for the French, and pity them. It would be insulting them to try to console them.

I have met some wonderful specimens of manhood in the few days I have been on this job. One, especially, will always remain fixed in my mind—a young lieutenant whom we brought in with his leg shot off. He was slight, and probably could not have passed the U. S. Army examinations; but there are mighty few men who have his courage. He was pretty badly off himself, but on seeing one of his own men in the ambulance, he was as careful of that man and as anxious about him (although the soldier's wound was the slighter) as if he had been his own son. When an army has men like that in it, it cannot be conquered.

I have been under shell-fire, both with shrapnel and high explosive aëroplane raids, have lived in dugouts, slept right in the trenches, and have seen sights which I hope I will never see again as long as I live. In fact, the only thing I have missed is a gas-attack; but we expect that all of the time, and hang onto our gas-masks as if they were made of spun gold and set with diamonds. My account, however, will have to be brief.

May 17

After a beautiful train-ride through country, now famous, we came to a large military base. These towns are very interesting—soldiers, convoys, big guns going up to the front, and burst ones coming back. From there we rode some 10 miles in automobiles to where the Section (S.S.U.4) was "en repos." This was a little town nestling in a valley in rolling country. We arrived about evening. It was wonderfully quiet, the only signs of war being the ruined houses and the ever-present aëroplanes. Toward sundown, however, the firing began, a continuous thundering over the hills until the walls seemed to shake. I felt somewhat thrilled—a whole lot more than I do now. Really this war makes one unbelievably blasé in short time. I spent the night in a house all blown to pieces. There was a Scotch Red Cross section quartered there also, mostly made up of men who had been either rejected or unable to fight, owing to wounds.

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Early the next morning we broke camp and moved to a village near the lines, to enter on active service. It is beautiful here, perched on the side of a low hill, while across a wide valley on the top of the opposite hill are the enemy positions. If any place every looked like Hell, that place does—no trees, no grass, no green, nothing but shell-holes, smoke, dust, and noise, while far above are the German observation balloons, with never-closing eyes. We are in a rather bad position, for the Germans can see every move we make, and generally let one know it by a shell or two. We are up in the loft of a house—very airy and well ventilated, in fact, almost too well ventilated.

I was sent right out as orderly at 1 o'clock. An orderly job is rather hard work. Several cars go out from the town to a point near the lines where they can be well hidden, and then one car leaves them at that point and goes further on to the "boyau," or communication trench, where they bring the wounded to the ambulance. That car drives all the way back to the hospital, and the next car moves up. The orderly never goes to the hospital, but rides back and forth between the "boyau" and the place where the cars are stationed. It is rather a nerve-racking job, as the orderly is continually under shell-fire. The cars usually operate on roads between the batteries and the trenches, and the Boches are continually trying to find the batteries with their fire. This fact makes things rather interesting at times.

On our first run, we went across the valley to a little town which has seen much fighting, some of it hand to hand, for the windows are sand-bagged and have loop-holes, and the bullet-marks are numerous. The town must have been very pretty at one time—orchards, corners, little walls with red tile copings, and quite old—but now the lanes are perfect seas of mud, the walls broken in places, but, strange to say, the orchards were in full bloom, and yet, two years ago, this country around here was desolated.

It was in this town that I first came face to face with the horrors of war. We stopped at the inn, now used as a "poste d'évacuation," to leave our blankets and food. In the little, low-ceiled room used for treating the wounded were five German prisoners, all badly shot up. One died before we left, and another, a mere boy, had a nasty wound in the groin. I felt sorry for him. He was so young, and, in spite of his suffering, he appeared to be pleased to be through the fighting.

We left there and went on up to our post, about a mile farther on, where we found quartered a company of "travaillieurs," the men who do the carrying of the supplies to the trenches—all over forty-six years of age. They certainly were remarkable. They were housed in "abris" made of corrugated iron piping, put up in sections, forming a long tunnel just high enough to accommodate two tiers of bunks. This is well covered with earth, reinforced with logs, and covered with boughs to conceal them from the aëroplanes. There was an old battery place near there which I started out to visit, but I never got there, for at that moment the Germans commenced shelling a little house about 70 yards back of us, and so I had to beat a hasty retreat for the "abri." They kept it up for two and a half hours, at the rate of two shells per minute. These were 8-inch shells and have a killing radius of 100 yards. One can hear them coming, like an express train. There is a terrific bang, and a few seconds later the fragments come whistling past, shooting out from the shell in a cone and traveling for about 100 yards in all directions. After the first shell, I started out to see what damage had been done, but two pieces of éclat hit the other side of the door with a sharp report, so I changed my mind and spent the rest of the time, until the firing was over, under cover.

The Hun is so methodical in his firing that it is safe to go about after one session is over. We went, therefore, and examined the damage. The car had been struck by "éclats," and there was not enough left of the house to tie up in a handkerchief, while the road was so badly cut up that it had to be repaired before we could go back.

May 18

We had supper in the "poste d'évacuation," and while we were eating, the Boches commenced shelling the place with 3-inch shells. They are mean—just a short whistle and a sharp report. The shells fell in a little court across the street, and as they did not change the range, we ate complacently. There is one distinct disadvantage about shell-fire, that is, one never hears the one coming which hits one, because the shells travel faster than the sound.

That night we went back to the "boyau" and started to sleep in the ambulance. One has to sleep with all one's clothes on because a call may come at any minute. The French batteries, which are numerous, started up a terrific firing about 12 M., so we spent the rest of the night in the "abri." Fortunately, I was tired out, or I could never have slept in that place. It was hermetically sealed, and with a troop of ripe old "brancardiers" it had an odor all its own. The next morning we went back to the billets after being relieved. My next trip was a great deal more exciting and harder work and to a different place.

On this occasion the cars were parked in a wood. The "boyau" was further along, about 2 miles; the road there was all in plain view of the German lines. Don't think for a minute that I am any "bullet-biter" or dare-devil. That road was enough to make any one gray-haired. The Germans were combing out the woods, ahead, behind, and beside us, with shrapnel, and to say that I was not scared would be a lie. You get so scared that you are not scared. It may be exciting to go charging up some hill, with shells bursting around you, carrying a gun in one hand and a grenade in the other, and bayonet submissive Teutons. But it is different, and somewhat of a test on the nerves, to go creeping cautiously, oh, terribly slowly, along a road with a carload of "graves blessés" when that road is being treated to intermittent shell-fire. I have seen the effect of shells, both on things animate and inanimate, and I have a great deal of respect for them.

Well, this all has no bearing on my first night in a trench. We got to the "boyau" all right, and, after several trips with "blessés," we waited practically all night long before another one. That was quite a night. The going at night is not so bad, except for the heavy traffic, because so many star shells are sent up from the trenches that the way is pretty well lighted. We lay down in the trench for a while, but could not sleep—too much noise; and soon the Boches commenced searching for the batteries behind us with high explosives, and we retired to a real dugout.

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This one was a bird. I took a picture of it as it was very trenchy looking. There was no sleep in there. It was narrow, low and damp, and the bugs—"57" varieties—all colors, shapes, and sizes. It would keep an expert bug-hunter busy for weeks trying to classify them. I myself have never been very keen about insects, as you know. It was too low to sit up in, too narrow to lie across, so one rests lengthwise, with his head against his neighbor's feet.

Toward dawn the Germans planted a good shot in a trench magazine, and we saw some very pretty fireworks. It was the first German shot I have seen that found its mark. At 1.30 P.M. we were relieved, and then I went back and had a sponge-bath, and went to bed. That is an account of my first days; the others are mostly repetitions with variations. Of course, there is lots to tell, but then I forget some things for the moment; some can't be told now.

The Washington State Capitol Group

IN support of the active efforts made by the Washington State Chapter for adherence to the Capitol Group Plan, the following letter was addressed by President Mauran to Governor Lister:

St. Louis, Mo., Oct. 23, 1917.

HONORABLE ERNEST LISTER,
Governor of the State of Washington,
Olympia, Wash.

Dear Sir: May I be pardoned for seeming to encroach upon the prerogatives of the people of the state of Washington to manage their own affairs as they see fit? My sole excuse is the fact that the American Institute of Architects is often looked to as the natural "Defenders of the Faith," when, with that vision which is inherent in the profession, through its training, they see any danger threatening the progress of the architectural development of our great country.

Two years ago the Capital of our country was threatened with a real eyesore in the form of an unsightly power-house in the midst of its carefully conceived park area, and the American Institute of Architects undertook a campaign to prevent such a desecration of our National Capital. Nothing could have been done, I assure you, were it not for the storm of adverse public opinion which broke upon Congress from the Atlantic to the Pacific. The reason for its effectiveness was that our campaign was based upon uncontrovertible facts, which were unappreciated by the laity until vividly pictured by our professional body.

The state of Washington has before it a programme unique indeed in beauty, in financial adequacy, and in enduring merit, and I am writing to express the hope that you and all the people of your great state may see the vision of the future so admirably presented in the circular prepared by the Washington State Chapter of the American Institute of Architects in time to prevent any material departure from the noble plan of which you should be proud.

I beg you will accept this letter, not as an intrusion, but in the spirit of sincerity in which it is written.

Very truly yours,
JOHN LAWRENCE MAURAN, *President.*

PRESIDENT JOHN LAWRENCE MAURAN,
The Octagon, Washington, D. C.

My Dear Sir: I had, yesterday, the great pleasure of reading your letter addressed to Governor Ernest Lister on the question of maintaining the splendid group plan submitted in competition by Messrs. Wilder & White and subsequently developed and perfected by them after months of painstaking study and adopted by the State Government in 1912 after the most careful scrutiny and consideration as the State Capitol Group Plan for the State of Washington.

On behalf of the Chapter, and without official endorsement, on behalf of the unfortunately small minority of intelligent citizenship who view this matter as we do, I thank you. Your letter is so admirable and so in keeping with the high ideals that under your administration the Institute is reaching toward, that the facts should be printed in the Journal to the end that every Chapter may feel assured that the parent body is behind them in all their undertakings where in the spirit of altruism and from sincere feelings of true patriotism their efforts are directed toward obtaining the best expression in the Government buildings for the people. Yours very truly,

CHARLES H. BEBB
President Washington State Chapter A.I.A.

Report of the Public Buildings Commission

The report of this Commission, the date for which was originally fixed at January 1, 1917, and later extended to January 1, 1918, is awaited with keen interest by those who look forward to the presentation of a thorough and comprehensive analysis of the present congestion in administrative quarters in Washington, and who hope that the report will be accompanied by recommendations for the construction of the new buildings which are so badly needed now and for those which will be necessary properly to house the fast-growing activities of the Government. The report has involved a work of the most laborious character, much complicated by the war emergency which forced the rental, by the Government, of a great variety of buildings.

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Institute Business

New Members Elected

Delbert K. Perry, New Britain, Conn. Connecticut Chapter.

Frederick C. Lebenbaum, Chicago, Ill. Illinois Chapter.

Clark C. Wright, Chicago, Ill. Illinois Chapter.

Clarke Waggeman, Washington, D. C. Washington Chapter.

Nominations for Officers

To the Secretary of the Institute:

For the office of President of the American Institute of Architects, which is to become vacant at the close of the present year,* the undersigned members of the said Institute do hereby, in accordance with Article IX of the By-Laws, submit their petition for the nomination of Mr. Burt L. Fenner, of New York City.

John M. Donaldson, William B. Stratton, D. J. von Schneider, Charles Kotting, F. J. Winter, Arthur H. Scott, William Reed-Hill, John Scott, James B. Nettleton, and Hugh B. Clement of the Michigan Chapter; Edward A. Crane, John Hall Rankin, John P. B. Sinkler, E. P. Bissell, and George I. Lovatt, of the Philadelphia Chapter.

*By vote of the last Convention, the present officers hold over until their successors are chosen at the next Convention, tentatively fixed for the spring of 1918.—Editor.

Obituary

Frederick C. Bonsack

Elected to the Institute as a Fellow in 1897
Died at St. Louis, Mo., September, 1917

Isaac S. Taylor

Elected to the Institute in 1884; to Fellowship in 1889
Died at St. Louis, Mo., October 28, 1917

A. J. Bloor

Elected to the Institute as a Fellow in 1861
Secretary of the Institute 1874-77; 1881-83; 1887-89
Died at New York City, November 19, 1917

Book Reviews

The Dwelling Houses of Charleston, South Carolina.

By Alice R. Huger Smith and D. E. Huger Smith. 128 illustrations from drawings by Alice R. Huger Smith. Photographs and Architectural drawings by Albert Simons. Limited Edition printed from type which has been distributed. 387 pages. 8vo. $6 net.

If this book serves to remind us of how Charleston has been swept by fire after fire, battered by war, and shaken by earthquake, it also serves to make us thankful for what has been spared. The text, while largely devoted to an account of the families whose houses are described, makes a vivid story of the life of the city, so strangely isolated by the Civil War. The illustrations—of houses, gates, doorways, winding stairways, paneled rooms, mantels, and rambling porches—many from drawings by Miss Smith, make an even more vivid picture of an epoch which still haunts us with its suggestive charm of a more leisurely existence. The book also contains a number of measured drawings, though on a small scale, and makes mention of numerous architectural quaintnesses of practice. It is especially interesting to have recalled to us at this moment the fact that, after the great fire of 1740, the General Assembly of South Carolina fixed the price of building materials and labor for a period of ten years!

Aside from the interest which this work will have for the architect, it seems safe to say that no future student of Charlestonian life can ignore the careful research embodied in its text.—B.

The New Tax on Professional Incomes

Mr. Frank E. Davidson, of Chicago, a member of the Institute, has made the following computation of the income-tax law as applied to professional incomes. No official interpretation seems to have been made, although those who appear to be expert in this matter do not agree with Mr. Davidson. Possibly, in the next number of the Journal, we shall be able to state the case definitely. Mr. Davidson's computation is as follows:

If an architect is a single man and has an income of $10,000, he must first pay 8 per cent on the difference between $6,000 and $10,000, or $320, but in computing his tax under the two regular individual income-tax provisions of the old law and the new, this tax of $320 would be deducted from the income of $10,000, leaving $9,680, from which must be subtracted the exempted amount of $3,000 provided in the old law, on which he would pay the 2 per cent normal income tax. This tax of 2 per cent on $6,680 would amount to $133.60. Then, under the new income-tax law, the professional man with the $10,000 income would have to pay another 2 per cent on his income over the limit of $1,000 set in the new law, or 2 per cent on $8,600, which would amount to $172.60. His total income tax will, therefore, be $627.20. A corporation having a net income of $10,000 will be taxed as follows: Normal tax 2 per cent on $6,000, or $120, plus an additional 2 per cent on $8,000, as per the terms of the new revenue law; in addition to these direct taxes an additional surtax will be levied of 1 per cent on $2,500 and 2 per cent on $2,500, making the total income tax for the corporation equal to $355.

Thus, by the plain provisions of the income-tax laws, a corporation having an income of $10,000 must pay an income tax of 3.55 per cent, while a professional man or individual having identically the same income will be compelled to pay an income tax of 6.272 per cent.

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Structural Service Department

D. Knickerbacker Boyd, *Associate Editor*

METAL, PLASTIC AND OTHER PRODUCTS

CONTENTS

Previous issues have dealt with all main structural features of a building; the last four issues have treated all forms of mechanical equipment; this issue treats of products and devices, the installation of which would occur at or about this stage of progress in the construction of a composite building. The wood trim and finish having been included in the wood issue, when lathing, plastering, metal windows, doors, trim, hardware, and other metal and plastic products, including roofing, have been treated herein, there will remain only the painting, finishing, and glazing to complete the structure. These, with miscellaneous items, will be covered in the December issue, or No. 12 Serial, which will also conclude the first year's review.

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated, see the General Index, page 582)

11A Societies, Associations, and Allied Interests.
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11C Plastic Materials and Products.
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11D Metal and Plastic Products.
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11D3 Floor Systems, Partitions, Furring, etc.
11D4 Floor Treatments and Coverings, and Paving.
11D5 Terms Relating to Plastic Products, Chiefly Plastering.
11D6 Lathing and Plastering.
11D7 "Ornamental and Decorative" Work.

11A Societies, Associations, and Allied Interests

The publications and activities of the following bodies and of any of the governmental departments concerned with matters affecting metal, plastic and other products treated, will be mentioned wherever possible in connection with the main subject heading or subdivision under which they would naturally fall.

1. American Society of Civil Engineers
   Secretary: Chas. Warren Hunt, 220 W. 57th Street, N. Y. City.
2. Illinois Society of Architects
   Secretary: John Reed Fugard, Harris Trust Building, Chicago, Ill.
3. Western Society of Engineers
   Secretary: Edgar S. Nethercut, 1735 Monadnock Block, Chicago.
4. Engineers' Society of Western Pennsylvania
   Secretary: Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh.
5. American Society of Municipal Improvements
   Secretary: Charles C. Brown, Wulsin Building, Indianapolis, Ind.
6. American Chemical Society
   Secretary: Charles L. Parsons, Box 505, Washington, D. C.
7. American Institute of Metals
   Secretary: W. M. Corse, 106 Morris Avenue, Buffalo, N. Y.
8. Architectural Iron and Bronze Manufacturers
   Secretary: W. A. Morrison, 331 Madison Avenue, New York City.
9. National Association of Ornamental Iron and Bronze Manufacturers
   President: H. H. Suydam, care of Cincinnati Manufacturing Company, Cincinnati, Ohio.
10. National Association of Sheet Metal Contractors of the United States
    Secretary: Edwin L. Seabrook, 261 S. Fourth Street, Philadelphia.
11. National Association of Brass Manufacturers
    Chairman Standardization Committee: H. N. Gillette, Oliver Building, Pittsburgh, Pa.
12. National Association of Manufacturers of Approved Hollow Metal Window Frames and Sash
    Secretary: Thomas Shean, 2799 Fifth Avenue, Chicago, Ill.
13. American Hardware Manufacturers' Association
    Secretary: F. D. Mitchell, Woolworth Building, New York City.
14. National Retail Hardware Association
    Secretary: M. L. Corey Argos, Ind.
15. National Hardware Association of the United States
    Secretary: T. James Fernley, 505 Arch Street, Philadelphia, Pa.
16. Wood, Wire and Metal Lathers' International Union
    Secretary: Ralph Grandt, 401 Superior Building, Cleveland, Ohio.
17. Associated Tile Manufacturers
    Secretary: F. W Walker, Beaver Falls, Pa.
18. Gypsum Industries Association
    1611 Harris Trust Building, Chicago, Ill.
19. National Association of Master Slag and Gravel Roofers
    Secretary: John A. Duroff, Drexel Building, Philadelphia, Pa.
20. Asbestos Paper Manufacturers' Association
    Secretary: C. J. Stover, Bulletin Building, Philadelphia, Pa.

There is also record of:

21. American Electro-Chemical Society
22. American Institute of Chemical Engineers
23. Asphalt Publicity Bureau
24. Sand-Lime-Brick Association
25. International Union of Bricklayers, Masons and Plasterers

Other bodies, interested in the subjects now treated, have been mentioned under previous serial numbers, particularly under Nos. 1, 2, 3, and 4.

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11B Metals and Metal Products

11B1 *Metals in General*

Considerations here do not include Structural Iron and Steel which were treated in Serial No. 1. Many of the publications listed there, however, are applicable here. See, also, Metal Products 11B5 and, also, Metal and Plastic Products, 11D.

For "Tests of Metals," Watertown Arsenal, War Department, U.S.A., see 1B1*b*.

(*a*) See Proceedings of the A.S.T.M. (1A4*a*) for reports of the following committees, and for papers presented before conventions: **Cast Iron** (A.S.T.M.: A3); **Wrought Iron** (A S.T.M.:A2); **Non-Ferrous Metals and Alloys** (A.S.T.M.: B2).

(*b*) See "Review of Current Technical Literature" and *Journal* of the American Society of Mechanical Engineers (10A1).

(*c*) See index to list of Engineering Articles of Interest, and to papers and discussions, contained in each issue of the Proceedings of the American Society of Civil Engineers (11A1).

(*d*) An investigation has been concluded of the **initial stresses, cause of failure,** and **properties of structural brasses,** an account of which is to be published as a technologic paper. (See *e*, below.) A great deal of this work has been materially aided by the co-operation of brass manufacturers and of users of brass, such as the Navy Department, the New York Board of Water Supply, the City of Minneapolis, the Panama Canal Commission, and others. It is expected that the results obtained will be serviceable in framing specifications for the use of structural brass. (From Report of Bureau of Standards, 1916.)

(*e*) **"Failure of Brass. 2. Effect of Corrosion on Ductility and Strength of Brass,"** Paul D. Merica. Technologic Paper No. 83, U. S. Bureau of Standards. 1916. 7 pp., illus. 5 cents.

(*f*) **"Manufacture and Uses of Alloy Steels,"** H. D. Hibbard. Bulletin No. 100, U. S. Bureau of Mines. 1915. 78 pp. 10 cents. A general statement on the composition and heat treatment of various steels, and their use for special purposes.

(*g*) See **"General Metallurgy,"** H. O. Hoffman. 999 pp., illus.

(*h*) See **"An Introduction to Metal-Working,"** J. C. Pearson. 1916. 126 pp., illus.

(*j*) See **"The Coloring of Non-Ferrous Metals and Alloys,"** Jerome Brandes. Lefax Data Sheet 7–278

(*k*) See **"The Story of Abrasives,"** *Iron Tradesman*, January, 1917.

11B2 *Corrosion and Treatment of Metals*

The references which follow are selected for consideration in connection with the **proper use and care of metals** quite independent of the various sections and articles which are part of the Pocket Books, Handbooks and other publications mentioned under 11D1*g*, which see.

See, also, "Corrosion of Steel" (1F8*a*).

In connection with **sprinkler pipe,** see five N.F.P.A. references listed under 4F1*f*: also, 4F1*h*.

See, also, **"Corrosion of Pipes, Boilers, and Structural Work."** (4F1*g*1.)

(*a*) **"Structure of Coating on Tinned Sheet Copper** in Relation to a Specific Case of Corrosion," P. D. Merica. Technologic Paper No. 90, Bureau of Standards. April 21, 1917. 18 pp. 5 cents.

(*b*) "A Curious Case of **Corrosion of Tinned Sheet Copper,"** P. D. Merica. Paper read before the American Institute of Metals, September, 1916. 12 pp., illus. Contains "Conclusions," by the Bureau of Standards.

(*c*) See "Proceedings," A.S.T.M., for the following:
1. "The **Relative Corrosion of Wrought Iron and Steel,"** H. M. Howe, Vol. VI, p. 155, 1906.
2. "The **Relative Corrosion of Steel and Wrought Iron Tubing,"** H. M. Howe and Bradley Stoughton, Vol. VIII.
3. "The **Value of the Sulphuric Acid Corrosion Test,"** C. M. Chapman, Vol. XI, p. 609, 1911.
4. "The **Marked Influence of Copper in Iron and Steel** on the **Acid Corrosion Test,"** W. H. Walker, Vol. XI.
5. Report of Committee A-5, A.S.T.M., on Corrosion of Iron and Steel, 1917.

(*d*) "To Study **Corrosion of Steel Imbedded in Gypsum and Concrete"** (in connection with work of Committee A-5, A.S.T.M.). *Construction*, July, 1917.

(*e*) "Methods of **Testing the Durability of Pipe under Corrosion,"** F. N. Speller, Part II, "Technical Papers," A.S.T.M., 1916.

(*f*) See "Proceedings" of the American Gas Institute (7A2*a*) for the following:
1. "Report of Committee on **Gas House Piping,"** Vol. X.
2. "The **Installation and Maintenance of Services,"** R. B. Duncan, Vol. IX, 1914, p. 1052.
3. "Proper Specifications for, and Inspection of, **Interior Gas Piping,"** A. E. Turner, Vol. IX, 1914, p. 1311.
4. "The **Installation of Mains and Pipe Lines of Steel and Wrought Iron,"** H. L. Rice, Vol. VIII, 1913, p. 145.

(*g*) **"Relative Corrosion of Wrought Iron and Soft Steel Pipes,"** T. N. Thomson, "Proceedings," American Society of Heating and Ventilating Engineers, Vol. XIV, 1908.

(*h*) See reprints of papers by the A.S.H. & V.E.:
1. "The **Prevention of Corrosion in Pipe,"** F. N. Speller. 1916. 10 cents.
2. "Report of Committee on **Corrosion in Pipes."** 1909. 10c.

(*j*) "The **Relative Corrosion of Iron and Steel Pipe** as Found in Service," W. H. Walker, "Proceedings" new England Water Works Association, 1911.

(*k*) **"Steel Pipe vs. Wrought Iron Pipe in Refrigerating Work,"** P. DeC. Ball, "Proceedings" American Society of Refrigerating Engineers, 1911.

(*l*) "Structural or Mechanical Theory of the **Effect of Rust on Cast Iron and Wrought Iron and Steel,"** R. C. McWane and H. Y. Carson. Paper before American Foundrymen's Asso.

(*m*) See the following "Lefax Data Sheets:"
1. "Oxides and Other Coatings for the **Prevention of Corrosion of Iron and Steel,"** L. C. Wilson, *Engineering Magazine*, February, March, and April, 1915. (5–286.)
2. **"Copper in Steel—Its Influence on Corrosion,"** D. M. Buck. 1913. (5–31.) Digest of paper read before American Chemical Society.

(*n*) **"Corrosion of Hot Water Piping in Bath-Houses,"** Ira H. Woolson, *Engineering News*, December 3, 1910, p. 630.

(*o*) "Observations upon the **Atmospheric Corrosion of Commercial Sheet Iron,"** E. A. Richardson and L. T. Richardson, *Metallurgical and Chemical Engineering*. Paper read before American Electro-Chemical Society, October 15, 1916.

(*p*) **"Corrosion in a Steel Gasholder Tank,"** William Wilson, *Journal of Gas Lighting*, London, England, September 12, 1916.

(*q*) "Theory of the **Corrosion of Steel,"** Leslie Aitchison, *Journal*, Iron and Steel Institute, Vol. 93. Illus.

(*r*) **"Influence of Carbon and Manganese upon the Corrosion of Iron and Steel,"** Robert Hadfield and J. N. Friend, *Journal*, Iron and Steel Institute, Vol. 93. Illus.

(*s*) "The **Corrosion of Metals,"** Wm. E. Bibbs, Richard H. Smith and Guy D. Bengough, *Mechanical Engineer*, May 5, 1916. Report to the Institute of Metals.

(*t*) **"Effect of Rust on the Rate of Corrosion,"** James Ashton, *Steel and Iron*, May, 1916. Paper read before American Electro-Chemical Society.

(*u*) **"Repairing Split and Corroded Pipe with an Oxy-Acetylene Welder,"** *Engineering-Contracting*, May 3, 1916. Illus.

(*v*) "No Rust in **Galvanized Steel Tower** at Iloilo After Twelve Years," J. L. Harrison, *Engineering Record*, Jan. 6, 1917. Illus.

(*w*) "The **Design of Hot Water Supply Systems to Minimize Corrosion,"** F. N. Speller, *Engineering News*, Feb. 13, 1913.

(*x*) "The **Relative Corrodibilities of Iron and Steel,"** J. Newton Friend, "Proceedings" Faraday Society, London, Vol. XI.

(*y*) In **"Practical Steam and Hot-Water Heating and Ventilation,"** (10C4*y*), see Chapter VI., Alfred G. King.

(*z*) In **"American Stationary Engineering,"** W. E. Crane, see pp. 54–81.

(*aa*) In **"Modern Plumbing,"** R. M. Starbuck, p. 263 and following.

(*bb*) **"The Decay of Metals,"** Cecil H. Desch, *Scientific American Supplement*, September 16, 1916. From Transactions, Institute of Engineers and Ship-Builders in Scotland.

(*cc*) **"Physical and Mechanical Factors in Corrosion,"** Cecil H. Desch, *Scientific American Supplement*, May 6, 1916. Paper read before the Faraday Society.

(*dd*) **"Electrolytic Corrosion of Iron in Concrete,"** Charles F. Burgess, *Journal of the Association of Engineering Societies*, 1911, p. 397.

(*ee*) "Fireproof Construction and **Prevention of Corrosion,"** William Sooy Smith, *Journal of the Association of Engineering Societies*, 1898. p. 930.

(*ff*) See Cosgrove's "Principles and Practice of Plumbing," second revised edition, for Chap. XVI on "Solvent Power of Waters on Pipes and Tank Linings."

(*gg*) In Cosgrove Appendix, see Chap. XXXIII, "Life of Cast Iron Pipes in Earth" and "Life of Wrought Iron Pipes in Earth."

11B3 *Protective Coatings*

See the Reports of Committee D1, A.S.T.M., on **"Protective Coatings for Structural Materials,"** referred to in January Issue (1F8) and subdivision **"Protective Coatings"** (1F8*b*); also "Manufacture of Oils and Pigments" (1F8*c*).

(*a*) **"Rustless Coatings;** Corrosion and Electrolysis of Iron and Steel," M. P. Wood. 432 pp., illus.

(*b*) **"Iron Corrosion, Anti-fouling and Anti-corrosive Paints,"** L. E. Andes. 283 pp., 62 illus. Translated from the German.

(*c*) **"Protective Coatings for Structural Materials,"** R. S. Perry, *Journal of the Association of Engineering Societies*, 1909, p. 399.

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(*d*) Many of the publications referred to under Roof Coverings, etc. (11D2), will be found to treat of methods of protection and painting. The subject will also be treated under Serial No. 12.

(*e*) See Industrial Section, p. xxii, for Solvay **Rust-Resisting Paints**, The Solvay Process Company, and the Semet-Solvay Company.

11B4 *Electrolysis*

See, also, "**Electrolysis**" (6N).

(*a*) "**Electrolysis in Underground Pipes**," *Canadian Engineer*, Oct. 12, 1916. Abstract from Report, U. S. Bureau of Standards.

(*b*) "**Insulation as a Means of Minimizing Electrolysis** in Underground Pipes," E. B. Rosa and Burton McCollum, "Proceedings," American Gas Institute, Vol. VI, 1911, Part 1, p. 233.

11B5 *Metal Products in General*

Next to questions concerning the corrosion and preservation of metals and the determination of the most appropriate kinds for especial uses and the proper treatment and care of each, comes the matter of the **thickness and weight of metal** to be used for any particular product.

(*a*) The Editor wishes to express the opinion that a most desirable thing for architects and others specifying the use of metals to have constant access to would be a **chart** illustrating graphically and minutely the gauges for metals, the numbers for wires and other forms and factors in the fabrication of metal products. Such a presentation, accompanied by descriptive data, would afford opportunity to visualize the material to be incorporated and provide equable conditions in estimating and a ready means of ascertaining compliance with specificational requirements that could work to the advantage of all those interested in adequate and proper installations. The words "gage" or "gauge" apparently also need standardization.

(*b*) An interesting illustration of the possibilities of such a chart will be found in the Manual of the American Railway Engineering Association (1A9*c*) where, on page 305, appear cuts in section and elevation (shaded) showing the exact sizes of No. 1 to No. 20 gage steel wire by American Steel and Wire Company gage with tables of weights and comparative sizes of all wire gages.

(*c*) **The U. S. Standard Gauge for Sheet and Plate Iron and Steel**, 1893:

Kent's "Mechanical Engineers' Pocket Book," 1916, states:

"There is in this country no uniform or standard gauge, and the same numbers in different gauges represent different thicknesses of sheets or plates. This has given rise to much misunderstanding and friction between employers and workmen and mistakes and fraud between dealers and consumers."

"An Act of Congress in 1893 established the **Standard Gauge for sheet iron and steel** (which is given). It is based on the fact that a cubic foot of iron weighs 480 pounds."

"A sheet of iron 1 foot square and 1 inch thick, weighs 40 pounds, or 640 ounces, and 1 ounce in weight should be 1/640 inch thick. The scale has been arranged so that each descriptive number represents a certain number of ounces in weight and an equal number of 640ths of an inch in thickness."

"The law enacts that on and after July 1, 1893, the new gauge shall be used in determining duties and taxes levied on sheet and plate iron and steel; and that in its application a variation of 2½ per cent either way may be allowed."

"**The Decimal Gauge**:—The legalization of the standard sheet metal gauge of 1893 and its adoption by some manufacturers of sheet iron have only added to the existing confusion of gauges. A joint Committee of the American Society of Mechanical Engineers and the American Railway Master Mechanics' Association in 1895, agreed to recommend the use of the decimal gauge, that is, a gauge whose number for each thickness is the number of thousandths of an inch in that thickness, and also to recommend 'the abandonment and disuse of the various other gauges now in use, as tending to confusion and error.' A notched gauge of oval form (shown in cut), has come into use as a standard form of the decimal gauge."

"In 1904 the Westinghouse Electric and Mfg. Co. abandoned the use of gauge numbers in referring to wire, sheet metal, etc."

(*d*) Kidder's "Architects and Builders' Pocket Book," 1916, states:

"**The Brown and Sharpe gauge** (B. & S.) is commonly used for designating size of copper wires (see p. 1424), also for sheet copper and brass. The American Steel and Wire Company uses the old Washburn & Moen gauge for all their steel and iron wire and also for wire nails. The sectional areas for this gauge are given on page 1426. When placing orders for sheets and wire, it is always best to specify the weight per square or linear foot or the thickness or diameter in thousandths of an inch. The gauge for steel wire, used by the J. A. Roebling's Sons Co., is given on page 493, and the circular-mill gauge on page 1387."

(*e*) The U. S. Bureau of Standards has issued:

"**Standard Gage for Sheet and Plate Iron and Steel**," 1911, Circular No. 18, 4 pp. 5 cents.

(*f*) See "**Standard Gauges**" **of Sheet Metal and Wire**, "Lefax Data Sheet" 6–120.

(*g*) For recommendations of the Associated Metal Lath Manufacturers as to gauge and weight of metal lath, see Lathing and Plastering (11D6).

(*h*) See, also, 11B12 as to **standardization of metal gauges**, and 11D2*j* for weights of roofing tin.

(*j*) The subjects of gauges, weights, and sizes of metal sheets and other data pertaining to all kinds of metals and various processes of manufacture and use will be found in the following Handbooks and Pocket Books which are here listed separately from others which have been placed under "Metal and Plastic Products" by reason of containing information about equally in detail as to each.

1. Mechanical Engineers' Pocket Book, Wm. Kent. 1916.
2. Mechanical Engineers' Handbook, Lionel S. Marks. 1916.

The above are independent of the Proceedings and other publications of the various societies, associations, and other allied interests. Lists of such publications and of many periodicals and textbooks will be found in:

3. Kent's Pocket Book, facing p. 1.
4. Mark's Handbook, p. XXI.
5. Kidder's Pocket Book, pp. 1703–1712.

(*k*) See "Transactions" of the American Institute of Metals (11A7) for proceedings, papers, discussions, and all Bulletins, which contain many valuable abstracts of metallurgical literature.

The American Institute of Metals was instrumental in forming an Advisory Committee to confer with the Bureau of Standards. This Committee consists of representatives of several technical societies and meets at Washington semi-annually to suggest to the Bureau practical problems in the solution of which it might be interested and equipped to aid. The results of these conferences are recorded in the "Transactions."

(*l*) "**Old and New Methods of Galvanizing**," Alfred Sang, "Proceedings" of Engineers' Society of Western Pennsylvania; November, 1907, 36 pp.

(*m*) "**Industrial Applications of Zinc**," Ernest A. Smith, *Mechanical Engineer*, Oct. 6, 1916. Abstract of paper read before the Institute of Metals.

(*n*) The U. S. Bureau of Standards has had a considerable amount of testing to do, mainly for the Government Departments, of plated or coated metals, especially galvanized iron. A systematic study of the manufacturing limitations and properties of this class of material was considered desirable and has been begun, and, together with a committee of the American Society for Testing Materials, the experimental data and experience are being accumulated for forming specifications for galvanized materials, including sheets, wire, and pipe.—From Report of Bureau of Standards, 1916.

(*o*) The **commercial galvanized sheet product** in today's market has a base of **steel and not iron**, and specifications should either call for galvanized steel, if the regular commercial product is desired, or else should be **explicit** with respect to the iron or whatever other metal, or metal base, is to be used, for the words "galvanized iron" by themselves have, through common usage and general acceptance, come to apply to the existing steel product.

(*p*) As to the **painting of galvanized metal**, the Secretary of the National Association of Sheet Metal Contractors (11A10) says in a letter "Galvanized cornice and other work should not be painted until the surface has been somewhat roughened by exposure to the weather. Two very thin coats of red lead and linseed oil will prevent the paint subsequently applied from peeling off.

11B6 *Pipes, Conduits, Wires, and Drawn Products*

Attention is directed to the last two paragraphs of the General Suggestions of the National Electrical Code (6C1), urging architects to make provision for the channelling or pocketing of buildings.

The final tests and inspection of all enclosable pipes, conduits, and other metal products before they are lathed and plastered should not be overlooked.

(*a*) As of much interest in connection with this Section, see "Corrosion and Treatment of Metals" (11B2).

(*b*) For **Automatic Sprinkler Pipes**, see, "Fittings, Contents, and Protection Equipment" (4F); also "**Sprinklers and Fire Protection**" (9K).

(*c*) For **Gas Piping**, see "Piping Buildings—Materials, Methods, and Cost" (7E).

(*d*) For **Plumbing Pipes**, see "Water Supply, Storage, Utilization and Incoming Pipes" (9D); "Plumbing Installations in General" (9G); "Outgoing Pipes, Sewage Disposal, and Public Health" (9L).

(*e*) For **Pipes in Connection with Heating**, see "Boilers and Heating in General," (10C); "Pipes, Valves, and Fittings" (10J).

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(*f*) For **Electric Conduits**, see N. E. Code, 6C2 and 6E1*cc*, and for "Standard Symbols and Charts," 6E4*b*.

(*g*) The Editor of the S. S. D. in an address before the N. A. of M. S. and H. W. Fitters (10A4) said:

"Why not coöperate to get rid of words in specifications which say, but do not mean, 'very best quality,' and the 'or equal,' in favor of calling for the brands, thickness and weight of pipes and for the various other products by the several names which will be acceptable?

"More and more frequently a distinction is being made as to quality in materials of building construction, and stronger encouragement is being given to those producers who, in spite of rigid competition, adhere to their standards of manufacture and make names for themselves under established brands. By conducting an educational campaign along these lines you will oblige architects to use names and brands and standards of quality in their specification requirements which will assist them and reputable contractors, manufacturers, and producers in furnishing owners with the best that the market affords—when that is what they are paying for."

(*h*) **"Steel in Wrought-Iron Pipe:** A New and Quick Etching Test for Its Detection," *Iron Age*, May 11, 1916. Illus.

(*j*) "Manufacture and Characteristics of **Wrought Iron Pipe**," W. A. Phillips, *Gas Age*, May 1, 1916.

(*k*) For data on **Lightning Rods**, see "Lightning Protection" (4G).

(*l*) **Fences.** See the Manual of the American Railway Association (1A9*c*). The Section on "Signs, Fences, and Crossings" has a complete glossary of terms relating to fences, gates, etc., and contains Specifications for Standard Right-of-Way Fences, including materials and erection, with recommendations as to galvanizing. Contains, also, illustrations and tables of gages for plain wire, barbed-wire, and barbless fencing, and a specification for concrete fence-posts.

(*m*) **Nails.** In this Manual will also be found illustrations of the actual size of standard "wire nails" with tables.

(*n*) For "**Nail Knowledge**," and "More Nail Knowledge," see 5G4*e*.

(*o*) For leaflet entitled "**Nails**," see 5K7*d*.

(*p*) For **Cast-Iron Pipe** for House-Drainage, see Industrial Section, 3d cover.

(*q*) For sherardized **rigid steel conduit**, see Industrial Section, p. xix, National Metal Molding Co.

11B7 *Windows, Doors, and Metal Trim*

(*a*) The following should be consulted before equipping building walls or partitions with windows or doors:

1. "Regulations of the N.B.F.U. for the **Protection of Openings in Walls and Partitions against Fire.** Recommended by the N.F.P.A. Edition of 1915" (4C3*b*).
2. Underwriters' Laboratories' "Specifications for Construction of Tin-Clad Fire-Doors and Shutters" and:
3. "Hollow Metallic Window Frames and Sashes for Wired Glass" (4C3*b*).
4. Also, "Specifications: **Tin-Clad Fire-Doors and Shutters**, 1914" (4C3*c*), Inspection Department, A.F.M.F.I. Co's. This specification is likewise applicable to the installation of sheet-metal doors.
5. Also "Beltway Fires" (3A7*a*4).
6. For **Fire-Doors and Shutters, Frames for Fire-Doors and Shutters, Frames and Sash for Wired Glass, Fire Window-Frames**, see "List of Inspected Mechanical Appliances" of the Underwriters' Laboratories (3A6*b*).
7. For same, see, also, **"Approved Fire Protection Appliances"** of the A.F.M.F.I. Co's (3A7*a*3).
8. For Hardware for the above, see 11B11*h*.

(*b*) For "Standards for **Counterbalanced Elevator Doors**," see Underwriters' Laboratories (3A6*h*).

(*c*) The Committee on Construction of the National Association of Manufacturers of **Approved Hollow Metal Window-Frames and Sash** has been working with a committee appointed by the Laboratories, and this joint committee has decided to test various constructions, some of which have passed through tests, apparently with great success, others are still to be put through. One thing which has already been definitely and officially accomplished is the abolition of a mullion which the Laboratories demanded should be placed between two units, if the opening was larger than 5 x 9 feet. The old style mullion was made of a 5-inch I-beam, surrounded by concrete and enclosed in sheet metal.

The new mullion now made, if non-bearing, is composed of two channel irons made of No. 16 gauge, which are tied together with a strip of No. 24 gauge galvanized iron. This permits the two windows to be set back to back and eliminates, not alone the expense of the old-style mullion, but also permits the distance from glass-line to glass-line, in this new mullion window, to be 5 inches narrower than the old style. As in modern construction the glass area in a window-opening is of the utmost consequence, this advantage is very great.—(Extract from a letter from President Fred De Coningh.)

(*d*) **"Fire-retardent Windows,"** S. H. Pomeroy. Address delivered before New York Chapter of N.F.P.A. Printed in *Construction* for June and July, 1917.

(*e*) **"The Casement Sash,"** James C. Plant, *Journal of the Society of Constructors of Federal Buildings*, September, 1916. Illus.

(*f*) **"Fire-tests of Doors and Windows at** Underwriters' Laboratories," M. L. Carr, *Construction*, July, 1917. Illus.

(*g*) For reference to experiments to determine the relative heat lost through single- and double-glazed wood, steel and hollow metal sash, and many other matters of interest, see **"Air Leakage, Guarantees and Formulæ"** October Issue, 10M.

(*h*) For **Metal Weather-strips**, see 10M14 and 15.

(*j*) For "Almetl" **Fire-doors**, see Industrial Section, p. xxiv, Merchant & Evans Co.

11B8 *Mail Chutes*

(*a*) The U. S. Post Office Department issues "Section 720, Postal Laws and Regulations" under an "Order No. 148 of the Postmaster General," dated Aug. 8, 1905, which describes the kinds of buildings in which mail chutes may be installed, the location therein of same, and the essential characteristics of construction.

(*b*) Copies of these regulations may be also obtained from the Cutler Mail Chute Co., which, in a recent circular letter, calls attention to a letter from the Post Office Department, stating that it will not in future waive the rule requiring the Mail Chute Box to be placed within fifty (50) feet of the main entrance of a building.

(*c*) See Industrial Section, p. xii, Cutler **Mail Chute** Company.

11B9 *Laundry Chutes*

(*a*) For reference to Glass Enameled Steel Laundry Chutes, see 9H1 and **Industrial Section**, p. xxiii, Pfaudler Co.

11B10 *Appliances, Fixtures, Fittings, and Devices*

(*a*) For **Electrical Appliances**, see "Apparatus, Appliances and Installations in General" (6E); **"Electric Elevators and Dumb Waiters"** (6F); **"Heating, Cooking** and Other Appliances and Devices" (6J).

For **Electric Switches** and Wiring Devices, see Industrial Section, p. vi, General Electric Co.

(*b*) For **Gas Appliances**, see **"Gas Appliances in General"** (7H); **"Space-Heating by Gas"** (7J); **"Water-Heating by Gas"** (7K); **"Cooking and Hotel and Domestic Appliances"** (7L).

See Industrial Section, p. xxxv, for **Automatic Gas Water Heater**, Humphrey Co.

(*c*) For **Radiators, Registers, and Grilles**, see 10K.

(*d*) For **Stoves, Ranges and Dryers**, see "Warm-Air Heating, Stoves, Ranges and Dryers" (10D).

(*e*) For **Plumbing Fixtures and Fittings**, see "Fixtures and Fittings" (9H), and, "Bathroom and Laundry Finishes and Accessories" (9H1).

See Industrial Section for **Plumbing Fixtures and Fittings**, as follows: (1) Crane Co., p. xxviii; (2) Kohler Co., p. iv; (3) Trenton Potteries Co., p. xxxvi; (4) Loomis-Manning Filter Distributing Co., p. xxxvi.

(*f*) For **Valves and Fittings**, see "Pipes, Valves, and Fittings" (10J).

(*g*) **Post-Caps, Hangers, Stirrups** and similar structural devices are important metal products, references to which will be found in many of the publications listed in the Wood issue, Serial No. 5, May, and are specifically referred to also under 5G4.

1. These, together with anchors, bolts, angles, clamps, and other fasteners and supports for terra-cotta work, cornices, etc., and for interior false work, will be found described and illustrated in many of the references given in March and April issues especially, 4D4.
2. For **Wall-Hangers, Post-Cap and Girder Supports**, see "List of Inspected Mechanical Appliances," Underwriters' Laboratories (3A6*b*).
3. For same, see, also, **"Approved Fire Protection Appliances,"** A.F.M.F.I. Co's (3A7*a*3).

(*h*) **"Anchors** for Lateral Stability for the Architectural Detailer and Stone Setter," Ernest G. Schurig, *Journal of the Society of Constructors of Federal Buildings*, May, 1916. Illus.

(*j*) **"Wall-Fastening Devices,"** C. McFarland, followed by discussions, *Journal of the Society of Constructors of Federal Buildings*, March, 1916.

(*k*) **"Safety Devices for Elevators,"** Jacob Gentz, Jr., *Power*, Jan. 9, 1917. Illus.

(*l*) See "The **Arrangement and Requirements of Elevators in Office Buildings,"** Cecil F. Baker (from the *Architectural Record*), "*Engineering-Contracting*," May 17, 1916.

(*m*) For **Electric Elevators**, see Industrial Section: (1) Otis Elevator Co., p. xxxi; (2) A. B. See Electric Elevator Co., p. xxxvii.

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(*n*) For **Hand Power Elevators** and **Dumb Waiters**, see Industrial Section, p. xxxviii, Sedgwick Machine Works.

(*o*) For **Fireplace Throats and Dampers**, see Industrial Section, p. xxiv, Colonial Fireplace Co.

11B11 *Hardware*

(*a*) "The American Hardware Manufacturer" is the official organ of the American Hardware Manufacturers' Association (11A13).

This Association, which recently accepted membership on the National Industrial Conference Board, has, through its officers and Executive Committee, inaugurated a significant movement in which architects and the prospective owners of buildings throughout the country may greatly aid.

Started in May of this year, specifically for the purpose of conserving men and money in time of war, but destined, with that approbation which will surely be forthcoming, to make for permanency and lead to standardization of purpose and procedure, the members have concurred in a **Resolution to reduce the number of styles of hardware, to curtail the different kinds of finishes, and to eliminate all slow-selling items.**

This action has been commended by the Commercial Economy Board of the Council of National Defense which has said, "in practically every trade there have grown up non-essential services, some of them mere conveniences, and others hardly that; in time of peace they may be permissible; in time of war they are a serious waste and should be stopped . . . concerns should curtail excess variety of styles."

Architects, in specifying and selecting hardware, are urged to take an important part in this desirable economic reform. The saving in the publication and examination of manufacturers' catalogues alone would be very considerable in money and in time, to say nothing of the vastly greater reduction in cost of manufacture and handling, in the wake of which other improvements would result.

The Structural Service Department may be counted upon to do its part in this direction and in others, such as establishing definitions of **"right and left-hand" doors**, and steps are already being taken.

(*b*) The National Retail Hardware Association (11A14) is devoting attention to research, the analytical study of modern hardware problems, and the devising and recommendation of methods and standards for the application of greater economies to hardware distribution and more efficient merchandising. The official organ of the Association is the *National Hardware Bulletin*, published monthly.

(*c*) **"Details to Which Standard Hardware Can Be Applied"** is a series of 27 plates, 8½ x 11, bound in cloth, drawn by F. M. Snyder, Architect, for twelve hardware manufacturers, by whom it has been distributed. It bears on the title page "As Chairman of the Committee on Materials and Methods of the A.I.A. I am glad to have this opportunity of expressing approval of this much-desired publication.—THOMAS NOLAN."

(*d*) The Navy Department issues specifications for various kinds of hardware, including:

Double-Acting Spring Butt Hinges (42H20*a*), illus.; **Liquid Door Checks** (42C8*a*); **Sash Cord** (42C9*a*); and others, for index to which see 3A1*a*1.

(*e*) See **"Finishing Hardware,"** Fred G. Hammer, followed by discussion, *Journal of the Society of Constructors of Federal Buildings*, March, 1916.

(*f*) **"Troubles with Hardware,"** Charles E. Morrell, Jr., *Journal of the Society of Constructors of Federal Buildings*, September, 1915

(*g*) See, **Locks and Builders' Hardware**, Henry M. Towne. 1117 pp.

(*h*) For **Hardware for Fire-Doors and Shutters, Automatic Closers, Door-Checks, Panic-Bar Latch Release, Hardware for Fire Window-Frames, Fusible Links, Transom and Transom Operators**, and other devices, see "List of Inspected Mechanical Appliances," Underwriters' Laboratories.

(*j*) For same, see, also, **"Approved Fire-protection Appliances"** of the A.F.M.F.I. Co's (3A7*a*3).

(*k*) For reference to **Self-releasing Fire-exit Latches**, see 5G4*g*. and, also, Industrial Section, p. xi, Vonnegut Hardware Co.

(*l*) For reference to **Pulleys** and standardization data, see 5G4*d*. Also, see Industrial Section, p. xxii, The Columbian Hardware Co.

(*m*) **"Method of Fastening Sash Tape,"** Harry G. Richey, *Journal of Society of Constructors of Federal Buildings*, September, 1915.

(*n*) The Bureau is frequently called upon to test the wearing quality of window-sash cord. To carry out this work, there has been in use for several years a special testing machine which was designed by the Bureau to duplicate as far as possible the actual conditions of service. The results obtained in testing a variety of sash-cord prove that the wearing quality of the cord is, within wide limits, quite independent of its tensile strength, but is dependent in a remarkable fashion upon oils, greases, and other substances which are naturally present or are added by design.—(From Report of the Bureau of Standards, 1916.)

11B12 *"Ornamental" Metal Work*

(*a*) The Standardization Committee of the Architectural Iron and Bronze Manufacturers (11A8), Mr. Hugh White, Chairman, has for several months been working on **standard specifications**, but on account of abnormal conditions the project has been indefinitely postponed.

(*b*) The National Association of Ornamental Iron and Bronze Manufacturers (11A9) is working with the Government to **standardize metal gauges** of all kinds.

(*c*) The **Standardization** Committee of the National Association of Brass Manufacturers (11A11) will report, in December.

(*d*) **"Architectural Bronze,"** Clarence A. Fullerton, followed by discussion, *Journal of the Society of Constructors of Federal Buildings*, March, 1916. Illus.

(*e*) **"Architectural Wrought Iron, Ancient and Modern,"** W. W. Kent. A compilation from various sources of German, Swiss, Italian, French, English, and American ironwork, from medieval times to the present day. Illus.

(*f*) "A Handbook of **Art Smithing,"** F. S. Meyer. For the use of practical smiths, designers of ironwork, technical and art schools, and architects. Illus.

(*g*) **"Plain and Ornamental Forging,"** Ernst Schwarzkopf. 1916.

(*h*) "Making **Thin Wall Ornamental Brass Castings,"** R. S. B. Wallace, *Mechanical Engineer*, Jan. 12, 1917. Paper read before American Institute of Metals.

(*j*) Members of the art commissions of the cities of New York, Philadelphia, and Detroit, as well as certain art-bronze manufacturers, have urged the Bureau to take up the question of the standardization of art bronzes for outdoor statuary. This should include a determination of the most suitable chemical composition, the production of a desirable and agreeable patina, and methods of care and cleaning such statues. In the different cities of the country, statues oftentimes take on an unsightly appearance, largely caused by the contaminated atmosphere. It is believed a systematic study will go far toward improving this condition.—(From Report, Bureau of Standards, 1916.)

(*k*) See Industrial Section, p. xviii, for illustration of **Bronze Sarcophagus**, The Gorham Co., Architectural Bronze.

11B13 *Lighting Fixtures*

(*a*) **Specifications** for same will be found in "Mechanical Equipment of Federal Buildings" (6L1*g*).

(*b*) For **electric lighting fixtures**, see "Illumination, Lighting Fixtures and Lamps" (6H).

(*c*) For **gas lighting fixtures**, see "Illumination—Fixtures, Equipment and Ignition" (7M).

(*d*) See, also, Report of Committee of the American Gas Institute on Piping Large Buildings for Gas (7A2*k*), which contains an extended section on **"Fixture Illustrations"** pp. 39–53.

11B14 *Stairways, Fire-Escapes, Slipping Hazards*

(*a*) For information on **"Exits—Stairways and Fire-Escapes, Safety to Life, Slipping Hazards,"** see Sections 4E to 4E3.

(*b*) For **Fire-Escapes and Safety Treads**, see "List of Inspected Mechanical Appliances," Underwriters' Laboratories (3A6*b*), and "List of Appliances Inspected for Accident Hazard."

(*c*) **"Selecting Abrasives for Specific Uses,"** R. G. Williams, *Industrial Management*, January, 1917. Illus.

(*d*) "Some **Hazards and Safety** Suggestions," H. W. Mowery. Illustrated address presented under the auspices of The American Museum of Safety, December, 1915.

(*e*) **"Slipping and Tripping,"** H. W. Mowery. Presented to the Philadelphia Local National Safety Council, at Franklin Institute, March, 1916.

[NOTE.—Though this issue treats of Metal Products in General, the subject of **Store Front Construction** will be covered in Serial No. 12, on account of its relation to Plate Glass.]

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11C Plastic Materials and Products

See, also, Metal and Plastic Products (11D1*g*) for handbooks and other publications which treat of both together, and see various subdivisions of that heading wherein plastic products are mentioned in connection with metal products.

11C1 *Cement, Lime, and Gypsum, in General*

(*a*) See Proceedings, A.S.T.M. (1A4*a*), for the following reports of committees.
Cement (A.S.T.M.: C-1); **Lime** (A.S.T.M.: C-7); **Concrete** and Concrete Aggregates (A.S.T.M.: C-9); **Gypsum** and Gypsum Products (A.S.T.M.: C-11).

(*b*) **"Cements, Limes, and Plasters:** Their Materials, Manufacture, and Properties," Edwin C. Eckel, Assistant Geologist U. S. Geological Survey. 712 pp., illus.

(*c*) **"Concretes, Cements, Mortars, Plasters, and Stuccos,"** F. T. Hodgson, Architect. 500 pp., illus.

(*d*) For detailed information and references **Lime and Hydrated Lime** for various purposes (chiefly mortars), see 2B to 2B10, and, also, Industrial Section, p. xvii, Hydrated Lime Bureau.

(*e*) The plasticity and sand-carrying capacity of lime are properties of great importance commercially, yet their measurement has always been an extremely difficult matter. A method for making this measurement has finally been developed, and an instrument has been built for the purpose. A lime paste or mortar is molded into form and immediately subjected to compression. The load required to produce rupture and the amount of deformation before rupture are found to depend upon the plasticity of the material.—(Report, Bureau of Standards, 1916.)

(*f*) For **Gypsum used in Building Construction,** see references listed under 4B1*bb*.

(*g*) See reference to Annual Statement of U. S. Geological Survey pertaining to **Gypsum,** listed under 4K3.

(*h*) In the matter of evolving **standard specifications for Gypsum** and methods for testing the material, see 4K5.

(*j*) **"Gypsum Deposits in the U. S.,"** G. I. Adams and others. Bulletin No. 223 of the U. S. Geological Survey. 1904. 129 pp.

(*k*) See, 1E1 to 1E8 for references to **Cement and Concrete** of structural significance, the following being given chiefly in connection with the consideration of surfacing these materials. The finishing of cement and other surfaces, as in "stucco," will be more fully treated under Lathing and Plastering, 11D6.

(*l*) "The Decorative Possibilities of Concrete," C. W. Boynton and J. H. Libberton, *Journal of the Association of Engineering Societies*, 1913, p. 719.

(*m*) **"Concrete Construction for Rural Communities"** Roy A. Seaton. 225 pp.; illus.

(*n*) See sections in 'Inspector's Handbook of **Reinforced Concrete,"** W. F. Ballinger and E. G. Perot, Architects. 64 pp.

(*o*) **"The Cement Gun,"** *Engineering* (London), June 9, 1916. Illus.

(*p*) **"The Cement Gun and Its Work,"** Carl Weber, *Journal of the Association of Engineering Societies*, 1914, p. 272.

(*q*) **"Coating Steel at Grand Central Terminal with Cement Gun,"** W. F. Jordan, *Engineering News Record*, May 25, 1916.

(*r*) **"Sand Lime-Brick** in 1915," Jefferson Middleton. Reprint from "Mineral Resources of the U. S.," Part II, U. S. Geological Survey, 1916.

(*s*) "Manufacture and Properties of **Sand-Lime Brick,"** Warren E. Emley, March, 1917. Technologic Paper No. 85, Bureau of Standards. 10 cents.

(*t*) "Properties of some **European Plastic Fire Clays,"** A. V. Bleininger and H. G. Schurecht. 1916. Technologic Paper No. 79, U. S. Bureau of Standards. 34 pp., illus. 10 cents.

(*u*) **Concerning Cement,** see, also, Industrial Section: (1) The Atlas Portland Cement Co., p. xlii; (2) Lehigh Portland Cement Co., p. v.

(*v*) For **Mortar Colors,** see Industrial Section, p. xvii, Samuel H. French & Co.

11C2 *Bituminous Materials—Waterproofing and Dampproofing*

For other information on **"Waterproofing and Dampproofing,"** see 1D to 1D6, inclusive.

(*a*) See Reports of Committee D-8, A.S.T.M., on **Waterproofing.**
It is of interest to note that the A.S.T.M. at its Convention in June recommended that hereafter the word "dampproofing" shall be added to the word "waterproofing" and combined as "waterproofing and dampproofing" in committee reports.
In accordance with the programme outlined last year, the Committee submitted—four "proposed tentative specifications" (see Titles in A.S.T.M. Book) for Asphalt, for Primer, for Coal-Tar Pitch, and for Creosote Oil, all when used for waterproofing and dampproofing under uniformly moderate temperatures.
Because of present conditions, arising from the state of war in which our country is involved, no conclusive work in the matter of conveying media—saturated felts and woven fabrics—has been accomplished, and before specifications covering these materials can be drawn up, the questionable part which they actually play in a finished waterproofing membrane must be definitely settled. The present unnatural state of the rag market is another controlling economic feature which at present militates against the preparation of specifications covering media.

(*b*) See, also, **"Heat Transmission, Insulation, Coverings"** (10N), which contains many publications of interest.

(*c*) **"The Asphalt Industry"** (from an interview with James L. Rake), "Proceedings," Engineers' Club of Philadelphia, January, 1917. Illus.

(*d*) **"Asphalts:** Their Sources and Utilization," T. Hugh Boorman. Contains addenda treating on general waterproof construction.

(*e*) **"Effects of Exposure on Tar Products,"** C. S. Reeve and B. A. Anderton, *Journal*, Franklin Institute, October. Illus.

(*f*) **"Waterproofing,"** Thomas Appleton, *Journal of Society of Constructors of Federal Buildings*, May, 1915.

(*g*) See the following in the *Journal of the Society of Constructors of Federal Buildings*, issue of February, 1917:
1. **"Waterproofing,"** a paper by A. Grothwell.
2. **"Integral Waterproofing,"** a paper by Mr. Horn.
3. **"Technical Paints,"** a paper by A. H. Rhett.

(*h*) **"Prevention of Dampness in Buildings,"** A. W. Keim. Translated from the second revised German edition. 115 pp.

(*j*) **"Modern Methods of Waterproofing,"** Myron H. Lewis. Covers principles, methods and precautions. 44 pp., illus.

(*k*) **"Waterproofing of Engineering Structures,"** W. H. Finley, *Journal of the Association of Engineering Societies*, 1912, p. 545.

(*l*) See **"Smoke and Water Damage,"** F. E. Roberts, N.F.P.A. *Quarterly*, Vol. 7, No. 4 (4D1*l*).

11C3 *Cast Stone*

(*a*) In addition to its inclusion within some of the publications referred to elsewhere, this subject will be found most fully treated in the literature of the manufacturers.

(*b*) See **"Concrete Stone Manufacture,"** Harvey Whipple. 1915. 77 pp., illus.

11C4 *Floor, Wall and Ceiling Tile*

(*a*) The purpose of the Associated Tile Manufacturers (11A17) and its offers of practical service to architects have been explained in the Industrial Section during different months. Among the publications of the Association are:
1. **"Specifications for Setting Tile."** The Association is working on the revision of these specifications.
2. **"Tile Floors and Walls for Hospitals."**
3. **"Swimming-Pools."** (See 9J29.)
4. **"Plates,"** showing different classes of work in buildings, which are mailed to architects at frequent intervals.
5. See Industrial Section, p. xxxiv, The Associated Tile Manufacturers.

(*b*) For "A Bibliography of Clays and the Ceramic Arts" and other publications of the American Ceramic Society, Inc., see 3C1.

(*c*) The U. S. Navy Department issues specifications (3A1*a*2) for **"Tiles"** serial designation 59T2, August 1, 1916.

(*d*) "The **Craft of Tile-Making** and Its Relation to Architecture," J. H. Dulles Allen, in the *Journal* of the A.I.A., January, 1915.

(*e*) **"Pottery,"** A. Beckwith. Observations on materials and manufacture of terra cotta, stoneware, firebrick, porcelain, earthenware, brick, majolica, and encaustic tiles. 101 pp.

(*f*) "A Treatise on **Ceramic Industries,"** Emile Bourry. A manual for pottery, tile, and brick manufactures. 488 pp., illus.

(*g*) See, also, **"Building Stones and Clay Products,"** Heinrich Ries. A handbook for architects. 415 pp., illus.

(*h*) **"Tests of Adhesion of Face Tile to Concrete Backing,"** *Engineering News Record*, June 22, 1916. Illus.

(*j*) For **China Bathroom Accessories,** see 9H1, and Industrial Section, p. xxxii, The Fairfacts Company, Inc.

11C5 *Roofing Tile*

(*a*) See some of the publications listed under **Terra-Cotta,** Hollow Tile and Brick (3D1); also literature of University of Illinois (3C2); also some of those in preceding Tile Section.

(*b*) See, also, Roof Coverings (11D2).

(*c*) In its report at recent annual meeting, the **Committee on Allied Arts** of the Philadelphia Chapter of the A.I.A. made the recommendation that the Institute's Committees on Allied Arts and Materials and Methods exert an influence with the large factories to turn out a more interesting product.

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11D Metal and Plastic Products

See Metals and Metal Products (11B); also Plastic Materials and Products (11C) for references to each of these separately. The intention is under this combined heading to refer to those publications which treat of both products equally in detail and to those branches of construction where both metal and plastic products are under consideration at the same time.

Attention is directed to the offers made placing the facilities of their departments for investigation, research, and coöperative work at the disposal of architects and other citizens by the Bureau of Standards (1A2) and the Geological Survey (2A1).

The Government has published a very interesting report upon "Substitution of Other Materials for Wood," which forms a part of the investigation of the Federal Trade Commission and of the Forest Service into conditions within the lumber industry, and is now for the first time made available to the general public.

The report is illustrated with charts, showing the relative trend in prices of lumber, brick, cements, structural iron and general prices for twenty-five years, ending 1915; also other charts showing (in part) the consumption of building brick, of iron and steel structural shapes, natural and Portland cement, of clay building materials, and of cut and wire nails. There is also a graphic study of building permits in twenty of the larger cities of the country. The increasing use of metal trim and metal furniture is graphically shown by another diagram. Copies of the report may be obtained for 15 cents from the Superintendent of Documents, Washington, D. C.—(From November News Letter, 1917, N.F.P.A.)

11D1 *Materials in General*

(*a*) See **"Mineral Resources of the U. S."** Part I, "Metals;" Part II, "Non-Metals," separate Chapters of which are devoted to various metals and plastic products (2A1*b* and *c*), U. S. Geological Survey.

(*b*) **"The Testing of Materials,"** Circular No. 45 of the Bureau of Standards. 1913. 10 cents. Treats of the tests of Metals and Metal Products, Composite Metal Products, Cements (hydraulic) and Concrete, Burnt Lime, Hydrated Lime, and Sand-Lime-Brick.

(*c*) For account of the fire-tests on columns and coverings—which include various metal and plastic products—being conducted at the Underwriters' Laboratories in Chicago, and at the Bureau of Standards in Pittsburgh and at Washington, see 3E3.

(*d*) See, also, "Reports on Buildings under Fire "(3E1), and "Reports on Fire Tests of Materials" (3E2).

(*e*) The Navy Department issues specifications for many metal and plastic products, such as:

Expanded Metal—47M1; Safes—54S1*a*; **Metal Furniture for Use of Vessels of the U. S. Navy**—26F1*b*; **Cotton Canvas**—24C8*b*; **Asbestos Plaster-Plastic Lagging Material**—32P2*a*; **Tarred Sheathing Felt**—33F1*a*; **Trinidad Asphalt**—59A1; **Asbestos Plaster Cement**—32P1; and others, for index to which see 3A1*a*1.

(*f*) A large number of manufactured products of various kinds referred to herein may be seen at Architects' Samples Corporation display rooms, Architects Bldg., 101 Park Avenue, N. Y. City.

(*g*) See the Sections, articles, descriptions, and illustrations pertaining to practically all metal and plastic products, including those covered by various headings and subdivisions in this issue, in:

1. Kidder's Architects' and Builders' Pocket Book. 1916.
2. Trautwine's Civil Engineers' Pocket Book. 1913.
3. American Civil Engineers' Pocket Book, Merriman. 1916.
4. Building Construction and Superintendence: Part I, Masons' Work, Kidder. 1914. Revised and enlarged by Thomas Nolan.
5. The Building Estimator's Reference Book, Frank R. Walker. 1917.
6. The New Building Estimator, William Arthur.
7. Handbook of Cost Data, Halbert P. Gillete.
8. Building Code Recommended by the N.B.F.U., 1915.
9. Dwelling Houses—A Code of Suggestions for the Construction and Fire-Protection (3A4*d*2).
10. Field Practice—Inspection Manual of the N.F.P.A.(3A3*d*1).
11. The Metal Lath Handbook (3C11*a*).
12. "Fire Prevention and Fire Protection," J. K. Freitag.
13. "Fireproofing of Steel Buildings," J. K. Freitag. 1909.
14. Crosby-Fiske Handbook of Fire Prevention. 1914.
15. "A Handbook for Superintendents of Construction, Architects, Builders, and Building Inspectors," H. G. Richey. 742 pp., illus.
16. "Building Foreman's Pocket Book and Ready Reference," H. G. Richey. 1118 pp., illus.
17. "Materials of Construction," Adelbert P. Mills. Treats of manufacture, properties, and use. 682 pp., illus.
18. "Inspection of Materials and Workmanship Employed in Construction," Austin T. Bryne. A reference book for the use of inspectors, superintendents, and others engaged in the construction of public and private works.
19. "Materials of Construction," C. B. Johnson. A treatise on the strength of engineering materials. 795 pp., illus.
20. "Cyclopedia of Architecture, Carpentry, Building," American School of Correspondence. 10 volumes.
21. International Library of Technology, International Textbook Company.
22. I.C.S. Building Trades Pocket Book.
23. Universal Safety Standards, Carl M. Hanson. 1914.
24. "Handbook for Architects and Builders." Illinois Society of Architects, Vol. xx. 1917.

(*h*) See, also, Industrial Section, p. xxi, concerning **Engineering Service** Department, Corrugated Bar Co.

11D2 *Roof Coverings—also Sheet Metal Work, Cornices, Skylights, and Ventilators*

Before arranging for the placing of light-shafts, roof-openings, ventilators, cornices, etc., a study should be made of the latest report of the Committee on **Roof Openings and Cornices** in Proceedings N.F.P.A., with discussion which followed—pp. 317-333 in 1917—and of the Section on **Skylights** in the N.B.F.U. Building Code, 1915 (3A4*d*1). The **"Regulations"** of the N.B.F.U. as recommended by the N.F.P.A. on **Skylights** (3A3*a*20) should also be obtained and followed.

(*a*) A most interesting symposium on the subject is the Section **"Roofings"** in the Manual of the American Railway Association (1A9*c*), in which are taken up considerations in selecting roofings, classification of important materials, under which is discussed the **properties and relative advantages** and economies of each. **Felts** are described and discussed, also **built-up roofs, tile, brick, slate, asbestos shingles, cement tile, metallic roofings** and **ready roofings**, with conclusions and recommendations given with respect to **flashings, flat roofs, allowable slopes** and other features.

(*b*) Wood Shingles, see **"Shingles, Lathing and Wall Boards"** (5K).

(*c*) For **Slate Roofing**, see 2K1 to 2K8, inclusive.

(*d*) For Tile Roofing, see 11C5.

(*e*) For various kinds of roofing, see references under "Horizontal and Sloping Features" (4D).

(*f*) Skylights and Ventilators, see, also, **"Natural Ventilation"** (10G).

(*g*) For sheet metal work, see, especially, **"Metal Work, Ducts, Chase Lathing"** (10L), and "Metal Products in General" 11B5.

(*h*) The National Association of Sheet Metal Contractors of the U. S. (11A10) issues the following:

1. "Warm Air Heating and **Sheet Metal** Journal" (See 10D7.)
2. **"Tin Roofer's Handbook,"** 1907. Contains "A Brief History of Tin Roofing;" "Advantages of a Good Tin Roof;" "Working Specifications;" "Standard Specifications;" "Practical Hints" and weight per square of different kinds of roofing. 23 pp., diagramatically illustrated, showing the development and completion of the seams in flat and standing-seam roofing. Free upon request.
3. Circular entitled **"Tin Roofing Facts for Architects' Use"** states the application, cost, maintenance, advantages, and quality of tin roofing.
4. **"Standard Specifications for Tin Roofing Work,"** 1909. These specifications were compiled for the original Association then known (organized 1905) as the National Association of Master Sheet Metal Workers by a joint committee of tin roofers, representing all sections of the country, and manufacturers of tin roofing plate. They were adopted by the Association as standard in August, 1909, and have remained unchanged since. They have been widely referred to and are printed and distributed by certain manufacturers of tin roofing and recommended for use. They are comparatively brief and so worded that they may be incorporated into architects' specifications.

   Application suggested by the Editor of the S.S.D.:

   "Wherever tin roofing is shown, marked, indicated or specified it shall be of (name the brand only, not the thickness which, for differing portions of the roof, is covered by the specification) laid and painted in accordance with the Standard Specification for Tin Roofing Work of the National Association of Sheet Metal Contractors of the U. S., edition of August, 1909, with any subsequent official amendments thereto. (This proviso is added merely to make the application up to date, no matter when used.)

   This specification is referred to with especial interest as indicating **how** a product shall be used, the literature of many manufacturers concerning itself chiefly with the **why.**

(*j*) The following notes explain the terms indicating the weight rather than the thickness governing the manufacture and use of **roofing tin:**

The terms **"IC"** and **"IX"** are universal in the **Tin Plate** Industry throughout the world, as denoting the gauges of the

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plates that are most generally used. Originally the "IC" was simply "C" and denoted the word "common," that is, the common thickness of plates, which was 1 pound for each sheet of 14 x 20 inches, or 2 pounds for each sheet of 20 x 28 inches. These plates were always packed 112 sheets to a box, thus giving the English hundredweight for the 14 x 20, which was the usual size, or two hundredweights for the 20 x 28 inches.

A thicker plate is, of course, better, and the next heaviest thickness to the "C" was marked with a "X" (as on bags of flour, XX and XXX to indicate quality) but in the Tin Plate business these marks indicated thicknesses.

The British used the hundredweight of 112 pounds, and their IX plate for the 112 sheets of 14 x 20 inches was a quarter of a hundredweight heavier than the "C" plate, or, in other words, was 140 pounds. They had plates which weighed 168 pounds, and these they marked "XX" and on up, which thicknesses, however, are used only for tinware, dairy utensils, etc.

It became quite usual to put a one before the cross in order to indicate that it was IX only, and as time elapsed, the original meaning of the signs became obscured, and people in the trade began to write this figure one (1), or, as it is sometimes called, a letter "I," before all the gauges, hence the expression "IC."

(*k*) The unusual demands for **Tin Plate** in this war year have led mills to tin a much greater proportion of their **black plate** production than is ordinarily the case. This practice, says a statement issued by the Bureau of Foreign and Domestic Commerce, will also be followed next year, judging from figures just made public by the **Tin Plate Conservation** Committee and which are based on returns from the large producers.

(*l*) See "**The Manufacture of Terne Plates,**" W. Sebald, *Journal of Society of Constructors of Federal Buildings*, March, 1916.

(*m*) "**Metallic Roofing,**" D. M. Buck. 48 pp. Paper and discussion in "Proceedings" of Engineers' Society of Western Pennsylvania for December, 1911.

(*n*) "**Laying Copper Roofing and Gutters,**" William Neubecker. Fifth of a series of six articles showing methods employed in providing for expansion and contraction of the metal—laying copper roofing on **wood battens.** Illus. In *Sheet Metal* for September, 1917.

(*o*) "**Copper Roofs,**" John W. Ginder, *Journal of the Society of Constructors of Federal Buildings*, November, 1914.

(*p*) "**Sheet Metal Work,**" William Neubecker. A practical guide to sheet metal work, **cornice work, skylight work, metal roofing,** pattern drafting, etc. 267 pp., illus.

(*q*) "**Practical Metal Plate Work,**" P. N. Hasluck. Illus.

(*r*) See "**Practical Sheet Metal Work and Demonstrated Patterns.**" 8½ x 11 inches. Bound. Illus. Some of the volumes are:
1. **Leaders and Leader Heads.** 113 pp.
2. **Gutters and Roof Outlets.** 116 pp.
3. **Roofing.** 138 pp.
4. **Ridging and Corrugated Iron Work.** 132 pp.
5. **Cornice Patterns.** 119 pp.
6. **Circular Cornice Work.** 126 pp.
7. **Practical Cornice Work.** 139 pp.
8. **Skylights.** 122 pp.

(*s*) See "Smith's **Tables for Skylights and Roofs.**" 84 pp., illus.

(*t*) For **Roof Coverings, other than metal,** see "List of Inspected Mechanical Appliances," Underwriters' Laboratories (3A6*b*). The same are classified under Underwriters' Standards for Roof Coverings according to their fire-retardent qualities, as follows: **Class A, Class B, Class C.** The following is quoted: "Roof coverings should be suitable for, and in keeping with, the types and classes of buildings upon which they are installed. Roof coverings of any of the above classes can be employed in situations where the fire exposure is less severe, than if used in situations where the fire exposure is more severe than that for which they are classified; the increased fire hazard should be recognized. **Inspection Departments having jurisdiction should be consulted** regarding which class roof covering will be acceptable in the locations proposed."

(*u*) For "**Classification of Roofs and Roofings,**" see five references in N.F.P.A. "Index" (3A3*h*5).

(*v*) See "**Roof Covering Tests,**" N.F.P.A. *Quarterly*, Vol. 4, No. 1, and Vol. 10, No. 4.

(*w*) See "**Asbestos Roofing,**" N.F.P.A. *Quarterly*, Vol. 6, No. 2.

(*x*) For "**Standard Specifications for Asbestos Shingles,**" see 4D3*e*3.

(*y*) See "**Asbestos Roofing Shingles, Asbestos Protected Metal** and Other Products" (4D1*f*5), F. E. Kidder.

(*z*) The publication 3A4*c*3 contains an "**Ordinance for Fire-Resistive Roof Coverings.**"

(*aa*) "**Taking care of Water from Roofs.**" *Metal Worker*, Jan. 5, 1917.

(*bb*) "Discussion of **Conductor Heads** for Roof Drainage," Alfred M. Wolf, *Engineering News Record*, May 11, 1916. Illus.

(*cc*) **For data on proportioning gutters and conductors to the roof surface,** see Kidder, 1916, p. 1578.

(*dd*) In reference to "**Barrett Specifications" for roofs,** and guarantee bond, see 4D2–1. Also, see Industrial Section, p. vii.

(*ee*) For information on other materials and products of interest in connection with this Section, see pages in the Industrial Section as follows:
1. For illustrated information on **ventilating sash, skylights,** etc., p. xx, David Lupton Sons Co.
2. For detailed data on Swartwout **Ventilators,** p. xiii, The Ohio Blower Co.
3. For various **Asbestos Roofings,** p. xxv, H. W. Johns-Manville Co.
4. For Keystone **Copper Steel,** p. xix, American Sheet and Tin Plate Company.
5. For Target-and-Arrow **Roofing Tin,** p. xxiv, N. & G. Taylor Co.

11D3 *Floor Systems, Partitions, Furring, etc.*

(*a*) The principal literature, and the latest, pertaining to these products is issued by the manufacturers. Descriptions and illustrations of various types of construction with these materials will be found specifically in the following, and in some of the Handbooks and others mentioned elsewhere in this issue and in April issue under 4B, 4C, and 4D.
1. "Architects' and Builders' Pocket Book," F. E. Kidder.
2. "Building Construction and Superintendence;" Part 1, "Masons' Work," F. E. Kidder.
3. "Fire Prevention and Fire Protection," J. K. Freitag.
4. "Fireproofing of Steel Buildings," J. K. Freitag.

(*b*) "**Standard Tests for Fireproof Floor Construction,**" A.S.T.M., Serial Designation C. 2-08.

(*c*) "**Standard Tests for Fireproof Partition Construction,**" A.S.T.M., Serial Designation C.3-09.

(*d*) "Report on Inspection of Installation of **Gypsum Slab Construction** for Roofs and Floors," "Public Works of the Navy" (4D1*h*1).

(*e*) "Report on **Loading Test** of a Composition Floor Made by the U. S. Bureau of Standards," "Public Works of the Navy" (4D1*h*2).

(*f*) For "**Composite Floors and Roofs,**" see 4D2*a*1*a*.

(*g*) Report listed under 3A3*d*31 contains information on "**Floor and Roof Construction" in a standard building.**

(*h*) For "**Floor Hangers, Roof Connections and Devices,**" see Section 4D4.

(*j*) For **Asbestos Building Lumber, Plaster Boards, Partitions,** and **Gypsum Blocks,** see "List of Inspected Mechanical Appliances," Underwriters' Laboratories (3A6*b*).

11D4 *Floor Treatments and Coverings, and Paving*

(For Tile, see 11C4.)

For "Wood Floors and Finishes and Parquetry Work," see 5J, and for individual units for grounds, see 5G4*j*.

For concrete floors, underfills and various top coats, and for the treatment of concrete floors and surfaces, see 1E9 and 1E10.

(*a*) Among others, the Portland Cement Association (1E2) has issued the following publications:
1. "**Suggested Specifications for Concrete Floors.**"
2. "**Specifications for Concrete Roads, Streets and Alleys,** with Recommended Practice."
3. "**Tennis Courts** of Concrete."
4. "Concrete Feeding **Floors,** Barnyard **Pavements** and Concrete **Walks.**"

(*b*) See, also, "Suggested Specifications for **Concrete Floors.**" *Engineering-Contracting*, Jan. 24, 1917. (From pamphlet issued by Portland Cement Association.)

(*c*) "**Concrete Floors in the Home,**" *Scientific American Supplement*, July 8, 1916.

(*d*) "Construction of **Concrete Porch Floors and Steps,**" *Cement and Engineering News.* Serial beginning October, 1916.

(*e*) "**Concrete Floors and Sidewalks,**" A. A. Houghton. The construction of square, hexagonal and other forms of mosaic floor and sidewalk blocks or tiling are illustrated and explained.

(*f*) See "**Concrete Surfaces,**" *Cement and Engineering News*, January, 1917. Illus.

(*g*) "**Standard Specifications** for **Concrete Hardeners**" and, "Standard Specifications for **Concrete Floors,**" of Building Data League are referred to under 4D3*e*.

(*h*) "**Concrete Hardener,**" a paper by Mr. P. W. Nelson, *Journal of the Society of Constructors of Federal Buildings*, February, 1917.

(*j*) "**Causes of Cracks** in Cement Concrete Pavements," A. T. Goldbeck, *Canadian Engineer*, Jan. 25, 1917. Paper read before American Association for Advancement of Science.

(*k*) For "**Terrazzo Floors,**" see 2F4*a*.

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(*l*) See, also, "A Recent Experience with **Terrazzo Work**," J. E. Langley, *Journal of Society of Constructors of Federal Buildings*, May, 1915.

(*m*) "Investigation of **Composition Flooring**," R. R. Shively, *Engineering-Contracting*, Sept. 27, 1916. Paper read before the American Chemical Society.

(*n*) For a complete exposition of the subject of **Composition Flooring**, see reprint with that title from "Proceedings" of the Engineers' Society of Western Pennsylvania (11A4). 50 cents. This consists of 60 pages, including an address by H. M. Hooker, containing illustrations and many tables relating to all phases, followed with discussions on the subject in general by architects, engineers, and others.

(*o*) "**Mastic Floors** for Industrial Buildings," *Engineering-Contracting*, Sept. 27, 1916. Illus.

(*p*) For Navy Department Specifications for "**Linoleum**" and other flooring materials, including tiles, see 4D3*d*.

(*q*) "**Asphalt** Construction for **Pavements and Highways**," Clifford Richardson. A pocket book for engineers, contractors, and inspectors. 155 pp., illus.

(*r*) "Latest Advance in the Technology of **Asphalt Paving**," D. T. Pierce, "Proceedings," Engineers' Club of Phila., Oct. 1916.

(*s*) "The Modern **Asphalt Pavement**," C. Richardson. 580 pp., illus.

(*t*) "**City Roads and Pavements**," W. P. Judson. 197 pp., illus.

(*u*) "Specifications for Street **Roadway Pavements**," S. Whinery.

(*v*) Among the **standard specifications** published by the American Society of Municipal Improvements (11A5), are those for: (1) **Cement Concrete Paving**; (2) **Sheet Asphalt Paving**; (3) **Asphaltic Concrete Paving**.

(*w*) "Light Traffic **Pavements for Boulevards, Residence Streets and Highways**," Linn White and A. C. Schrader, *Journal of the Association of Engineering Societies*, 1912, p. 385.

(*x*) "**Revised Specifications for Plain Concrete Floors**," Wm. M. Kinney, in Illinois Society of Architects' Handbook (11D1g24).

(*y*) For "**Scuppers, Inserts, and Devices**," see 4C4.

(*z*) For use of Lapidolith, in **treating Concrete Floors**, see Industrial Section, p. xxii, L. Sonneborn Sons, Inc.

11D5 *Terms Relating to Plastic Products, Chiefly Plastering*

(*a*) The following letter from a firm of architects in the Middle West has resulted in correspondence which will lead to further consideration of all structural **nomenclature** by the Institute's Committee on **Materials and Methods** in collaboration with committees in the A.S.T.M., the N.F.P.A., and other bodies.

"We find a lack of consistency in the use of several words among architects, contractors and manufacturers, and we feel that some committee of the American Institute of Architects **should define** what **certain words** would mean when used on the drawings and in the specifications by architects.

"We find a great deal of difficulty with one in particular, the word "**stucco**." With some it is synonymous with rough-cast plastering; with others it means **moulded plastering** run in place; and then, again, others interpret it as **ornamental plaster**. In our office we refer to rough-finished plastering as "**rough cast**" although the cement manufacturers' literature refers to it as "stucco." We refer to plaster work run in place as "stucco." We refer to all ornamental plastering which is cast in moulds and fastened in position as "**staff work**."

"Other architects, again, use entirely different terms, and we think that the Institute can do much to bring about a uniformity."

(*b*) The word **stucco** is an old one, originally used in connection with anything run in place, such as moulding, or modeling, or other fine work as distinguished from ordinary plaster surfaces.

(*c*) The American Society for Testing Materials in its "Proceedings," Vol. 16, Part 1 (1916), pp. 452 to 471, gives the **development of definitions, glossary of terms**, and a **description of all processes** connected with cement, lime, gypsum and all other kinds of mortars, plasters and plastic materials and products under the caption of "Tentative Definition of Terms Relating to the Gypsum Industry—Serial Designation C11-16T." This calls attention to the origin of words now commonly used and the inconsistency with which they are applied to various products and processes.

In this, **stucco** is described as "a material used in a plastic state to form a hard covering for the exterior walls or other exterior surfaces of any building or structure." The word "stucco" is used without regard to the composition of the material, defining only its use and location of its use, as contrasted with the words "plaster" and "mortar."

(*d*) The U. S. Bureau of Standards, in Technologic Paper No. 70, says: "The word '**stucco**' as used in this report may be defined as a material used in a plastic state to form a hard coating for the exterior walls or other exterior surfaces of any building or structure. 'Stucco,' as here used, is a mixture of one or more cementitious materials, with sand or other fillers and with or without other materials, such as hair, coloring matter, etc. The word 'stucco' is used without regard to the composition of the material, defining only its use and location of its use, as contrasted with the words 'plaster' and 'mortar'."

(*e*) The Associated Metal Lath Manufacturers have defined "**stucco**" as referring solely to a covering of an exterior wall without regard to the composition of the material.

(*f*) The Portland Cement Association, in Bulletin No. 22, on "Portland Cement Stucco," use the word "**stucco**" to mean a covering of an exterior wall only.

(*g*) The Institute's Committe on Materials and Methods is considering the subject of standardized nomenclature in connection with these materials. See "**Nomenclature**" in *Construction*, July, 1917, including letter from Thomas Nolan on that subject.

11D6 *Lathing and Plastering*

(See, also, "**Shingles, Lathing and Wall Boards**", 5K.)

For correspondence concerning **Lathing Nails**, see 5M3.

For "Mill Construction Buildings Protected by Metal Lath and Plaster," see 5G2*h*1.

(*a*) For units individually applied to walls and partitions as "**grounds**" before plastering, see reference under 5G4*j*.

(*b*) "**Temporary Grounds** for Plastering," paper by Ernest G. Schurig, illus. *Journal of the Society of Constructors of Federal Buildings*, May, 1916.

(*c*) In the March Journal, under 3E3*g*, brief announcement was made concerning Technologic Paper No. 70, just then received from the Bureau of Standards, entitled "**Durability of Stucco and Plastic Construction**," R. J. Wig, J. C. Pearson, and W. E. Emley. In this connection the following is quoted from Report, Bureau of Standards, 1916:

"**A series of tests**, primarily to determine the comparative durability of various types of plastered metal lath on exterior walls, was undertaken in 1911. The results of these tests, obtained from the exposure of small panels, indicated the necessity of carrying out an investigation on a much larger scale. Accordingly, a new and more comprehensive series of tests was planned, the program of which was put into the hands of a coöperating committee, consisting of representatives of the Government, engineering societies, the Associated Metal Lath Manufacturers, the Portland Cement Association, the Gypsum Industries Association, the National Lime Manufacturers' Association, The Hollow Tile Manufacturers Association, and a number of contracting plasterers. The recommendations of this committee were followed in the construction of a test structure (described under 3E3*g*), and the panels were plastered with a number of typical stuccos, the work being carried out under the supervision of the coöperating committee. No general recommendations are given in the first progress report, nor will such recommendations be attempted until additional test-panels have been erected and an extensive **field examination** made of stucco houses which have been standing five years or longer. The report, however, contains many illustrations and much suggestive information of value to architects, builders, and prospective home-owners. This report will be amended from year to year as results become available."

(*d*) To the original test structure there has been built, since the report was prepared, an addition, which affords twenty-two new panels. These have been constructed in accordance with specifications prepared on the basis of suggestions resulting from developments in the original test-panels. Quite recently three additional stucco buildings have been built for purposes of emergency testing, and are experimental, so far as the stucco construction is concerned.

(*e*) 1. A Committee to **Standardize Architects' Specifications** exists in the Illinois Society of Architects. This Committee called together plastering contractors, manufacturers, and dealers, individually and as representing various associations, and endeavored to secure coöperation in the forming of a joint committee. Emory Stanford Hall, Chairman, furnishes the following notes:

The proposition has been to get the plasterers and the plastering material dealers to agree on a standard specification for **material and workmanship**; then to have the plastering material men guarantee their material to comply absolutely with the standard specification, stamping their guarantee on the packages or furnishing a certificate with each shipment, with the hope, ultimately, that laws might be enacted which would make it fraud to sell building material under a false label, the same as is the case under the Pure Food and Drug Act with reference to food and drugs. With a **known and acknowledged formula**, it would be a comparatively simple matter to ascertain adulteration of material. With a material complying strictly with an acknowledged specification, it would be a comparatively simple matter to place responsibility for defective workmanship.

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The plan further provides that if, on receipt of material at the job, the contractor is not satisfied that same is in accord with standard specifications, then he may notify the architect and material dealer and have samples taken for **analysis**, proceeding with the work only upon the material dealer's instructions. If the analysis proves that the material delivered was in strict accord with standard specifications, then the **responsibility** for results is clearly upon the contractor, whereas, if the material delivered, upon analysis, proves not to have been in strict accord with standard specifications, then the responsibility for results may be properly placed on the material man, and he should be compelled to pay all expense, including labor, of **replacing** any defective work.

The Committee has been recognized by the municipal authorities to the extent that it has been asked to **fix a standard** for common plaster on wood lath, which shall be used as the basis of tests for determining the comparative value of substitute materials.

2. In the "Handbook for Architects and Builders" of the Illinois Society of Architects (11D1g24) will be found "**Standard Rules of the Measurement of Plastering**" adopted by the Employing Plasterers' Association of Chicago. These include also a **Tentative Outline Specification for Lath and Plaster Work**; also Recommendations, Jurisdiction Claims and **Patching of Plastering after other Trades** as well as the city ordinance.

(*f*) The Employing Plasterers' Association and the Journeymen Plasterers' Association Local No. 96, of Washington, D. C., through a joint committee are drawing up a **specification for lathing and plastering** which is to be submitted to the Commissioners for incorporation in the Municipal Building Regulations of the District of Columbia.

(*g*) In some of the pocket books and other publications listed there will be found descriptions and diagrams pertaining to the use of metal lath. The subject of **supports for suspended ceilings, cornices, beam-effects and vaulting**, etc., is of particular importance and is, perhaps, most fully treated in the four books listed under 11D3*a*.

(*h*) None of these, however, goes into this subject as completely as does the Metal Lath Handbook, which is described, together with many activities of The Associated Metal Lath Manufacturers, under 3C11. In this handbook the subject of supports for metal lath has been covered by diagrams and descriptions showing the **practice recommended** with respect to **walls, partitions, column** and **beam coverings, ceilings** and other types of construction. In the case of the latter, and most important feature, several drawings serve to show **Standard Details for Suspended Ceilings** for all types, which are accompanied by notes and recommendations. A detail of cornice and cove furring is also shown.

Illustrations of various types of metal lath are also given, with tables of **gauges and weights** of each. In this connection attention is called to the fact that The Associated Metal Lath Manufacturers have **standardized the weights per gauge for metal lath** at the figures given on pages xiv and xv in the Industrial Section, where, also, may be found "**Standard Details for Fire Retardent Belt Enclosures** and **Elevator Shafts Using Metal Lath and Plaster**," and other data. Attention is called to error on page iv of Industrial Section, September issue, where the omission of a decimal point after the first figure in the weight made it, for 24 gauge, appear 340 lbs. per sq. yd. instead of 3.40—likewise with the other weights given.

It is of especial interest to note the attention which these metal lath manufacturers have devoted to the subject of **plastering**, as an indication of the importance which should be attached by all manufacturers, not to their product alone, but to all factors connected with its proper utilization. There will be found in the Handbook:

"**Interior Plastering**," "**Specifications for Interior Plastering**," "**Gypsum Plaster on Metal Lath**," "**Exterior Plastering**," "**Standard Specifications for Exterior Plastering**" (with detail showing recommended construction for outside wall, **omitting sheathing**, and, instead, back plastering metal lath between studs), "**Overcoating**" and "**Fire-stops.**"

(*j*) The before-described methods of procedure which are being developed for the **supporting and applying of lathing for ceiling construction** are of particular interest in view of the many specifications, some of them governmental, which call for the lath on all suspended ceilings and for all cornices, beam work, vaulting, and false work to be "supported and secured in a rigid, thoroughly satisfactory, and workman-like manner to approval." In consideration of this all too frequent practice, it is no wonder that equable conditions do not always prevail, even in the estimating, and that controversies frequently arise as to the interpretation of "**stiff**," "**rigid**," "**satisfactory**," "**to approval**" and the other terms which are used **instead of definite instructions or direct reference to a standard** to be followed.

(*k*) In the case of New York City, for instance, this does not apply, for in its **Building Code** are probably as **complete** and detailed **requirements** for **ceiling construction and other lathing** as will be found anywhere. Such definite provisions make not alone for that safety which is essential under ordinary conditions, but take into consideration the **additional factors** required under heat expansion in localized fires and plenum conditions in the case of a conflagration. (Referred to in many publications listed under 3E1 and 2.)

(*l*) The **absence of such provisions** in some other cities makes all the more significant and worthy of encouragement the action of, for instance, the "Local 53 for Philadelphia and Vicinity" of the Wood, Wire and Metal Lathers International Union. This local, which is an affiliate of that listed under 11A16, has recently issued and sent to all architects and contractors in the local district "**Uniform Lathing Specifications**" in which are incorporated some excellent provisions. The point is made that if, when such action is contemplated, it could be taken as a result of conferences with architects, plasterers, and builders, it would insure a more appreciative reception and a more general use than when, as in the case referred to, the specifications bear no address or date and do not contain the endorsement of any other organization or any individual known to the recipient.

(*m*) The Associated Metal Lath Manufacturers have plans and specifications at the Underwriters' Laboratories for making **tests** of **wire, expanded**, and **sheet metal lath** upon wooden studs, and joists in the form of fire-retardent partitions and ceilings. In this series of tests the same type of metal lath will be secured to metal studs and to metal members so as to constitute incombustible partitions and incombustible suspended ceilings.

Under date of Oct. 3, the Commissioner of the Associated Metal Lath Manufacturers has requested the coöperation of the Gypsum Industries Association, in that this Association will undertake to provide a **recommended gypsum plaster** to be used as the plastering material upon the already mentioned types of partitions and ceilings.

(*n*) The value of lime as a **wall plaster** depends, not only on its plasticity, but on its ability to retain water, so that it may be spread freely on the absorbent surface of the preceding coat. A method has been devised for measuring this so-called "**working quality**" by spreading the mortar on a standard absorbing surface and adopting a standard means of determining when it has dried out so much that it can no longer be worked.—(Report, Bureau of Standards, 1916.)

(*o*) From "The Painting of Green Plaster," paper by John E. Langley, discussion by Ernest G. Schurig, *Journal of the Society of Constructors of Federal Buildings*, July, 1915, the following is quoted:

"One authority (the I.C.S.) in speaking of new walls states: 'It does not appear that any **painting** in oil can, with serviceable effects, be done on **stucco** (and this will apply to plaster also), unless the stucco is **dry**, in itself, and the walls have stood sufficiently long to have given the brickwork the requisite degree of dryness. Stucco, on furred walls, may be painted much sooner than otherwise.' All **masonry walls** should, therefore, be **furred for plastering**, if they are to be painted immediately upon completion of the building."

(*p*) For **list of** the **publications** of the I.C.S. just referred to, (International Correspondence Schools) and others **bearing upon this section**, see 11D1*g*, Materials in General.

(*q*) "Building Construction and Superintendence," Part 1: "Masons' Work," F. E. Kidder, contains Chaper XII on "**Lathing and Plastering**," pp. 772–812.

See, also, Chapter XIII of the above for **specifications on "Lathing and Plastering—ordinary work lathing, plastering, hard wall plasterwork, wire lathing and metal, furring, stiffened wire lathing, metal lath on iron work.**" Also on "**Solid Partitions—metal lath and studding.**"

(*r*) The Committee on **Treatment of Concrete Surfaces** of the American Concrete Institute which has under consideration the development of **specifications for stucco** and for **surface treatments of concrete** will be actively engaged during the coming year in **inspection** of existing structures and in supplementary laboratory and **experimental work.** Chairman, J. C. Pearson, Bureau of Standards.

(*s*) See "**Plain and Decorative Plastering.**" William Millar. Has an introductory paragraph entitled "A Glimpse of Its History," G. T. Robinson. 1897.

(*t*) "**Facts about Stucco**," reprinted from "*Pacific Builder*," in *Journal of the Society of Constructors of Federal Buildings*, November, 1914.

Reference to the above reprint is made in a brief section devoted to "**Stucco**" in Paper No. 189, *Journal of the Society of Constructors of Federal Buildings*, entitled: "Some Suggestions for Improvement of Drawings," H. G. Richey.

(*u*) "**Cement Workers and Plasterers' Edition** of the Building Mechanics' Ready Reference Series," H. G. Richey, Superintendent of Construction, U. S. Public Buildings. 458 pp., illus.

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(*v*) "**Standard Specifications** for **Portland Cement Stucco** on Metal Lath, Brick, Tile or Concrete Block," American Concrete Institute. Referred to under 1E7*j*.

(*w*) "**The Reasons for Specifying Stucco**"—**what one architect learned from twenty years' special study**—the result of practical experimentation in building materials, William Hart Boughton. Printed in *House and Garden*, July, 1917. Illus.

(*x*) "**Artistic Stucco: Its History and Development and How It Should Be Done,**" John B. Orr. Presented at annual Convention of American Concrete Institute, February, 1917. Printed in *Concrete*, March, 1917.

(*y*) "**Solving the Crazing Problem:** A score of valuable discussions of the prevention and the removal of hair-checks," briefly abstracted and compiled by Harvey Whipple. Printed in *Concrete*, October, 1917.

(*z*) In addition to those elsewhere mentioned, see the publication of the Portland Cement Association, "**Portland Cement Stucco.**"

(*aa*) See "**Modern Stucco Specifications**" of the Atlas Portland Cement Co., contained in an illustrated monograph on Early Stucco Houses of America. (Furnished upon request.)

(*bb*) See, also, "**Color Tones in Stucco,**" by the Atlas Portland Cement Co., which reproduces some of the panels in the recent experiments conducted by The Atlas Technical Department in toning stucco with exposed colored aggregates.

(*cc*) In addition to those previously mentioned, the Hydrated Lime Bureau publishes the following:

1. "**Standard Plaster for Hospital and School Construction,**" Bulletin G3.
2. "**Hydrated Lime Plaster for Scratch and Brown Coats,**" Pamphlet G.
3. "**Auditorium Acoustics,**" Bulletin G4.

[NOTE.—The subject of acoustics will be more fully treated in Serial No. 12.]

(*dd*) See "**Better Plastering and Better Acoustics,**" Lawrence Hitchcock. 1915. A treatise on interior plastering. 36 pp., illus.

(*ee*) Brief reference to **acoustics** is also made in the Metal Lath Handbook (11D6*h*).

(*ff*) "**Hydrated Lime** and Its Qualifications **as a Structural Material,**" Bela Nagy. "Proceedings," Engineers' Society of Western Pennsylvania for October, 1917.

(*gg*) "**Rigid Forms** for Reinforced Concrete to Obtain **Better Results in Plastering,**" Ernest G. Schurig, *Journal of Society of Constructors of Federal Buildings*, November, 1915. Illus.

(*hh*) "**Plastering,**" W. Kemp. A compendium of plain and ornamental plaster work.

(*jj*) "**Automatic Stucco and Plastering Machine,**" Ludwig Eisenkramer, *Journal*, Engineers Club of St. Louis, May, 1916. Illus.

(*kk*) "**Gypsum Plasters,**" address by Charles F. Henning before Society of Constructors of Federal Buildings. Also 4D1*j*.

(*ll*) For **Sand and Gravel**, see "Stone Masonry, Broken Stone, Sand and Gravel," 2C to 2C6, inclusive.

(*mm*) See, also, "**River Sand,**" E. G. Schurig, Paper No. 222, *Journal of the Society of Constructors of Federal Buildings*, November, 1916.

(*nn*) See Industrial Section for information regarding:

1. Elastica **Stucco**, p. xvi, American Materials Co., Inc., and U. S. Materials Co.
2. Bishopric **Stucco or Plaster Board**, p. iii, The Bishopric Manufacturing Co.

11D7 *Ornamental and Decorative Work*

See, also, some references in preceding Section.

(*a*) "**The Art of the Plasterer,**" George P. Bankart. An account of the decorative development of the craft (chiefly in England), and modern plaster work. 350 pp., illus.

(*b*) "Collection Thiebault," A. Thiebault, French sculptor and plastic decorator. A reprint of the best plates from the "Motifs de Decoration Interieure et Exterieure."

(*c*) "**Plaster Casts,**" Frank Forrest Frederick, Professor of Art and Design in the University of Illinois. A brief historical review of the art of casting. Directions for making casts by the waste, piece, elastic, and sulphur-mould process, and **notes upon clay modeling.**

(*d*) "**Plastic Ornaments,**" H. Friling. Contains designs for capitals, pillars, friezes, finials, corners, panels, cartouches, shields and many other ornamental details of facades.

(*e*) An interesting description of **Fresco** and a discussion of its possibilities is contained in "The New France," October, 1917, under "A Renaissance of Communal Art," Henry Caro-Delvaille.

(*f*) "The Timepiece of Shadows," H. S. Spackman. A history of the **sun-dial**, illustrating many noted sun-dials, with practical rules for construction.

COMPETITION ANNOUNCEMENT

The Board of Control of the state of California announces to all architects who are citizens of the United States·

That a Competition has been instituted for the selection of an architect to design and supervise the construction of state buildings to be located in the city of Sacramento, Cal., for the construction, equipment, and furnishing of which the people of the state of California have voted $3,000,000 in bonds, the site having been donated by the city of Sacramento.

Under the law, the State Architect shall act as architectural adviser in connection with the Competition.

This Competition will be conducted in two stages.

The first stage is open to all architects, citizens of the United States who have had the necessary experience, subject to the conditions prescribed in the Program of the Competition.

The second stage will be open to eight architects selected by the Jury from those competing in the first stage.

No competitor shall receive any remuneration unless chosen by the Jury and submitting drawings in the second stage.

The Program for this Competition is approved by the San Francisco Subcommittee on Competitions of the American Institute of Architects.

Architects desiring to compete must file with George B. McDougall, State Architect, Forum Building, Sacramento, Cal., a written request for a copy of the Program. On December 15, 1917, copies will be mailed simultaneously to all architects from whom written requests for same have been received. Copies will be mailed to architects making written requests for same after December 15, 1917, at the time of the receipt of such later requests.

(Signed) **BOARD OF CONTROL OF THE STATE OF CALIFORNIA**

MARSHALL DE MOTTE, *Chairman*
CLYDE L. SEAVEY
EDWARD A. DICKSON
Members of Board of Control
P. J. TEHANEY, *Secretary*

Dated: November 1, 1917.

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Wood Finishing. 5H
Murphy Varnish Co. XXX

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Geo. B. Rhinefrank, Architect *B. F. Laird, Builder*

Residence of Wm. W. Bock, Esq., Eagle Point Colony, Toledo, Ohio, Built of Hy-tex Equitable Grays, Shade No. 100, laid in American Bond with ¼ inch gray concave mortar-joint.

Hy-tex
The Standard of Quality in Brick

PROBABLY no other brick produced in recent years has attained such popularity and such wide usage as the Hy-tex Equitable Gray.

It has been effectively used in mammoth commercial structures; in entrance halls and passageways, in areas and light shafts, and in residences.

Hy-tex Equitable Grays present a smooth impervious surface and wash with rain to their original clear appearance. They are guaranteed against crazing, scaling, or discoloring under the severest climatic conditions.

Consult any of our Branches: Baltimore; Chicago; Cleveland; Davenport; DuBois, Pa.; Indianapolis; Kansas City; Minneapolis; New York City; Omaha; Philadelphia; Roseville, O.; Toledo; Washington, D. C. We know how.

Send for "Hy-tex Brick Catalogue"

Hydraulic-Press Brick Company
SAINT LOUIS

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Two High Schools recently completed in Milwaukee
Van Ryn & De Gelleke, Architects
Equipped with Von Duprin Devices

Approved!

Architects and Boards of Underwriters are severe critics—especially in devices pertaining to the saving of lives. It is only natural that they should be, for the responsibility placed upon them is a serious one.

Necessarily, therefore, they investigate thoroughly before they approve any such devices. Hence we apprize very highly the approval of

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by such authorities as the National Board of Fire Underwriters, New York Board of Fire Underwriters, New York Bureau of Buildings, International Association of Building and Factory Inspectors—by architects in the service of our own and foreign governments—and by leading school and theater architects in all parts of the country.

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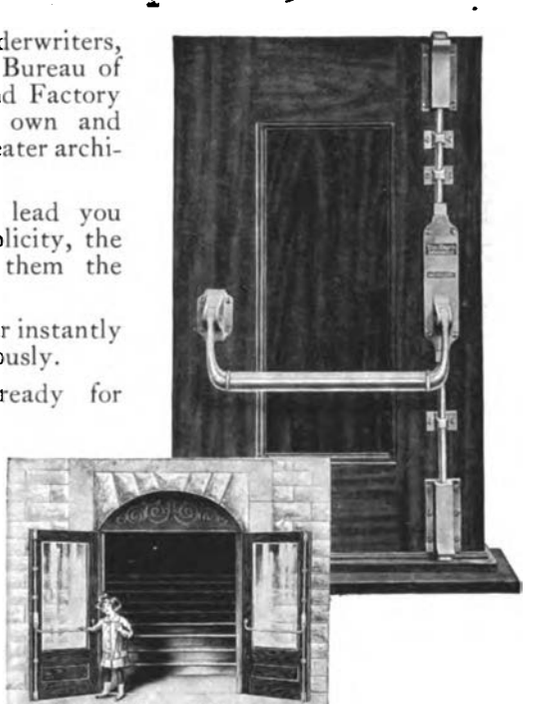
The slightest pressure on any part of the crossbar instantly and unfailingly releases lock and latches simultaneously.

Von Duprin Devices are always shipped ready for installation.

Our service department is always ready to coöperate with you and to advise you as to the **Von Duprin** design best adapted to meet your requirements. Ask for Catalog 12-S.



Vonnegut Hardware Company
Indianapolis, Indiana
Manufacturers and Distributors

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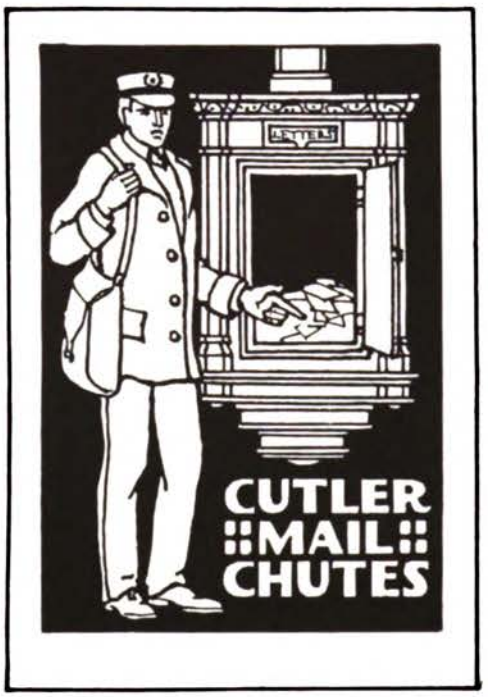
The Cutler Mail Chute



is used in thousands of buildings in every part of the United States, and abroad; has been for more than a quarter of a century, and will remain, the standard of excellence in every respect.

It has received the highest award wherever exhibited, and is being furnished to all those who consider quality as well as price, at exceptionally low figures.

The construction developed in long experience as the only safe one is protected by litigated patents, which have been sustained and which counsel advises are being infringed.

You will not know what our price is until you get it from us, and, when it is before you, we shall be favored with your business.

Agents in every important center.
Sweet's Index Pages 1726 and 1727.

CUTLER MAIL CHUTE COMPANY

ROCHESTER, N. Y.

A REPRESENTATIVE WILL CALL ON REQUEST

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SWARTWOUT ROTARY BALL-BEARING VENTILATORS

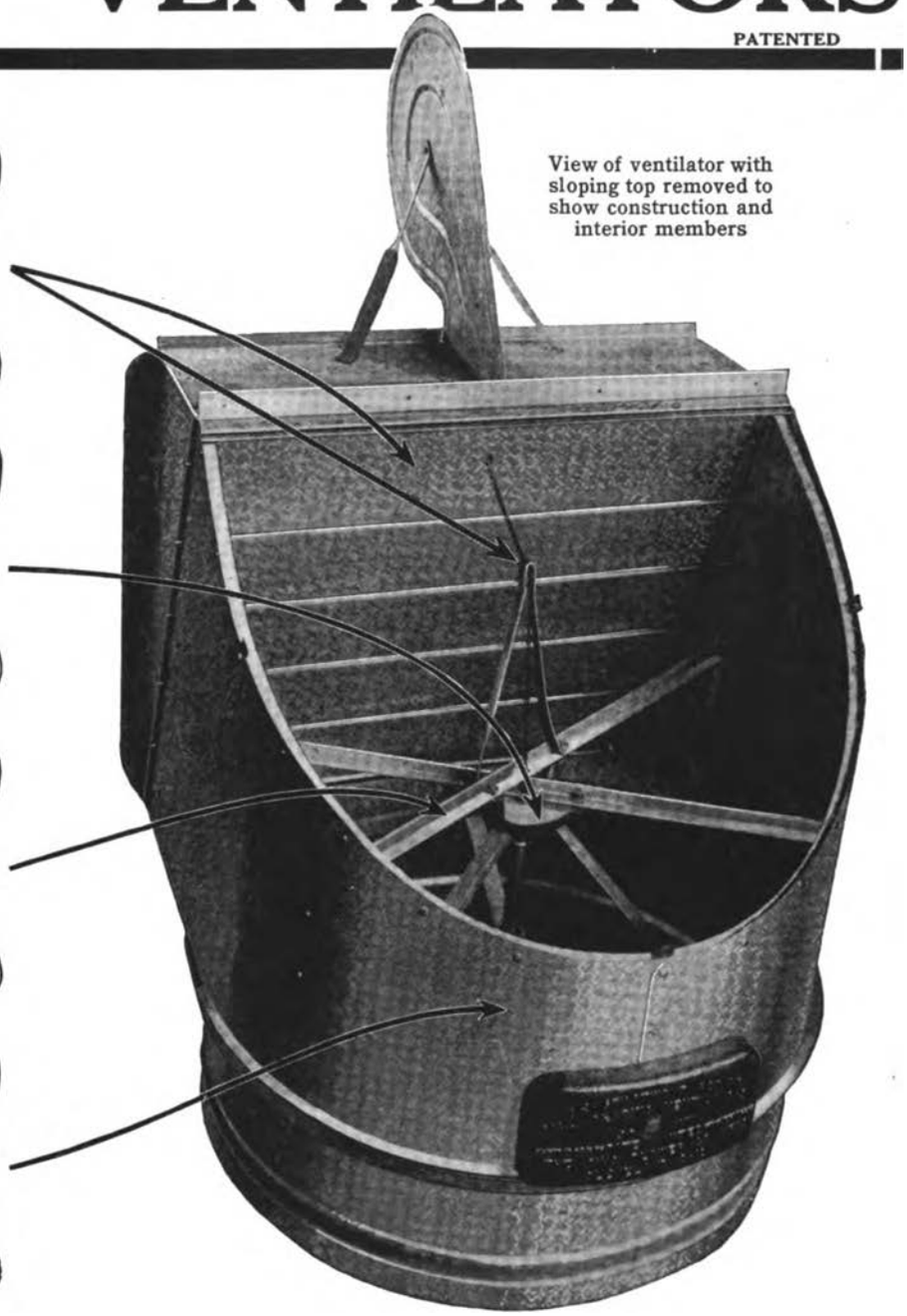
PATENTED

The top arrow points to the outside louvers or dampers which control the suction of the ventilator, and are themselves controlled *from within* by a rust-proof brass chain (second arrow) brought down over rust-proof *brass* pulleys. Dust settling on the dampers discharges *on the outside*, not within the building.

The ventilator revolves sensitively on a centrally balanced, accurately machined, frictionless and non-corrosive bearing using hard composition balls and fiber washer. The ventilator always faces *away from the wind*, so that a partial vacuum is continually forming at the mouth of the ventilator, which continuously sucks up the used air from below.

Both the top supports, the angle iron rings and the "tripod" which supports the bearing, are of sturdy angle iron, hot galvanized *after* forming on template and punching. The ventilator is so rigidly built that the 12-inch size supports a man weighing 240 pounds, without permanent distortion.

The ventilator is built of the highest grade *rust-resisting, galvanized sheet metal.* The Swartwout never corrodes or collapses in use. Top of collar and bottom of hood are stiffened with galvanized angle iron rings. The rim runs absolutely free around the collar of the base.



View of ventilator with sloping top removed to show construction and interior members

Swartwout ventilators are built for permanence. From the heavy gauge sheet metal to the non-corrosive bearing, from the angle iron hot galvanized after forming and punching to the rust-proof pulley, every detail of design and material is selected to make a permanent investment for the customer.

For full details, capacities, exact ventilator and base specifications, etc., write for 24-page handbook, ***"The Gospel of Fresh Air"—6th Edition,*** just off the press.

Branch Offices and Agents in Principal Cities from Coast to Coast

THE OHIO BLOWER CO., 9229 Detroit Ave., CLEVELAND, OHIO

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Standard Details for Fire Retarda
Using Metal

Designed and recommended by the Engineering Departme
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companies listed below, or by the Commissioner of the Assoc

The U. S. Bureau of Standards

has made its final examination in the tests of

"Stucco for Permanence"

"Metal Lath" maintains its high standard of results as a base for "Stucco."

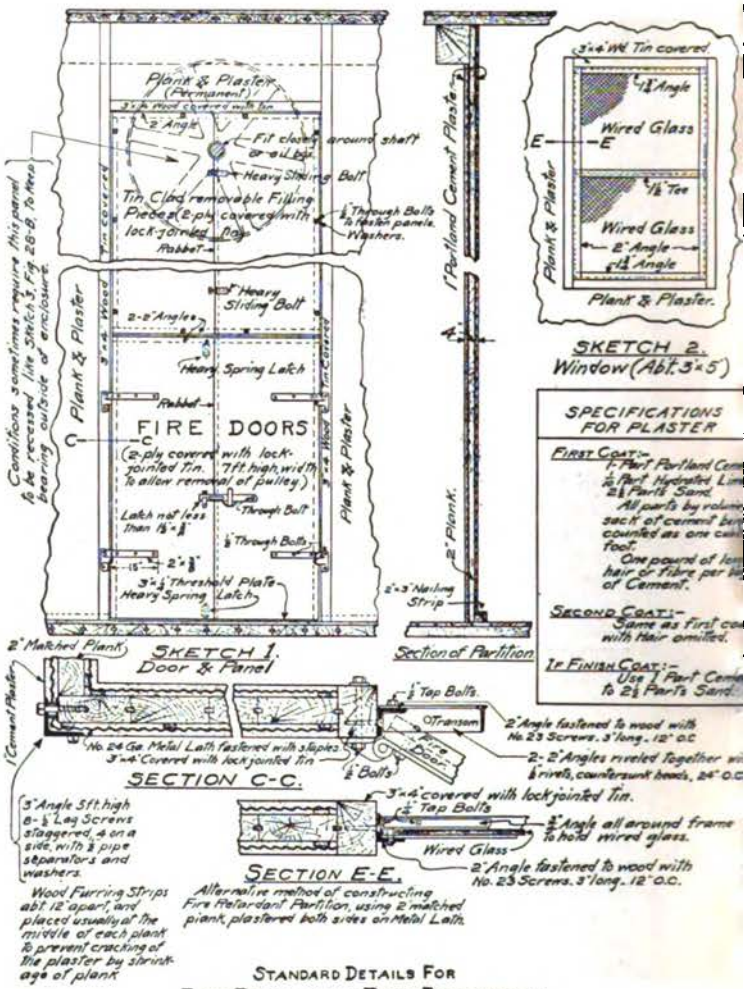
"Metal Lath" panels finish the test with a 100% rating.

"Metal Lath" is proven a most reliable "Stucco" base.

Progress Report (Technological Paper No. 70) will be sent upon request.

The final report as soon as it is made and printed.

Send in your name and address for your copy.



STANDARD DETAILS FOR
FIRE RETARDANT BELT ENCLOSURES
PLASTER & METAL LATH ON PLANK PARTITION. FIG. 2

THE ASSOCIATED METAL LATH MANUFACT

Me

THE AMERICAN ROLLING MILL COMPANY . . . . . Middletown,
THE BERGER MANUFACTURING COMPANY . . . . . Canton,
THE BOSTWICK STEEL LATH COMPANY . . . . . Niles,
CONSOLIDATED EXPANDED METAL COMPANIES . . . . Braddock,
THE GENERAL FIREPROOFING COMPANY . . . . . Youngstown,

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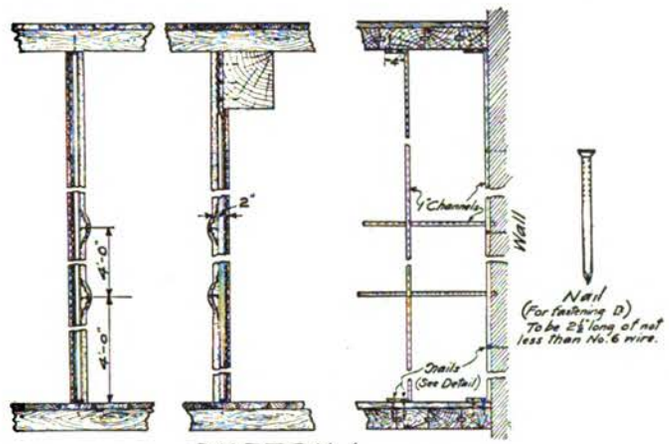
lt Enclosures and Elevator Shafts
and Plaster

Associated Factory Mutual Insurance Companies of Boston.
of which will be gladly sent you by any of the member
l Lath Manufacturers, 901 Swetland Bldg., Cleveland, Ohio.



SKETCH 1.

SECTIONS OF PARTITIONS SHOWING FRAMING.

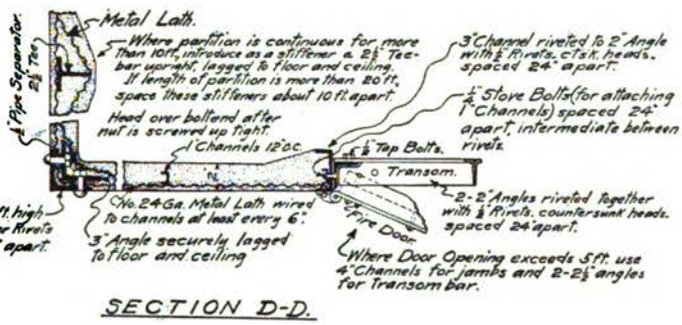
Standardized Metal Lath

The Associated Metal Lath Manufacturers have standardized the following weights per gauge for metal lath:

24 gauge, 3.40 lbs. per sq. yd.
25 gauge, 3.00 lbs. per sq. yd.
26 gauge, 2.50 lbs. per sq. yd.
27 gauge, 2.33 lbs. per sq. yd.

Their recommendation is "Metal Lath, 24 gauge, weighing not less than 3.40 lbs per square yard."

Specify by WEIGHT and Gauge



SECTION D-D.

SECTION A-A.

STANDARD DETAILS FOR
FIRE RETARDANT BELT ENCLOSURES
PLASTER & METAL LATH ON STEEL FRAME PARTITION. **FIG. 28-A**

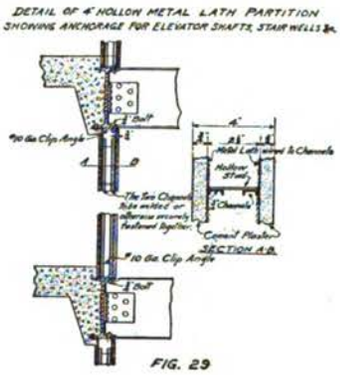
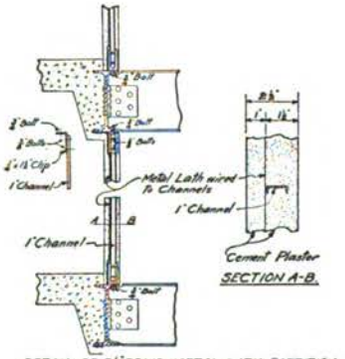


FIG. 29



DETAIL OF 2½" SOLID METAL LATH PARTITION SHOWING ANCHORAGE FOR ENCLOSURE OF ELEVATOR SHAFTS, STAIR WELLS AND OTHER VERTICAL OPENINGS. FIG. 29-1

, 901 Swetland Bldg., Cleveland, Ohio

s:

WAUKEE CORRUGATING COMPANY	Milwaukee, Wis.
THWESTERN EXPANDED METAL COMPANY	Chicago, Ill.
N METAL COMPANY	Boston, Mass.
SYKES METAL LATH AND ROOFING COMPANY	Niles, Ohio
SSED CONCRETE STEEL COMPANY	Youngstown, Ohio

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Formerly American Flooring Co., Inc.
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U. S. MATERIALS CO.
Weed Street and Sheffield Avenue, CHICAGO

Manufacturers of

ELASTICA STUCCO

The Standard Magnesite Stucco

Composition: ELASTICA STUCCO is a Magnesite Oxy-Chloride Cement. Magnesite is the cementing ingredient, as Portland Cement is in Portland Stuccos. Magnesite, mined originally as a white rock, is calcined, or burned, and ground to a fine powder between 140- and 200-mesh screen. The Mixing Compound, Chloride of Magnesium, serves the same purpose in ELASTICA that water does with Portlands. Chloride of Magnesium is a salt compound which has an affinity for, reacts with, and causes the set with Magnesium Oxide, commonly known as Magnesite Cement.

Scratch Coat: The Scratch Coat is of Magnesite, which is the cement; long-fibered asbestos, which serves as a binder; pure white, washed and graded Silica glass sand, which serves as a fill; and granulated cork, which is used for insulation and filler. Long-fibered asbestos, the binder, takes the place of hair, which is used in Portland Cements. Asbestos is a mineral matter and will not deteriorate and lose its value as a binder in a comparatively short time, as does hair. Long-fibered asbestos makes the material "fatty," makes it work easier under the trowel, and prevents it from creeping—falling on the plasterer's hock, so that he has to place it on the wall several times before it stays.

Finish Coat: The finish coat is composed of Magnesite Cement, short-fibered asbestos, pure white washed and graded Silica glass sand (graded to form a perfect mass and fill all voids), and various oxide mineral colors, according to the color desired.

Dash Coat: The Dry Rock Dashes, which form the last coat, are made from solid granite, quartz, and other stones. They are ground to a size from ⅛- to ¼-inch. We use only such stones as are hard and lasting and will not deteriorate under weather conditions. All raw materials which enter into the composition of ELASTICA are of the highest grade obtainable, and all are thoroughly analyzed before being used.

Non-Conductor of Heat and Cold: ELASTICA STUCCO is an absolute non-conductor of heat and cold. Magnesia is one of the best insulation materials on the market today. Magnesia is used for pipe-covering as an insulation, and Magnesia for firebrick in steel mills where imperviousness to extreme heat is absolutely necessary. It is used for refrigerating plants as an insulation, as is cork. ELASTICA, being an absolute non-conductor of heat and cold, makes the house warmer in winter and cooler in summer. ELASTICA, because of its slight expansion when it sets, does not contract and crack, but makes an absolutely monolithic job and adheres closely to all openings around doors and windows, thus keeping out the cold weather.

Fireproof: ELASTICA STUCCO is absolutely fireproof. The use of Magnesite in steel furnaces and firebrick will confirm this. Possibly the least fireproof material in the composition of ELASTICA is the Silica glass sand. The fireproof qualities of ELASTICA make it a far better risk as a building material for *insurance companies* than other materials, and its use reduces the rate.

Waterproof: ELASTICA is absolutely waterproof. We would advise disposition of this question by merely making a test of a sample which we will send on application. The waterproofness of ELASTICA will be readily apparent.

Factory Mixed: ELASTICA is a factory-mixed product. This insures an absolutely uniform cement as to proportions of ingredients and coloring matter. Every bag of cement is exactly the same. This has been one of the most vital drawbacks of stucco as a building material. In most other stuccos, the mix is left to an incompetent workman who mixes the material on the job. Every pound of material which enters into the composition of ELASTICA is thoroughly weighed and mixed at the factory for an exact length of time in the most efficient mixing machine made.

Variety of Finishes: ELASTICA may be obtained in a great variety of finishes. The finish coat is made in green, red, buff, brown, or white; in addition, any dash may be applied over these colored backgrounds. There are 70 to 80 different finishes to select from. Effects are produced by the use of granite, quartz, and other dashes. Two or more colors may be used on a house. This gives a very pleasing contrast.

Elasticity: ELASTICA STUCCO possesses an elasticity which, considering the hardness of the material, is exceptional. ELASTICA, while being hard and possessing four or five times the tensile strength of Portland Cement, is elastic and will not crack unless an unusual amount of settling takes place or the building is not properly constructed: where the studding, sheathing, lath, etc., are not properly secured or nailed.

Durability: ELASTICA is extremely durable and will not crack because:

1. ELASTICA is *factory mixed.*
2. ELASTICA is absolutely waterproof, and so does not permit of dampness penetrating the backing over which it is used.
3. ELASTICA expands slightly while setting, and weather changes have no effect on it.
4. ELASTICA takes up shrinkage and expansion of lumber without the material cracking.

Various Constructions: ELASTICA can be applied over any construction now being used for buildings. It may be used with perfect satisfaction over brick, hollow tile, wood lath, or patent sheathings. We advocate using wood lath or patent sheathing, because ELASTICA gives perfect satisfaction over these less expensive wood constructions.

Old Frame Buildings: There is also a large field for ELASTICA in old frame buildings. A frame house, properly kept up, must be painted every two or three years. By putting ELASTICA on these buildings, one eliminates the expense of repairing and painting. It gives the house a fireproof exterior, beautifies it, and makes it warmer in winter and cooler in summer. While the cost of stuccoing a frame building is greater than painting, in the long run it will be cheaper, because there is no future expense of upkeep. If the siding on a frame house is securely nailed, one may lathe diagonally over the siding, following regular wood-lath specifications. Covering a building with ELASTICA materially reduces the fire-insurance rates.

Cost and Covering Capacity: One ton of ELASTICA, two coats, each coat ¼-inch thick, will cover between 85 and 100 yards to the ton, depending upon the construction over which it is used; over 1½-inch wood lath, lathed ⅜-inch apart, about 90 yards to the ton, or better, will uniformly be obtained; over patent sheathings, about 85 to 95 yards to the ton; and over tile or brick, between 75 and 90 yards, depending entirely upon the way the job is lined up. The dry rock dash will uniformly cover about 200 yards to the ton. From these estimates it is easy to figure the cost per square yard for material. In figuring the covering capacity, no allowance is made for openings, unless a single opening contains 6 square yards, or more, in which case it is deducted.

Cost of Applying: ELASTICA can be applied a great deal cheaper per square yard for labor than other stuccos for the reasons:

1. That it is a factory-mixed product, eliminating a great deal of labor on the job in mixing ingredients.
2. Because it works easily under the trowel and covers many square yards more than other stuccos, giving a saving in tonnage.

Freezing Weather: ELASTICA can be applied equally satisfactorily in warm weather or in weather below zero. It will not freeze. It is mixed with a *Chloride of Magnesium,* a chloride salt solution, and positively will not freeze under the severest weather conditions. Buildings may now be covered at any time during the year.

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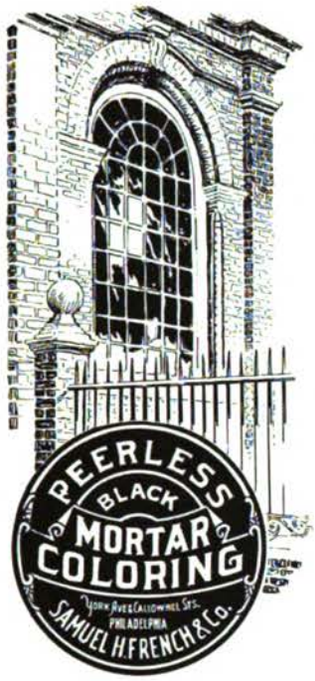

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Hydrated LIME PLASTER

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Mt. Sinai Hospital, Cleveland, Ohio *G. B. Post & Son Co., Architects*

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Write for your copy of "Auditorium Acoustics."

HYDRATED LIME BUREAU

of the National Lime Manufacturers' Association

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THE GORHAM CO ARCHITECTURAL BRONZE

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The Largest Automobile Factory in the World

Overland, Building 45. Mills, Rhines, Bellman & Nordhoff, Architects.
Pond Continuous Sash in sawtooth. Lupton Counterbalanced Sash in windows.

With a site already surrounded by other buildings, and land values rising, expansion upward seemed more practical to the Willys-Overland Company than relocation.

Yet air and light were essential everywhere for the intensive and accurate workmanship required. With a floor area exceeding 100 acres and a capacity of more than 1,000 cars a day, no means of securing them could be overlooked.

The following methods, among others, were used:

Arranging each of the larger buildings around a series of light courts;

Using sawtooth roofs on the main buildings, and Pond "A-frame" roofs over the courts, thereby utilizing the latter for manufacture and storage;

Using COUNTERBALANCED instead of pivoted ventilator sash, thereby ensuring equal openings at top and bottom, and automatic air movement;

Using TOP-HUNG, instead of centre-pivoted, continuous sash for all roof openings, on account of the weather protection thereby given when open.

LUPTON PRODUCTS

Lupton Steel Sash
- Pivoted Factory Type
- Counterbalanced Type for factories
- Counterweighted Type for offices
- Power House Type

Pond Continuous Sash for Pond Truss, sawtooths, monitors and side walls

Pond Operating Device for long lines of sash

Lupton Rolled Steel Skylight

Lupton Steel Partition and Doors

Lupton Steel Shelving

These methods are described and illustrated, with many from other famous factories, in our booklet, "Air, Light, and Efficiency," sent free on request.

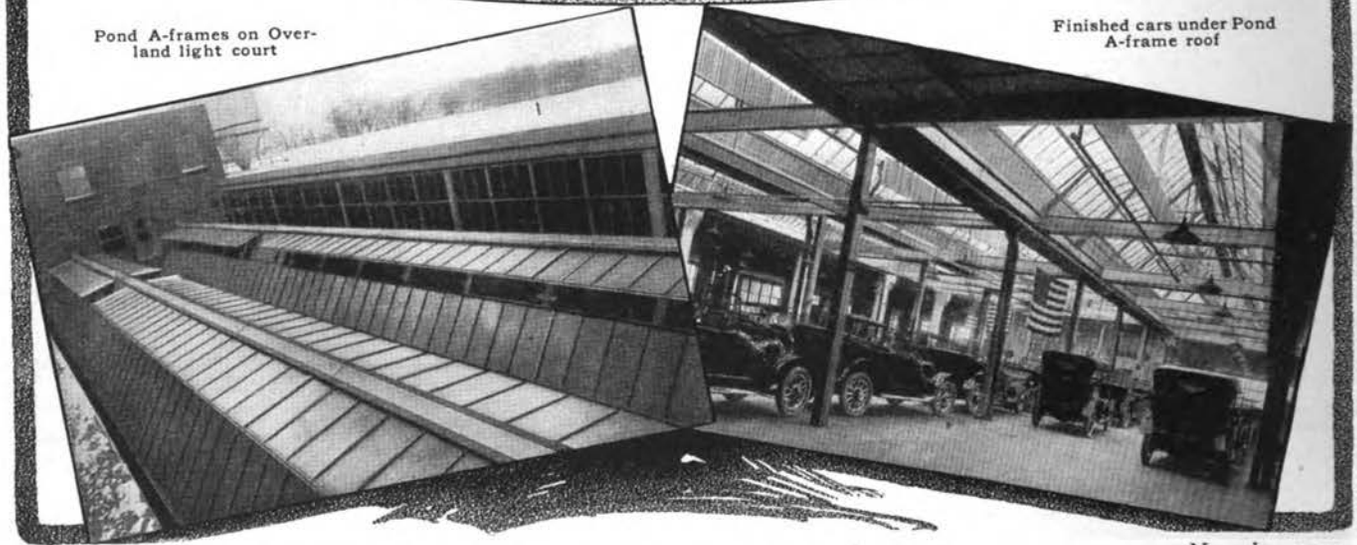
It is noteworthy that Lupton Steel Sash, Counterbalanced Type, and top-hung Pond Continuous Sash in Pond A-frames and sawtooths, predominate in the Willys-Overland factory.

Every new factory presents its own problems in lighting and ventilation. Let us help you with yours

DAVID LUPTON'S SONS CO., Westmoreland Street and Trenton Avenue Philadelphia, Pa.

STEEL SASH — PARTITIONS — DOORS
LUPTON
INVESTMENT VALUE

Pond A-frames on Overland light court



Finished cars under Pond A-frame roof

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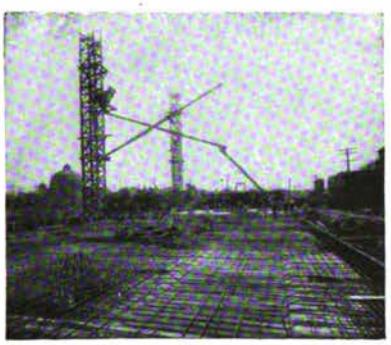

Work of the nature indicated above calls for an organization that very few architects would be expected to maintain. Perhaps it is for that reason that we are being called upon continually to render engineering service.

IT is known that our organization has survived a creative, competitive period in reinforced concrete construction, design and practice. We have demonstrated conclusively that we can render engineering service on a fee basis and leave the architect free to specify any type of reinforcement that has proven merit.

We will gladly throw the whole force of our highly specialized organization on one project to help carry through a commission in an unbelievably short time.

We are able to furnish engineering service from any one or all of our offices named below.

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International Harvester Company
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Proctor & Gamble Company
Swift & Company
United States Steel Corporation
U. S. Navy Dept., Mare Island

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Department 21

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Used for Years

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WOOD NEED NOT ROT!
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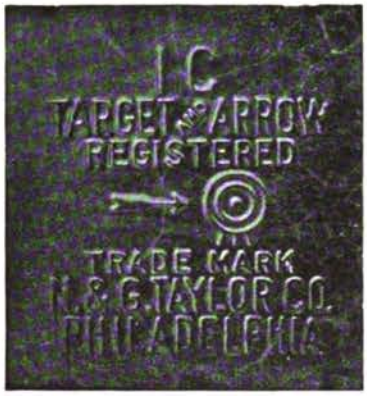

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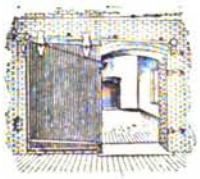

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Property Loss by Fire in the United States

1910	$214,003,300
1911	217,004,575
1912	206,438,900
1913	203,408,250
1914	221,439,350
1915	172,033,200
1916	213,539,670

Saving towns from fire that wipes them off the earth!

AGAIN and again it happens—we see a little village busily growing into townhood. We see the town prosper into a thriving young city—and then, the scourge of fire strikes and in one awful night that community of progress disappears, leaving nothing behind but a blackened scar—a heritage of loss and distress.

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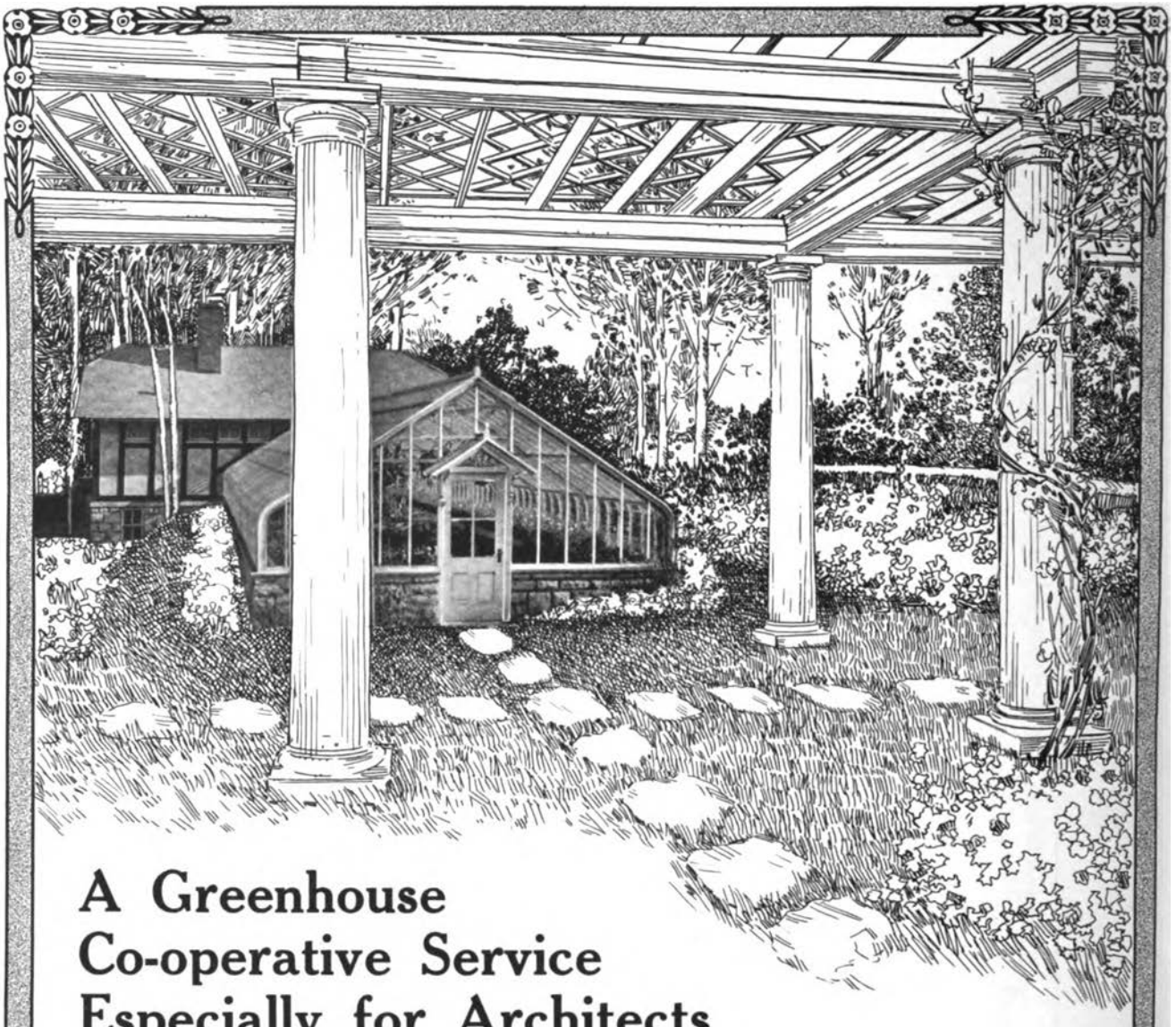

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Architect, Frank E. Newman, New York City, for Lucius W. Mayer, White Plains, N. Y. Thatched weathered straw "CREO-DIPT" Stained Shingles on roof.

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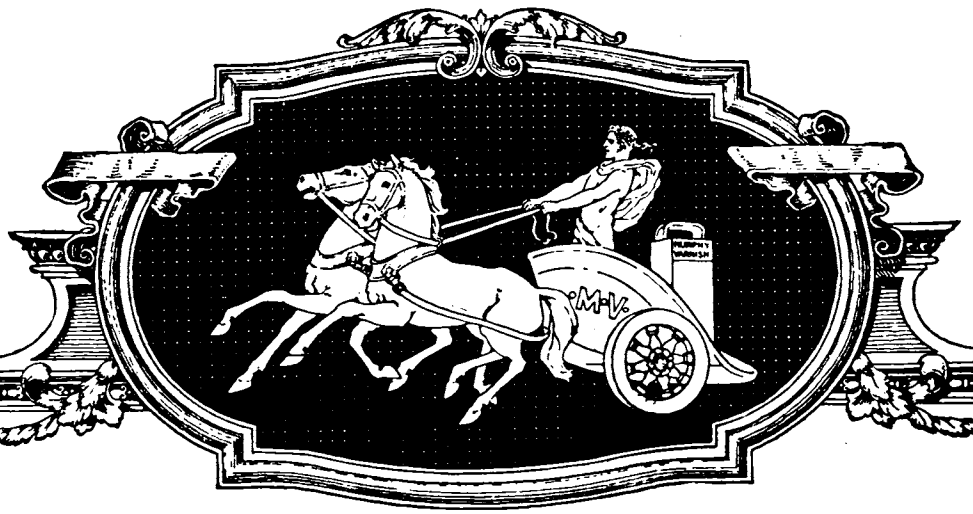

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"Beauty intoxicates the Holder and Beholder"
"Beauty is the Eye's Food"
"Beauty is truth, Truth Beauty"

"Beauty opens Locked Doors"
"Beauty charms, then Persuades"
"The Beautiful are never Desolate"
"A thing of Beauty is a Joy Forever"
"Beauty doth varnish Age"

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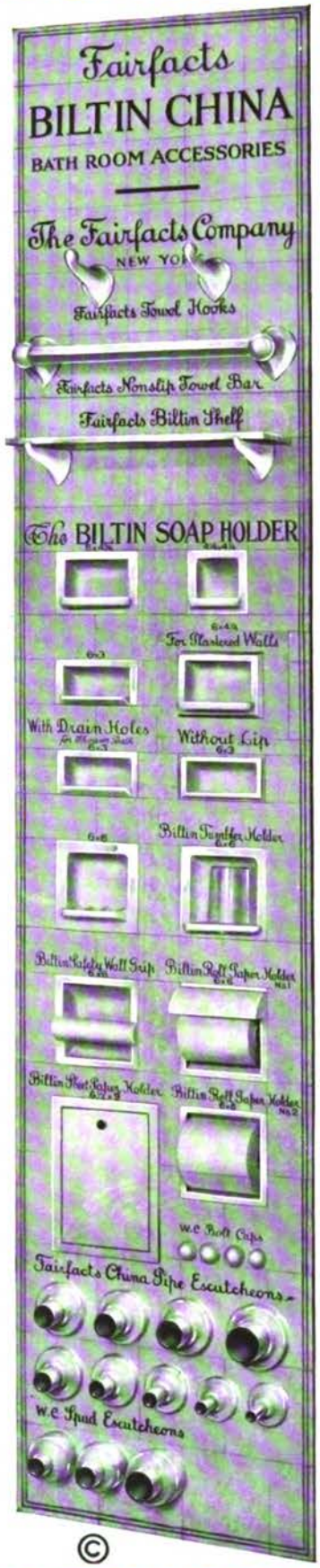

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The finest, cleanest white Glass Shelf made

China Soap Holders—simply niches in the wall but made for all tile sizes and plaster walls too

The China Safety Wall Grip to keep you from slipping in the tub. A real ounce of prevention

Roll Toilet Paper Holders of china, for standard rolls and the No. 1 type rewinds the paper

A white coated metal recess sheet Paper Holder that is flush with the wall

White china Pipe Escutcheons

Pure White China	*versus*	Nickel Plate
Built in the wall	"	Screwed on
Recessed in the wall	"	Projecting from
Economy	"	Continual upkeep

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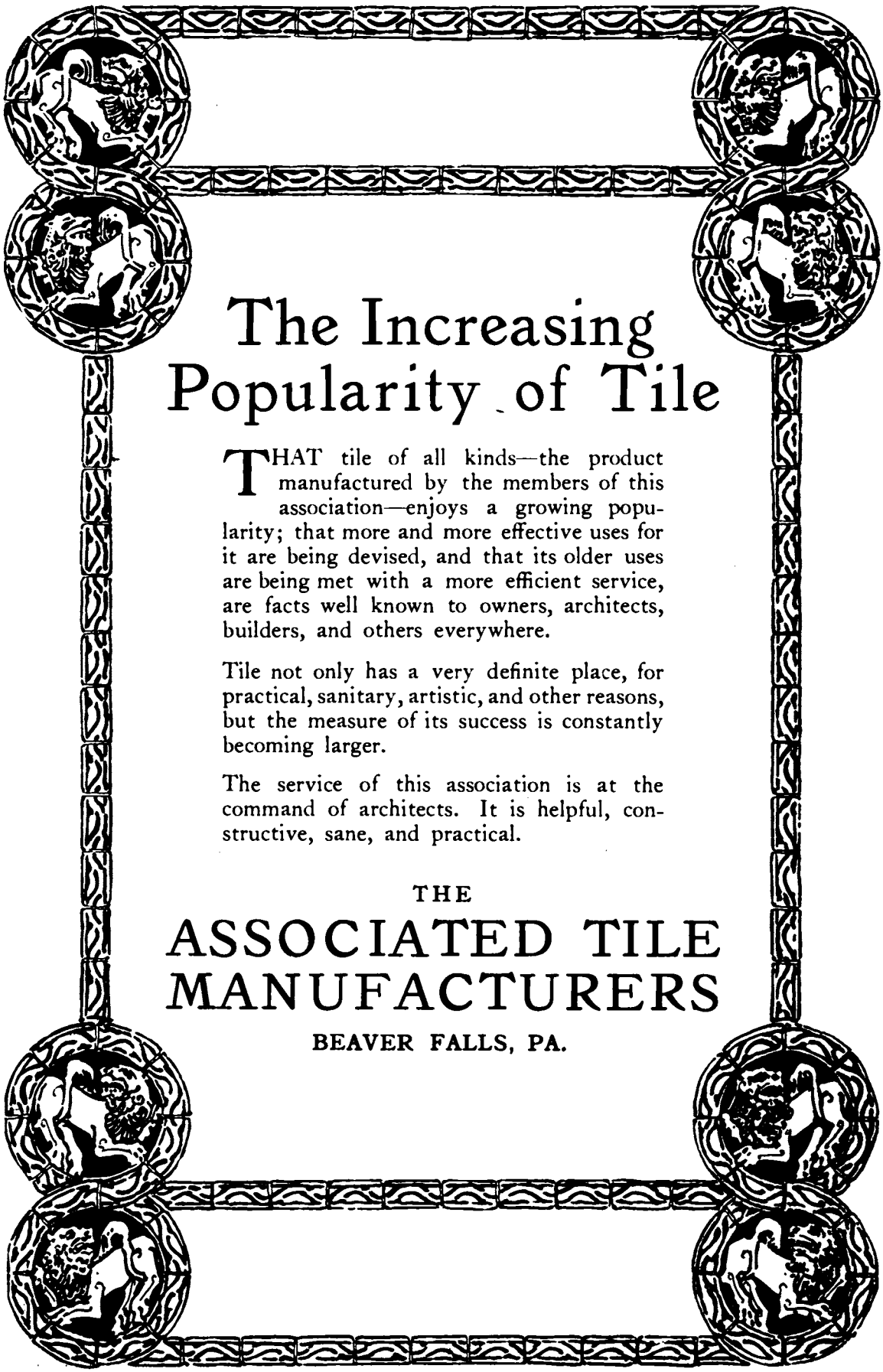

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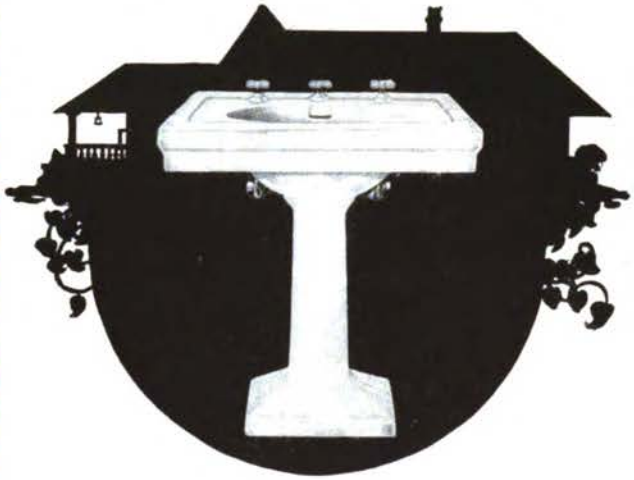

Density

THAT the harder glaze is baked into clay, the more sanitary becomes the piece, is no more debatable than the statement that two and two make four. Science has proven it. The more intense the firing, the smoother the surface. Friction causes wear. The absence of friction makes it more difficult for foreign matter to adhere. This may be proven. Mark various materials with a lead-pencil and see from which the mark is most readily removed. **That** piece will have the most dense surface.

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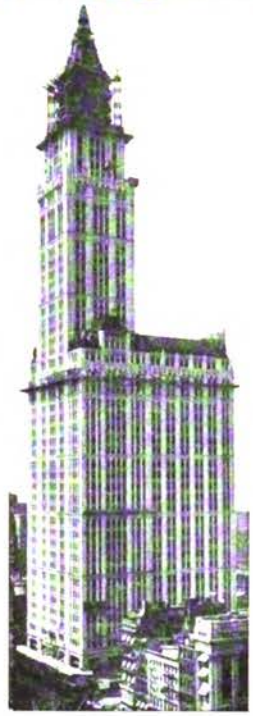

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(Cass Gilbert, Esq., Architect)

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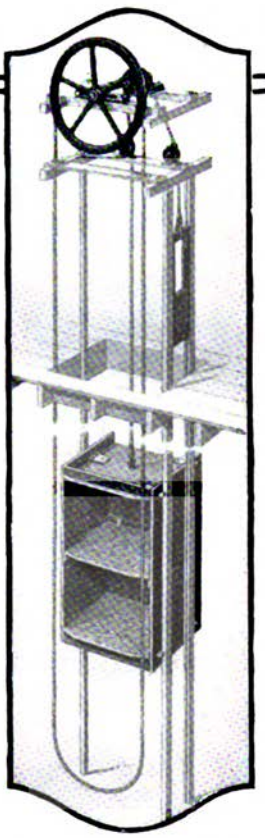

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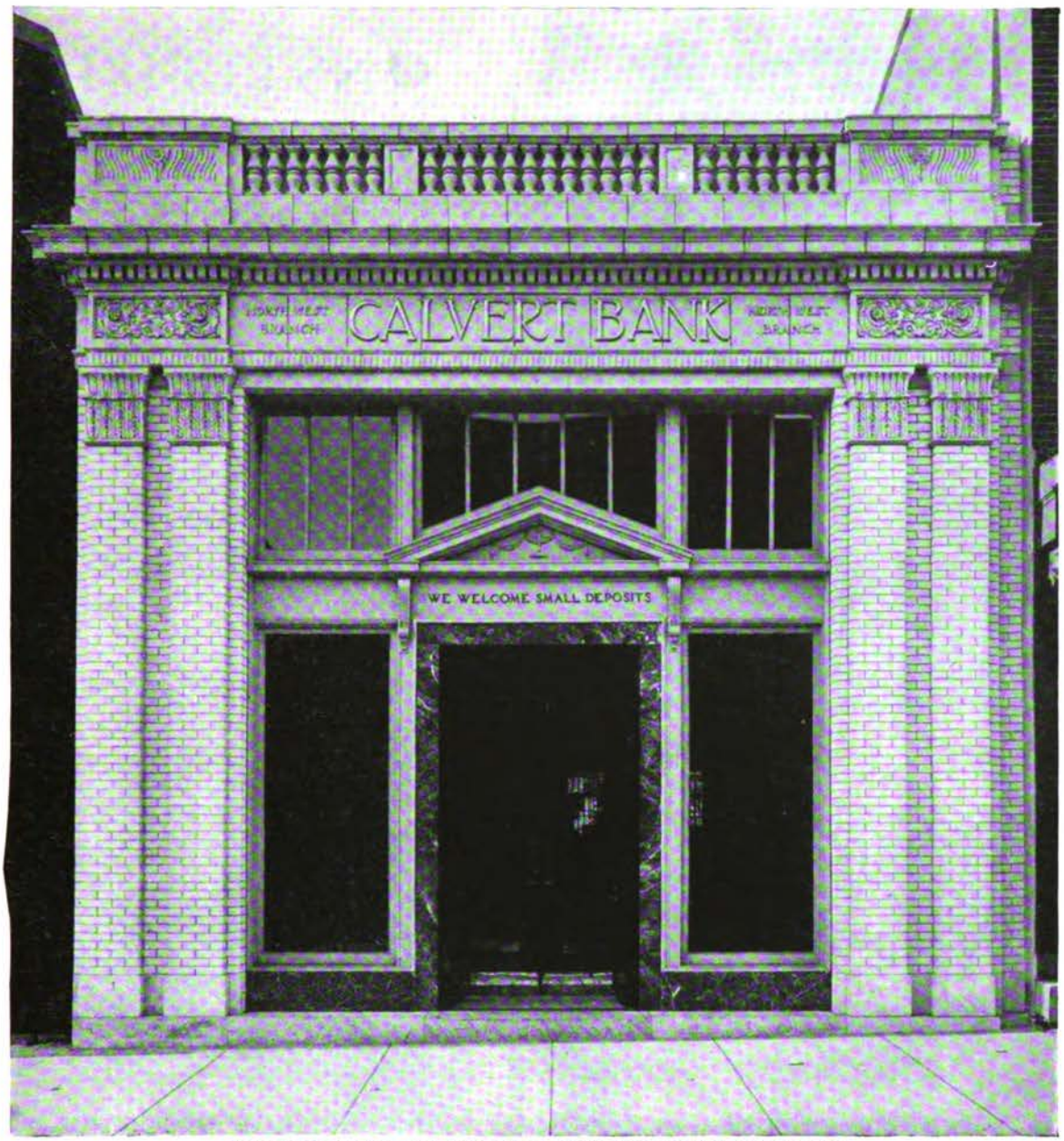

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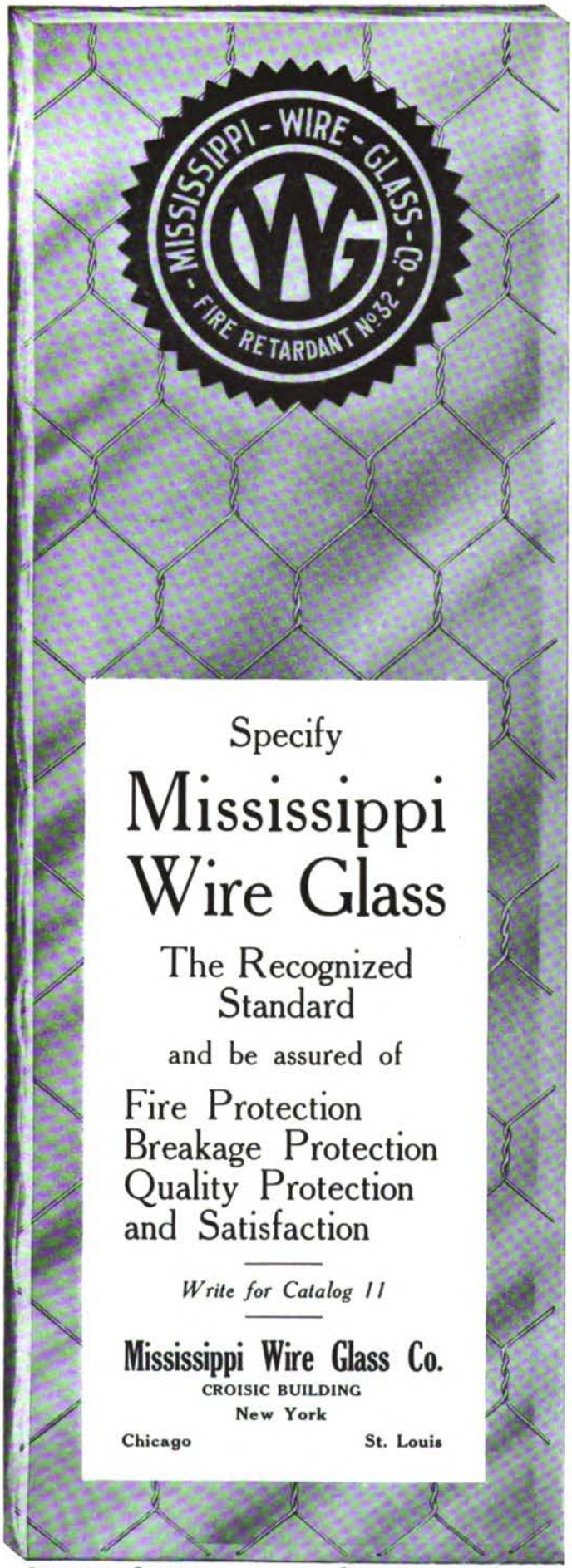

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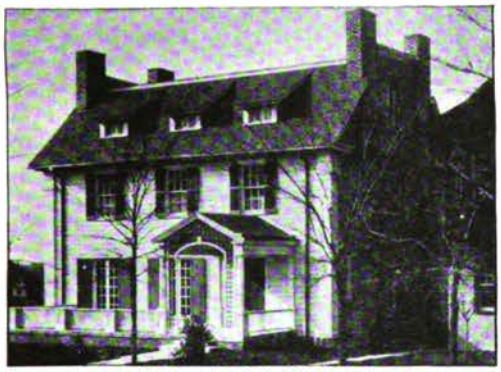

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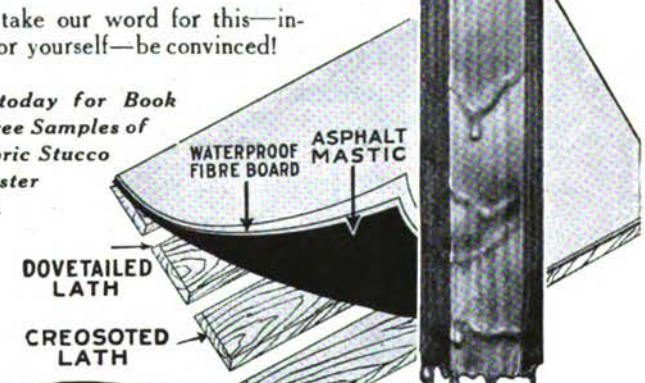

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Which is the Fundamental Principle of Safety?

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Whereas, to "get" the fire before it gets away is the fundamental principle of safety from fire!

SAFETY POSSIBLE INSIDE BUILDINGS

Safety laws virtually say this to those in whose interests they are enacted: "You cannot be safe from fire in any building; the only place of safety is outside buildings. The laws provide for exits whereby you may reach safety, and it is up to you to use this means of assuring your own safety."

EXIT REQUIREMENTS SHIFT RESPONSIBILITY

Really, in this respect, laws shift responsibility of assuring absolute safety from fire from where it rightfully belongs to the shoulders of those whom the laws are intended to protect. Those who are responsible for conditions of safety may well argue that in providing exits they have done all that is required of them, and ignore altogether the need of doing what is necessary to provide for the control of fire where it originates—the fundamental requirement for safety from fire.

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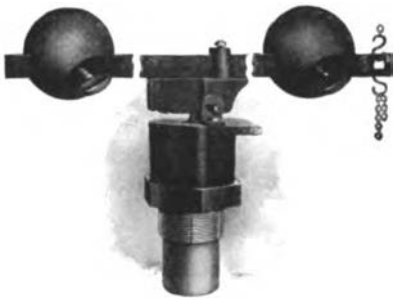

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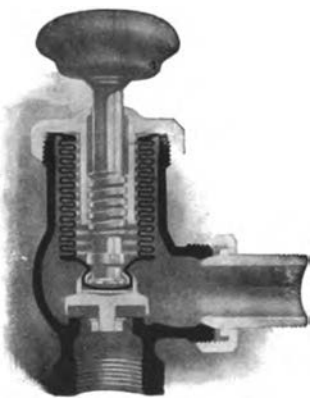

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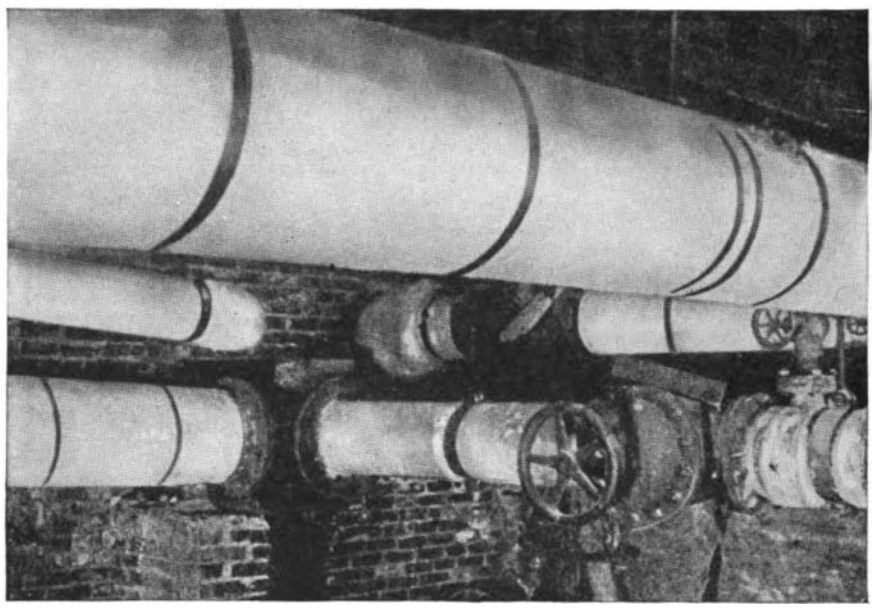

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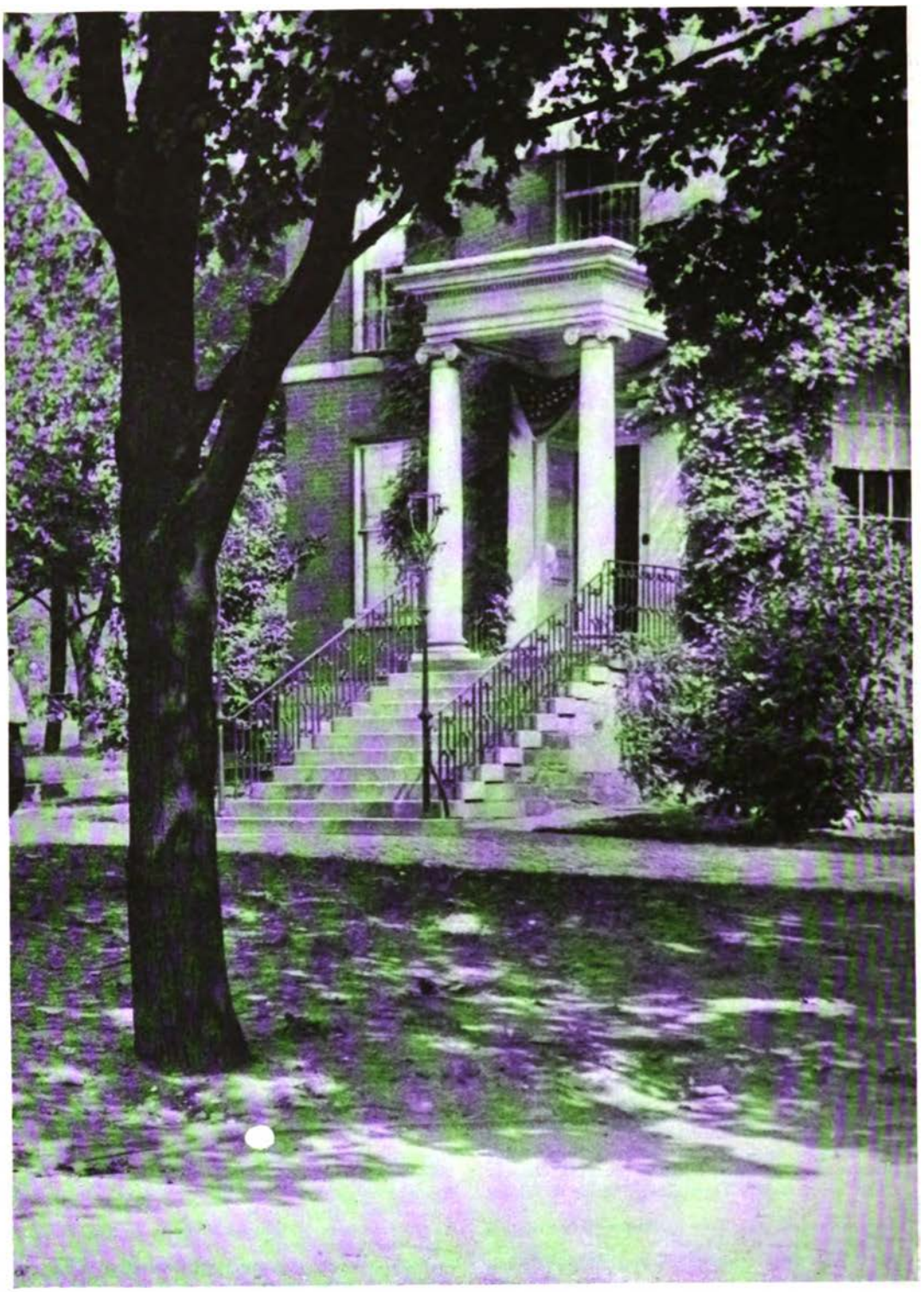

The Doorway of The Octagon
From a photograph by Ben J. Lubschez

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JOURNAL OF THE
AMERICAN INSTITUTE OF ARCHITECTS

Vol. V DECEMBER, 1917 No. 12

Shadows and Straws

OVER THREE MONTHS have elapsed since the shortage in workmen's houses was brought to the attention of the Government. During that period the question has been under consideration by the Council of National Defense, but at this moment (December 15) the nation remains in ignorance of its cogitations and looks in vain for any evidence that the problem has been grasped in any sense commensurate with its magnitude.

As one tries to divine the reason for this, two prime factors seem to evolve out of the mass of testimony and speculative criticism. First, we have not the background which enabled England to meet her own similar problem with a foresight and an energy which are revealed in the article by Mr. Ackerman which immediately follows. Secondly, the problem, at some point in the Council, has encountered a mind not possessing the imagination to visualize either the necessitous character of modern war, the scale of its demands, or the methods by which, and by which alone, we may stimulate our industrial production to the maximum. In these days one hesitates long before resorting to criticism of any of our national war activities and the methods by which they are administered. Everyone desires to be patient, to realize the intricate nature of our problem and its consequent requirement for time in which to organize and coördinate all the ramifying factors. But the time has assuredly come when it becomes a national duty to point out that industrial production cannot be stimulated by machinery alone, and that failure to grasp the problem of providing houses for workmen, in which they may enjoy a measure of comfort and rest, is failure to make war as England and Germany are making it.

In Washington, one senses the feeling of timidity in meeting the problem. It is said that "the country is not ready" for any such far-reaching solution as England found it necessary to adopt. One hears that "our problem is different," and that we must meet it in our way. All these things contain a modicum of truth, but the fact is that we are not meeting the problem at all, except in sporadic cases, and that even then we are not meeting it as we should.

Allowances must be made for the confusion into which the question has been thrown by the multitude of selfish interests which have sought advocacy of this plan or that, according as it affected their own individual interests. Nothing has contributed more toward obscuring the really fundamental factor of federal recognition of the problem than the thrusting forward of every conceivable sort of scheme by which houses might be built or workmen might be sheltered. Instead of throwing light on the problem, they have shadowed it with doubts and suspicions, and we are the more emboldened to say this since President Wilson himself, in his message to Congress, took occasion to indicate that the profiteers have not all been regenerated by war. They have shown themselves in the discussion of homes for workmen, as elsewhere, and have done a damage to the nation of which time will show the full extent.

We regret sincerely that the task of placing this issue before the people of the United States should fall to a publication which serves the organized profession of architecture in this country. We recognize that in small minds we

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too shall engender a suspicion of selfish purpose. But we dismiss the thought and the fear as unworthy of consideration. Our national interest has been too clearly demonstrated to cause us a moment's hesitation in stating our faith, and we believe it to be our solemn duty to point out the essential fact that it was not until England dealt broadly with the question of workmen's houses and workmen's comforts and workmen's rights to rest and recreation, that she began to attain the necessary volume in her war-time production of necessities. This is a truth which no sane man in England will deny.

It is also stated in Washington circles that those in charge of this matter are insisting upon a narrow definition of what constitutes a war emergency. The problem, so it is said, is one which only relates itself to the immediate plant where munitions are being made. To us, this strict line of demareation is only another evidence of lack of imagination. Who can say where production of war munitions is being sacrificed by a house shortage? It may be at the mine or the ore-bed, or at any one of ten thousand points where the little streams rise to fill the river of industry. It is scale that we lack. It is imagination of which we are lamentably short. And we say, and without hesitation, that this is a problem which can be better visualized by men whose imagination is their stock in trade than by those whose vision is confined within the realm of capital investment and interest. War is not a process of saving money—it is a test of a nation's imagination in spending it.

Again we hear it stated that the crux of our problem is to meet emergencies in any temporary manner such as will accomplish the result. It seems to be taken for granted that the mere provision of beds and roofs will satisfy all requirements. As against this, we may point out the one feature of English experience which stands out above all the others, and which is revealed in the illustrations which accompany Mr. Ackerman's article. It was not until England began to build good houses for workmen with families; good boarding houses with good comforts for single men; halls, churches, institutes, theaters, and recreation facilities, that she began to be able to hold her workers at their tasks and to obtain from them that tremendous volume of munitions without which she was helpless in the face of an enemy which had spent years in preparing for these very things. Temporary houses may be a solution in certain rare emergencies. On the whole, they are no solution, and they will involve a national loss in industrial production and a national waste when the time comes to demolish them.

Is it true that the United States is not ready to meet such an emergency with as high a degree of intelligence and skill as England employed? We do not believe it. We affirm, on the contrary, that unless it is met with imagination and with a conception of its scale such as will insure the one result sought, the nation will visit its indignation upon those who deal feebly and unintelligently where they should deal strongly and brilliantly with a problem of vital national import.

As this question arose and took prominence through a war emergency, although it is one which has been with us for a century, it seems only to complicate the problem by pointing out that the manner in which we do deal with it will affect our future more than any other thing connected with the war. But this is a fact, and all doubt of it will vanish when one has finished reading the story of England of the present and England of the future, as narrated on the following pages.

We believe that only by the appointment of a Workmen's Home Administration (we abominate the word "housing") with broad powers, directed by imagination and not by narrow practicality, can the United States begin seriously to deal with the paramount problem of building ships, making guns, munitions, and all the war necessities upon which our success depends absolutely.

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What Is a House? IV*

By FREDERICK L. ACKERMAN

Introduction

THIS study is the result of a visit to England in October, 1917, the primary purpose of which was to gather information relating to the operations of the British Government in providing adequate houses for a vast army of munitions workers, to her program for building a still greater number of workmen's houses as a measure of post-war reconstruction, and of discovering how these undertakings were to affect the future social and economic structure of Great Britain. It was, and still is, my hope that information thus gleaned would be of value to us in the formulation and execution of a program to meet, not only a shortage in houses quite similar in many respects to that which faced the British Government at the outbreak of the war in 1914, but to help us in grappling with our own inevitable problem of economic reconstruction.

The house problem which confronted England at the outbreak of the war does not differ in any material way from the problem which faced the United States when she entered the war in the spring of 1917. In both cases there existed a shortage of houses and dwellings which had, prior to the war, given rise to no little concern.

It is not of material value to consider the relative shortage in England and America at the time when each entered the war; and if it were of value, the actual figures representing a shortage are not available, for no accurate surveys of conditions had been made. We knew quite as well a year ago as England knew in 1914 that this problem under conditions of peace was one requiring drastic and immediate action.

During the first year of the war it was made manifest to England in a most emphatic way that effective measures were imperative in dealing with the ever-increasing seriousness of a fundamental problem of national welfare and stability. Modern warfare had shown, as Peace could not do, the vital part played by health and living conditions in industry, for it quickly became evident what part industry today plays in the winning of battles at the front. This compelled a complete acknowledgment that the first factor contributing to maximum production and national supremacy (a fact already acknowledged in many quarters but not recognized in positive action) is the living conditions of the worker.

In setting forth in detail the British method of dealing with this problem during the war, I shall go somewhat afield from the narrow confines of technical "housing and town planning," with their by-laws and legislative enactments, and consider the reasons why England had advanced so much more rapidly than had we in this field of activity prior to the war; and how it was that, when the war made the unforeseen demands upon England, she was able so rapidly and effectively to translate the will to do into actual accomplishment.

English and American Similarities and Differences

As I have already suggested, if we consider merely the numerical aspect of pre-war conditions in England and America, and likewise the similarity as regards the urgency of war's demands, the two problems appear to be practically identical.

But with these two points of similarity the identity ends. For as soon as one enters upon the field of technique and attempts to make a direct application of British methods to the solution of the American problem, one is immediately confronted with a long list of values which must needs be first interpreted and then translated into equivalent American usages and terms.

With our laws, broadly speaking, based upon British tradition, we have assumed that we could continue to borrow quite freely of England's modern technique of "housing and town planning." This does not follow. Due to striking differences in social and economic life, laws in our country which appear similar in form and expression to those of England have in practice totally different values.

*This is an unusual serial story. The author of the preceding chapters now retires and a new author takes his place.—THE EDITOR.

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It is because of the vastly greater need of interpretation and translation than the mere presentation of facts and figures that I shall refrain from burdening this study with financial details and numerical values relating to British prewar methods of planning houses and towns; this aspect of the problem has been fully and thoroughly dealt with in numerous British publications and reports. For the same reason I shall make but slight reference to the corresponding phases relating to wartime technique, for during this latter period costs have been abnormal, and little of value would be gained by attempting a comparative presentation of the financial aspect of the problem.

The value of such a study as this rests not so much upon presenting what has actually been accomplished in England as it does in comparing the methods already much employed in England and America and in defining the relative accomplishments. For the same reason, while it is of value to study the structure of British law as related to work in this field, it is of far greater value to consider the nature of the forces which brought these laws into being in England and the determination of the relative value of these great national elements as factors in social and economic progress. What does this activity, when methods have been brought to a high standard of perfection, contribute to national economic stability? By what relative value is this activity judged by those nations which have made the greatest advance in this line of genuine national effort?

I shall endeavor to define the relative importance of this movement from the standpoint of British public opinion as expressed in British tendencies and accomplishments before the war, the development of those tendencies into a policy of state action during the war, and, last, but not least, the manner in which the planning of towns and houses are profoundly affecting the work of reconstruction—physical and social.

I shall also consider the scope of that program which has already crystallized in England and which looks directly toward the establishment of a National minimum as regards living conditions, in which a broad scheme of National conservation, education, "housing and town planning" is to play such an important part. I shall make reference to the processes through which the British nation has passed in a century, from the inexpressibly stupid indifference of that period known as the Industrial Revolution of a century ago into an acknowledgement of the rights of all to share in the values which accrue from labor and communal effort.

"Housing and Town Planning" involve far more than is suggested by the term. They involve more than is made apparent in the average publication relating to this subject. They deal with a problem which is technical only in its narrowest and most limited sense.

For the purpose of establishing a better understanding of what follows, it may be well to set forth the general scheme of statement. There will first be considered "The British Background," comprising the general tendencies in British politics and social reform which led up to the period roughly covered by the last quarter-century. During this latter period a very remarkable program of social legislation developed, and several very important measures relating to Housing and Town Planning were formulated and put into effect by acts of Parliament. This period I shall discuss under "British Pre-War Methods."

Having established in broad outlines the framework of British laws relating to this subject, and having considered something of the effect of their application in practice, I shall then consider how established policies were made use of in the house-shortage problem which followed immediately upon the outbreak of the war, together with such modifications in those policies as were made to meet wartime conditions. These will be considered under the heading "British War Housing."

Following that, we must consider the new forces which have developed during the war and which will determine the solution of the problem of "Reconstruction" in England.

The application of British methods to American needs will be discussed under the general headings: "The American Background," and "The American Problem." Lest we drift aimlessly, there should be established at this time, in the light of European experience and American tendencies to drift, a definite goal of endeavor. Unless we consider the future from a broad point of view and establish policies to meet the conditions which will confront us at the close of the war, the effort which we are now expending will surely be of very little value.

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THE BRITISH BACKGROUND

Twenty years ago the average American traveler in England would have found comparatively little beyond things of an historic interest to arrest his attention. His itinerary would have taken him through the larger centers, the cathedral towns, a few villages of an unusual historic interest where the flavor of Old-World tradition still remained. These are to be seen today; the larger centers have but slightly changed; the historic places of interest for the most part remain, but they are dwarfed by the widespread evidence of a new development, for, scattered throughout England, and to a certain extent in Scotland, are unique and interesting twentieth century communities quite unlike the old villages, which, while recalling the old tradition of form, are decidedly unlike the twentieth century communities one sees in America. They mark the beginning of a new era.

The reason for this momentous transformation is derived from a background of experience and tendency; the contrast is too great to have been achieved by an architect or a school of architects, or a school of city planners; and those of us in America who have desired passionately a more integrated expression must fully acknowledge this, for these villages of England could not have been produced in America, notwithstanding the fact that it is quite possible for the American architect or town planner to project them upon paper.

The houses in a town, the arrangement of a town, the quality of life made possible in a town, serve as an infallible barometer whereby we may read the state of social, physical, economic, and moral development of a people. It is therefore of vital importance to us to find the underlying reason for our failure to produce examples comparable to these modern English communities. It is not enough to understand the elaborate legislative technique surrounding the British operations, nor will mere graphic descriptions of the schemes suffice. We must understand fully the forces which brought about this new condition in England in order that we may determine what phases of English methods are applicable in America. Above all, in this connection we must consider our capacities, for we shall find tendencies in American life and factors in our political and social institutions which must needs pass through a process of education similar to that of England before it is possible for us to apply even the most elemental principles involved in the success of British housing and town planning effort. That we have not been able to produce comparable results is a clear indication that our social institutions are not sufficiently developed, that our political mechanism is not properly adjusted, and that we lack unity of purpose. Unless we remedy this lack of integrated purpose we shall fail to keep pace with Europe in the fields of industry and finance, notwithstanding the terrific handicaps which, we assume, will be her heritage from the war.

But, to return to the question of cause—the background. All that I propose is an indication in outline, or rather, in silhouette, which will focus attention upon the fundamental difference between British and American directing factors or forces. Of these there are four points to be considered:

1. Conditions surrounding the ownership of land.
2. Conditions which obtained in Great Britain during the Industrial Revolution of a century ago, and which period may be said to have ended with the passage of the Reform Bill in 1832.
3. The remarkable social and political development in England during the last three-quarters century, which period might be said to have ended at the beginning of the present war, but during the latter part of which a remarkable list of social reforms were, by legislative enactment, put into effect—some of them affecting in a profound way England's progress in housing and town planning.
4. Architectural tradition in Great Britain and the development of a group of town planners, architects, and engineers, keenly sympathetic and most active in the development of processes whereby the general tendencies of the day could be crystallized, so to speak, into material expressions of permanence.

Land Monopoly and Landlordism

It may appear paradoxical to say that development along the lines of integrated social effort has been hastened more rapidly in England by the fact that progress has there been more difficult. Our apathy has been due to the fact that conditions have not been so bad as to develop a united movement with a definite program of amelioration. We have been content to drift. We have failed to realize that we were contending with the same condition which has surrounded the ownership of land in Great Britain. There a landed aristocracy has been

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determined to maintain the *status quo;* here the ownership of land has been passing steadily into the hands of fewer and fewer owners.

In England the profits from the great estates have been invested more and more in commercial and industrial enterprises, thus bringing about an intimate relation with a common interest in opposing social and labor legislation. Not only this, but with the ownership of land confined to a few whose main purpose in life had been to maintain their holdings and pass them on to the next in line, it has been exceedingly difficult to secure land for small-estate developments or for purposes of rural or urban housing.

Before any material degree of social reform could be obtained it was necessary to break down this great land monopoly. The effort to accomplish this resulted in many general legislative enactments which have been most advantageous to housing and town planning reforms. But these measures in nowise solved the problem. The problem of cheap land still remains. And, as clearly shown by Mr. Whitaker in Chapter III* of this series, we now see that we have arrived at a condition which parallels that of Great Britain. By regulations made under the Defense of the Realm Acts, the British Government insures that the home-building operations adjacent to munition plants shall not be burdened by the unearned increment. That is to say, when it becomes necessary to build more homes, the land adjoining an existing development can be taken at its pre-war value, and not at the higher value which has been added to it by the initial home-building operation. Unless this be done, each succeeding operation becomes more costly, with a corresponding increase in rent and a diminution in the size of house and lot, and thus we endlessly repeat the vicious cycle of congestion. Reference to this will be made later, for it is the most important factor of all, looking toward national well-being.

In America we are now experiencing the same profound change that resulted in England from what is termed the "Industrial Revolution." It was during this period in England that we witnessed the very rapid changes which transformed an agricultural society into one of industry. We see the rapid settlement of a vast working-class* population outside of the limits of the then existing small towns, the development of industrial centers in which the living conditions of the workers were wretched beyond words to express. We see also the poverty and utter helplessness of this vast population. In contrast to this condition of the poor, witness the rapid accumulation of wealth and capital by a small group of individuals who accepted the wretched condition of the worker and the state of inequality as a condition actually contributing to national prosperity. We see how it was that unfair laws were framed and how unfairly justice was dispensed, and by what unfair means was order obtained. We also witness the very slow awakening of the industrial laborer to the unfairness of the existing conditions, and we witness also the slow and labored birth of a new spirit. It is this new spirit brought into being by the intolerable conditions imposed by our economic system, the utter indifference of the rich to the conditions of the poor, which developed into the directing forces of the latter half of the nineteenth century.

New Forces at Work

Coexistent with the spirit of revolt on the part of the laborers against these intolerable conditions, there developed a most remarkable and profound change in the entire fabric of society, not confined to England alone, but characteristic of western Europe, Australia, and, to a limited extent, of America. This change was particularly marked in England, and something of its nature must be understood before it is possible to grasp the full significance of the housing and town planning movement, for this latter is not a small, isolated movement, but a part of a world tendency which is sure to accumulate force and power for years to come. This is expressed by the recent tendencies in social politics and the resulting legislative enactments of the British Parliament, but its scope, however, includes an almost limitless field of activity and interest. We can no more escape this movement than we could have escaped our entrance into the war.

To consider the nature of this world movement may seem a needless digression from the topic under consideration, but if it is our hope in

*Journal of the American Institute of Architects, November, 1917.

*"The Town Laborer," by J. L. Hammond and Barbara Hammond. London, 1917, Longmans, Green & Co.

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America to move forward after the war, we must recognize this force which is pushing forward with continuous and ever-increasing acceleration. Ours must be a program of reconstruction having as its basis a full recognition of the great change which has taken place during the last century and which has been tremendously accelerated by the present world conflict.

In the essay "Toward Social Democracy,"* by Sidney Webb, is traced the silent revolution which has taken place in ideas during the last three-quarters of a century and which brought us to the state of flux in which the western world found itself at the outbreak of the war. It is pointed out how little appreciated or understood is the great change which has taken place in England and the purpose of the essay is to throw greater light upon the "persistent stream of tendencies" which have brought about this change and to show more clearly the direction of the course of this world movement from the point of departure.

The New Application of Government as an Association of Consumers

It is pointed out how, a century ago, before the reform of municipal corporations, men had for centuries grouped themselves on the basis of their occupations as producers; how this old grouping of men as producers stood stolidly in the way of social reform; how the slow beginnings of a different grouping took place when local bodies with broader functions were formed in municipal government, the purpose of which was to provide for the needs, not of a special group but for the needs of all of the local residents; and how it followed that these new groups —local governing bodies—by nature of their interests and duties gradually took on the character of an association of consumers. It is shown how the form of administrative government has expanded during the last century as a result of this new concept of its function; how it is that we have become, in a way, accustomed to this change; how we fail to recognize the extent of the service which the Government actually renders—which service is organized upon the theory of primarily benefiting the public—the consumer, who is likewise benefited as a producer.

It is significant that these functions of government which we accept as a matter of course, and which form such a large part of the activities of the Government, are almost wholly the creation of the last century. We do not appreciate to what extent this new idea has been developed; but one has only to examine in detail such activities as those related to communication and transport, public health, land improvement and development (urban and rural), conservation, education and recreation, banking, insurance and exchange, the production of light and power, housing, agriculture and forestry, or mining, to realize to what extent this concept of government as an association of consumers has developed. Beyond this aspect of governmental activity one finds a tendency, particularly emphasized in England, and expressed in the powerful coöperative societies. America has but slight knowledge of the extent of this movement nor the power which it wields in Europe. Even in England the significance of this movement is not generally recognized; there the middle and upper classes scarcely grasp the import of these organizations. But they are none the less powerful; for so great a shifting of the control and management of the production of commodities by which men live cannot fail to produce far-reaching social and economic changes.

As a result of this tendency toward the collective organization of consumers, one finds in England, during the last quarter of a century, a series of legislative enactments which are destined within a few years to change utterly the general aspect of British government and in turn alter the entire aspect of British life and British physical environment.

Outstanding among the many measures one notes the Acts relating to workmen's compensation, trade unionism, child welfare, old-age pensions, the unemployed, sweated labor, the housing and land problem, national insurance, and the "Lloyd George Budget." While these are all interrelated and part of a single program of social amelioration, our interest must be confined but to a single phase—the housing and land problem which we will consider under "British Pre-War Measures."

*"Toward Social Democracy," London, 1916. The Fabian Society. A study of social evolution during the past three-quarters of a century, by Sidney Webb, prepared in 1909 for the Cambridge Modern History, and reprinted in 1916, and also in a series of three supplements to "The New Statesman" by the same author, published in 1915, one finds a concise presentation of these changes. The three supplements referred to bear the titles of "Coöperative Production and Profit Sharing," "The Coöperative Movement," and "State and Municipal Enterprise."

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Attending the gradual change in this concept of government from that in which its two principal functions were the dispensing of justice (a limited concept as we now see it) and the conduct of war, to that new concept in which the central idea of government is an organization of consumers, there went on a gradual and interesting change in the form and structure of government itself. Especially is this true of municipal government in Europe and particularly in England. Here we see a development which offers a striking contrast to our methods—a development which those who are interested in housing and town planning should study most carefully, for a knowledge of British municipal government is necessary to an understanding of housing and town planning in Great Britain. This subject, however, will be left for a more detailed treatment under "British Pre-War Methods."

The Age-Old Problem of Housing

Thoroughly to grasp our problem, we must realize that the housing of workers is not a problem peculiar to ourselves or a result of war; it is, and for generations has been, a Western World problem growing out of industrial systems, and practically the entire Western World, with the exception of America, has recognized it as either a municipal or a federal problem demanding for solution more than restrictive legislation. We must be brought to recognize that the countries of Europe have had this problem to contend with for a much longer period and that their present methods represent the result of a long and painful period of experimentation. We must also recognize that there is a world tendency toward the amelioration of the conditions surrounding workmen; that the present tendency is born of a practical experience which has shown the tremendous value of physical environment upon industrial production. No longer is welfare work confined within the factory or to the region immediately adjacent; now it extends to the housing of workers, and with the housing of workers the inclusion of the amenites is given a dominating emphasis.

However vaguely we may grasp the problems confronting us in the days of reconstruction to come, we are absolutely certain of these things: that nation which is most fully organized and wherein every element of its social and economic structure is conserved—that nation in which the vision of a great social and economic democracy is expressed in the broadest program of national organization and conservation—that is the nation which will achieve national prosperity because it puts the welfare of the whole above the welfare of any individual or group. There is no other way to national stability.

Now is the time, as never before, when we must scrutinize our ultra-individualistic tendencies, our relative lack of accomplishment along broad social lines of coöperative undertakings, our trembling fear of governmental control, and, above all, or materialistic aims. For these tendencies, unless overcome, will inhibit us absolutely from keeping pace with those nations whose suffering and loss have been much greater than our own, but who, through the integrated effort resulting from war, have learned to realize something of the meaning of social democracy.

BRITISH PRE-WAR METHODS. I

For some time past, we, the architects and the town planners, have taken the position that our lack of success must be due to a want of appreciation of esthetic values on the part of the public, to the dominating commercialism of our day and people, to an excessive spirit of individualism; and we have been, as a profession, content with that exceedingly superficial answer.

We have endeavored to awaken a public interest in housing and town planning, first, through the spectacular and later the beautiful; then, as the pendulum swung, by a narrow financial assessment of its worth. We have striven hard to promote better housing, primarily by restrictive legislative enactments and through our small-house competitions.

Notwithstanding these activities and the vast amount of propaganda, we have completely failed to bring about anything which approximates a national solution of this problem. Few have acknowledged the reason for our failure.

When you discuss the problem of the housing of workmen with an architect, a social reformer, an engineer, or a corporation with whom the question has become a serious factor in the output of a factory, the discussion revolves about the type, the size, and the cost of houses—the financial aspect and the problem and method of construction. These are apparently in

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America the dominating factors to be considered and dealt with.

England's Advanced Position as to Policy and Public Opinion.

But, on the other hand, when you consider this same problem in its various aspects with Englishmen in parallel fields of activity, you very soon discover that the problem is viewed from the angle of a general policy in which they make constant and repeated reference to Local Authority and Local Government Board. They think of the problem in terms of these authorities and the functions exercised by them.

For it is these two bodies that exercise most important powers and functions in connection with housing and town planning operations in Great Britain. This constant reference to these two bodies is a little confusing to one who attempts to translate British methods into American terms. We may understand that what is represented by the term "Local Authority" corresponds in a very general way to our own executive and legislative municipal bodies; but we can find nothing in the structure of our government even to approximate in function and authority the British Local Government Board.

While the Local Authority occupies a position which in a way corresponds to that held by the "government" in our municipalities, yet the method of electing members to the Council, the mayor, the aldermen, the counsellors, the appointment of officials, their terms of office, the powers which the authorities derive from their charter, from Parliament, from the Local Government Board, and their methods of administration, differ so widely from conditions surrounding municipal government in America that it would be futile to assume that similar legislation could be applied in America without a material modification of government itself. Broadly speaking, the greater trust in which municipal government has been held in Great Britain since the passage of the Reform Bill in 1832 has not only broadened its powers as an effective instrument working for the common good, but that trust has made government far more effective in meeting the actual needs of a democratic community. To develop such a trust is one of our prime duties in loosening democracy from the political grip which now strangles it.

The Broad Scope and Powers of the Local Government Board

Interesting as is the work of the Local Authority in Great Britain, the work of the Local Government Board is still more interesting. An understanding of its relation to Parliament and, in turn, to the Local Authorities is necessary, and I therefore make reference to *"The Government of European Cities" wherein the subject is set forth with particular reference to American readers.

The Local Government Board is, in a sense, a part of the ministry. It derives its power from Parliament, exercises control over the work of Local Authorities, and has a wide range of sub-legislative powers. "It may issue to the Local Authorities a General Regulation which is binding throughout the whole country, or an order which affects a single union only." "It is the central supervising authority in all matters relating to local sanitation and the care of public health." "It may even in some cases compel the Local Authorities to provide water-supply or appoint medical officers or improve the drainage system." It should be clearly kept in mind "that the Local Government Board may issue orders only upon the express authority of Parliamentary statute." Its legislative powers are delegated to it by Parliament solely for the purpose of making sure that the statutes of the realm shall be accurately interpreted and applied in the local jurisdiction.

From the standpoint of housing and town planning, the jurisdiction exercised by the Local Government Board in vetoing or amending ordinances and by-laws made by Local Authorities is very important. This is a vital prerogative, and it has operated to secure a closer approach to uniformity in municipal rules relating to public health and welfare, for the Board has adopted the practice of publishing "model" by-laws which the Local Authorities find it safe and advantageous to follow.

Compare the custom in America, where a municipality drafts all sorts of building laws and ordinances, often without the aid of any expert knowledge, with the British custom of having such local by-laws prepared by the experienced and well-paid experts of the Local Government Board in London. Not only does

*The Government of European Cities. By William Bennett Munro. New York, 1909. The Macmillan Co.

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this minimize the chance of such laws being successfully attacked in the courts, but it insures that the laws shall express both knowledge and experience.

A danger may be cited in the power of the Board to disallow or amend an act of Local Authority. There is, as a matter of fact, no such danger, for the Local Government Board may not thus interfere, "except in the event that the local ordinance is unlawful, and never because it may appear to be unwise or inexpedient."

"So long as the Borough Council keep within their legal powers, they are free from interference."

"More important than the legislative authority of the Local Government Board are its administrative powers." These powers exercised in matters relating to public health and sanitation and the raising of funds, have a vital relation to the question of housing and town planning.

*"Here its influence is at once apparent; for, as will be seen a little later, the boroughs are required to secure its approval of their borrowing projects, and the board, in granting approval, may impose various conditions as to the manner in which the borrowed funds may be applied. If, for example, a borough council decides to adopt the permissive provisions of the acts relating to the housing of workers, and to undertake the expropriation of lands for the erection of municipal tenements, it must get the sanction of the Local Government Board before it may borrow any money for the undertaking. Before granting this permission the board will, through one or more of its officers, conduct an inquiry into the merits of the project, and, if it gives its consent, will usually require the scheme to be carried out subject, in many important respects, to its further approval.

"It will undertake to see, for example, that the new dwellings erected by the council provide for the housing of as many persons as have been displaced, that the buildings are of proper character, and that the various other ends contemplated by the statutes are duly secured. Many other so-termed 'adoptive acts' have given broad powers to the boroughs, to be exercised by them subject to the supervision of the Local Government Board; indeed, the existence of this board as a suitable supervising authority has prompted Parliament to intrust borough councils with much authority which it would probably never have granted them to be used without supervision. If the boroughs ask for powers which seem in general to be desirable but which might easily be abused, the usual parliamentary practice has been to grant the privileges asked for but to make the Local Government Board responsible for seeing that they are not misused. It should be emphatically declared, however, that this body is the balance-wheel, and not the engine, of local administration. It does not drive the machinery of borough government, for this function rests with the borough council; but it does see that the machinery is driven smoothly and with due regard to the principles underlying the legislative mechanism. The initiative, the elaboration of projects, and the immediate supervision of all undertakings must be supplied locally; it is for the board to keep the wheels in their proper grooves."

*Ibid.

Beyond these sublegislative and executive powers the Local Government Board performs a function which is perhaps still more important.

*"Where the Local Government Board has no right of interference, and where its approval is not asked by local authorities, it may tender its advice for what it is worth; and this it frequently does. On the other hand, any local authority is entitled to seek counsel from the board and its expert staff, a privilege of which the officials of the boroughs freely avail themselves, not infrequently in order to find a means of extricating themselves from serious legal or administrative dilemmas. John Stuart Mill has somewhere remarked with great truth that 'power may be localized, but knowledge, to be most useful, must be centralized.' At the headquarters of the Local Government Board is accumulated a vast fund of the most useful knowledge concerning every phase of municipal administration; a wealth of statistical and other data is there on file, and some of the best legal, financial, and technical skill in England is at hand to interpret it. When the wording of a new statute is not clear to a town clerk, when a borough treasurer gets his accounts tangled or fails to agree with his auditors on any point, when a committee of the borough council is at a loss to know how it should proceed with any project—in a word, when any local authority wishes to get expert and reliable advice without having to pay for it, the first and logical recourse is to Whitehall.

"Whether the question relates to the extension of a water service, or to the purchase of supplies for a local hospital, or to the distribution of duties among officials, or to the wrangles of councillors over some rule of procedure, it is the duty of the Local Government Board to give its counsel or advice whenever it is asked for. Not infrequently, indeed, the matter at issue is so complicated that the board finds it necessary to send one of its experts to make a personal inquiry before it feels justified in giving its opinion."

In the field of supervision over local finance, such as the authorization of loans for a great variety of purposes, in which is included such projects as the development of a town planning scheme or the development of a group of working-class dwellings with their amenities, the Local Government Board possesses a further function beyond those referred to, which is of vital importance to the British program of housing and town planning. In America there

*Ibid.

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is no governmental body which exercises in this field a similar function.

One other phase of the work of the Local Government Board remains to be noted:

*"In the performance of these varied functions it is, of course, only natural that the Local Government Board should find it necessary to employ a large staff of officials. The total number of these now runs well up into the hundreds, including sanitary engineers, medical officers, inspectors of poorhouses, workhouses, auditors, legal experts, and many similar officers embodying a high grade of specialized skill. All these officials are appointed by the crown on recommendation of the president of the board; they hold office during good behavior and efficiency; they are members of the national civil service; and they receive liberal remuneration. Secure in the tenure of their posts, responsible to the central government alone, and hence having no local interests to serve, these officers are able to go about their work in an unbiased frame of mind, and hence have earned a general reputation for impartiality and fearlessness in their recommendations.

"There is, on the other hand, no doubt that the Local Government Board is not popular with the local authorities and that many of these latter would welcome a diminution of the board's supervisory jurisdiction. Were the officials of the board susceptible to partisan influences, the whole system of central supervision would lose its chief prop, which lies primarily in the efficiency and integrity of the officers who exercise the guiding authority. Englishmen would scarcely tolerate the supervision of their local government by any officer who, like the French prefect, attempted to combine the duties of an administrative official with the activities of a party agent."

BRITISH PRE-WAR METHODS. II

With this rather general statement relating to the drift of social tendencies during the last century and the significance of certain elements in the structure of British municipal government, we may proceed to a study of the specific acts of legislation and the British pre-war technique of housing and town planning. It may be well to repeat that the conditions in Great Britain were such during the nineteenth century that it required no exaggeration of statements, to borrow the title of Mr. Aldridge's book, to make out an excellent "Case for Town Planning."

Legislative Phases

Specific legislation in this field may be said to have been initiated in 1846, and the passage of a series of Public Health and Sanitary Acts from that day to 1875 may be said to have been in the nature of first steps leading to the passage of the Housing and Town Planning Act of 1909.

*Ibid.

The Public Health Act of 1875 empowered Local Authorities to make by-laws relating to such matters as the width of streets, the sewage of the same, construction of new buildings, the space to be provided about buildings, and to certain related sanitary conditions. It is important to observe, in connection with this act and the resulting regulations known as the "model" by-laws of the period, that it resulted in what is now known as "the new slum." It was a step, it is true, in advance from the chaos of the days preceding; but it was at the same time responsible for the endless rows of monotonous brick dwellings having nothing but a paved street in front and an ugly yard behind. There were no amenities resulting from these by-laws, and the fields about British cities became rapidly covered with these stupid habitations, quite similar, though lower in height, to what we see growing up at the present time in and about our American cities.

The sort of structures which are permitted in the outlying districts of New York under the new districting regulation, passed only last year, are quite as bad, if not in many respects worse, than the British "new slum" and against which the Housing and Town Planning Act of 1909 was directed quite as much as it was against any other single condition which then obtained.

Garden Cities

Certain other events which resulted in the passage of the Housing and Town Planning Act of 1909, and which were material factors in stimulating housing and town planning progress, were the development of Bourneville by Mr. George Cadbury, the foundation of Port Sunlight by Sir Wm. Lever, and the inauguration of the garden city movement through the publication of that practical dream of Mr. Ebenezer Howard, "Garden Cities of Tomorrow," which made a strong public appeal and awakened the entire nation to possibilities of which the people had not dreamed.

The Garden City Association was formed; studies of continental housing conditions were made; several associations for carrying on educational work were organized; schemes for garden suburb planning were launched by private and coöperative companies. In 1904 the Trades Union Congress took up the work and, during the latter part of the period referred to, forces

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too numerous to mention became allied with the movement, which ended in the organization of a Deputation of the National Housing Reform Council to the Government in 1906 and the ultimate passage of the Housing and Town Planning Act of 1909.

The Tenement Must Go

In view of the general tendency in America at the present moment to accept the tenement house as a permanent institution, it may be well to note that as a result of British experience from 1875 to 1909, during which time sanitation reformers accepted the tenement and encouraged philanthropists to erect buildings of this type, public opinion swung around completely to a strong opposition against this and to an equally strong advocacy of the small dwelling. Everywhere the tenement is now condemned, except as a mere temporary expedient where special problems exist as, for example, in certain areas of London and Liverpool. *Even in such localities the tenement is considered a temporary element, and the program of progress in England looks forward toward its complete eradication.*

The Beginnings of England's Program

Twenty-one years ago the deputation referred to presented to the British Government a comprehensive program of housing and town planning reform which, I submit, might serve the same purpose in impressing our Government. As regards its scope, constructive suggestion, and presentation of the vital needs of the day, it should be applied by us with but slight modifications, for I believe firmly that unless we adopt some similar comprehensive program, we shall very soon find ourselves face to face with a problem which will require even more drastic action.

After calling attention to the failure of the acts relating to the better housing of workers, which acts, it must be admitted, were broader in their scope and far more effective than are those of a similar nature now in existence in a few localities in the States, and after pointing out that the existing slums in the British cities would not be removed during the coming century at the then-existing rate of progress, the *Deputation asserted that the causes for such failure were to be found in:

(*a*) The scarcity of the supply of suitable dwellings to which the dwellers in overcrowded and insanitary houses can remove.

(*b*) The imperfect character of existing powers relating to the clearance of unhealthy areas, and the repair or destruction of insanitary houses.

(*c*) The lack of efficient municipal powers to secure the proper development of new housing areas and the building of suitable houses.

(*d*) The failure of Local Authorities to fulfil their present health and housing responsibilities.

(*e*) The insufficient machinery for securing effective inspection, control, and stimulus by the Central Authority.

[It is significant that the traditional attitude toward land in England had not then undergone the change which now has taken place so rapidly, and thus the prime governing factor in house-shortage and congestion was almost wholly ignored.—F. L. A.]

But do not these statements recall similar existing conditions in the United States?

Among the specific suggestions looking toward reform should be noted the following statement:

*The reforms we advocate are as follows—

I. *Local Authorities Should Be Stimulated to Carry Out Their Duties Under the Health and Housing Acts:*

(*a*) By conferring a power of initiative and stimulation on any four persons in the district, not only with regard to nuisances and unhealthy dwellings, but also in respect of any necessary modifications of by-laws (as well as the provision of new dwellings, as in the Irish Labourers' Acts).

. . . . . .

(*d*) The Central Government should appoint health and housing inspectors to visit the various districts, to advise Local Authorities as to the best methods of dealing with housing improvements, to report on cases of neglect, to temporarily supersede, if necessary, councils continuing to neglect their duties, and to carry out the necessary work at their expense.

(*e*) Special public enquiries should be held by the Local Government Board in certain selected districts with the highest death-rates.

II. *There Should Be Amendments of the Public Health Acts to Secure That:*

(*a*) Compulsory house-to-house inspection in every part of every district should be made by every Local Authority, instead of the intermittent or partial inspection now generally made;

(*b*) There should be a statutory duty on all Local Authorities to appoint properly qualified medical officers and sanitary inspectors to give their whole time to their duties, and such officers should not be removable except with the consent of the Local Government Board.

III. *Closing and Demolition of Unhealthy Dwellings:*

Local Authorities should be empowered to make a closing order which should take effect unless an appeal

*The Case for Town Planning. A Practical Manual for the Use of Councilors, Officers, and Others Engaged in the Preparation of Town Planning Schemes. By Henry R. Aldridge. London, 1915. The National Housing and Town Planning Council.

*Ibid.

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be made within fourteen days to the local magistrates, and if the house be not made fit for human habitation within four months of the date of making the order, demolition should automatically follow without further proceedings.

IV. *Clearance of Slum Areas:*

The Deputation consider that the owner of property which is dangerous to human health should be treated in the same way as the owner of diseased meat.

V. *The Creation of Model Suburbs:*

Local Authorities should be fully enabled to purchase and hold large estates in land on their outskirts and to deal with such land on similar lines to those adopted at Bourneville, and, to secure this end, Local Authorities (subject, in the case of parish and district councils, to the consent of the higher authorities) should be allowed to acquire such cheap and suitable land in large quantities to use, or hold, or lease, without necessarily specifying any immediate purpose or detailed scheme.

VII. *Compulsory Purchase of Land:*

The procedure for compulsory purchase of land should be shortened, cheapened, and simplified. It is further suggested—

(*a*) That the basis of any compulsory purchase of land required by public bodies should be the capital value of the land as declared by the proper valuation authority, or by special commissioners, as in the case of the income tax (subject to an additional exceptional allowance of a predetermined and limited extra percentage for severance and other special circumstances).

VIII. *Town and Village Development Commission:*

(*a*) A central commission, or a special department of the Local Government Board with extensive powers as to land, housing and transit, should be established to consider the main conditions of growth of the various districts in the country and, where the county or borough area is not suitable, to map out what may be called "Scientific Areas," for each of which there should be subsequently established a statutory committee consisting, as to a majority, of representatives of the Local Authorities, and, as to the remainder, of experts nominated by the Central Commissioners.

IX. *Rural Housing, Small Holdings, and Other Village Developments:*

Local Authorities and these bodies in suitable districts should be empowered and assisted

(*a*) To promote the proper development of villages by encouraging the provision of adequate and cheap means of transit, small holdings, and coöperative agricultural societies; and

(*b*) To take definite action to secure that proper schemes of colonization of certain rural districts shall be carried out.

X. *Town-Extension Planning:*

Local Authorities, or groups of Local Authorities, should be empowered to make plans for town extension dealing with the development of the land on the outskirts and prepared in good time so as to meet future needs, especially as to main roads, open spaces, and sites for public buildings or workmen's dwellings.

XI. *Cheaper Money:*

(*a*) The Public Works Loans Commissioners should lend money for housing purposes up to eighty years to public bodies, and, on the recommendation of the Local Government Board, to the extent of not more than 80 per cent, to recognized societies of public utility building on municipal land, at the lowest market rate at which the Treasury can raise money at the time.

(*b*) The restrictions which prevent the funds of savings banks, charities, and ecclesiastical bodies from being invested in housing schemes should be removed so long as this can be done without detriment to the funds.

XII. *Revision of By-laws:*

(*a*) By-laws should be strengthened in the direction of securing more open spaces and larger gardens when new housing estates are developed. There should be a clause prohibiting, except under special conditions, the building of more than a certain number of houses or rooms per acre, according to the nature of the district.

(*b*) By-laws as to new roads should make provision for a new and less expensive type of street, when used solely for access to groups of cottages, by requiring only part of the roadway to be made up.

(*c*) By-laws as to the structure of walls and buildings should be revised in the direction of avoiding unnecessary expense, while encouraging the use of new materials and better methods of construction.

While the method of executing these proposals does not exactly apply to American conditions, there are none among them which do not offer most constructive suggestions. As a result of this effort upon the part of the Deputation, the growing public interest in the question, and the able leadership of Mr. John Burns, Parliament passed the Housing and Town Planning Act of 1909.

This Act is too detailed and too local in its provisions to be inserted, but it is absolutely essential to set forth a summary of its more important provisions.

*A Brief Summary of the Town Planning Powers and Duties of Local Authorities Under the Act of 1909.

The Scope of a Town Planning Scheme

Local Authorities may, with the permission of the Local Government Board, place in hand the preparation of Town Planning Schemes governing all new building developments in their areas or adjacent to their areas, thus securing that the faults of bad planning in the past shall not be repeated in the future. This power to prepare Town Planning Schemes

*Ibid.

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does not, however, apply to the remodeling of the existing town, the replanning of badly planned areas, the driving of new roads through old parts of a town—all these are beyond the scope of the new town planning powers.

The Effect of a Town Planning Scheme When Prepared

When a town planning scheme has been prepared in accordance with the procedure laid down by the Local Government Board, it will govern the development of the areas to which it applies, and all the owners and others interested in the land included in the area to which the scheme applies, must act in accordance with the provisions of the scheme. This will not mean that, as a result of the making of the plan, roads will at once be constructed and the developments marked on the plan carried into effect. The making of a town plan—and this applies to town planning, both in continental countries and in Great Britain—is in effect the definite fixing of the lines which the development shall take when, either in the opinion of the private owner or of the Local Authority, the time has arrived for the development to be made.

The Objects of a Town Planning Scheme

The objects to be attained by the preparation of a town planning scheme are defined as "proper sanitary conditions, amenity and convenience," and provisions relating to these objects may be inserted in a town planning scheme.

The Securing of Proper Sanitary Conditions and Amenity

In regard to proper sanitary provisions and amenity, Local Authorities, in preparing town planning schemes, may include provisions in respect of the following:

1. The limitation of the number of dwellings per acre through the area included in the scheme;
2. The reservation of certain areas for residential purposes;
3. The defining of shopping centers and the limitation of the erection of warehouses and factories to certain areas;
4. The fixing of conditions governing the height and character of the buildings to be erected in various parts of the area included in the scheme;
5. The fixing of a definite proportion between the site actually covered by a building and the area of garden or other form of curtilage to the building;
6. The granting of power to the Local Authority to purchase land for open spaces at prices to be defined in the scheme itself (or in agreements added thereto) or to accept gifts of land from owners, such land to be dedicated to the use of the public;
7. The fixing of building-lines and the requiring those building houses to set back their cottages (at such distances as may be prescribed in the scheme) to secure the provision of proper air-space and sunlight for each home;
8. The use of private open spaces and the preservation of these and of objects of national interest or natural beauty;
9. The framing of regulations requiring owners of private gardens, allotments, or private open spaces, to keep them in proper order;
10. The prohibition of advertisements which may interfere with the amenity of the district;
11. The forbidding of the erection of houses on unsuitable sites—e.g., swampy land;
12. The fixing of minimum sizes of habitable rooms;
13. The variation of conditions of building construction.

By a clause specially added in the committee stage, the giving of compensation to owners in those cases where Local Authorities, with the approval of the Local Government Board, place limits in regard to the number of buildings per acre, the height and character of the buildings, is guarded against.

This power is of especial value and has been described as worth the whole of the rest of the powers of the Act taken together. In effect, the possession of this power enables Local Authorities to secure that, as new areas are developed, the provision of gardens and open spaces shall be such as to secure the health and amenity of the district without placing a financial burden on the community to secure this desirable end.

The Power of Local Authorities to Develop Estates and Make Roads Under Town Planning Schemes

In regard to convenience, Local Authorities may, under town planning schemes, frame wide and varied provisions to secure that, on the one hand, the growing traffic needs of their districts shall be adequately met, and that, on the other hand, where relaxations of conditions as to road-width can be made with safety, the cost of road-making shall thus be lessened.

The preparation of town planning schemes gives, in effect, to Local Authorities invaluable opportunities of studying the traffic needs of their districts and of substituting, for the present 36 feet and 40 feet standards of road-width, other standards comprising, at the one end of the scale, the arterial road of from 60 to 120 feet in width, and, at the other end of the scale, the short residential road with only 20 feet of constructed road, but with a distance of from 60 to 80 feet between the houses on opposite sides of the roads.

In other words, under a town planning scheme, a Local Authority may provide for the construction of not one, but several, types of road, including:

(*a*) Main arterial roads from 60 to 120 feet or more in width;
(*b*) Secondary streets from 40 to 50 feet in width;
(*c*) Short streets, not taking through traffic, with widths of 20, 24, and 30 feet.
(*d*) Quadrangles served by access roads of only 7 feet in width.

Local Authorities may themselves undertake the development of estates by purchasing land, making roads, and leasing the sites or building cottages themselves. This power is, however, subject to certain limitations. These limitations are dealt with in Part II.

From this short analysis it will be seen that, taken together, these powers may be regarded as giving to those Local Authorities who realize the need for exercising control over the processes of town and village growth, powers of a most valuable kind.

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Such, in brief, are the major provisions of this Act.

Before leaving the subject, it should be noted —and this is a point of utmost importance— that in the Act it is stated that the Local Government Board *may* prescribe a set of general provisions (local rules or by-laws) or separate sets of general provisions adopted for areas of a special character. Up to the present time the Local Government Board has not deemed it wise to issue a set or sets of general provisions, *an exceedingly wise policy*. Apparently this method of procedure leaves to the process of evolution the determination of the details which should be incorporated in a "scheme." The work which has thus far been accomplished by the several Local Authorities and that which will follow will greatly serve to crystallize, through trial and experimentation, the basis of the general provisions which the Local Government Board will put forth.

BRITISH PRE-WAR METHODS. III

So much has been written about Port Sunlight, Bourneville, and Letchworth that one hesitates to repeat. Yet it seems vital to an understanding of the situation in Great Britain to consider certain aspects of these two examples of housing and town planning as typical of other developments in presenting a complete picture of the British pre-war technique. It was the garden city movement which played a vital part in the evolution of housing and town planning legislation just considered, and it is this movement which is certain to play an even greater part in the social and economic development of England after the war.

Coöperative Enterprise

By way of explanation to the American reader, it should be made clear that there is a wide and vital distinction in England between what is known as the "garden city" and the "garden suburb." The one refers to a community wherein are found homes for all classes, and for industry, with agricultural land sufficient to maintain the inhabitants in nearly all the essentials, and the amenities; while the garden suburb, as the name implies, refers merely to a collection of homes, small shops, and community buildings. Letchworth is a garden city; Hampstead is a garden suburb.

Letchworth

The social and financial organization of these communities can be most clearly stated by quoting directly from a summary by Mr. Edward S. Culpin in his book on the "Garden City Movement up to Date." Of Letchworth he says:

*"The estate, of now 4,566 acres, is the property of First Garden City Ltd., a company with a dividend limited to 5 per cent cumulative, whose memoranda and articles embody the root principles of the movement. The town is situated thirty-four miles from London on the Great Northern Railway, just beyond the old market town of Hitchin. It is served also by the Midland Railway from Hitchin, and being bounded by the Great North Road traffic facilities are excellent.

. . . . . .

"First Garden City Ltd., being the owners of what was practically virgin land, have had themselves to provide the necessary equipment of the town, which, in the case of the garden suburbs, is derived from neighbouring towns. Thus the company own the gas, water, and electric light undertakings; they have made the roads; they provide and maintain the sewers and the sewage disposal works; and they have organized such facilities as an omnibus service, swimming bath, etc., to encourage the growth and amenities of the town.

"Besides the Bye-laws of the Hitchin Rural District Council, under whose jurisdiction Letchworth is, the company has its own building regulations and its surveyor exercises some supervision over designs and specifications to ensure proper conditions being observed. The maximum of houses allowed to the acre is twelve, but as the size of the house increases so does the area of the plot, so that all over the building area (which is 1,200 acres only, the remainder being agricultural and park land) there will probably be an average of not more than half that number. An ultimate population of 30,000 people is provided for on the town area, or 35,000 including the agricultural belt. Thus, over the whole of the seven square miles of Garden City, there will be an average of only nine people to the acre, compared with the two or three hundred still allowed by the Bye-laws of many towns.

"The agricultural belt of 3,000 acres marks a fundamental difference between Letchworth and every other experiment on garden city lines, and, indeed, distinguishes it from every other town in the world. Many places have belts or girdles of green, but none has a definite provision such as this; and as in the town the way is pointed for a new tradition of development, so it is hoped that the agricultural belt will help in the solution of some of the rural problems. A good deal of attention has been given to small holdings, especially in the direction of milk production, and recently an exhaustive inquiry has been made with a view to assisting in this development.

"An important side of the Letchworth experiment, and indeed the crucial test, is the development of its factory area. If Mr. Howard's theory had not been sound,

*Garden City Movement up to Date. By Edward S. Culpin. London, 1914. Garden Cities and Town Planning Association.

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manufacturers would not have gone to Letchworth and the place would never have developed. There are now some thirty industries established in the town, and several of these have been very considerably extended. The trades represented include engineering, printing, embroidery, bookbinding, photographic utensils, joinery works, pottery, weaving, commercial motor engineers, motor car makers. metal works, organ builders, seed and implement factories, scientific instrument makers, colour printers, corset makers, etc. There are five building companies working on the estate. An interesting feature is the coöperative house 'Homesgarth.'

"The town is complete with every facility for commerce, trade and social life. Its residential facilities are excellent, and as a place of residence alone it is being much sought after. The industrial population have here advantages which have been possessed by no other town in the country. Its housing is good, the gardens are ample, and there are many opportunities for recreation and social life. Church life and education are well provided for. There are several public halls, and the arrangements for water, lighting and sanitation are as near perfect as they can be. Its scope is infinitely greater and presents the solution of more serious problems than any suburb of a town can possibly do.

"Letchworth has been described as England's healthiest town. Both with regard to the general death-rate and infantile mortality the figures are far below any other place in the country."

Hampstead

And of Hampstead garden suburb he says:

*"The growth of the Estate has been phenomenal. Since the first sod was cut on May 2nd, 1907, 1,550 houses have been built and occupied, with an estimated population of 5,000 people.

"The value of the houses and public buildings on the Estate is estimated at £800,000, representing, with the land and roads, a capital value of over £1,000,000, while the ground rent secured amounts to no less than £11,330 out of a total estimated rental of £15,000. Dividends at the rate of 5 per cent per annum on the ordinary shares have been paid during the past four years.

"The end of the first portion of the Estate (240 acres) being in sight, the Directors have acquired another 112 acres of land from the Ecclesiastical Commissioners, while the Copartnership Tenants Limited, who have been responsible for the development of a large portion of the original area, have taken up 80 acres of the added portion and have also taken 300 acres direct from the same authorities, making a total of one square mile of land, the whole of which will be planned by the Hampstead Garden Suburb Trust Ltd.

One must include as a most important factor or element in the development of both the garden city and the garden suburb, the Public Utility Society where the central idea is the substitution for the personal ownership of the individual home without any responsibility for the condition of the surrounding estate, of the principle of ownership of shares in a company, these shares carrying the right of tenancy of the house and the acceptance of definite collective responsibility for estate management.

Finally, these results are made possible by the fact that loans may be obtained from the Government for a long period of years at a rate approximating that which the Government has to pay.

*Ibid.

THE WAR PROGRAM: LAND

The foregoing, in very broad outlines, is the background against which we must examine the methods of industrial housing conducted by the British Government during the war. As an essential part of this background, one might naturally include conditions surrounding the acquisition of land; but, inasmuch as land for industrial housing purposes was acquired during the war under the authority of the Defense of the Realm Act, it seems best to consider the land question under the heading of the "War Program."

Prior to the war, there were two ways through which land could be acquired by the State, namely, the Prerogative and the Defense Acts and the Military Lands Acts. These two Acts, however, are not often used because the machinery is cumbersome, and, in the case of the second, the methods of assessing compensation is extremely favorable to the owners of the land. These need not concern us for the moment, for it was under the Defense of the Realm Act and the regulations made thereunder that land has been almost exclusively taken during the war. Under this Act, His Majesty has power, by order in Council, to make regulations "for securing public safety and the defense of the realm." These regulations, when made, have the same effect as if they were a part of the statute, provided, of course, that they are within the powers conferred by the statute. A detailed statement of purposes for which land could be thus taken is set forth in the Defense of the Realm Consolidation Act of 1914. It is important to study the Acts themselves and the regulations at present in force. These are published quarterly in the "Defense of the Realm Manual of Emergency Legislation." Regulations 2 to 5 enable the Government, where necessary for the purpose of the defense of the realm, to take land or

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buildings for military or naval purposes, or for the purposes of agriculture and the provision of food. It is important to note that no compensation is mentioned in any of the Defense of the Realm Acts or the regulations.

Compensation to Owners

At the beginning of the war, under the above regulations, land was taken for the purposes of the war. Hotels were taken for the use of public departments; poor, law, and charitable institutions and local Government institutions were taken for hospitals and housing of workers. The question of compensation was left in the air or settled by agreement in which the Government agreed to pay the bare loss. To provide for the conditions where an agreement as to compensation could not be reached, and in cases not otherwise provided for by the law, the Defense of the Realm (Losses) Commission was appointed on Dec. 31, 1915. The reports of this Commission are important to consider in detail, for they set up the principles upon which compensation should be paid. In brief, the principle is that the person deprived of land merely gets compensation for the bare loss which he has suffered; if the land was not being used he gets nothing except for damage directly done.

While this may or may not be a satisfactory solution of the problem as regards temporary occupancy, it was felt about the middle of 1916 that something more should be done for landowners. Realizing that the war would probably last for some time to come, it was deemed wise to provide a new system of compensation. Consequently, on Dec 22, 1916, the Defense of the Realm Acquisition of Land Act was passed. This provided for a system of compensation considerably more generous than had been given by the Losses Commission, but considerably less generous than that provided by the Land Loss Act.

It should be clearly kept in mind that this Act does not deal with compensation for the occupation of land during the period of the war. This is still paid either by agreement or under the Defense of the Realm (Losses) Commission. The act deals mainly with:*

1. Temporary occupancy after the conclusion of the war.
2. Permanent occupation.
3. The power of the Crown to sell at a later date.
4. Principles of compensation.

In this the technique of the Land Clauses Act is retained but the principles of compensation are modified by the schedule. Article 6 of the schedule is of the greatest importance, for by virtue of this article the value of the land is its value at the commencement of the war. *This is a point of the utmost importance. The Government therefore avoids paying for an increment which it creates by its own effort.*

5. Provision of a tribunal to determine compensation. (The Act also deals with a number of other difficult questions.)

We may briefly summarize the situation as regards the occupation of land for war purposes as follows:

Through the powers set up in the Defense of the Realm Act, the state took possession of land without considering the question of compensation. Where the occupation is temporary, for the period of the war or a shorter time, compensation is payable, either by agreement or is assessed by the Defense of the Realm (Losses) Commission. For land occupied temporarily or permanently for a period after the war, compensation is determined by the Defense of the Realm (Acquisition of Land) Act. It is obvious that the method of settlement is complex because of the different systems of compensation for occupancy during the war and for occupancy thereafter, and that the first is not statutory, whereas the second is done under statutory powers. While it would be convenient to bring the whole scheme under legislative enactment, one cannot but realize, after examining the documents relating to the establishment of the basis of settlement, that the procedure of immediate action adopted by the Government in its Defense of the Realm program was the one absolutely certain way of meeting the situation.

The Bearing of These Evolutionary Developments on Our Own Immediate and Future Problem

Again, one may ask, what has all this British historic tradition, social tendencies, legislative enactments, methods of finance, to do with the program and method of British wartime housing and the problems which confront us in America?

*Briefed from a memorandum prepared for the Journal by Mr. J. C. Miles of the Ministry of Munitions, London.

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Why drag in all this seemingly extraneous matter?

It has this to do with the issues at stake: Without the background of historic tradition, social tendencies, laws, methods of finance, the co-partnership movement, the groups of well-equipped technical experts, such as architects, town planners, borough engineers, members of local councils having technical knowledge of the subject, the accumulated data and experience of the Local Government Board, and, above all, the growing public opinion in favor of placing greater national emphasis upon the subject of adequate physical environment for the worker—without all this, the marvelous achievement in the supply of munitions of war would not have been possible. It was this background of British experience in housing and town planning prior to the war which furnished the raw material out of which imagination framed the broad program of industrial preparation and which likewise provided the experience and technique through which this broad program in turn was brought to fruition.

As I write, upon my return from England, where I have so recently viewed her colossal industrial wartime achievements, and in so doing, grasped something of what must be the flow of munitions to the front, and where, also, I have seen what approximates the sum total of a nation's energies directed toward a single national purpose, the even greater magnitude of our particular task is driven home to me with an overpowering force.

We have not awakened; we have not yet come to anything like a full realization of the magnitude of this struggle. There is, as regards this vital problem of housing, the same lack of progress, the same lack of effective national program, the same lack in scope of conception which existed when I left two months ago. There is no federal machinery; there is, apparently, no legislative authority; there is an extremely limited field of technical experience to draw upon; in a word, we are, as regards the industrial housing problem, infinitely less prepared to meet the urgency of war's demand than were we in the field of military preparation at the outbreak of the war. It is easy to overemphasize in a crisis such as this, yet the shortage in houses is a very serious menace.

Our Failure to Realize the Scale of Our Task

As I understand the situation, the tentative suggestions now before the authorities propose that we embark upon a program of action which was abandoned as futile by the British Government during the first few months of the war. In a word, our tentative program expresses the composite British opinion of what should not be done. We propose, as I understand it from the fragmentary press reports which constitute the only information at hand, to provide the necessary housing facilities around munition plants through methods which it is hoped will stimulate local groups, industrial corporations or housing companies to immediate action. By merely rendering financial aid it is assumed that adequate industrial towns will immediately spring from the ground. This proposal is an advance over our pre-war methods, but it is a very feeble compromise with even the British pre-war program. It is precisely the method abandoned by the British Government as its central policy during the early stages of the war. Lastly, it will fail.

Before we embark upon such a policy, it behooves us to consider thoughtfully what British experience has to offer. When the war broke, and as soon as the urgency of housing facilities was made manifest to the British authorities, they quite naturally turned for assistance directly to the existing mediums, for during the days of peace, under the powers and authorities already set up, these various mediums had been more or less capable of meeting the needs of normal conditions. (In respect to their shortcomings, it may be stated that all that was lacking was a greater amount of stimulation on the part of federal authorities.)

In theory, this was seemingly a logical and a natural thing to do. It was natural, as it had been in the days of peace, to assume that the initiation of a housing or town planning scheme through the activity and the interest of a local group would promote a keener local interest in the enterprise, and, considering all factors of politics, social groupings, the sources of supply and of production, such a policy should end in achievement.

But there was one factor in the problem which, as events developed, utterly changed the pro-

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gram of action. We must recognize this factor, for it enters into our problem to an infinitely greater degree than it did into the British problem. This new factor was the *scale of the operation*. Let us keep this fact ever before us, for we shall see how it was that the British pre-war methods broke under the strain of war. It was not because those methods were unsound in principle or impracticable of application; it was simply and solely because they had not been conceived or adjusted to the *scale of war*. Parenthetically, the suggested changes in housing legislation and technique which we shall discuss under the heading "British Reconstruction" represent merely a new conception of scale in housing and town planning operations.

England's First Efforts to Provide Houses

What were the methods first used by the British Government? Owing to the rapid increase in the costs of material and labor, the uncertainty as to the future of munition plants, and the resulting precarious nature of housing investments adjacent to such plants, it was manifestly impossible to throw the burden of supplying housing facilities upon Local Authorities, co-partnership companies, or industrial corporations upon the old pre-war basis of financial arrangement as regards loans from state funds. Speculative building immediately ceased.

It was therefore proposed that the Government grant a subsidy or a substantial amount representing approximately the difference between the cost of the operation executed during the war and the cost had it been executed under pre-war conditions. With the constantly advancing scale of prices, there followed an endless series of bargainings between the Government and private enterprise or Local Authorities. An endless variety of financial arrangements were entered into, both as regards the subsidy and the final disposition of the property after the war. Even today the exact basis of arrangement or transfer of property has not been standardized.

In some cases the Government advanced the total cost of the operation, with the agreement that the entire cost become an obligation of the Local Authority, and that at the close of the war, or within a certain specified time thereafter, the Government would write off a part of the obligation and thereby reduce the same to an amount which would have represented the value had the scheme been executed prior to the war. The general policy in such cases has been to make such loans extend over a period of forty years.

The Necessity for Centralized Federal Action Based Upon a Conception of Scale and Magnitude

Complex and involved as are operations conducted upon this basis, something has been accomplished. To a very limited extent the method has been successful, *but it must be stated clearly that this method has provided but a small fraction of the housing accommodations during the war.*

Against such methods we must point out certain very serious defects. When a local group embarks upon such an undertaking it fails to grasp the urgency of the demands, and the operation very frequently drags on during a seemingly interminable length of time, as was the case prior to the war. There is certain to follow among local groups the scramble for labor and materials, competition and the attending advance in prices, and a certain disintegration of the general Federal purpose.

If we value British experience, we do not have to argue the case for or against the use of local initiative, for that experience, as evidenced by the complete change of policy, proves conclusively that local initiative is relatively futile.

I cannot speak with a background of universal knowledge as regards British opinion concerning the most advantageous policy to be adopted, but among those representing an exceedingly wide field of interest with whom I talked, *the opinion was practically unanimous in favor of state initiative, state construction, and state operation*. There appeared to be no doubt upon this major issue. To those in the Ministry of Munitions, whose task it is to supply an inexhaustible flow of war materials, adequate housing, with the amenities and the general welfare of those who labor, it is a matter which must be approached upon precisely the same basis of integrated purpose as is the problem of providing food or transportation for the vast army at the front. Such a policy is imperative. Therefore, why propose other than a scheme of closely integrated purpose and action surrounded and backed by absolute authority?

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It is this new concept of relative values, this new recognition of *scale*, which led England for the moment to cast aside the old pre-war technique of local initiative and to substitute the new technique of war. This question, which was a local problem deemed of sufficient magnitude before the war to have required state aid, has now become a national problem of the very first magnitude.

I would not convey the idea that the organizations in the British Government which direct this effort are perfect. They are far from that. There are needless departments and a corresponding waste of effort which was recognized by those in charge and who expressed repeatedly the need of a greater degree of centralization and coördinate action. But the British Government has in the Ministry of Munitions an organization which, in the space of a single year, has produced a series of munition plants and industrial towns with all of the amenities and the essentials of well-being. These towns not only insure the continued supply of munitions so long as the war shall last, but they are, in addition, a present and a future asset—one of the very few large capital values which have been created by the war.

Details of the English Operations

So much for the general executive and financial aspect of wartime housing. Let us consider for a moment the physical side. One thing strikes the observer forcibly in practically all of the larger operations conducted by the Government. These communities are complete. They are laid out along the latest ideas of housing and town planning. They contain, beyond the cottages (permanent and temporary) for industrial workers, dining-halls, recreation buildings, clubs, institutes, schools, playgrounds, churches, hospitals, stores, markets, and they are provided with excellent roads with curbs, sidewalks, fences, hedges, and, in many cases, trees have already been planted. The permanent elements—and these are not confined to cottages, but include many of the amenities noted above—in arrangement, design, materials, and the amount of space surrounding each cottage unit, compare most favorably with any of the similar operations developed prior to the war; in fact, in some of them it seems to me that I observed a definite step in advance. As I passed through a number of these, it was exceedingly difficult for me to grasp the idea that the first sod was turned very little over two years ago. There were no ragged edges. The characteristic British thoroughness was everywhere expressed.

During the early stages of the war, England first embarked upon a policy of erecting temporary hotels and cottages, but when the magnitude of the struggle was fully grasped, and it was realized that the shortage of materials used in temporary structures carried their cost to very nearly that of permanent structures, the general policy was changed, and from that time on the central idea has been to build of permanent materials wherever it was humanly possible so to do.

Of the permanent cottages, nothing in particular need be stated beyond this: They are quite as good in every respect as the best examples constructed prior to the war. They are somewhat simpler in design and, in consequence, I think, rather more appropriate.

Hostels

In the same way, of the temporary hostels nothing need be stated except as regards the tendencies which developed as a result of their use and operation. The initial program contemplated very large groups of hostel buildings, each containing many cubicles. These large groups were related to the central units, such as dining-rooms and recreation buildings. This scheme was found rather difficult to manage, and the more recent tendency is to construct hostels, particularly those housing women workers, in much smaller units, each complete in itself; that is, in each hostel there is to be found a control, a kitchen, a dining-room (sometimes used as a general living-room), sometimes with a living-room in addition, and a group of two to three hundred single dormitory rooms. With this arrangement, a homelike quality is insured and a much closer and intimate supervision maintained. One other thing should be noted in this connection. Hostels of this sort provide that each shift shall occupy a single independent wing. There are no rooms working two or three shifts. The advantage of this must be perfectly obvious.

Notes on the operation, management, and a criticism of the various plans will be noted in connection with the drawings published elsewhere.

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The Amenities and Their Vital Value in Production

One other point should be emphasized: We must not limit our concept of housing operations to the question of cottage erection and the provision merely of sidewalks and roads. In the original plans for these various industrial towns, England included a great variety of buildings and features which come under the general head of "amenities." Owing to the urgency of war's demands, the scarcity of labor and materials, in some cases the immediate erection of these was omitted from the construction program. It is significant that very shortly after the plants were put into operation every possible source of energy was then directed toward the immediate erection of these missing elements. These were added for a very definite reason: It was hoped that by their addition to the housing elements the very serious daily labor "turnover" would be reduced. Such proved to be the case, and, in the later schemes, it is interesting to observe that the construction and provision of the amenities goes forward at the same rate of speed as does the erection of the cottages and the plant.

It may not be evident from the drawings and from the few photographs available at this date how adequately do these new Government constructed industrial towns express an integrated purpose. They give evidence to a broad imaginative concept which is in *scale with the needs of the day*. They prove the value of focusing expert knowledge upon a single problem, for it is, upon final analysis, not a hundred different problems; it is rather a single problem with perhaps a score of variations. Why should we waste effort in the organization of a hundred enterprises which in turn must each have its many subdivisions of organization? Our problem is to conserve our energies.

In the light of my recent experience, viewing for the moment the British and the American problem at a little distance, I cannot but feel that our proposals for carrying forward the work of housing the rapidly expanding army of munitions workers is little more than a feeble gesture. If we are to succeed to a degree in any way comparable with Britain's success in the fabrication of munitions or in scale with our own ideals, we *must* at a single step span the entire field of the British background of experience, both pre-war and war, and set up immediately as a part of the federal organization for carrying on the war a central body with sufficient power to adequately meet the maximum demands of industry, regardless of what those demands may be. *We must be made to realize the proper sense of scale*, and the bearing of England's achievement on her future social and industrial structures.

RECONSTRUCTION

We assume that in England, where apparently every effort is directed toward the accomplishment of the vivid national purpose—War, that there must be a breathless waiting for the outcome of the struggle and a deep anxiety regarding the days when her vast armies shall have returned from the field of action. Paradoxical as it may seem, such is not the case; there is no waiting. Everywhere there is a searching of the heart, a probing after fundamental values, and an active endeavor to formulate the outlines of a policy of reconstruction which will, in some small measure, compensate for the losses sustained, and which will render the national life after the struggle not unworthy of the deeds of heroism at the front.

Three years of struggle with a single object as the goal of national endeavor have wrought tremendous changes, and the countless strands of individual aims have been gathered up and woven into one vast fabric of national purpose.

But we all know that this war must end, and the problem, therefore, is what shall then be the national purpose which will serve to hold the fabric together?

How can that purpose be expressed in terms intimately related to the many complex forces contributing to the national life? By what technique can these forces be coördinated and directed without the sacrifice of individual initiative? Such are a few of the questions uppermost in the mind of thoughtful England today. Similar in import is the industrial "unrest." Through the travail of war, there has been born a hope conceived in the dark days of the Industrial Revolution of a century ago.

If viewed in the light of pre-war convention and dogma, the proposals for reconstruction seem revolutionary; but they are not so viewed. Thought which was revolutionary in its nature

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has now become merely radical. And there are no limits or boundaries. Speculation, it is true, centers around the problems related to labor, industry, and education, but the proposals search out and affect every phase of national life. The value of directed integrated effort has, in a measure, been realized, and the realization has opened up vistas looking toward a nearer approach to a general scheme of national syndication of group purposes.

Such, in brief, was the background of tendency and thought against which I viewed the industrial technique through which England supplies her vast armies at the front. My purpose was to survey rapidly the industrial housing situation and to study the methods whereby England had essayed to solve this gigantic problem which had so suddenly confronted her. I visited nearly a score of the larger munitions plants scattered throughout England, Scotland, and Wales, and the magnitude of the problem was more than vividly revealed. I went primarily to study the physical aspects, but it was impossible to confine myself to such a limited phase of the operation; for the far-reaching effects and the significance of the broad policies adopted as war measures had created an entirely new set of social and economic values as regards labor and housing, and had thrust the questions boldly into the realm of future national politics.

The Obligations of the State

Prior to the war, by several Acts of Parliament, the State had assumed the obligation of adequately housing her working population. This obligation was not to be fulfilled by the exercise of police power, as is our policy in the States (where the State has actually assumed no obligation), but by acts of initiative and the rendering of direct financial assistance. Obviously, the effectiveness of these Acts was limited by the social and economic values used to determine the standard as regards adequacy. Notwithstanding the relatively low values used, these Acts have proved effective. The State had already, prior to the war, initiated many enterprises, and the financial aid—the long-term loans at low rates of interest given subject to State control—had very greatly stimulated house-building on broad town planning lines.

While direct action by the State and the financial aid, rendered to properly constituted bodies was a long step in advance, these did not solve the problem. The old relation between wages and the cost of living had not been altered; in fact, the purchasing power of a day's work was falling. The mere lowering of the rate of interest and the removal of many of the hampering conditions surrounding house-building was not enough. Up to the outbreak of the war, the shortage was accumulating. Conditions in some quarters—in the great industrial centers—had become acute.

Such was the situation in the summer of 1914, when the tremendous and instant expansion of industries created a housing problem which had to be met without a moment's delay. For perfectly obvious economic reasons, private enterprise failed to respond; there was but one possible resource—State action.

And the State acted, and acted immediately, not with the breadth of vision that it should, but the power was created, and housing enterprises, both of a temporary and a permanent nature, were started. Towns, and even cities, were projected and laid out over night. The unusual financial aspects of the problem and the shortage of labor and materials were accepted. The central idea was to provide adequate and sufficient housing—permanent in so far as possible—arranged on broad town planning lines, anticipating future growth, and to provide this in the shortest possible space of time.

Then it was that a new and a permanent value as regards the importance of housing was established. The State recognized, as never before, the vital importance of industry; and both Industry and the State recognized—not in theory, but by sweeping acts of acknowledgment—that upon the adequate housing of the worker as regards the home, its environment, and the amenities, may depend the very existence of the Nation.

Not a few, at the inception of this program, stood firmly against the provision of the amenities and such elements as make for a reasonable degree of comfort and social intercourse, and in consequence many schemes progressed without them. It was interesting to me to see, in the process of building, wherever I went, additional recreation and clubrooms, and provision for a larger social life. I touched upon this aspect of the problem in my many interviews with the heads of these great establishments, and not

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once did I hear other criticisms of the schemes than that the original conception had been far too limited in scope and too small in detail, and that it was a fundamental error not to provide the maximum possible facilities for well-being, social intercourse, and recreation. I did not have to ask their opinion; the present emphasis upon the construction of these elements and the scope of future plans was evidence and proof.

The New Value of Wages

The deeper significance of this nation-wide development is not limited by the fact that the State is housing its munition workers at a rental below what would in normal times be deemed a minimum return upon an investment of this sort. It is rather that a new method has been established for measuring the value of things created by Capital and Labor. Heretofore, in determining the value of a product we have included the cost of adequate plant and equipment, the actual cost of labor, overhead and profit. But labor value is likewise complex and includes, in lieu of plant and equipment, a house and its surroundings—for these are necessary. The value of labor has been fixed by its market value in competition, or by a union scale. The housing of the human machine has been left to "the devil take the hindmost" policy.

In the new war method of valuation, the cost of plant includes not merely the buildings wherein machines are operated and workers perform their tasks, but it also includes the buildings wherein the workers live and meet in social intercourse and for purposes of recreation.

It will be argued that this is a national crisis, that upon the fabrication of munitions depends the well-being, the very existence of the State; that the return to the ways of peace will immediately remove the urgency of the need, and that we shall then return to the pre-war basis of valuation. I have viewed this question from many angles, and I doubt if such will be the case. Labor has measured its strength in this crisis and will not be easily led back to the conditions prior to the war.

There may be a halting progress, but the steps taken will not be retraced. England will go forward, and the new standards and values created through the war will carry over into the days of peace.

The State has measured the relative importance of the factors looking toward its well-being. It has created broad powers and authorities and direct methods of conserving what it deems to be the most important. The technique is bold and crude: it is the technique of war, but this will be adjusted to the days to come, for its aim is peace, and a better peace than those who labor have ever known.

It is this aspect of the industrial housing problem which now becomes the central theme of the discussion.

Our Perilous Necessity

Unless we act now, the problem which England has faced and met today we shall later face under sterner conditions. It may be postponed, shortsightedly; it cannot be turned aside. In broad outlines, the two problems—England's of today and ours of the future—are identical. The differences relate to legislative enactments and technical methods; the social and economic factors are the same.

We may fancy for the time being that the war is nearly over, but there is little ground for such a hope. We must prepare as England prepared; *but we can do more, for we can, through the knowledge gleaned by her experience, phrase our program of immediate preparation in terms of great reconstructive value.*

In England, during the twelve years immediately preceding the war, there was an average yearly increase of over seventy thousand dwellings having an annual rental under £20. This yearly increase ceased immediately after war was declared. When we consider that this normal increase represents an accumulating shortage for the entire war period, whatever it may be—and that, in addition, an abnormally large number of dwellings have become unfit for habitation during the same period, and that there was, prior to the war a very acute condition of congestion in many quarters—it is perfectly obvious that a most difficult problem confronts the days of reconstruction.

A very similar condition of housing shortage has existed for some time in the States. We have practically ignored the problem; we have treated it locally, but not effectively. The conditions and the causes remain, and the problem will become more acute just so long as we take the narrow point of view as regards the application of the remedy. To a very large majority

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of us it has been an indication of prosperity, a field for speculative profits, and we have utterly ignored the smoldering fires of industrial unrest which such a condition provokes.

An article appeared not so long ago in one of our popular American magazines. The title was "Standing Room Only," and it vividly portrayed the conditions existing in a certain prosperous (?) industrial city. Our callousness to the vital nature of this question was illustrated by the fact that not a few of the influential inhabitants of that city did not know whether to take it as a taunt or as a compliment that their town should be so frightfully congested.

It is but flying in the face of serious trouble to thoughtlessly ignore this vital social and economic question, or to attempt to solve it by makeshift methods. Neither of these conditions obtains in England today; she is earnestly endeavoring to solve the problem.

The Part Played by the House in the New British Labor Program

Naturally, it is difficult to bring into proper focus the broad mass of rather nebulous thought and opinion; it is equally difficult to reduce this to the semblance of a constructive program. But it is possible without considering technique to suggest the direction of enlightened opinion which is gradually evolving a program which gives promise of solving the problem. The few quotations following, taken from the already accumulated mass of well-reasoned literature, should serve to indicate the general direction of thought, something of the methods proposed, and the range of interests represented by the group struggling with this question.

Under the caption "A New Labour Programme" in the London *Times* (November 3) there is set forth by the Executive Committee of the British Workers' League the draft recommendations of a Program of National and Industrial Reconstruction as a recommendation to the General Council of the League which was to be convened immediately to consider its adoption. It reads like a program based on one of H. G. Wells's forecasts—a chapter from his Anticipations, as it were—and it is worthy of the most serious study. It contains the following suggestions relative to the program of providing adequate homes as a part of the plan of reconstruction.

Housing:

(*a*) The Government to take immediate steps to ascertain the extent of the deficiency in housing accommodation, both rural and urban, and where such deficiency is not being met, to render adequate financial assistance, either in the form of loans on easy terms or of grants covering a proportion of the amount required, in order to provide the necessary accommodation.

(*b*) The Central Authority to act under compulsory powers where the Local Authority fails to take the requisite measures.

In the Report of Proceedings of the Trades Unions Parliamentary Congress, just issued, there occurs this resolution, followed by a very sane discussion of the question:

That this Congress, in view of the great shortage of working-class houses, and the consequent menace to the health of the people, calls upon the Government to deal at once with this important question:

(1) By making it compulsory for local authorities to prepare and carry out adequate housing schemes to meet the need of their area.

(2) Embracing such Government grants, free of interest, as will enable local authorities to erect suitable houses for the people.

Further, in view of the extreme urgency of the question, this Congress instructs the Parliamentary Committee to press for action to be taken by the Government without waiting for the cessation of hostilities.

In a pamphlet but recently issued by the Joint Committee on Labour Problems after the War, which Committee was composed of three representatives each from the Parliamentary Committee of the Trades Union Congress, the Executive Committee of the Labour Party, the Management Committee of the General Federation of Trade Unions and the War Emergency Workers' National Committee, I quote from the full statement merely the specific recommendations:

(*a*) The Government must promptly inform all the local authorities that the requisite 1,000,000 new dwellings have got to be built, and that each place will have its assigned quota;

(*b*) The local authority should everywhere be required to decide, within one month, whether or not it will undertake to build the quota thus fixed, upon the terms offered by the Government;

(*c*) The land must be at once secured (or a legal option obtained) under the summary process of the Defence of the Realm Act or some equally speedy procedure;

(*d*) The plans must equally be prepared and approved in advance; and the local authorities should be required to have them ready within three months of the decision to provide so many dwellings;

(*e*) The Government must for four years secure "pri-

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ority" for these 1,000,000 working-class dwellings as regards all building materials;

(*f*) The 1,000,000 new dwellings should be everywhere begun the day after peace is declared; but should be proceeded with, month by month, strictly in correspondence with the supply of building trades workmen, so as to leave practically none of them at any time unemployed;

(*g*) Where the local authority obstinately refuses to build the quota assigned to it, the Local Government Board should itself undertake the building, placing the work under the supervision of a local committee appointed by itself, on which the Trades Council, the Local Trade Union branches, and the local women's industrial organizations should be represented.

In April of 1916 a National Congress was convened to consider Home Problems after the war. This Congress was composed of representatives of the Local Authorities (city councils, town councils, urban and district councils), throughout Great Britain, representatives of trades unions, architectural societies, coöperative societies, teachers' associations, property owners' associations, and individuals generally interested in national issues. The complete report is a valuable contribution toward the solution of the after-the-war problem. The following paragraphs are from the Report of Deputations to His Majesty's Government received by the President of the Local Government Board, September 20, 1916. This report represents a most thoughtful study:

That this Congress urgently directs the attention of the Government to the critical need for the provision of additional housing for the working classes, and in respect of the national interest and responsibility in the matter urges upon the Government to set aside no less than £20,000,000 to make such advances to Local Authorities and other Agencies as will enable them to provide houses at reasonable rentals having regard to all necessary and equitable circumstances and conditions.

That in the opinion of this Congress legislation is necessary to simplify and cheapen the transfer of land so as to encourage the building of houses for the working classes.

The Future General Housing Policy

(1) This Congress urges all parties in the State to take combined action to secure that every family shall be housed under proper conditions, and in order to secure this end, which is of vital and national importance, urges that legislation should be introduced:

(*a*) To set up machinery in all industries to require employers to pay wages sufficient to ensure decent housing accommodation for the workers in these industries; and

(*b*) To secure that, where such raising of wages can only be achieved by stages, the Local Authority shall recognize and fulfil the duty of providing decent housing accommodation for those unable meanwhile to pay an economic rent, and that the whole country shall bear the difference in the cost between the rent of the decent dwelling and the rent which the tenants can afford to pay.

(2) That in view of the results produced by the systems of providing houses for the working classes hitherto prevailing, this Congress requests the Government to take such steps on either local or national lines as will facilitate and stimulate the activities of Local Authorities and other agencies in the erection of houses that are necessary.

(3) That, in the opinion of this Congress, housing schemes promoted by public authorities, save in the case of schemes intended for housing those unable meanwhile to pay an economic rent, should be economically self-supporting.

Shall We Help or Hinder the Birth of the New Hope and Spirit?

These are but a few of the many proposals and suggestions which express quite accurately the general trend of British opinion as it views the tremendous and inevitable problem of reconstruction. While these suggestions are in the main general in their statements or demands, there is also to be found a group of definite, well-organized proposals aimed at affecting the desired changes. These are in the form of recommended amendments to the existing Housing and Town Planning Acts. They cover the entire field of and affect the work of the Local Government Board, Local Authorities, copartnership companies, industrial corporations, and private or speculative enterprises. Such details must of a necessity be omitted; but in the broad legislative policy which we must formulate and enact these expressions of British evolution in Housing and Town Planning policy must be reckoned with. They will affect the social and economic future of the whole world.

The technical suggestions are all directed toward increasing the scale of the present legislative enactments. Greater financial inducements in the way of larger advances and time of loan, will undoubtedly be offered to Local Authorities and to Public Utility Societies, which embark upon adequate housing and town planning schemes. The imperial obligation to house the workers in an adequate environment will be fulfilled through the extension of powers and authorities, and I should not be surprised to learn at some not distant date that the adequate planning of urban and rural areas in England had been made obligatory by an act of Parliament. The same public sentiment, the same stream of tendencies which produced these acts,

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is gaining in strength. It would be highly irrational for one to assume that the process of evolution will suddenly cease, and that a nation with an awakening sense of social justice to all will suddenly and without cause stagnate and cease to advance.

The central theme of the picture of England today is not war, nor soldiers, sturdy and full of life, nor soldiers wounded in battle, nor guns, nor munitions of war, nor the crosses over the graves of those who have died, nor grief and sorrow, nor a world filled with unrest and discontent—no; for the central theme is a new hope. And this new hope is not that hope of the aged or the last hope at which men grasp—it is instead the hope of youth, the hope of robust life, the hope that goes with a knowledge of strength and power, that inspires and in turn calls for action.

Nor is it confined to the victories of war; it permeates the lives of all. Those who are timid and afraid call it Labor Unrest, the Ferment of Revolutions, and they seek to make more painful the birth of this new spirit. They shall fail, and in proportion as they oppose shall chaos prevail, for this new spirit is the spirit of amelioration and justice, of law and order and the Rational Life.

THE AMERICAN BACKGROUND

WHILE our history discloses no exact parallel to the economic conditions surrounding production and the physical conditions surrounding the home life of the town laborer in England during the days of the Industrial Revolution, we have witnessed, during the latter part of the nineteenth century, conditions and tendencies in industry which bear a striking resemblance to those observed in England a century ago. But there is disclosed no corresponding parallel to the movement expressed by the terms "collective ownership and administration," "collective regulation," "collective taxation," and "collective provision" which mark the development of the British coöperative societies among the workers and in British social politics (resulting in certain specific legislative enactments and a corresponding rapid expansion of the function of government in the fields of production and consumption); these have been rapidly developing in England during the last three-quarters of a century.

We have pursued a middle course. Conditions of labor within and without the factory have not been quite as bad, and, as a result, our program and measures looking toward amelioration have been but little more than a series of feeble compromises.

We have conceived government to be an institution, the purpose of which was to dispense a limited kind of justice and to control our vicious acts through the exercise of police power. Property has been, upon the whole, the sacred thing, and the safeguarding of the rights of individuals to have and to hold has been the central purpose expressed in our legislative enactments. That this should be the case is natural. We have been pioneering, and life has appeared to consist in accomplishment phrased in terms of limited individual purpose. Our expansion has been marked by frightful waste; conservation has appeared as a function of government only after individuals felt the pinch of want.

In the office of the National Housing and Town Planning Association in London is a library which contains the greater part of the housing and town planning literature published in America. One day I took occasion to study this library in the hope of thus arriving at a comparative estimate of its scope and a clearer idea of our aim and purpose. I was at a sufficient distance to observe our general tendencies and possibly to note our rate of progress.

As a result of this re-survey, I was furnished with a most interesting experience; as I read the tables of contents, the forewords and occasional paragraphs and summaries, there developed a better understanding. It was made evident to me that our past should be considered merely as a period of incubation. Our appeal for better houses and a broad policy of town planning had been phrased to arrest the attention of the greatest number; we had chosen the financial aspect (the economic is altogether too broadly expressive). The more or less obvious value of better sanitary conditions had furnished the basis of our appeal.

Our purpose, expressed by our emphasis upon

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the financial benefits to be derived from better conditions of sanitation, has limited our programs for planning towns and houses in a most extraordinary way and has brought about certain tentative solutions of these problems which will do quite as much to thwart progress as anything we could possibly devise.

In our effort to provide better conditions, we have limited our federal, state, and municipal legislative enactments to restrictive measures. We have assumed that by enacting legislation against a bad condition we would thereby create the opposite. Restrictive legislation and the exercise of police power express the methods through which we have assumed that a better physical and social environment could be evolved. This does not follow. What we need are positive legislative enactments looking toward the creation of the conditions which we desire. I would not be interpreted as utterly condemning our efforts of the past. I realize that progress is a matter of evolution, but I point out that our concept of government as expressed in the existing legislative enactments*, is too limited to be of any real value.

In "City Planning Progress 1917," published by the Journal of the American Institute of Architects, one finds a very complete summary of our progress in city planning. A hasty survey of this document leaves one most encouraged, but an analytical study produces the opposite point of view. One observes every where a worthy purpose as expressed by the formulated plans; but when one considers the technique of carrying these subjects into execution, one must admit that the machinery now set up is totally inadequate. A commission without authority is an excellent vehicle for education and for the distribution of propaganda. In exceptional cases, such a commission may be highly qualified as regards technical experience; but, there being no element in the municipal, state or federal government whose function it is to carry on work of this sort, progress is hesitating. Ofttimes the work of such a commission is merely pigeonholed.

As has been pointed out, within our cities effort toward the provision of better homes has been limited in the main to restrictive laws. Judging by these, it may be said that aside from the placing of a limit upon the degree of congestion and insanitary conditions which will be tolerated within a municipality, the government is not interested in the question of decent homes for workmen.

In America there are, in general, but three methods whereby homes for workers are provided: Speculative building, philanthropic enterprise and initiation by industrial corporations.

Speculative building has failed in America, as it failed in Europe, because of the most elemental of economic reasons: Speculative capital flows into such enterprises as offer the prospect of the largest reasonably safe return. So long as a low standard as regards adequacy and a high standard as regards congestion is tolerated, and so long as the cost of building is low, capital sufficient to maintain these lower standards finds its way into speculative home-building enterprises. As a result of better education, constantly increasing demands for a better environment, there naturally follows a gradual diminution of return, which in turn reduces the flow of capital used for this purpose. Since the demand for more adequate accommodations and for more homes inevitably occurs at a time of prosperity and industrial expansion, it should be obvious that it is absolutely futile to rely even in a small degree upon speculative building. It is utterly hopeless to assume that through this method the standard of living conditions may be raised. Uncontrolled speculation in this field is so closely akin to exploitation that to propose it as a method of providing homes at a minimum of rent is to propose that the workingman be exploited. Consider, for a moment, the pathetic and tragic stupidity which compels our communities to give land-owners the values which the community creates, and which, as though to twist the knife in the wound to our national life, then taxes the man who improves his land!

Philanthropic or semi-philanthropic enterprise, depending upon the generosity of individuals and their willingness to accept a low rate of interest, while admirable if considered from a limited point of view, need not be seriously considered as a solution of the problem. While such enterprises may do excellent experimental work and in so doing set a good example

*For a concise statement of the "Constitutional Limits of City Planning Powers," see pamphlet by this title, by Edw. M. Bassett, City of New York Board of Estimate and Apportionment Committee on the City Plan 1917.

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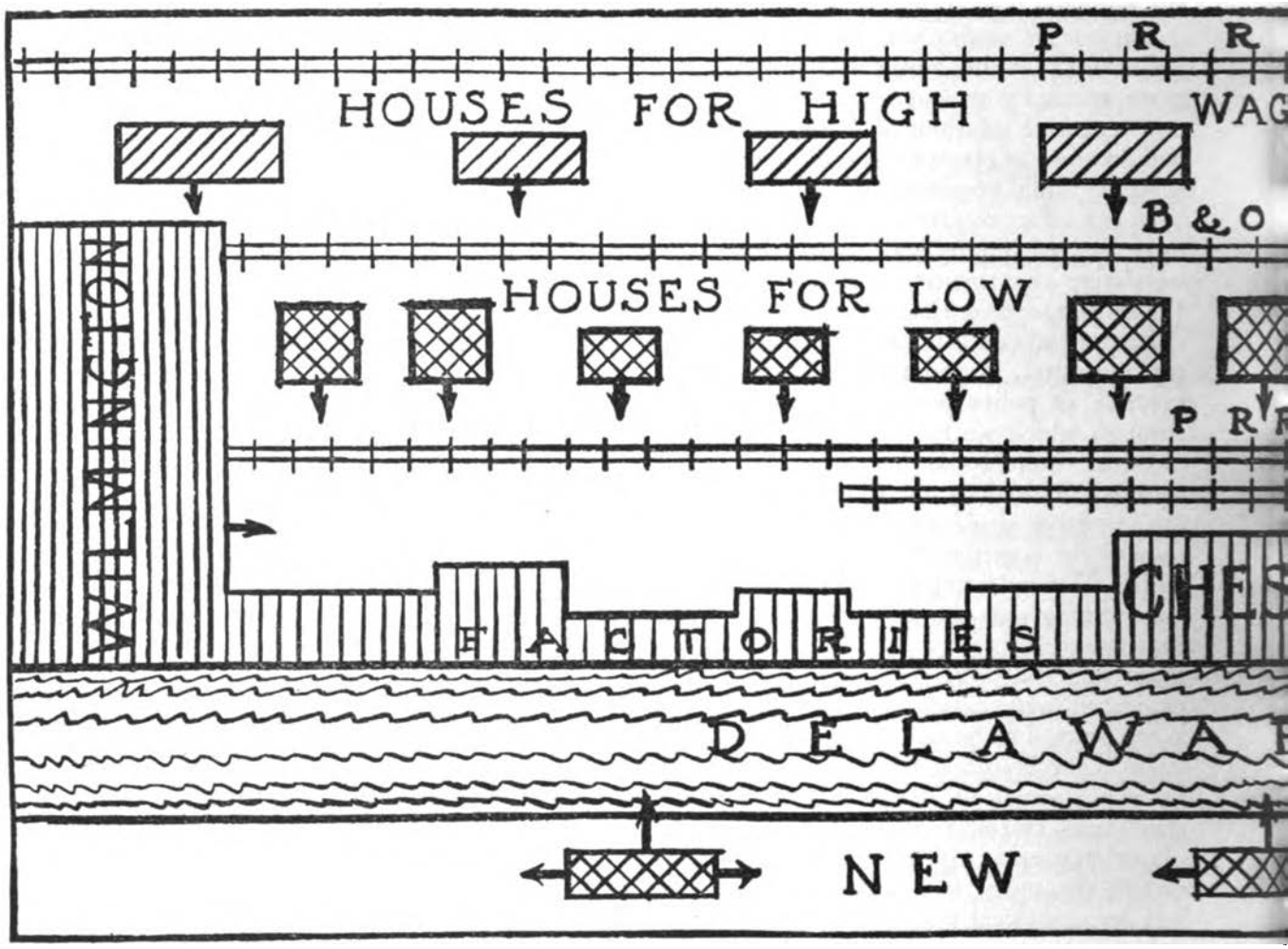

THIS DIAGRAM SETS FORTH THE SCALE OF THE FUTURE ECONOMIC

Applicable in Principle to Many Industrial
(Prepared by the Committee on Workmen's Homes of the

The strip of water-front on the west bank of the Delaware River, between Philadelphia and Wilmington, Delaware, is selected for an example, as it unites in itself all the factors necessary for an successful solution of the problem. However, the principle modified as to detail applies equally well to any other manufacturing center.

In the chosen example the strip in its entire length of approximately 30 miles has ideal communication, both with ocean steamers and with three large railroad systems, but the lack of an adequate supply of workers—due again to the shortage of decent homes—nullifies in a large measure these advantages.

In order to reap the full benefits of this field, the building of homes should be planned so that each village or group should be so placed that its inhabitants could equally well seek employment in one of several factories, and, conversely, the factories should not be hampered in their operation and expansion by having to depend on workers housed only in immediate proximity to their own plant.

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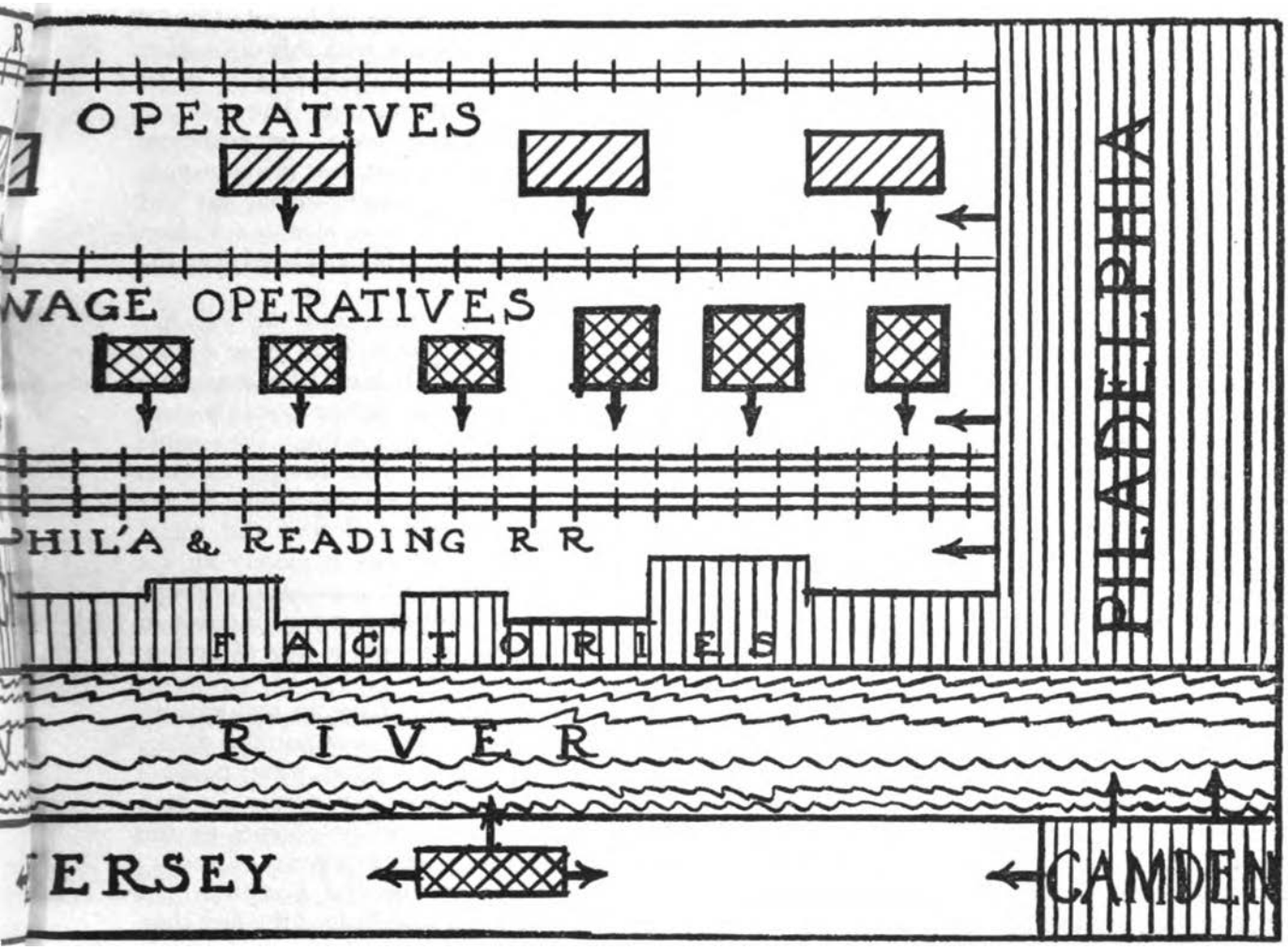

RELATION BETWEEN FACTORIES, HOMES, AND LINES OF COMMUNICATION

Towns and Villages in the United States
Philadelphia Chapter of the American Institute of Architects)

Thus, the effect of any temporary shut-down of any individual plant would be distributed over and affect to the minimum degree the prosperity of the entire district.

Each group would possess its own churches, schools, stores, recreation and amusement facilities. Ample and easy communication would be provided by main arterial highways and by trolley or motor omnibus service. An example of a good unit development is shown in the plan of Glengarnock (see page 629).

While the success of such a plan demands that the ownership in factories and in houses should be treated as two separate and distinct things, it is equally necessary, as to stability and continued prosperity, that the underlying lands should be operated for the benefit of the community and not for the benefit of individuals. Otherwise, the inevitable end is congestion, slums, and the appalling human and economic waste which has already impeded our war production.

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and perform a valuable service, yet the total number of homes thus created is too small and will ever be too small to be considered as a possible solution of this problem. It has been argued that the higher standard set by philanthropic enterprise tends to raise the standard of speculative building. To a very limited extent this may be true; but it may be argued that philanthropic enterprise directs the flow of speculative capital to other more remunerative fields and in so doing actually diminishes the supply of homes. In the proportion that enterprises of this sort are apparently successful, do we postpone the formulation of a broad home-building policy.

If one were to select such a home-building policy as typical of present American tendency, he would probably choose that employed by the larger industrial corporations. This method has been fostered by social reformers and it appears to the industrial corporation to be the only solution of the problem when they are confronted with the condition of either limiting their output or building homes for their employes. As in the case of philanthropic enterprise, this method has a material value and it may raise the standard, though the latter is a debatable question, one in which I would take the negative. In any event, all depends upon the attitude of the corporation embarking upon such an enterprise.

This policy should be accepted merely as a temporary expedient, a past experiment, and it should be deprecated as being in nowise a solution of the problem. At best, it can deal with but a small sector of the problem taken as a whole. It can be applied only where the initiating corporation is sufficiently strong to use a portion of its capital and its earnings for the purpose of home-building for its employes. It makes no provision for a much larger proportion of workers who are employed by corporations having insufficient capital or who are unwilling to embark upon such a policy. In view of the economic conditions surrounding employment, such a policy must inevitably give the larger corporations an advantage over the smaller. This, however, may be far from permanent, and depends entirely upon other factors in the relation between employer and workmen.

The question of individual ownership of a home by a worker through voluntary purchase from such a corporation should be ruled out of consideration in connection with this discussion. Under such conditions, the purchase is never voluntary nor is the laborer free. The policy is not based upon sound social or economic principles; and the mere fact that it may sometimes be employed successfully should not lead us to the conclusion that it is not a vicious practice when the problem is considered from the national point of view.

It is eminently desirable, and the war has thrown a greater emphasis than ever before upon this point, that all those who constitute a nation shall live in the highest possible state of physical and social well-being. To assume that speculative builders, philanthropic societies or industrial corporations are responsible for the maintenance of the physical and the social well-being of those who work is merely an act of throwing the responsibility to certain groups who appear to us to have a special interest in this problem. This is simply a way of saying: "Let George do it."

Industrial corporations have, in many cases, accepted this responsibility because in so doing, and by no other existing method, was it possible to continue their policy of expansion. To such it was not a question of building homes for the workers of America; it was a question of output and dividends. By our general acceptance of this method we have acknowledged the fact that homes cannot be provided without some stimulating force. It is something to have acknowledged this, to have recognized that some financial and initiating aid must be called upon if our industrial population is to be provided with adequate homes; but it is no solution of the problem to point our finger at prosperous industrial corporations and say: "You're it."

We may emphasize, and we should emphasize in individual, industrial and national terms the social, moral and economic value of creating around industry the most desirable conditions of work, rest and recreation, but we should also at the same time define in simple terms the line or boundary which defines the responsibilities of the corporation and the responsibilities of the state. One might present long arguments in favor of this clear definition of responsibility, but the fundamental reason is simple in the extreme: Industrial enterprise is organized, so long as it is private enterprise, for the single

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purpose of production and profit. This holds for industries whether they be large or small. The home and the entire environment in which men live is organized with a single purpose in view, namely, that of providing men with the maximum results of labor. That industry might be organized with this same purpose in view is a perfectly rational suggestion and it may be that at some future day the organization of the "Key industries" will assume this form. Under the present unorganized economic condition of society it is futile to attempt to solve this national problem by asking private enterprises in production to organize the collective provision of homes and an adequate environment for workers.

The Immediate Problem in the United States

By inference, the broad outlines of the policy which we should adopt and put into immediate execution has already been suggested in the outline of the British policy under the heading "British War Housing."

The following is a composite of opinion, British and American: As already noted, we can profit materially by the adoption of certain British methods and we can, at the same time, anticipate many of the problems of reconstruction by incorporating in our method of immediate procedure such policies as will embrace the problem of the future as well.

Workmen's home-building operations which are now under construction should be completed under the terms and conditions by which they were initiated, provided sufficient progress is made; otherwise, the government should take them over and proceed with the operation through the organization suggested below. Such operations should not in any way affect our general program of procedure.

By all odds, the most important consideration in home-building during war or during peace is the land problem. We should secure land for industrial housing purposes by precisely the same methods as were used by the British government. This includes the safeguarding of adjacent areas by a provision which will enable the government at a later date, during the war, to secure property for the expansion of an operation at pre-war costs. Incorporated and as an essential feature of our scheme, should be a provision whereby the unearned increment in the land thus taken by the government should be preserved so that the income from it will be used for the sole benefit of the community. The conservation of the unearned increment in land for the benefit of the community is in itself the prime factor in the economic solution of the housing problem.

The government should organize a separate department or a non-profit government corporation for providing the communities adjacent to munition plants wherever it develops that additional accommodations are required. This organization should acquire land under powers as suggested above, plan new villages, install roads, sewer, water, and light, erect houses and other buildings of amenity required by these communities, and it should operate the properties until such time as they may be transferred to others. This organization should coöperate with the various departments of the government which operate or control plants providing munitions of war. Control of this organization by the latter departments should be limited to a determination as to the extent and the general nature of the building operation. It is important that the management of the civil community should be in charge of a community manager, working under the direction of the Central Administration which would in turn frame a general policy of management in coöperation with the department operating the plant.

The entire property, land and buildings, should be retained and operated by the government during the war and for a certain period thereafter. Future values and conditions can only be determined accurately at a future date. Therefore, when conditions and values have been adjusted, local non-profit land companies with limited dividends should be formed to operate the properties—that is, rent houses, operate the utilities or rent land to private builders or companies—and use the surplus income from rentals to pay interest and amortization of the government's loan. The important features of this scheme, which is similar to the British copartnership operations in many respects, are that no land will be sold; title will remain in the original company and be handled

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as a community investment; rentals will be readjusted from time to time like tax valuations; and, since there can be no profit as a result of an increase of land values due to the development of a community, the increase in rentals would provide for the interest, the amortization of the government's loan, and an income to be enjoyed by the entire community which would approximate twice the revenue which this community would obtain under ordinary conditions and through the ordinary methods of taxation. This method conserves the unearned increment of land values created by the government's house-building operations. The new communities gradually purchase the underlying lands and the original houses at cost, thus reimbursing the government.

It may be argued that these new communities may collapse after the war, in which case the government loan will, of course, be lost, but by extending the period of government ownership and control beyond the war and by the organization of local land companies in each community to anticipate that danger, other industries may be secured. The chances that such an investment would be a loss are indeed remote. It is highly probable that a well-planned community, organized upon this basis, with provision of adequate homes and communal buildings, would draw industries to it without effort. This suggestion is not one of theory; it would merely be putting into effect, with but slight modifications, the practices in general use in the garden cities and the garden suburbs of England. The advantage of the scheme lies in the fact that we do not have to determine the complex details of ownership and future management at this date; and the success of this method depends solely upon the degree of thoroughness with which these communities are carried out. If they are well planned, well constructed and well organized, there is not the slightest doubt regarding the future value of the investment.

We know some of the changes which have taken place in Europe where one recognizes already a definite direction in the developing policies of reconstruction. What new forces will modify the direction of these movements no one can foretell, but of one thing we are certain: Europe will emerge from conflict as a world of totally new values, a world expressive of a broader interpretation of democracy. There will be a new relationship established between the two social divisions which remain, but these will not be separated by the same old barriers of prejudice and hypocrisy, and men and institutions will be appraised more nearly upon the basis of their worth. There will be less power in the hands of a few and there will be fewer pawns. There will be a greater appreciation of the value of an integrated national purpose. Many of the factors absolutely essential to large-scale production, but now utterly ignored, will each receive its proper share of attention*. Programs of national reconstruction and evolution will revolve about broader concepts of education, industry and commerce and the integration of the three.

For it would be strange indeed, after this experience in what approximates a national syndication of production and collective provision which now holds sway, if men should return and thoughtlessly take their former places in life under the same wasteful and uncertain conditions which prevailed before the war. Those now in the workmen's ranks will not return to those conditions, nor will those who direct the activities of production be willing to return to the old pre-war period of individualistic cut-throat competition and small-scale production. There will be a reorganization of business and of government as a result of the lessons learned in war. This reorganization will acknowledge that unity of purpose must exist between production and consumption, work and recreation, and that the simplest and most direct method of achieving this unity is through the extension of the functions of the government. There will also be observed a distinct effort toward the integration of individual and national purpose, and this integration will obtain in the proportion that we are able to bring the entire scope of our problems within our grasp of vision. We have been studying our problems at too close a range, in other words on too small a scale. In so doing we have been able to grasp but a tiny sector at one time. We must bring into our field of vision the whole problem; for it is only

*Note.—It would be of value if every American business man could read the "Elements of Reconstruction" (H. G. Wells), a series of articles contributed in July and August to the London *Times*, with an introduction by Milner, Nesbit & Co., Ltd., London.

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by so doing that we shall be able to rearrange and readjust the disorganized elements. Our ideas and capacities must be organized and marshalled to march in order like troops going to battle, for upon the unity of purpose expressed in action does the outcome depend.

(To be continued in the Journal of the American Institute of Architects, January, 1918)

THE ACCOMPANYING DRAWINGS

The Journal of the American Institute of Architects for September presented the general drawings of Well Hall, together with photographs of the cottages. In October was presented the general plan, together with many details of the scheme at Eastriggs. A general statement accompanied each of these presentations, and I make the following comment as a result of my visit.

From the standpoint of material accomplishment, Well Hall is significant, and this community will stand for years to come as a permanent asset, for the buildings are all of the most durable materials. My impression that the plan lacked center and direction was confirmed by my visit. One appreciated the amount of space surrounding each cottage but felt the lack of a well-arranged central element around which there might have logically been placed the community buildings such as belong to a scheme of this magnitude. The layout, however, is such that this defect in plan can be remedied by an extension of the scheme. One hesitates to deprecate any part of an accomplishment such as this, but it may be well to state that the impression made by Gretna and Queensferry was much more satisfying as representing a more direct approach to the problem. Particularly is this true when one considers that these were all wartime operations. Concerning Eastriggs, I merely say that the left portion of the plan, including the public hall and the institute, was most interesting, and one may well study the character of the cottages indicated upon the pages which follow this plan. Here was a solution of a problem which it seemed to me approximated very nearly the ideal as regards the architectural character of an industrial community. The architecture was simple in the extreme, but it was refined. It required but very little imagination to realize what this community would be a few years hence when the planting shall have been completed and the individual gardens surrounding each cottage developed.

I obtained a very similar impression from the cottages at Gretna and in Coventry, where the architecture was likewise simple and refined.

Plans of Queensferry, Gretna, Glengarnock, and Coventry are here published, together with certain community features, detailed comments of which are accompanying the drawings. Gretna is composed of both permanent and temporary structures, all of the communal buildings being of a permanent character. Queensferry is entirely of a permanent character, likewise Glengarnock. Coventry is entirely temporary. It should be noted in this connection that the emphasis early in the war was transferred from the erection of temporary accommodations to those of a permanent nature, and these temporary schemes are illustrated primarily to indicate the arrangement which experience in operation has shown to be the most advantageous.

A group of cottages is included without special comment. In connection with these it should be noted that in the more recent developments cottages are generally two full stories in height rather than a story and a half, this development resulting from the excess cost of dormers, etc. As regards the arrangement of the plans, the determining factor as to whether a cottage should be deep and narrow, or shallow with its greatest length facing the street, is a question which is determined primarily by the orientation of the site rather than the area of the plot. When this is considered in arranging the scheme, it is possible to utilize in total the same area of land for a cottage, regardless of its frontage upon the street. The position of the living-room, whether at the front or rear, is generally the result of a consideration of orientation. This subject has been given great emphasis and more and more has it become a dominating factor in the planning of these areas.

Where cottages are placed in rows containing more than two units, it is essential to provide accesses to the rear. Note therefore should

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be made of passages provided in some of the schemes for this purpose.

In considering the plans of both schemes and cottages it should be borne in mind that in the modern English community there exists a central control, either in the nature of a Local Authority, a co-partnership company, or the Government itself. Through this central control supervision is had over the small plots of ground such as occur within quadrangles or groups of cottages deeply recessed from the street. This subject is considered in that part of this statement which deals with the American problem.

SYNOPSIS OF THE PROGRAM FOR THE UNITED STATES

First, create a central body with

(*a*) Powers to acquire land under authority equal to that created by the Defense of the Realm Act. The final disposition of property need not now be treated.

(*b*) Powers to survey needs for housing facilities and to determine, in coöperation with a central priority board, the relative importance of industrial operations.

(*c*) Powers to design and construct communities where the needs of such have been made evident by the survey.

(*d*) Powers to operate and manage these communities during the war, and for a few years thereafter, along lines of policy similar to that expressed by what is known as the Co-partnership Tenants or Public Utility Societies in England.

(*e*) Powers to maintain a high standard of physical well-being in munition plants (adopting the standards set by our most progressive industrial corporations) and to organize community activities within the communities thus created.

The second step:

Create a commission to study the final disposition of these properties. Such a commission should consider such questions as:

(*a*) The organization of local non-profit corporations to manage and develop the communities created during the war.

(*b*) The saving of the appreciation of land values for the benefit of the community as a whole.

(*c*) The establishment of that part of the cost which should be written off as belonging to the cost of war.

(*d*) The basis upon which such communities could be transferred to municipalities, or non-profit corporations.

By such a method it would be possible to advance immediately upon new schemes, and in the event of a lack of progress upon schemes now under way, such schemes could be taken over by the Government and handled through the central body.

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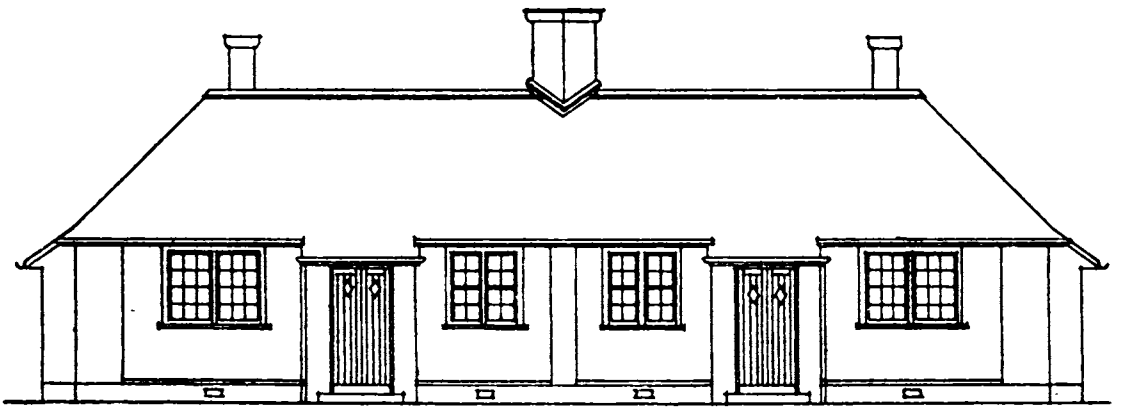
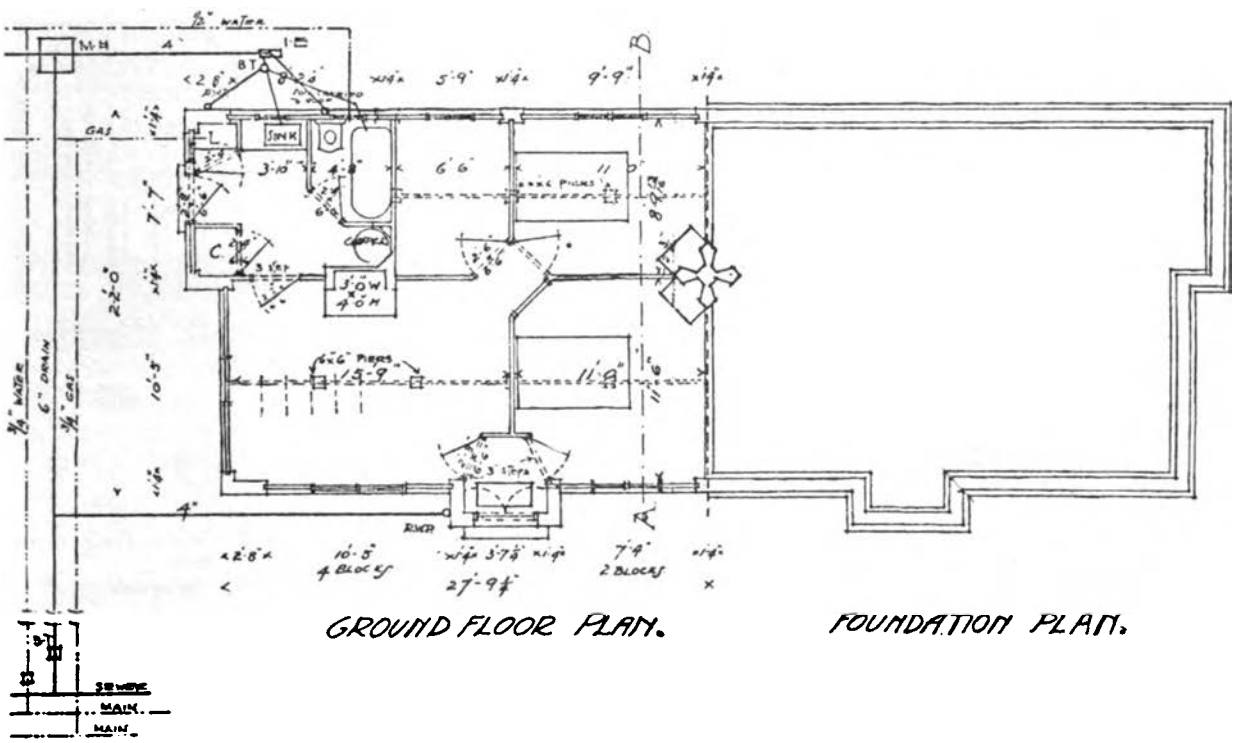


FRONT ELEVATION.



HOUSE AT MIDDLE WARD—LANARK

The one-story house was very generally used in Scotland, and the effect obtained in the small communities where this type prevailed was quite charming. In many of these, by the very ingenious use of concrete blocks and concrete slabs, a minimum of material was used. (Note the thickness of walls on the plan.)

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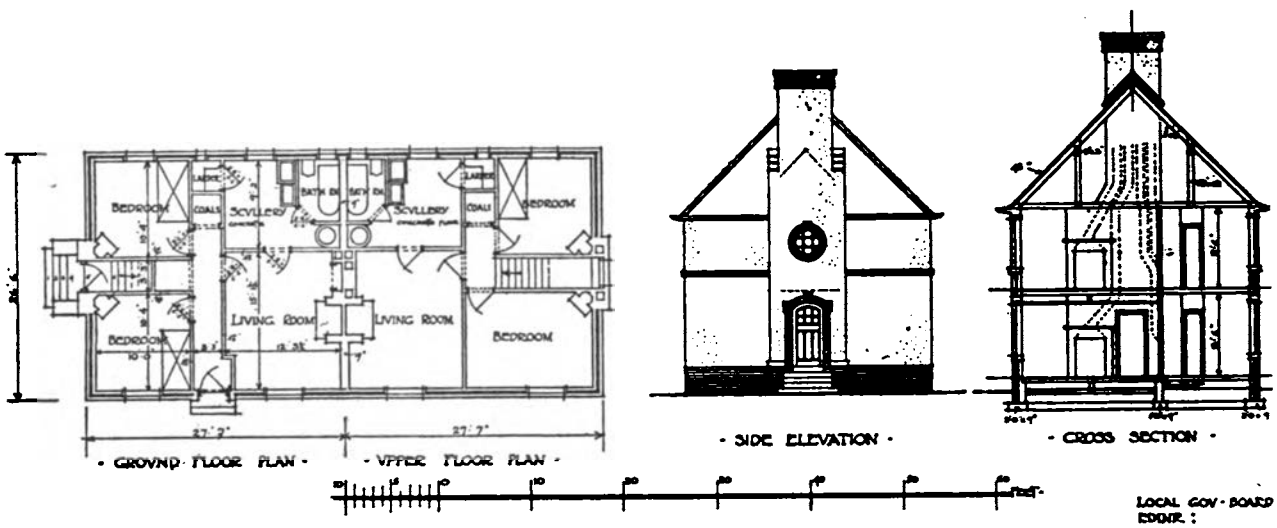
- FRONT ELEVATION -

- BACK ELEVATION -

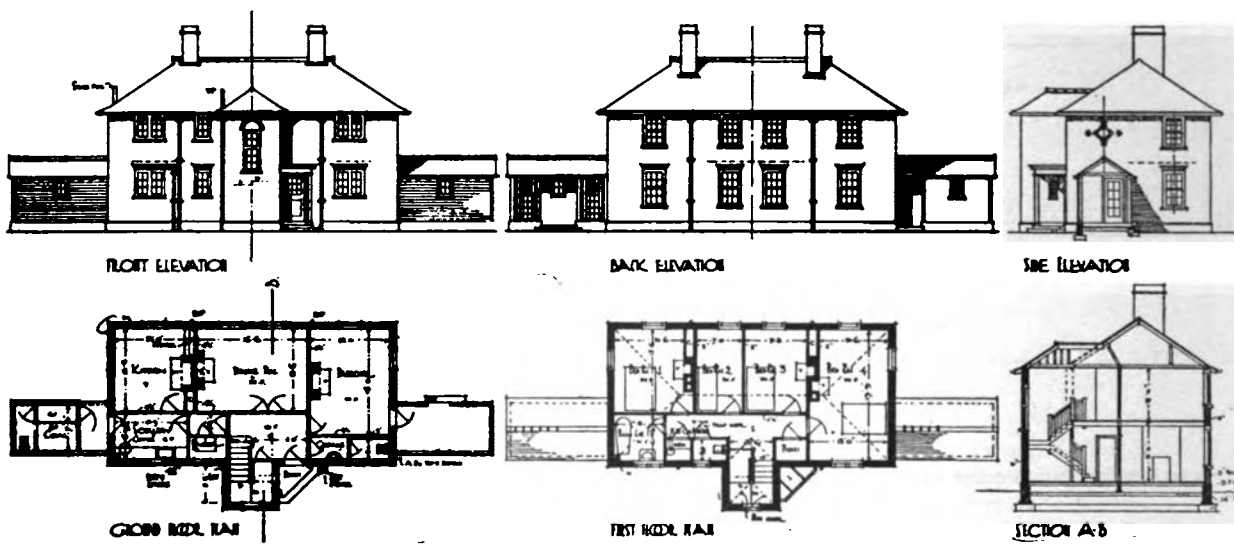


- GROUND FLOOR PLAN - - UPPER FLOOR PLAN -

- SIDE ELEVATION -

- CROSS SECTION -

LOCAL GOV - BOARD
EDDIR. :



FRONT ELEVATION

BACK ELEVATION

SIDE ELEVATION

GROUND FLOOR PLAN

FIRST FLOOR PLAN

SECTION A-B

COTTAGES

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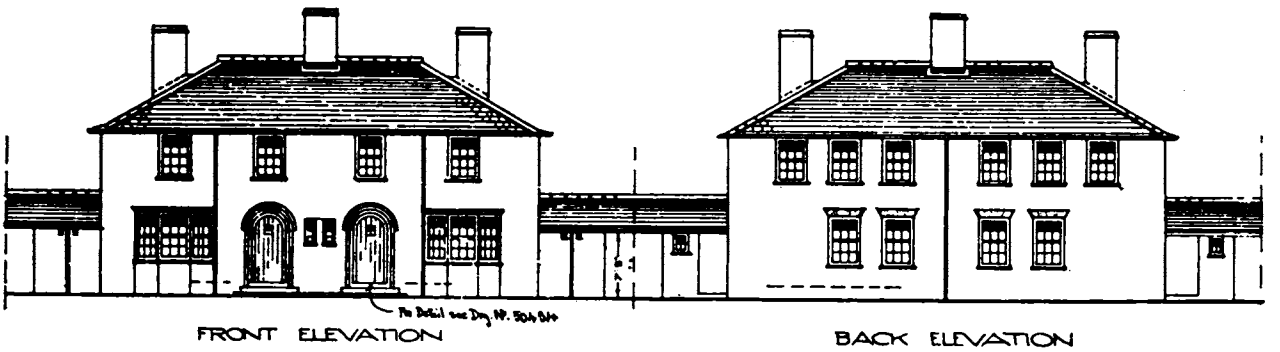
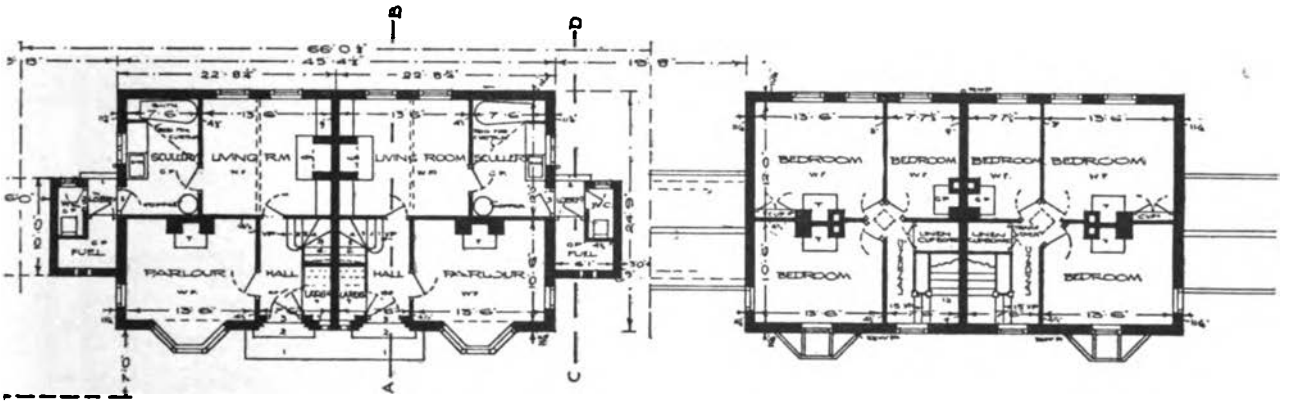


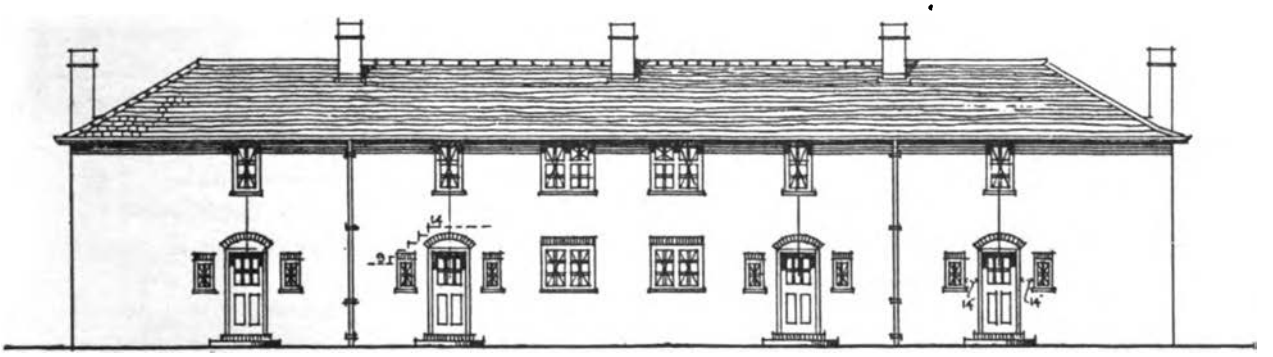
FRONT ELEVATION

BACK ELEVATION

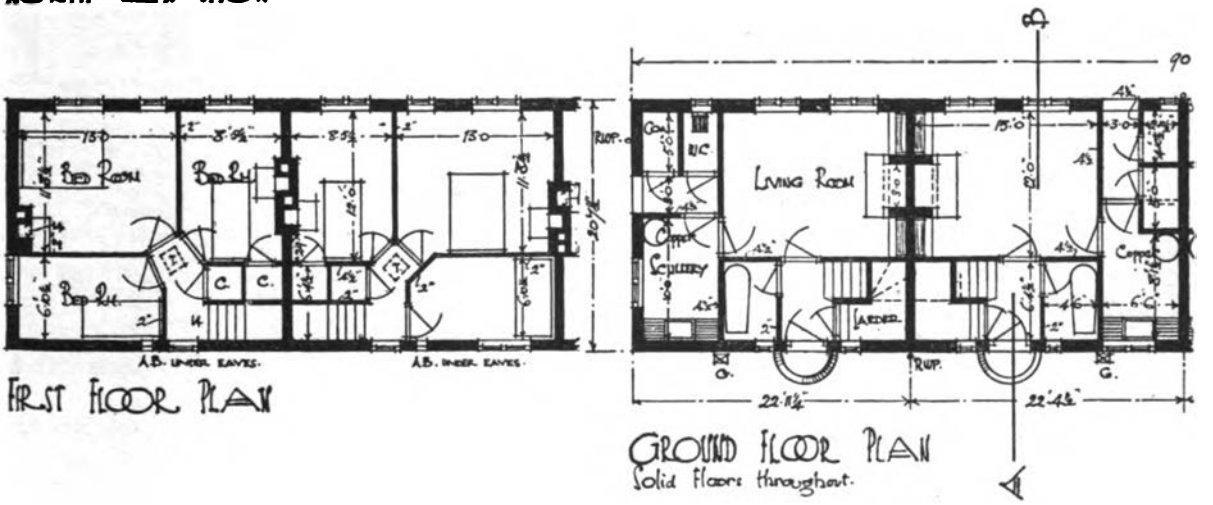


GROUND FLOOR PLAN

FIRST FLOOR PLAN



NORTH ELEVATION



FIRST FLOOR PLAN

GROUND FLOOR PLAN

Solid Floors throughout.

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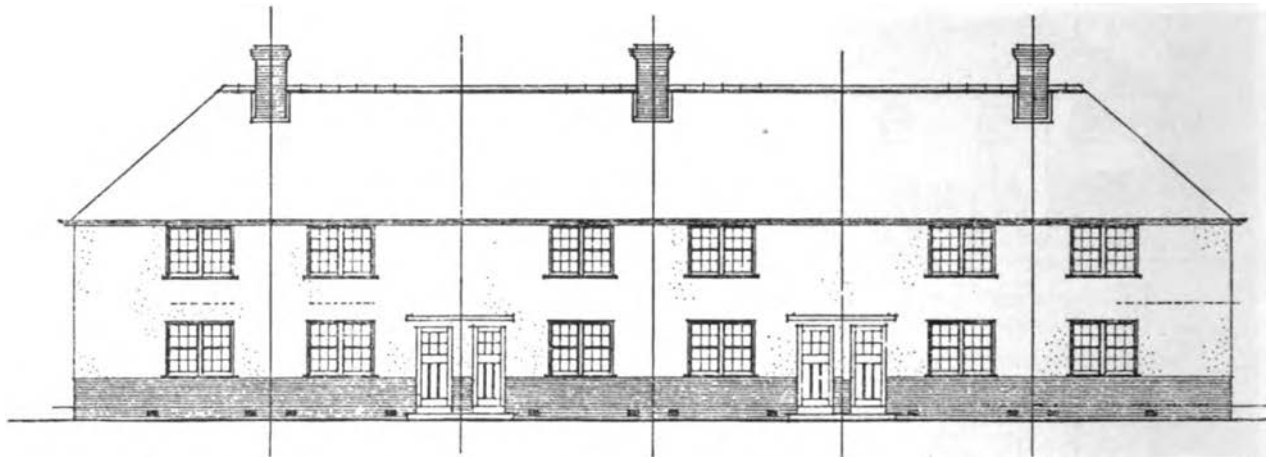
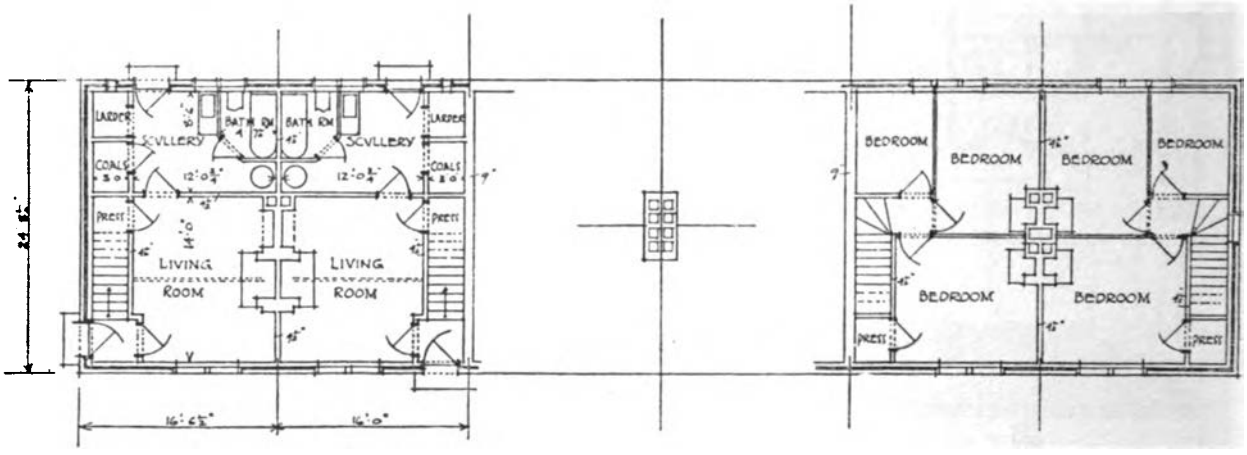
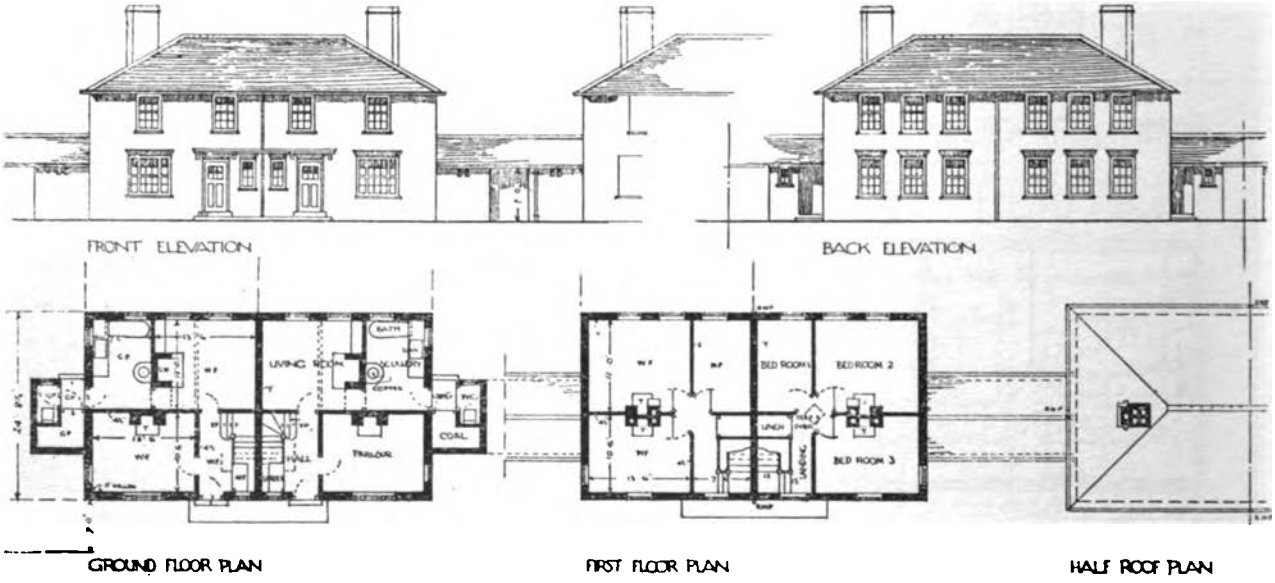


· FRONT ELEVATION ·



· GROVND FLOOR PLAN ·

· VPPER FLOOR PLAN ·



GROUND FLOOR PLAN

FIRST FLOOR PLAN

HALF ROOF PLAN

COTTAGES

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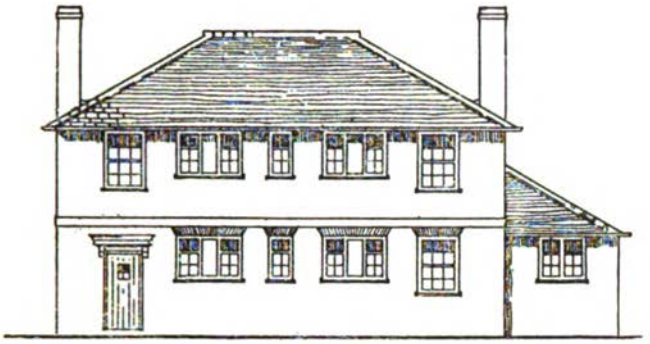

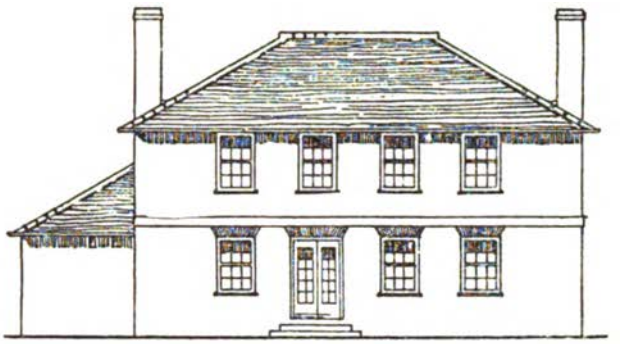

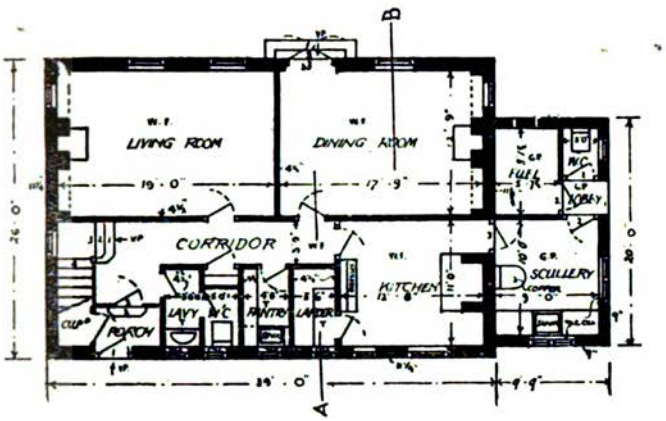

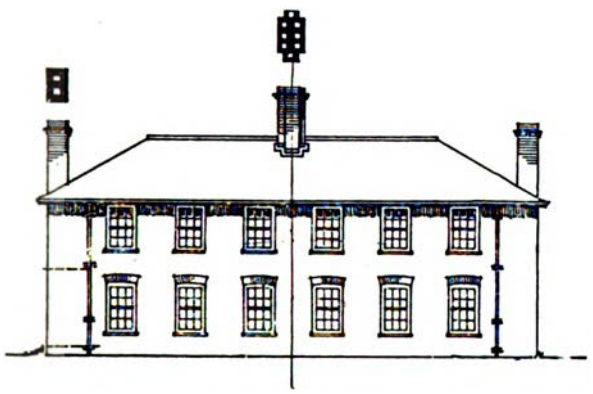

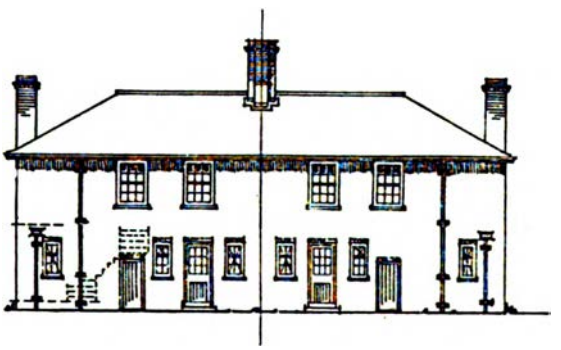

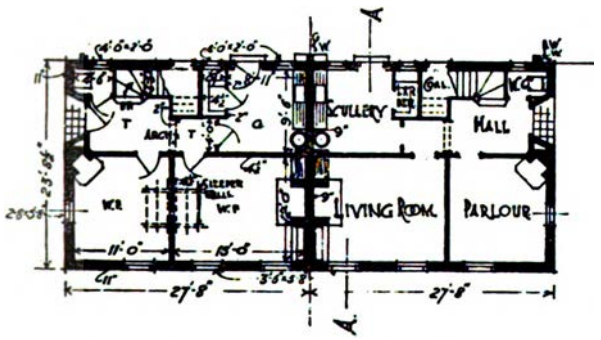

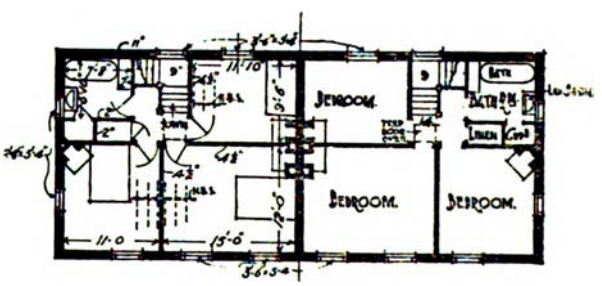

COTTAGES

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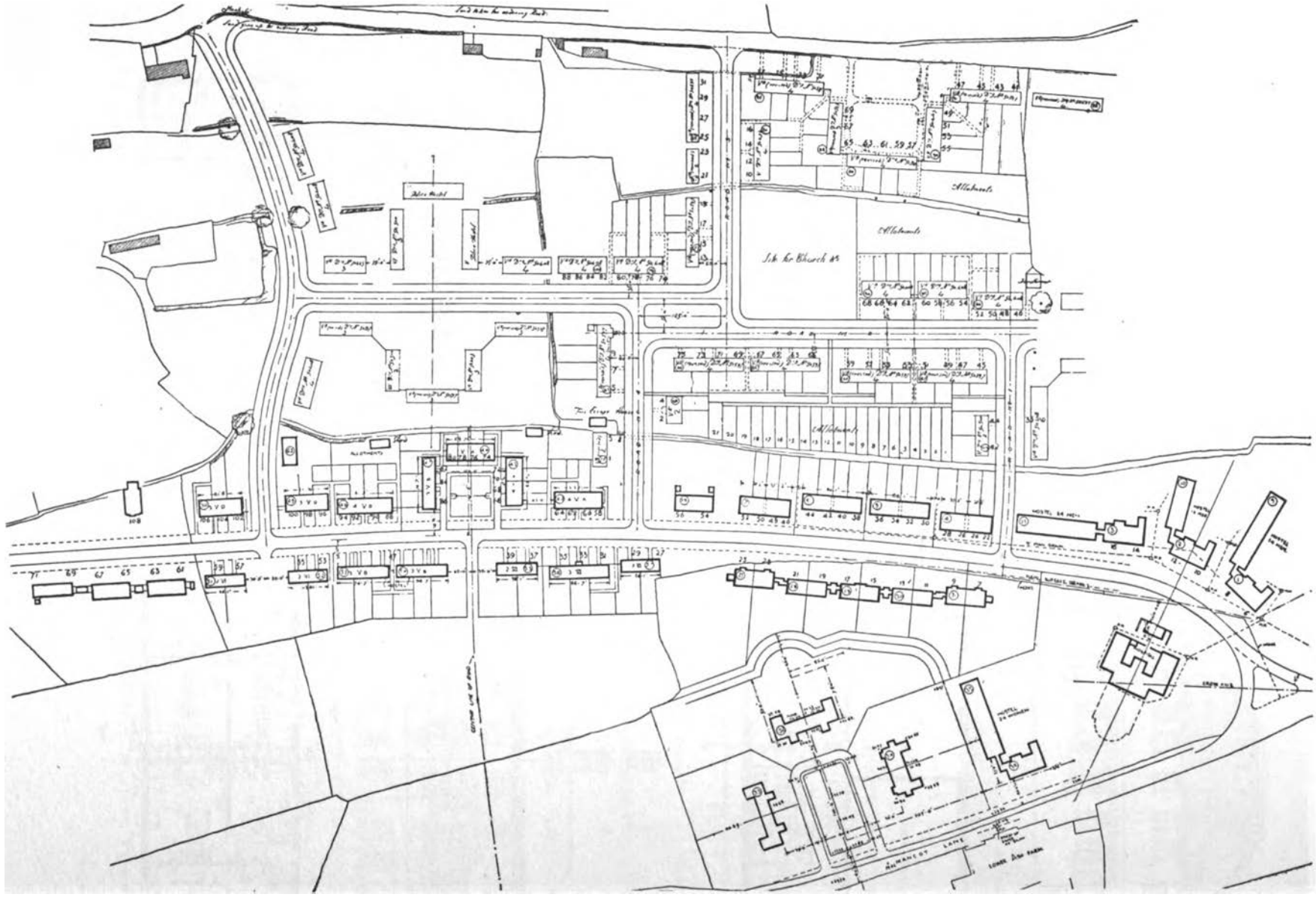

QUEENSFERRY.—GENERAL PLAN

In many respects this plan was the most satisfying. It is direct and simple, the setbacks in the groups of cottages along the main roads were effective, and there was an appropriate degree of dignity maintained in the general expression. Particularly interesting in effect were the quadrangles. This plan shows in the center a section given over to allotments. This is a characteristic feature of modern English town planning. These allotment spaces are leased for a small sum by a tenant occupying an adjacent cottage in the event that he desires more land for cultivation. This system works; and it has material advantages over a scheme where the allotment area is placed at a considerable distance from a cottage.

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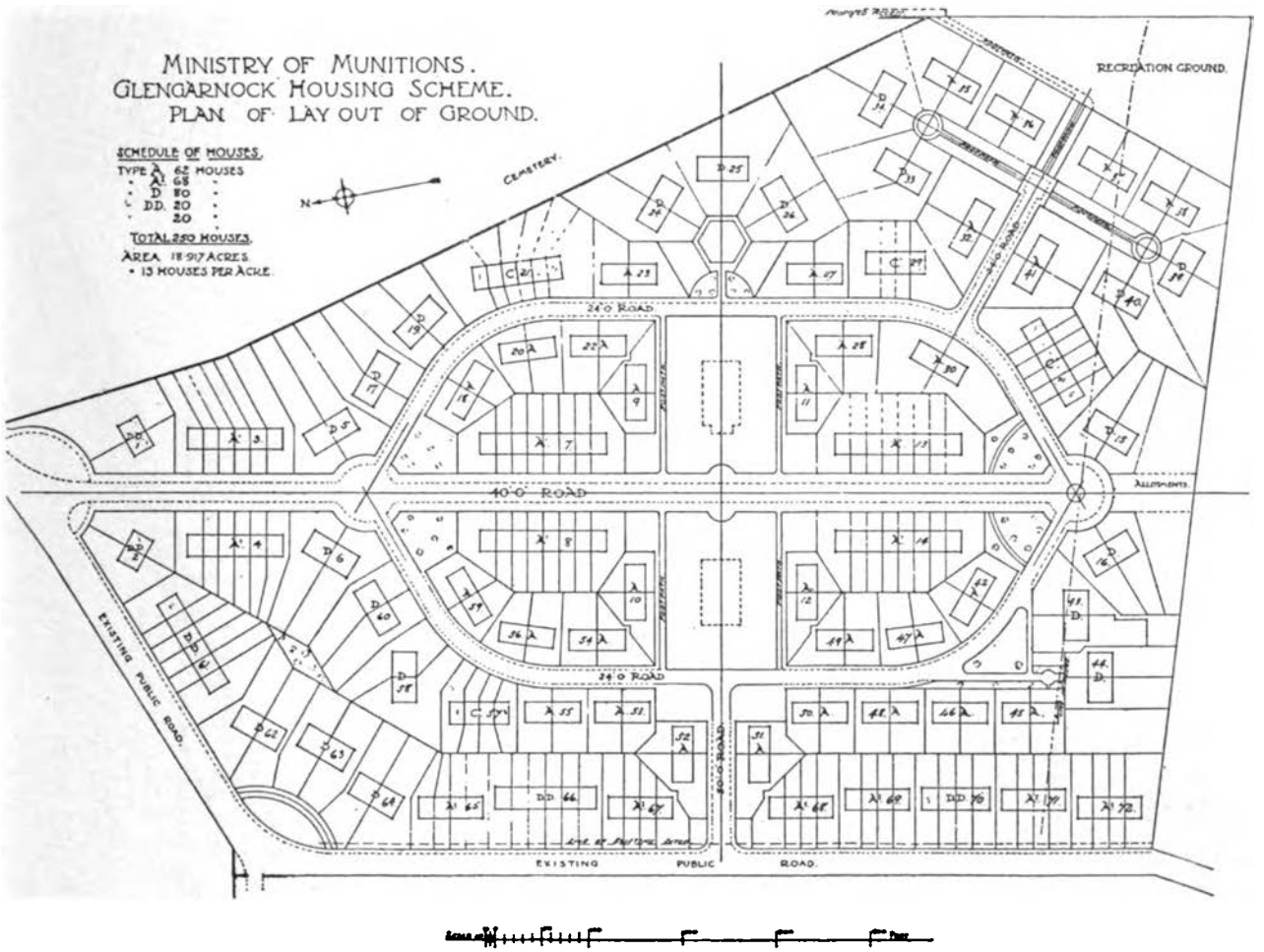

GLENGARNOCK—PLAN

About Glasgow there are numerous small housing developments of which this is an excellent example. These undertakings were all in the hands of the Local Government Board of Scotland

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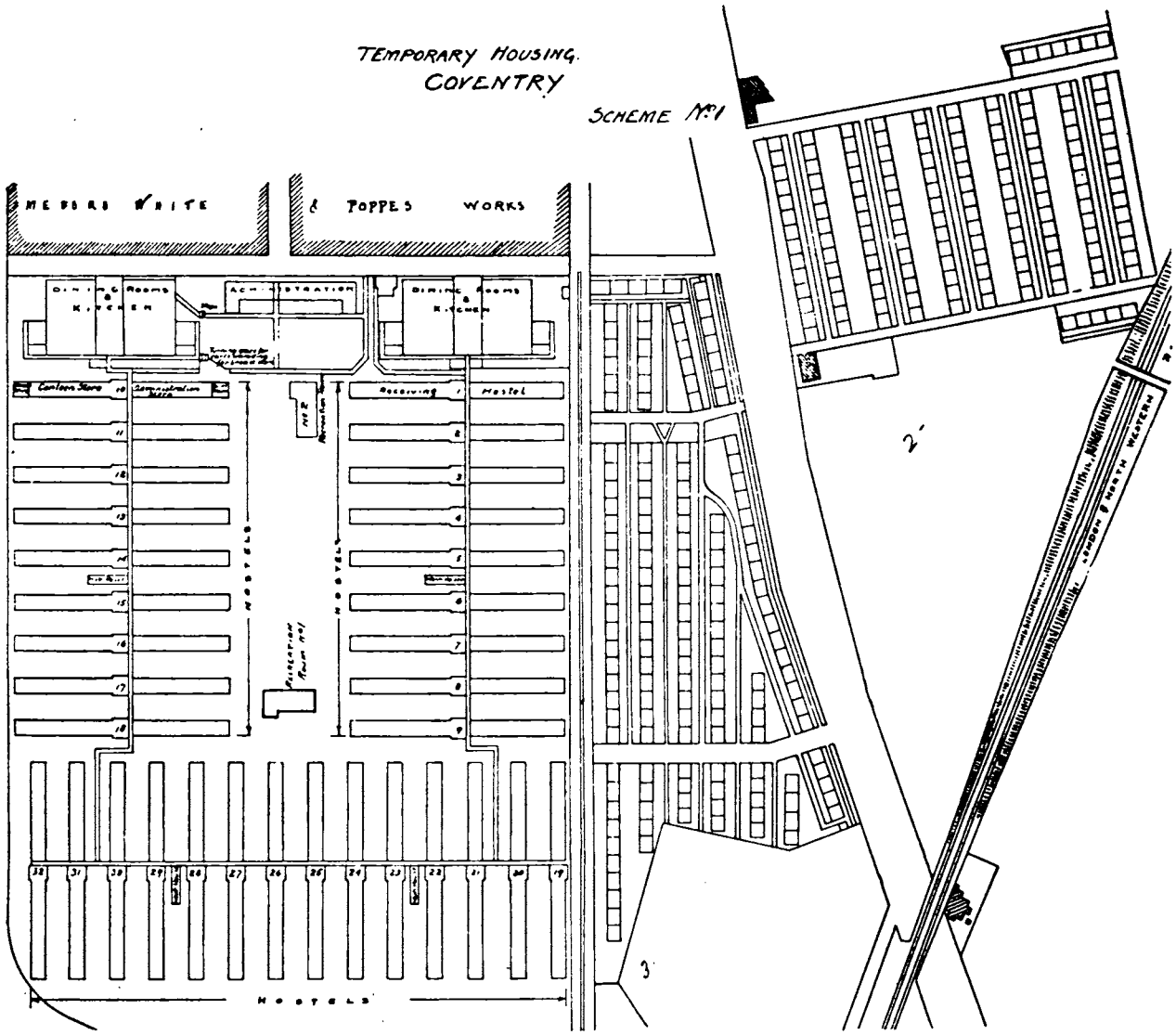

TEMPORARY HOUSING AT COVENTRY

This plan indicates the earlier method of hostel development. Each of the wings contains approximately eighty individual rooms. The scale of this layout may be better understood by noting the detail drawing of the dining-room and kitchen group. This scheme is exceedingly difficult to manage. In the later developments where temporary housing was found to be absolutely necessary, experience indicated that the arrangement shown upon (IVB) was much to be preferred. This scheme* was criticized in that the dining-room or messroom, which was used as a general gathering-place except during meal-hours, was too narrow; otherwise the scheme was successful. The excellent toilet facilities should be noted. Perhaps the secret of success in the operation of a unit of this sort is the fact that the three wings are arranged to care for the three shifts of workers. By the complete separation of these shifts, there results no confusion during the rest periods.

There are no rooms working two or three shifts, there are few double rooms, and to my knowledge there are no bunk-houses in England.

*See plan IVB on opposite page.

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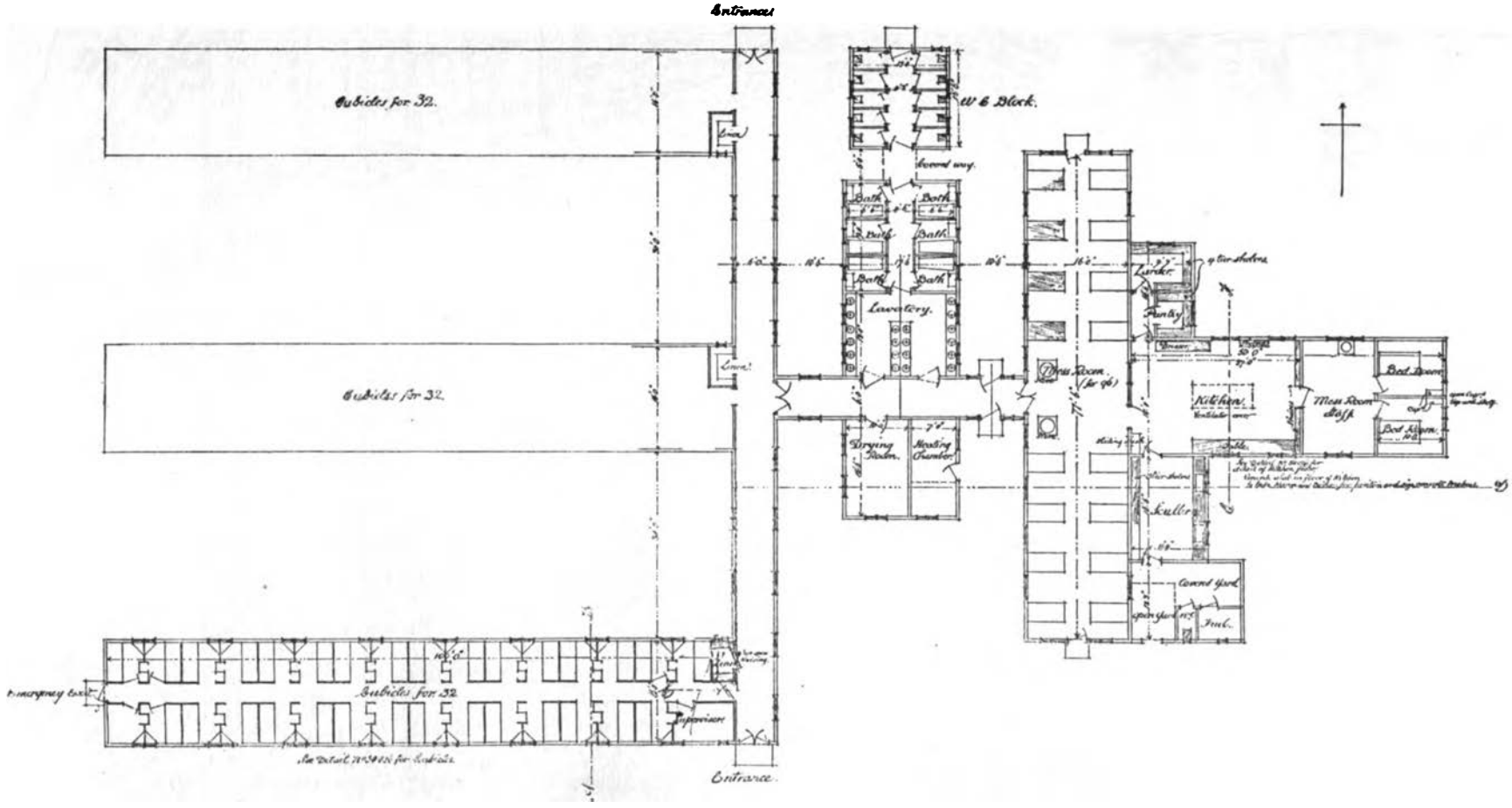

GRETNA—HOUSING DEVELOPMENT IVB.—SEE OPPOSITE PAGE

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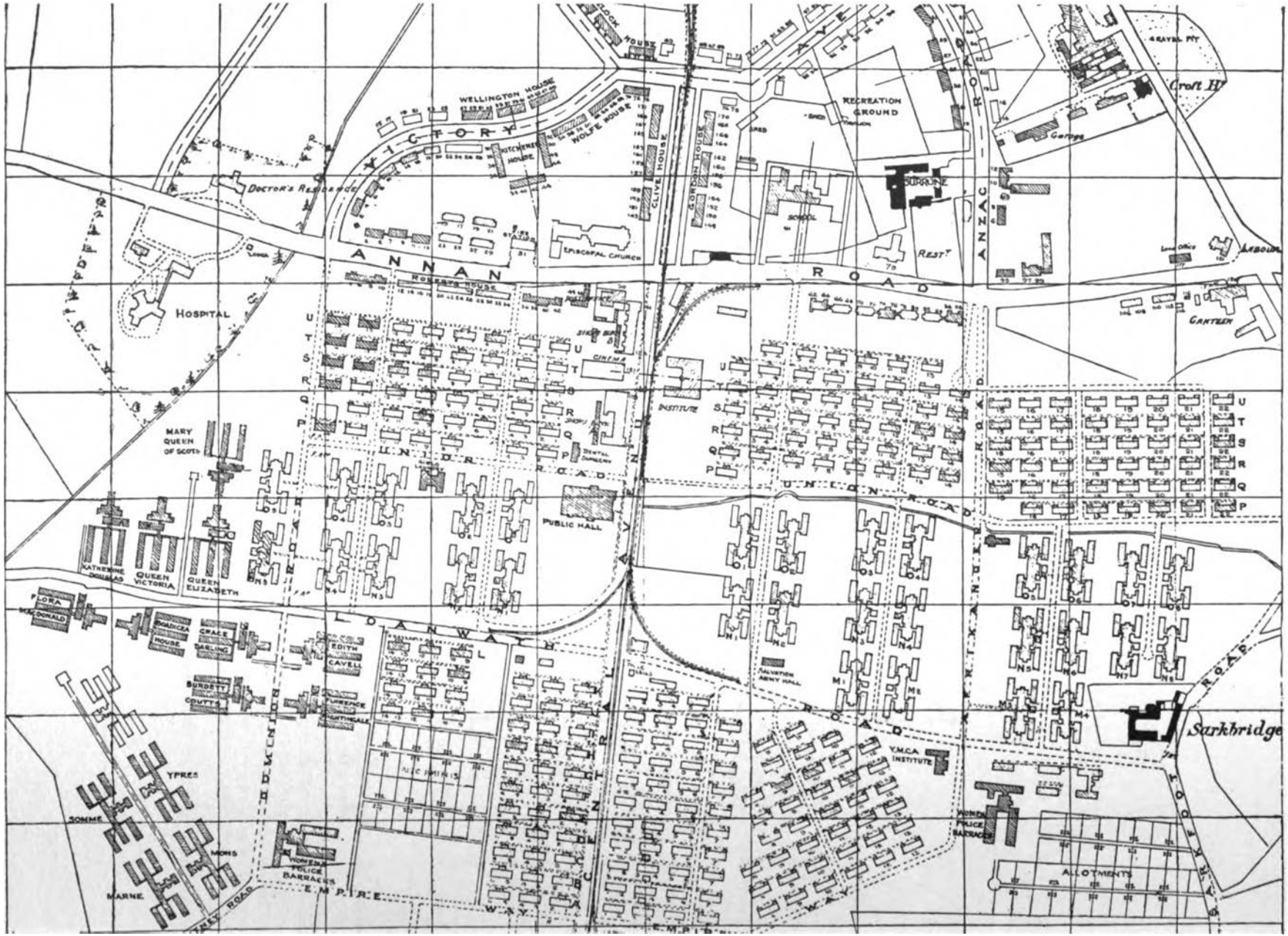

PLAN OF THE DEVELOPMENT AT GRETNA

All of the buildings, such as cottages, school, police station, churches, cinema house, institute, shops, post office, public hall, hospital, at the upper end of the plan are of a permanent character and form a nucleus of the town which may in the future develop over the area now occupied by temporary hostels

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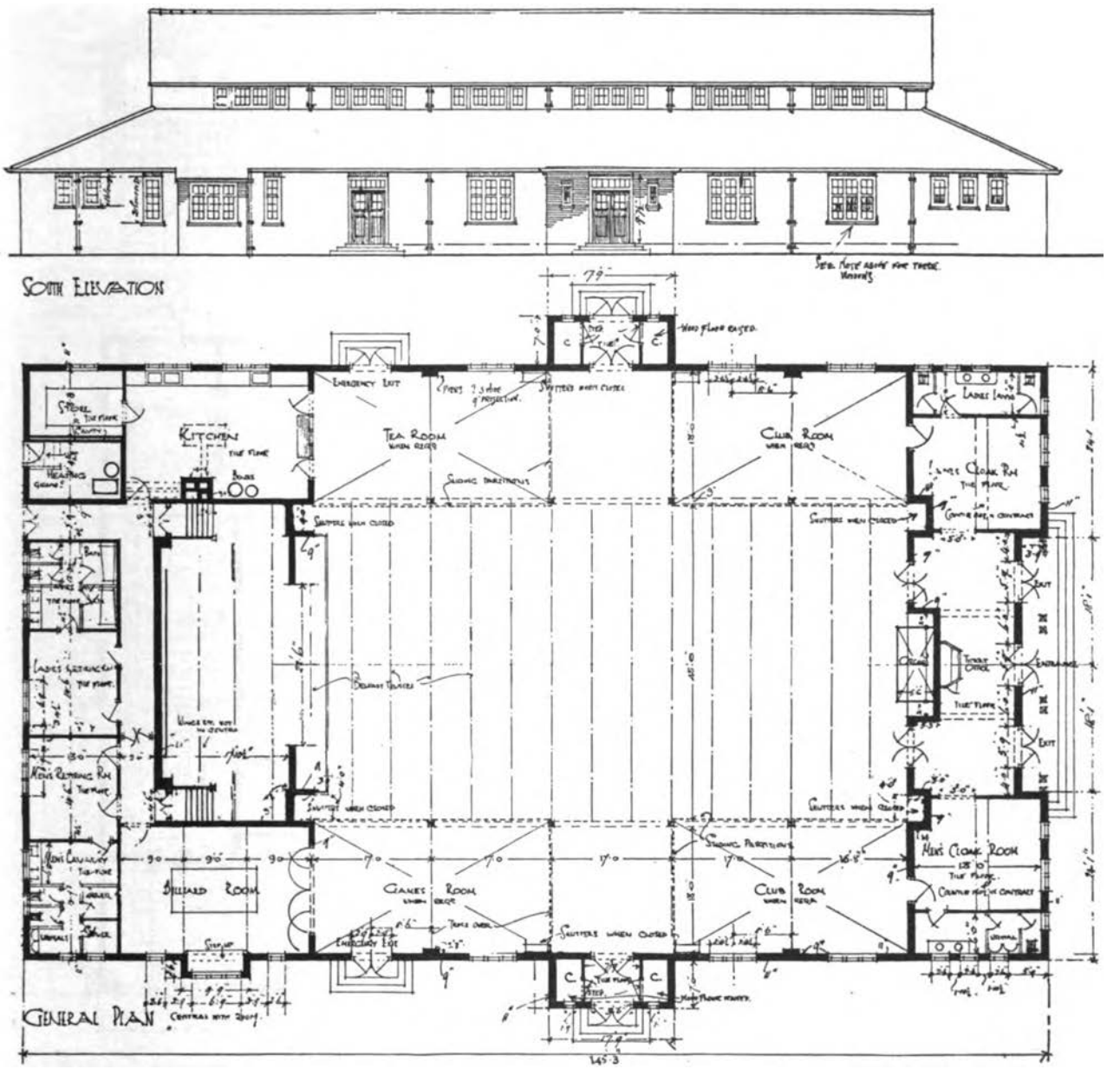

HALL AT GRETNA

There was a great deal of charm about this building, which was erected in six and a half weeks in order to introduce a social factor which was found during the first few weeks of operation to be absolutely necessary to the efficient operation of the factory.

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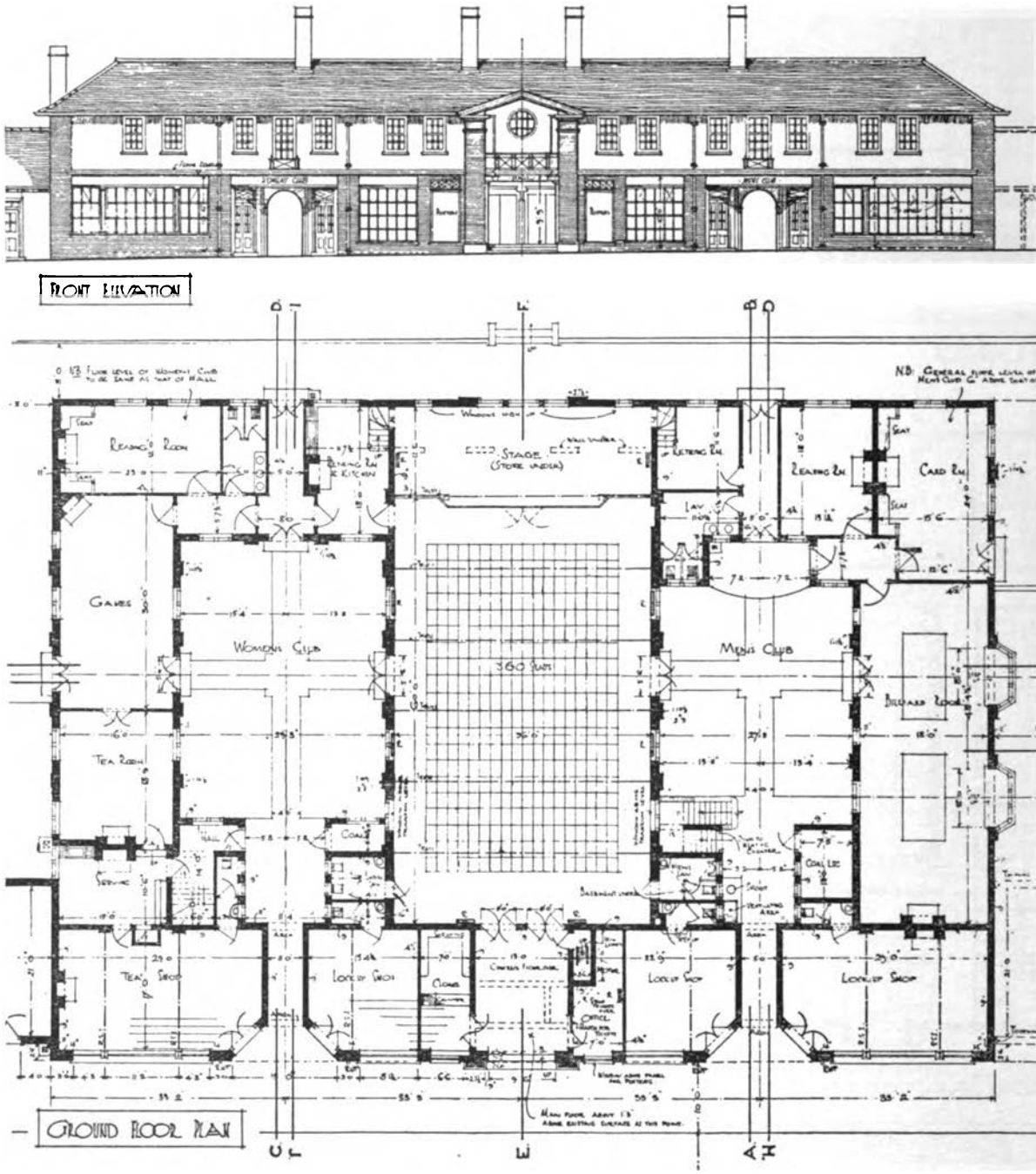

INSTITUTE AND SHOPS—EASTRIGGS

This is an extremely interesting structure. Its operation may be clearly understood by noting that entrance to the two clubs (men's and women's) is through the passage into the court. Buildings of this sort have been a tremendous feature in stabilizing industrial conditions about munitions plants.

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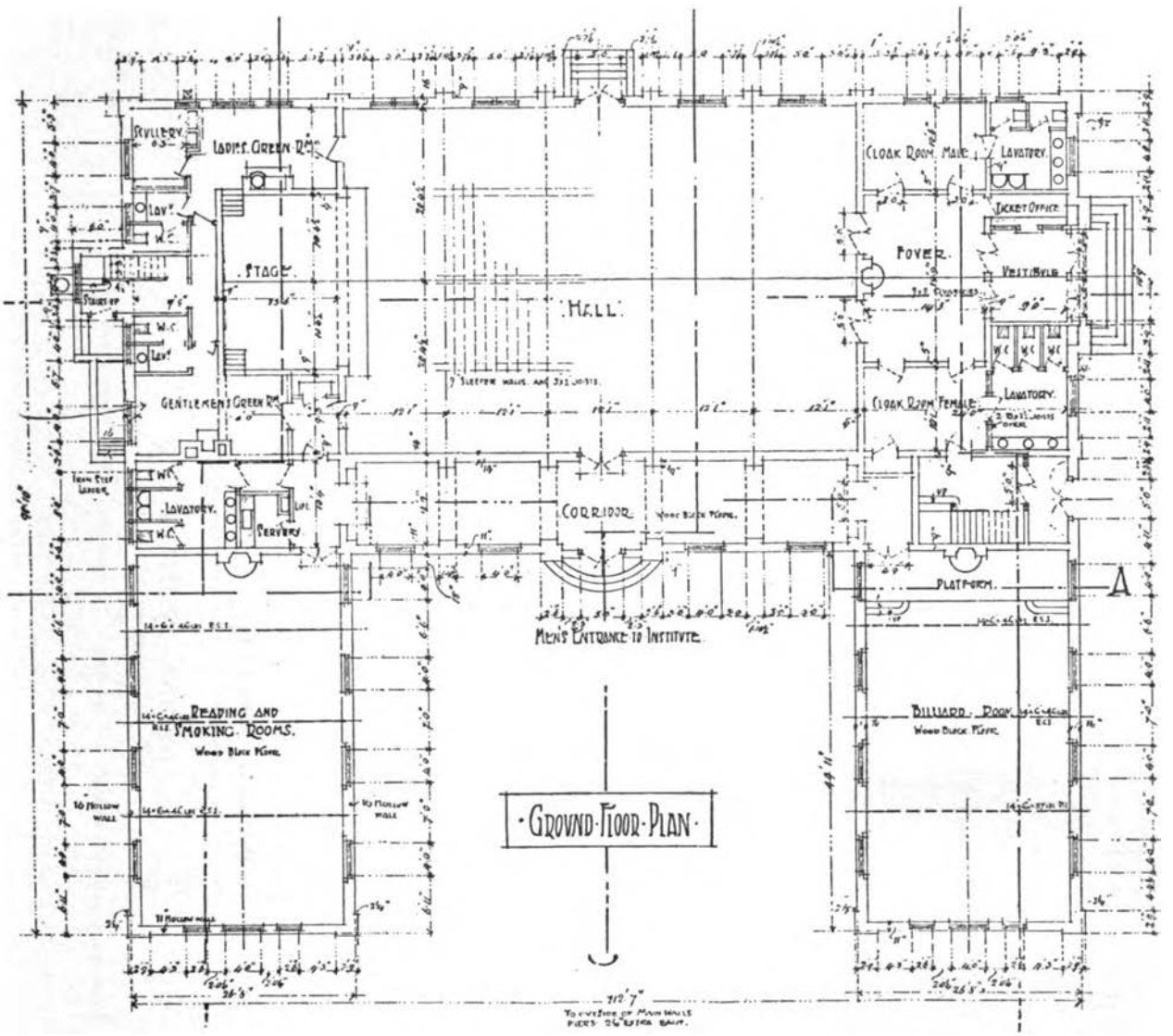

GRETNA—INSTITUTE

This building, together with the Public Hall at Gretna, serves as the axis around which the social activities of the community revolve. The central hall with its stage is constantly in use for entertainments of various sorts and for dancing. The first floor in general serves as a club for the men, while the second floor is a club for women. This building represents a new idea introduced into the social life of British industrial communities, and its effect upon the employees is watched with a great deal of interest throughout Great Britain.

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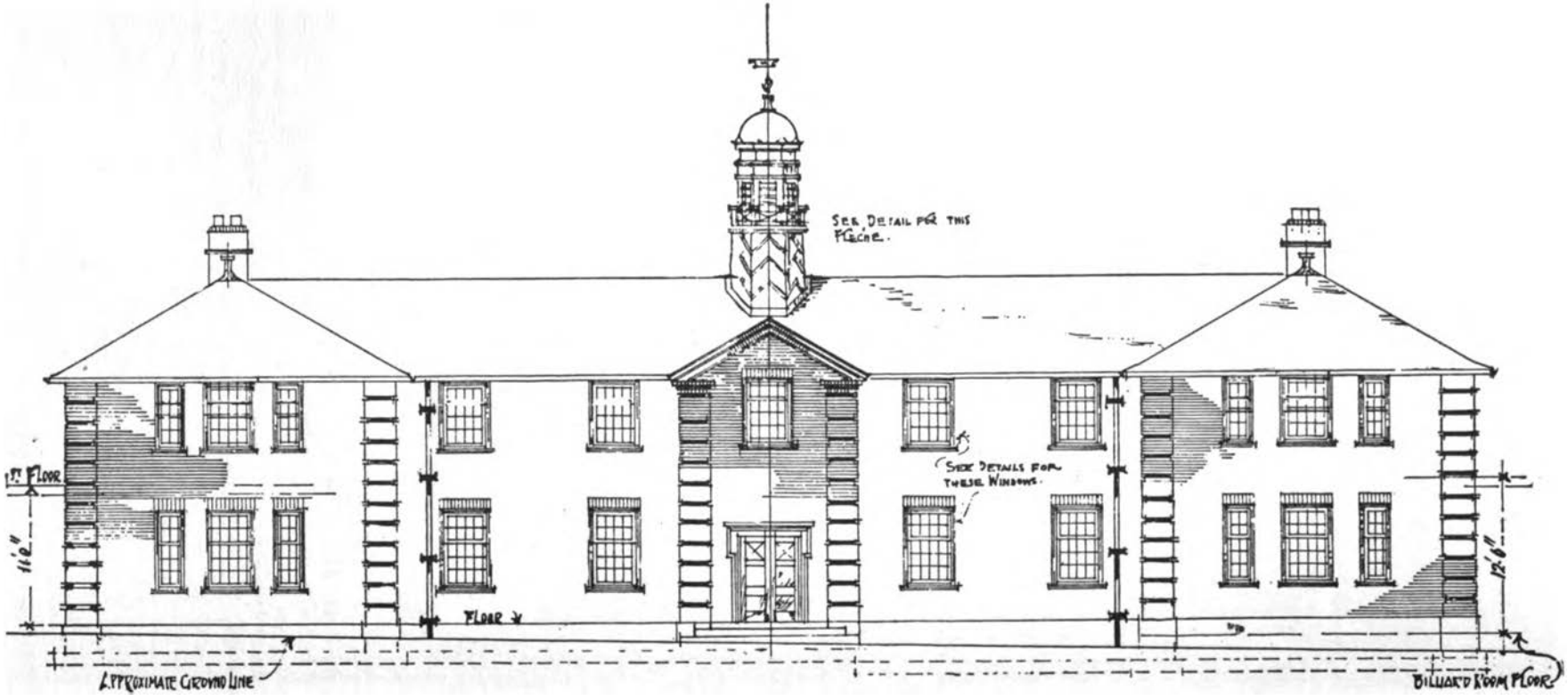

WEST ELEVATION

GRETNA—INSTITUTE

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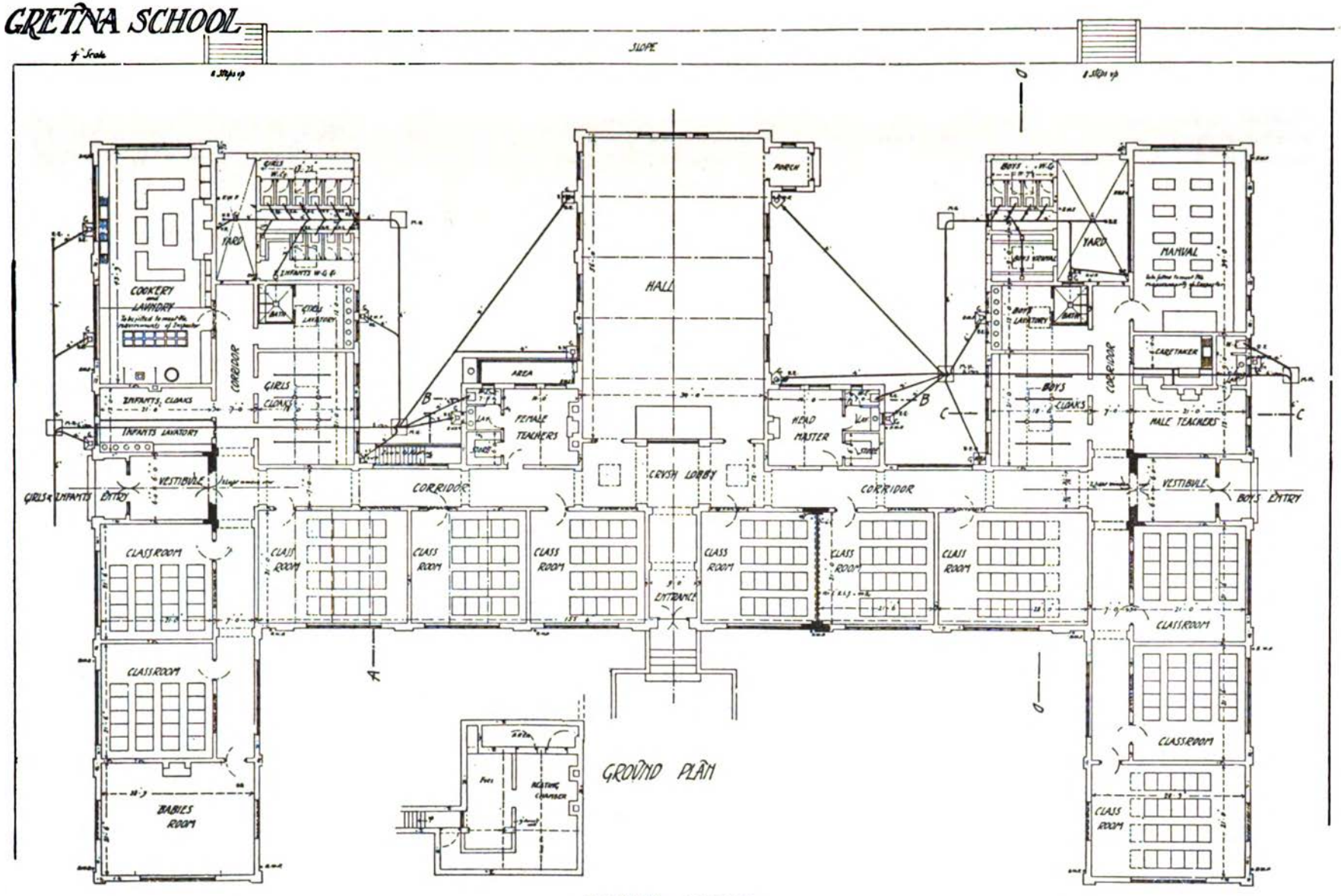

GRETNA—SCHOOL

This schoolhouse, simple and refined in character, with its windows so arranged that they can be opened the entire width without mullioned obstructions, was significant of the thoroughness of the operation and the new spirit expressed in England by the Education Bill now before Parliament

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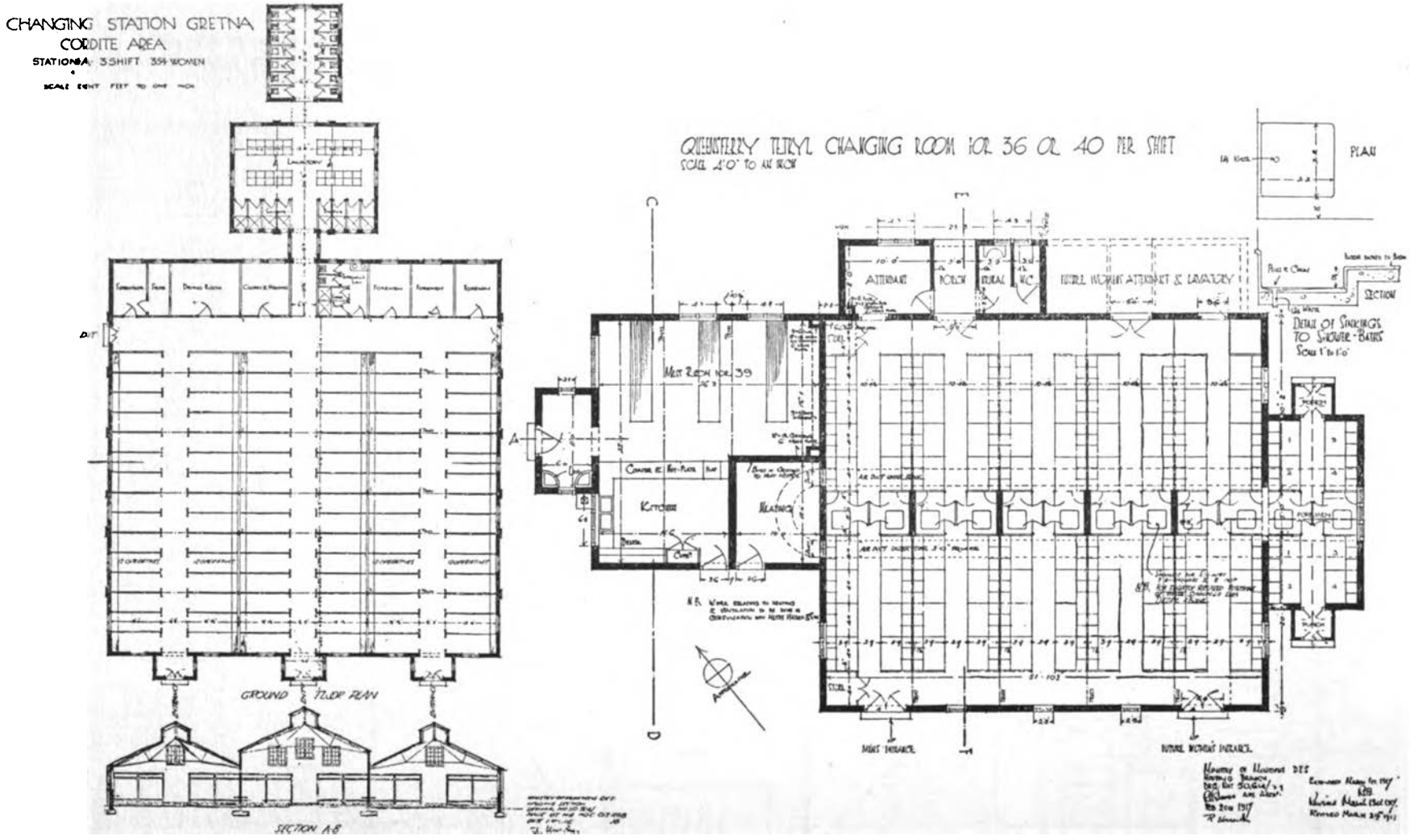

CHANGE ROOMS

These several drawings of change rooms are shown as illustrating various solutions of an important and difficult problem surrounding the care of operatives who go and come from the plant, both day and night, in all sorts of weather, and who are obliged in some cases to make a complete change of clothing, owing to the nature of the work upon which they are engaged. This problem has not been solved to the satisfaction of those having the matter in charge. It should be pointed out that experience has demonstrated the absolute need of ample accommodation for the change of clothing; that street clothes must be thoroughly dried and so cared for as to prevent loss from theft or from misplacement. Two points may be of particular interest as expressing result of experience. If there be three shifts operating, it has been found necessary to provide for these in three separate aisles or sections. This enables the attendant to properly control the belongings of each worker, to see that they are properly dried, and that the work-clothes are thoroughly cleaned during the operator's absence.

As a matter of interest it may be well to point out that in the Queensferry Change Room the operator is required to leave street clothing in one set of lockers, pass through a maze of showers, and then dress in a complete change of factory clothing before entering the factory. This operation is reversed when leaving.

These buildings are of a permanent character, and the plumbing equipment throughout is of the highest order.

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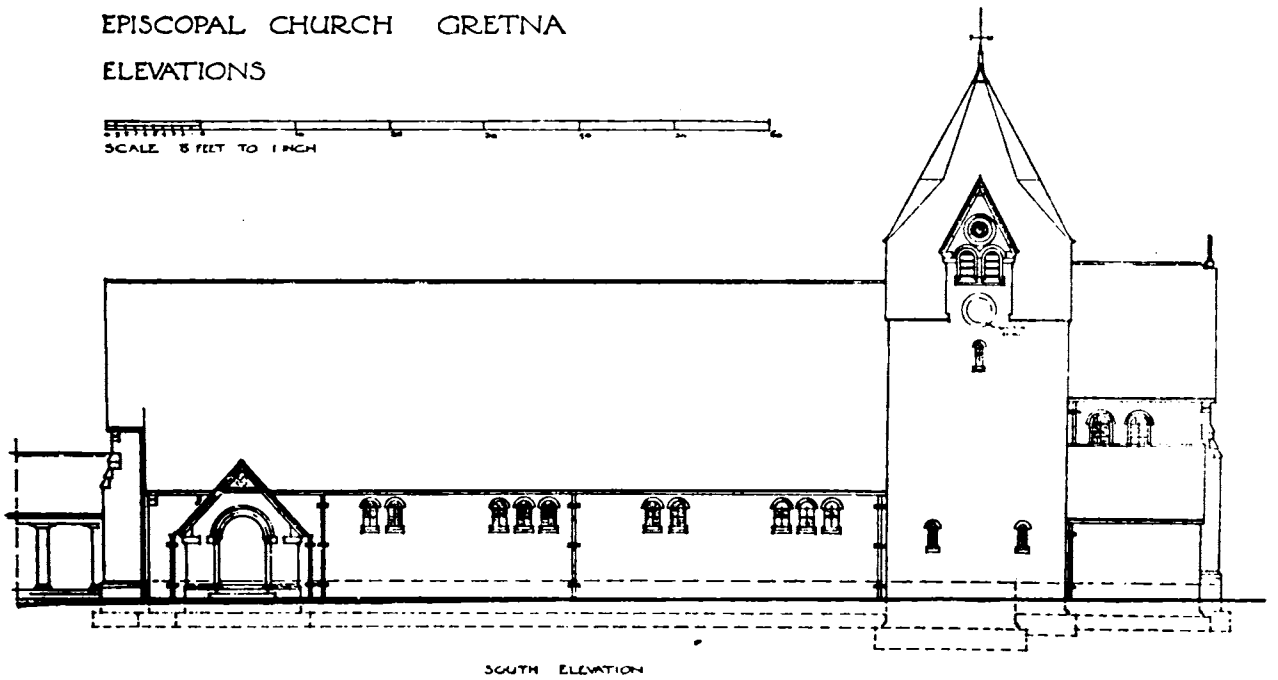

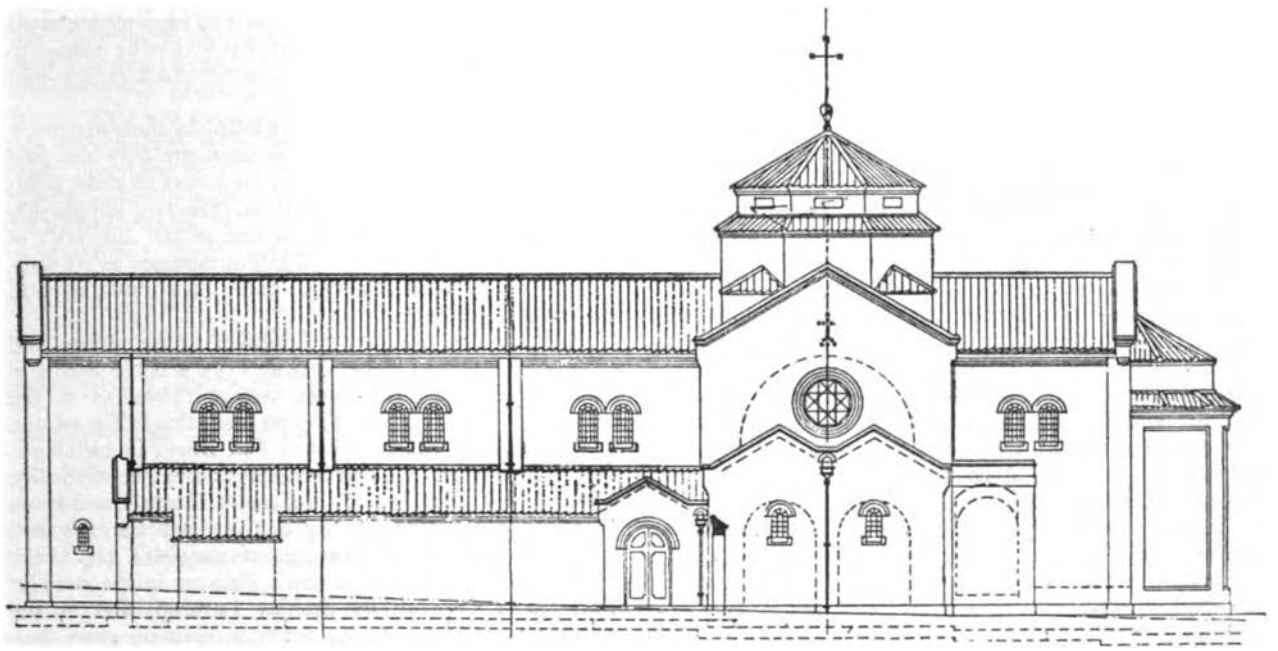

ROMAN CATHOLIC CHURCH

GRETNA—TWO OF THE THREE NEW CHURCHES

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Obituary

Alfred J. Bloor

Alfred J. Bloor, Fellow A. I. A., born April 1, 1829, the oldest member of the American Institute of Architects (in date of election), died at New York on November 19, 1917. His decease breaks almost the last link of the chain that united the present members of the Institute with its founders. The older generation has passed away, leaving to their successors the memories of their steadfast efforts for the uplifting of our profession and a unity that was almost unknown in the days of their earlier professional life.

Mr. Bloor was not, strictly speaking, a founder of the American Institute of Architects. He should be considered however, as one of its pioneer members. He was elected to Fellowship on February 5, 1861. The Institute in its early form was organized in 1837 and incorporated April 13, 1857. From the time of his election, through the greater part of his active life, he was constantly in the forefront of its activities. His first office was that of Librarian, to which office he was elected October 22, 1867, the year in which the Institute was reorganized and the Chapter system adopted. As Secretary, he served the Institute 1874–1877, 1881–1883, 1887–1889. He was elected Secretary of the New York Chapter on its organization, March 19, 1867, and retained that office until 1898, when he retired. From that time Mr. Bloor lived much in retirement.

His mind and his notebooks were well stored with historical facts and illuminating reminiscences together with the underlying causes that contributed to forward the growth of the Institute, as well as those that at times seemed to retard its development and which had to be overcome. Modest and retiring, he was at times reticent and difficult to approach, but to those who knew him well and in whom he had confidence and recognized as co-workers, he offered a fund of well-digested information and was ready at all times to help and encourage.

During the years of Mr. Bloor's active life he was a voluminous writer, contributing to professional journals and to the daily press. Two of his more elaborate and well-studied contributions may be cited: His article on the "Origin and Processes of Formation of the Architectural and Art Societies of Europe," 1869, his, so-called, "Centennial Address" to the Institute's Convention of 1876, "A Survey of American Architecture and Architects from Colonial Times."

In the consolidation movement that culminated in the union of the Western Association of Architects with the American Institute of Architects in 1898, Mr. Bloor filled a conspicuous place, both as Secretary of the Institute and, perhaps in a still more important rôle, as delegate from the Institute to the convention of the Western Association in 1886.

He was with the Institute and its founders from the beginning, during its formative stage, and through its gradual development. When he retired from active service those days had passed away. The American Institute of Architects has now become strong in membership and a recognized professional body, having its own home, the Octagon, at Washington, with its historical background, while the field of the future lies before us, well plowed and prepared for the workers who are now with us and for those who are to follow.

GEORGE C. MASON,
Historian of the A. I. A.

Book Reviews

Memoirs of the American Academy in Rome.

Volume I. School of Classical Studies. Bergamo. Institute Italiano D'Arti Grafiche, 1917. A continuation of the two volumes of "Supplementary Papers of the American School of Classical Studies," Vol. I, 1915; Vol. II, 1908.

In this volume the American Academy in Rome gives expression to what we may call the classical field of its endeavor as distinguished from that in which architecture, sculpture, and painting claim their sphere. How delicate and shadowy is the line which separates these fields is revealed as one turns the pages of this fine modern example of the printer's art. Perhaps the indefiniteness of this distinction seems to be more apparent today, when the convulsive struggles of a world in arms are drawing all values into the crucible where they shall be recast and reissued to mankind. What legends the new coinage shall bear—what decorative elements it shall carry—what new sense of values it will determine and offer for our consideration, no man knows. Yet we cherish an ardent hope that the new currency will be so clear in its import that we shall in some manner be able to use it as legal tender in all the corners of the earth. We feel that it is to be related to humanity and to life, and thus to art and scholarship and culture.

It is these thoughts which are evoked by these Memoirs. It is this dream which pervades us as we note the first article by Jesse Benedict Carter, for it was in these fields that he made his life's contribution. His rare scholarship and unfailing energy remain as one of the bulwarks of the Academy and are recalled in full measure as we turn to the work of those who came under his stimulating and inspiring influence.

So it is, that, whether we respond to the serious and exhaustive study of "The Vatican Livy and the Script of Tours," by E. K. Rand and George Howe; or to the account of "The Aquia Trajana and the Mills on the Janiculum," by Albert William Van Buren in collaboration with Gorham Phillips Stevens; or whether we derive a keener joy from Mr. C. Densmore Curtis's article on "Ancient Granulated Jewelry of the VIIth Century and Earlier," with the illustrations of exquisite art which accompany it; or find a painter's pleasure in the story of Bartolomeo Caporali by Stahley Lathrop, and in the reproductions of his work, of which there are more than twenty; or learn the interesting history of "Capita Desecta and Marble Coiffures," by John R. Crawford; or of "The Military Indebtedness of Early Rome to Etruria," by Eugene S. McCartney, we are conscious of the ineluctable relationship which all of this scholarship bears to the great hope upon which men are leaning now almost as never before.—B.

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Institute Business

Record of the Institute's War Service

To the Members of the Institute:

In this age, when publicity has become such a power for good, the American Institute of Architects is fortunate in being able, through the columns of its own established Journal, to advance the aims of its members to make our National organization truly national. So much of criticism—even of constructive criticism—is based on lack of exact knowledge of existing facts and activities that even the Government has had recourse to the publication of its own Bulletin to secure this same kind of helpful publicity. The time has now come when the Institute's war activities have emerged from endeavor into the field of accomplishment, and I am now able to sum up, not only the character and scope, but the results of the service which the Institute has rendered the Government.

The Formation of the Central Committee on Preparedness

At a time when so many of our members had protested vigorously against the wanton destruction of precious architectural monuments—when they voiced the opinion that it was in very truth "our war" and expressed the conviction that we must enter it when that truth should prevail—there came to the Board of Directors, from the St. Louis Chapter, a resolution calling upon it to tender the services of the Institute to the President of the United States. This was in April, 1916. After careful consideration, your officers, while in hearty accord with the spirit which prompted it, felt that such an offer could be of tangible value only after careful study had revealed the exact character of the services which we could tender. Accordingly, a small committee of the Board made an exhaustive study of our special capabilities and the fields in which they could be utilized, which revealed potentialities of such far-reaching importance that about February 15, 1917, a Central Committee on Preparedness was named, with Major Evarts Tracy as Chairman.

The Institute Offers Its Services to the President

On February 21 I formally tendered the services of the Institute to President Wilson, quoting the salient points from the report of the Board's Committee. No sooner was Major Tracy's campaign to mobilize our technical resources under way than the splendid patriotic spirit of our profession was made manifest by the requests which came to me from a number of architects with large practices, asking that I transmit to the different Departments of the Government and the Red Cross their offer of personal service free of charge and the service of their offices at cost. To give all an equal opportunity, I made the facts available to the entire membership, and the resulting deluge of similar offers gave early evidence of the unity of purpose and the absence of self-seeking which have characterized the profession's relation to the war.

The Institute's Services Accepted by the Navy Department

No sooner was this splendid offer received than the Navy Department requested me to "assign" some three and a half million dollars' worth of hospitals and marine barracks. Right here I encountered a stumbling-block of my own making—for it seemed unfair to make the assignment to those offices which by reason of their size and organization promised the prompt service we all desired to render the Government. Not only would such a course deprive the equally patriotic architects with smaller organizations of their opportunity to serve, but would clog the wheels should other projects of magnitude come from other Departments. My suggestion that the service should be rendered by the American Institute of Architects through committees of three for each project met with immediate approval by those who were coöperating, as well as by the Navy Department. While it is with regret that I have to record the fact that almost all of the work contemplated was abandoned when Congress failed to pass the expected appropriations, it is gratifying to record the happy relationship thus established between the Institute and the *Department.

Coöperation with the Council of National Defense

A few days later I was summoned to Washington by the Council of National Defense and had my first of many pleasant interviews with W. A. Starrett—now Major Starrett—a New York architect, acting as Chairman of the Committee on Emergency Construction, reporting to the Council through the General Munitions Board, of which Frank A. Scott was the able Chairman—and here I want to make grateful acknowledgment of the fact that in most of the successful efforts of the profession to serve the country, Mr. Starrett has been the sympathetic instrumentality. At that moment, however, it was his duty to take some of the sentiment out of our offer, by pointing out to me the conclusions of his Committee which were, in effect, that if the war was to last three weeks or three months our unselfish patriotic offer would be unhesitatingly accepted, but in planning for, say three years, it was an economic fallacy for the architect to furnish gratuitous service to his *only* client, the Government, which in turn was obliged to turn around and tax the professional man along with every other citizen to carry on the war. The truth of his statement was self-evident, and subsequent events have been guided by its controlling features.

In the meantime the Central Committee had mobilized an asset of tremendous potentiality, consisting of a card-

*During the preparation of this article I have received from the Navy Department a copy of its letter of cordial acknowledgment of the highly satisfactory and efficient service of one of these †Committees consisting of C. Grant La Farge, Chairman; Lawrence F. Peck, and William E. Bannister.

†The report of this Committee will be published in the next issue of the Journal.—Editor.

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catalogued enrollment of over three thousand architects and draughtsmen, able, eager, and ready to serve. And in this connection two things troubled me: This patriotic body of men chafed under inaction; they thought enrolling meant early activity, and again I feared the so-called selective draft might seriously deplete our asset which we were conserving for a Government which did not yet know and does not yet *appreciate where* and *how* it could best serve to the greatest advantage. Your officers knew of the tragic experience of France and England, which was summarized by one of the British Commission who said: "England's needs in the technical field would be greatly relieved had she in service one-tenth of the architects who lie in heroes' graves on foreign soil," and so I endeavored to calm the natural impatience of the one and to lay the foundations for taking care of the other in the two special Journal Bulletins which covered almost all of the foregoing history in detail. In order that our endeavor to conserve these specially trained men from the blind operation of the draft might not be misconstrued, our action had to be confined to furnishing to each drafted man a certificate of his qualifications, together with a letter requesting him to seek technical assignment from his commanding officer.

The Cantonments

Late in May, while addressing the City Planning Conference in Kansas City, startling information reached me as to the inadequate conception of primary housing requisites in the planning of barracks in the earliest cantonments. Happily I was going to Washington on other Institute business the following day and took advantage of the proffered coöperation of Frederick Law Olmsted and George B. Ford to arrange a conference with the General Munitions Board through the courtesy of Major Starrett.

With characteristic incisiveness, Chairman Scott went to the heart of the matter and the following day appointed Mr. Olmsted a member of the Committee on Emergency Construction. His tactful work in securing the adoption by the Cantonment Division of the two-story barracks, which was developed by a group of architects versed in housing, whom he invited to collaborate with him on the problem, reflects great credit on him and gives to the Institute cause for rejoicing in having been able, through him, to render a service which would in its important results alone justify the labors of your officers. The confidence in the Institute's motives, established through these conferences, led the Committee on Emergency Construction to ask me to request a service from all the Chapters of the Institute of an emergency, as well as of a strictly confidential, character. I am proud to say that the prompt, thorough, and painstaking way in which the Chapters complied with this request has furnished a record of historic interest in Major Starrett's opinion and has gone a long way toward strengthening the Institute's official relationship with the Government.

Hospitals

Charles Butler, a member of the Institute who has qualified as an authority of the highest order on military hospitals, having served the French Government in designing and building field and base hospitals in France, had early offered his services, as had E. F. Stevens, for similar service to our army for evacuation as well as overseas hospital work. When all was progressing smoothly, a change was made in the personnel of the Medical Department which destroyed the then existing cordial relations, and, in spite of the earnest efforts of your officers, it has been impossible to secure desired coöperation, except in the planning of the overseas hospitals, which, through the differentiation of overseas from domestic work, is under the jurisdiction of the Engineer Corps. These overseas hospitals are being planned under Mr. Butler's direction.

Camouflage

In sharp contrast with this discouraging effort has been the organization of America's first Camouflage Division under the leadership of our own Major Tracy. Acting under the general policy adopted, Mr. Kemper, the Executive Secretary, wrote each Department periodically to stir up all slumbering activities, and it will interest you to know that in the same mail which brought me the stereotyped reply, "Thanking you once more, I have to inform you that the U. S. Army will do no camouflaging as the French army will perform this service for us," I had a letter from Major Tracy announcing his appointment as Chief of the Department of Camouflage and beginning, "Three rousing cheers—the Institute is on the map." It was a cable from General Pershing that turned the trick. Major Tracy is in France and his division, after a long encampment in Washington, is on the eve of departure. Pages could be written concerning the remarkable character and talent of its personnel of architects, painters, sculptors, craftsmen and movie experts.

War Relief Work

At the May meeting of the Board of Directors an invitation was considered from the Author's League to confer on those prospective relief measures which are facing us in our own profession. Through our tenacity in holding to the view that a greater field should be included than was indicated by their name, we have secured the adoption of the title "Professional Classes War Relief of America," and the Institute is represented on the Executive Committee by First Vice-President La Farge. The wonderfully sympathetic work of its English prototype gives promise of a successful agency for the relief work which may fall to us as a responsibility.

Other Service in Construction Work

The admirably persistent work of the Executive Secretary, in keeping our "Enrollment" constantly before departmental and bureau officials, suddenly began to bear fruit late in the summer, and in quick succession I was called upon to assist the Emergency Fleet Corporation by naming available experts to act as advisers, and Chapter officers were called upon to recommend men for commissions in the Signal Corps, to serve in France, and, under another call, to recommend men for technical service to the Medical Corps. It is a keen pleasure to record the fact that the prompt, intelligent, and whole-hearted work

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of our Chapter officers in exceeding every expectation of the Bureau has established a confidence in and a reliance on the Institute which is by no means the least of the war services of which we have reason to be proud.

Industrial Housing

With rare foresight, the pressing industrial housing emergency, as a prerequisite to maximum output of munitions and war necessaries, was realized by the Editor of the Journal, and, through his efforts, the Institute has been able to render a conspicuous service. The articles which have appeared in the Journal already have aroused an astonishing interest. The material which appears in this number, and which is in the nature of a report by Frederick L. Ackerman, who went to England as the special correspondent of the Journal for the purpose of making a close-range study of English methods, constitutes the most important contribution to the literature of housing which has been made in America. The members of the Institute may well congratulate themselves upon the foresight of the Journal and upon Mr. Ackerman's able and comprehensive study. The original program prepared by Mr.Whitaker has not yet been crystallized into a federal purpose on a scale such as Mr. Ackerman points out now obtains in England, but an untiring effort will be continued until the Nation fully understands the magnitude and the importance of the problem of workmen's houses, not only in war but in the peace to come.

Analysis of the Building Situation

While its object thoughtlessly might be considered selfish, the suggestion from H. Van Buren Magonigle that the present building situation receive the Institute's authoritative analysis, is really in the nature of a National and war-service measure. One of the Government's problems is that of securing adequate warehouse facilities, while every private housing enterprise increases the sum total of housing facilities. Much private capital is ready for these and other allied fields but is obsessed with the conviction that prices are beyond all reason. I have appointed a special committee to investigate the present and prospective needs of building; the availability of materials, labor, and transportation; the relation of present prices to those prevailing through several past years, and also to the prices which are likely to obtain during the next few ensuing years. The personnel of this Committee and that of the collaborating building interests promises a report that may have far-reaching effect.

Special Committee on Emergency Construction

Early in the summer the Committee on Emergency Construction of the Council of National Defense suggested a conference to determine the relation of the profession to the Government on the work which that Committee saw accumulating on the horizon in such volume as to foreshadow the inability of established Government agencies to handle. While authority to employ professional assistance is vested in the war-making Departments, peace conditions have led the various Bureaus into the habit of expanding their technical forces to meet a sudden emergency rather than to seek thoroughly organized outside machinery. And so in the press of the million other details, most of which have been handled surprisingly well, there was a fair presumption that bureaus and departments, without realizing the colossal character of the undertaking, might attempt to expand their machinery by taking unrelated cogs from our machines, very possibly destroying our efficiency as an aid to the Government without creating a working machine of their own. Early in November Major Starrett's Committee, acting under the authority of the War Industries Board, invited the following architects to confer with them on these baffling problems: Frank Miles Day, Charles A. Coolidge, Frederick W. Perkins, Burt L. Fenner, R. Clipston Sturgis, Owen Brainard, and the writer, as President of the Institute, ex-officio. Some of the members of this Committee remained in Washington for a week, and the most conscientious thought was given to the solution of the problems presented to us by the Committee in Emergency Construction. It is my hope that our report, which met with the full approval of that Committee, may soon be released for publication to the profession.

In a very sketchy way I have endeavored to touch here and there the high points of the Institute's war service, and I only want to add that many of the details are quite as exacting and quite as interesting. For such measure of success as has come to the officers of the Institute, full credit should be given to a magnificent spirit of unselfishness and patriotism on the part of our members, which makes me proud to sign myself,

Your obedient servant,

JOHN LAWRENCE MAURAN, *President*

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Letters* from an American Architectural Student in France

En Repos, May 29

You know I said in my last letter (which maybe you never got; I have written five, this being the sixth) that I was going to stop writing weekly letters to you and try to do my duty and at least commence answering letters and writing others that I should. But things are different here, one does what one can, where one can, when one can. Here I am, dutifully writing you. Why? Because I have an inspiration to write to you. The others can wait. Dukes, Marquis, Generals and Gentry, my family and country before all. Why am I inspired? Because I have been thinking a great deal lately—more than I have ever thought before. This war makes one think, not necessarily of blood and thunder, but of one's fellowmen, and, I am ashamed to say, of—oneself. Do not think that my thoughts are depressing—far from it. Being at the front in France is somewhat of a mental bath—one sees things in such a different light. Of course, it makes one serious, after a fashion, but then there are many humorous touches to it, some grim, some ludicrous.

The division of the army to which we are attached has just figured in an exceedingly bloody fight (about which you have doubtless read), and although we get our share of it (we had, one might say, front-row seats—quite dangerous), I have done things and seen things which even in my wildest moments I had never anticipated. But that comes later, in my next letter, when I shall send you my first-hand account of the battle. How the victory of one day was turned into almost a defeat the next; how a shell missed me by 10 feet; how I saw a French airman bring down a German; how the long red streams of wounded poured in for two days and two nights; how I almost killed some Germans by running into a prison convoy during an ink-black night. Oh, many, many things, but they come later.

Now we are "en repos," a sort of vacation, well earned, really a breathing-spell during which the cars are overhauled. We are encamped just outside a tiny little old town—pre-Gothic church—a wandering willow-lined "French" stream slips along the valley, which is traversed by white roads bordered by shade trees from one line of blue hills to the other. It is delectable. How I wish you were all here to see it with me. But then who knows—we will all be here some day. Truly this is a country worth living in now. This war, among other things, has served to sort of peel the superficiality off the face of the land, and we now are able to see clearly and truly understand the real France. Do try to come over, if you can, and pick out our home here. I am afraid the "American home" is losing out with me. But then, after five more months, I may change somewhat. But it would be fine if I could spend my "permission" with you—would it not?

However, I am writing about the war. It puts everything in such a different perspective. Terrible as it is, there is much unfathomably great in it—something quite beyond the meager human comprehension—something that we can sense but scarcely define. So that, while the material destruction and degradation surround us, yet we know that the life and highest ideals of civilization are being strengthened. After all, it is not human life which counts, except as a vehicle for carrying around and improving the progress of the world at large. It, the war, has proved to be the salvation of the Allies. Let us hope it will be ours. Yet, notwithstanding, we tend to look at the little things, the most impressive at first sight—the thunder of the guns, the shouting, and the tumult—and ignore that for which we are really fighting—our ideals. It narrows down to whether we shall live or die or whether our ideals shall live or die. But it has always been the same. It has been the dread of physical rather than mental pain which has shaped our careers. This war is changing that, for men are dying and suffering in hundreds of thousands that the highest hopes (not of conquest) of their race may survive. It may take years, but I believe now that it is coming.

But now, about myself and the part I am playing. Is it really the one for which I am fitted? Sometimes I wonder. The French Ambulance Sections are entirely composed of men rejected by the regular army; so are the British. At one place there was a Scotch Section camped near us. They were all rejected men; some had been wounded so that they could not again serve in the trenches. And here am I, sound, I hope, intelligent, and what shall I say when the future generation asks me about the war. I don't know. My present job is dangerous; there is no doubt about that. (The French Section which is now taking our place has been forbidden to go as far toward the lines as we did, a matter of 2 miles—that is a significant fact.) But then we do not have to undergo the hardships and stand the terrific pounding of trench-life. I have been under fire, it is true, and it was not pleasant at all; but then it was not a circumstance compared to front-line-trench stuff.

But don't for one instant think that I *want* to take a turn in the trenches. Nobody at home has the slightest idea what it is like; neither have many people in Paris. One seldom hears of the smell, the stink, the filth, the vermin of the trenches—the living in mud and slime, like an animal, the continuous noise, the sleepless nights and constant watch—the mud and the cold—the heat and no shelter. And the wounds—these modern shells tear the flesh and limbs off. There are no clean rifle hits. Some of the wounded look as if they had been caught in a gigantic machine—simply mangled.

Trench-life is unadulterated, concentrated Hell. That is all. It is not for nothing that I have had my glimpse of it and have felt its sting. Yet, as we are new allies, even more than some in many ways, it seems that I should do my share. It is out here beyond the reach of martial hands—beyond the reach of momentary excitement and screaming eagle speeches—that one sees what modern war is. There are no grandstands, only mud and dirt, cold and heat, and no comforts. I have thought much about it.

*The letters of Edmund Randolph Purves, continued from the last number

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LETTERS FROM AN AMERICAN ARCHITECTURAL STUDENT

This is not a Napoleonic campaign of brilliant battles and glory for the victor. There is glory, though, really here, but not according to popular conception. Each one does his part, or should do it, and I feel I should do mine. . . . .

Do not let this letter worry you. If it does, throw it in the fire. And next week I am going to write a regular "Frederick Palmer-Irvin Cobb" account of the fight, which may find a place in the family archives. If I could, I would write an epic poem about "my first battle!"

My text has been something about "being weighed in the measure and found wanting" in my own estimation—not other people's.

En Repos, At the Front, June 4

The day before yesterday your letter of the 17th came, and today that of the 10th, so you see that the mail in this country does not go according to Hoyle. . . .

I have kept you waiting too long for the account of the fighting I have seen. Now that we are "en repos," I can look back and tell you, as clearly as I ever will be able to, the story of the attack on ——— from my point of view. In order to better understand, I will outline as fully as I can the military situation. The Germans have for a long time been holding quite a good-sized hill, Mt. ———, which was of great value to them, giving them wide observation and command. The hill overlooks quite a wide valley which narrows toward the north. The French were in the valley at first, but, after five attacks, had obtained a good footing about half way up the hill and were in this position when we arrived. We were billeted in a town across the valley; this was our headquarters.

From there we went out in twenty-four-hour relays. One run was to a little town in the woods in the valley in which there was a "Poste de Secours," and the other was across the valley, right up to the French communication trenches. This was quite a hazardous run, as you will soon hear.

As the Germans were in concrete dugouts 30 feet under ground, it required quite a deal of prying to get them out. I will show you on a good map when I get home. Try to buy a large-scale one of the French front, if possible. For almost twelve days we had been doing "ordinary work" on the two runs in twenty-four-hour shifts, always expecting and waiting for the big attack. Every day there were rumors—attack at 5, at dawn. It was exactly the atmosphere, only on a big scale, of a championship football game, except that there was no time-limit—no quarter—no respite—and it was a game of life and death. The preparations are accordingly in some ways more exciting than the actual fighting. The artillery fire had been steadily increasing every day, and the roar of the big naval guns shook the whole town like a sort of continuous earthquake. (There is no glass left in the windows of the towns behind the lines, on account of the concussion.)

The observation balloons ("saucisses") were becoming more numerous and were being drawn more toward the lines. I stood on a little hill one evening and saw them from horizon to horizon, at intervals of about half a mile—uncouth, gigantic eyes from which nothing is hidden. Of course, the aëroplanes increased on both sides, both observation flyers and fighters, the fighters going along in flocks always attended by those little white puffs of smoke—shrapnel fire. I have never seen one brought down by an anti-aircraft gun, yet they are continually fired at. Finally we got the word—extra gas-masks were passed around—the hospitals were entirely cleared of wounded, and everything was gotten ready for that great scarlet stream which invariably bubbles forth in these times.

I was sent as orderly to the long run. My preparations were simple—sweater, raincoat, chocolate, books, and camera completed my outfit. We left town early in the morning and crossed the valley to a road near the base of the hill. There we had a long wait, practically all day long. The Morrocan Division was to storm the hill at 4.30 P.M., and ours to attack toward the left at 4 the next morning. Our wounded were to be taken from a communication trench ("boyau") about 2 miles beyond the woods where the cars were picketed. This was a road. There were heavy batteries on both sides in the woods, intermingled with innumerable "'75's." It was all right going for about half way. After that the road ran in the open, and we had to run the gauntlet of the German guns. This would not have been bad but for the fact that that road was the only means of communications to the lines—and the Germans knew it, and we had positive proof that they knew it, owing to the exactness of their range.

Toward 4 P.M. that day, the Artillery increased until it was one solid wall of sound. The hill was entirely obscured by smoke from the shells falling on it. I was up at the "boyau" the whole time, and we had to sit tight, as the Boches were replying with shrapnel and high explosives.

At exactly 4.25 P.M., the Morrocans climbed out of their trenches and attacked the hill. Through glasses we could distinguish the men from the officers. They swept everything before them; the Boches retreated quickly and the hill was won—all in less than two hours. Then the wounded started to come back in streams, choking the narrow "boyau." I could write chapters on every sentence in this letter, but you see it is really impossible—you must wait until I get home.

Toward dusk, the artillery preparations for our Division's attack commenced. It was deafening and kept up all night long. All the time, wounded, whom we had to carry down, were coming in from minor trench fighting. There was no sleep that night, and the road itself was a regular "Graphic Picture." The star shells were so numerous that there was a constant light in the sky. It was drizzly and pitch dark, except for those dazzling glares. As we went down the road on one side, reinforcements, guns, food, and supplies were coming up on the other. To make things more interesting, the Boches were sending in plenty of shells, and we had many close shaves, but I have not room to write about them—I shall never, as long as I live, forget that road. At times we would be in the pitch dark, and then the guns would blaze away, and we could see, silhouetted against the light, battery after battery moving up, and all "'75's."

The drivers were standing in their stirrups and lashing the horses as they tore along, like fire-engines in pictures, yelling and swearing, the guns, rockets, and the scream of the shells and the whine of the shrapnel, all contributed to the night's entertainment. It was a real thriller.

On the trips, I had to get out and walk along the

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road to find the shell-holes that had been made during our absence. That was really exciting and a most unpleasant sensation, for it was slow work and dangerous. Work never seems dangerous when things move quickly. Once, when we got back, the Boches were firing shrapnel over the "boyau," and we did some quick diving for the dugout. We had to sit there until it was over. There is a bang, then a whine and then the bullets come raining down on the roof. An ordinary shell can be avoided by throwing oneself on the ground, but shrapnel bursts in the air and literally rains death over a wide area. They say there is nothing like it for breaking up the morale of the troops. I believe them!

On another trip I noticed, or rather sensed, a commotion in front of the car and heard a strange mixture of French and German oaths. I soon realized that we had run into a batch of German prisoners. I was sorry that I could not see them—German prisoners are still objects of great interest to me. They are becoming a scarcity. The French soldiers, like the Canadians, merely smile and say "no more Kamerades." Germans are lucky to be taken prisoners.

Oh, there were many, many happenings on that bit of road that night—I'll tell you all, all about them. Each one would have furnished excitement for a week at home.

At 4 the next morning our Division attacked after a terrible "tirde-barrage," or curtain-fire attack. About two hours later, we worked like slaves hauling wounded. The "boyau" was filled to overflowing. The wounds were bad. We got many first-hand accounts of the attack—it hadn't gone well. The Germans, who had retreated the night before from the Morrocans, had doubled around and were waiting our Division with machine guns, and they checked the attack with these. One time, I had started off with a full load of wounded, when a man came running across the field waving his hand for me to stop. His face was very red—I thought from running. As he came near, I saw that his face was entirely covered with blood, just eyes peering out of a ghastly red mask. He had been struck by a machine-gun—bullet entered one cheek and came out of the other. His head was tied up in a rag which was almost indistinguishable, even at a short distance. I took him with me on the front seat; he continued to bleed profusely. He told me a great deal about the fight. All the officers were killed or mortally wounded. The Boches simply shot them to pieces with their "mitrailleuses." He was just one of many. I don't know why he should stick so in my memory more than the others. I thought I had become callous, but one can't, even in this war.

Suddenly the stream of wounded dwindled off; it was almost uncanny and ominous. We waited all that day, but no more came. Later we found out why. The Germans had been turning their machine guns on the "brancardiers" who went out in no-man's land to gather in the wounded—absolutely prevented any rescue work. Civilized warfare! Yet the worthy pacifists are allowed to preach their doctrine unmolested. We waited several days, and they, the wounded, were never brought in. Finally, we were relieved—our division went "en repos" and we went with them. To the best of my knowledge, those wounded, if they are alive, are still out there in no-man's land.

Few seem to realize our debt to France and the Allies. Can we ever pay it? Often, I want to join the French Army and take my chance with the rest, to satisfy my conscience. Heaven knows, after one catches a glimpse of it, this war, this modern fighting, holds no attractions, save that one great idea of doing one's bit, no matter how disagreeable it may be. It is this idea which is mainly reponsible for the salvation of civilization. . . . In fact, I never think ahead any more—today is the day.

Now that we are having a most wonderful "vacation," I have not a care in the world. It is a beautiful country, fine weather. We play soccer with the French soldiers of our Division, go to their regimental concerts, and live on the fat of the land, as our cook is the best in France—was a chef in Vienna before the war. I will write again and tell you all about the time I have been having. It won't last long, for next week we go back to the real front and listen to guns and live less like humans.

Proposed City-Planning Commission for Los Angeles

WHEREAS, This Southern California Chapter of the American Institute of Architects, appreciating the need of a more efficient constructive policy for the physical development of the city of Los Angeles, and recognizing the demand from many sources for such city planning, and

WHEREAS, Having taken up the study of the subject in conjunction with several of the civic organizations, and from such study coming to the conclusion that it would be for the best interests of the city and its citizens from points of governmental efficiency, financial economy, and esthetic reasons that a survey should be made showing the present physical conditions of the city and its needs, followed by the drafting of a comprehensive plan outlining the future development, and

WHEREAS, It is believed that this work will be best accomplished by the creation of a new department, governed by a commission as a unit to the present official government, be it therefore

Resolved, That this Chapter, in regular session assembled, November 13, 1917, petition the City Council of Los Angeles to take the necessary measures toward drafting an ordinance for the creation of a city-planning department, and when so done to submit a copy of the same for consideration to this organization, the City-Planning Association, the Municipal League, the City Club, and other civic organizations that may be interested, and be it further

Resolved, That after this ordinance has been drafted a hearing be granted by the Council to the above named societies for the purpose of considering its provisions and making the same an official ordinance.

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Structural Service Department

D. KNICKERBACKER BOYD, *Associate Editor*

PAINTS AND PAINTING, GLASS AND GLAZING, AND CONCLUDING SECTION, 1917

INDEX TO SUBJECTS TREATED IN THIS ISSUE

(For index of materials previously treated, see the General Index, page 657.)

12A Associations, Societies, and Allied Interests.
12B Research, Tests, and Paint Materials.
12C Treatments and Coatings for Metals and for Walls and Floors, Exclusive of Wood.
12D Wood Preservatives, Shingle Treatments, and Fire Retardants.
12E Painting, Varnishing, and Finishing in General.
12F1 Glass and Glazing in General.
12F2 Wire Glass, Roof Openings, Vault Lights.
12F3 Leaded and Decorative Glass.
12F4 Store-Front Construction and Store Fittings.
12F5 Glassware and Glass Products.
12F6 Greenhouses, Horticulture, Landscaping.

CONCLUDING SECTION

12G Schoolhouses, Grounds and Equipment.
12H Farm Buildings, Accessories, and Rural Engineering.
12J Workmen's Homes, Workmen, Industry, Safety to Life.
12K Acoustics and Sound Transmission Prevention

12A Associations, Societies, and Allied Interests

The publications and activities of the following bodies and of any of the governmental departments concerned with Paint, Varnish, Glass, and other products treated will be mentioned in connection with the main subject heading or subdivision under which they would naturally fall.

1. PAINT MANUFACTURERS' ASSOCIATION OF THE U. S.
   Secretary: G. B. Heckel, The Bourse, Philadelphia, Pa.
   [Mr. Heckel is Secretary of the Educational Bureau and H. A. Gardner is Director of the Scientific Section of same.]
2. THE INSTITUTE OF INDUSTRIAL RESEARCH
   Secretary: P. H. Butler, Washington, D. C.
3. NATIONAL VARNISH MANUFACTURERS' ASSOCIATION
   Secretary: G. B. Heckel, The Bourse, Philadelphia, Pa.
4. NATIONAL PAINT, OIL AND VARNISH ASSOCIATION
   Secretary: Henry W. Sawyer, 100 William Street, New York City.
5. INTERNATIONAL ASSOCIATION OF MASTER HOUSE PAINTERS AND DECORATORS OF THE U. S. AND CANADA
   Secretary: A. H. McGhan, Southern Building, Washington, D. C.
6. PAINT JOBBERS ASSOCIATION
   Secretary: E. R. Drake, Chicago, Ill.
7. BROTHERHOOD OF PAINTERS, DECORATORS AND PAPERHANGERS OF AMERICA. (See, also, American Federation of Labor, 12J10*n*.)
   Secretary: J. C. Skemp, LaFayette, Ind.
8. THE NATIONAL GLASS DISTRIBUTORS' ASSOCIATION
   Secretary: T. James Fernley, 505 Arch Street, Philadelphia, Pa.
9. THE PLATE GLASS MANUFACTURERS OF AMERICA
   Eastern Representative: G. Osgood Andrews, 393–95 Canal Street, New York City.
   Western Representative: M. G. Holding, Harris Trust Building, Chicago, Ill.
10. THE NATIONAL ORNAMENTAL GLASS MANUFACTURERS' ASSOCIATION OF THE U. S. AND CANADA
    J. E. Flanagan (Editor), 152 West Chestnut Street, Chicago, Ill.
    There is also record of:
11. RAILWAY BRIDGE AND BUILDING PAINTERS' ASSOCIATION

12B Research, Tests and Paint Materials

Reference was made under 1F8 to investigational work, with respect particularly to the preservation of iron and steel, which has for years been conducted by the American Society for Testing Materials and the Paint Manufacturers' Association of the U. S., separately and in coöperation. The U. S. Bureau of Standards has also made investigations and is conducting tests. The progress reports and publications pertaining to these activities constitute a most interesting story, even to laymen.

In connection with this section see Waterproofing and Dampproofing 1D, also Bituminous Materials 11C2.

1 *U. S. Bureau of Standards*

The following excerpts are given from the current Report of the Bureau, 1916.

(*a*) There are a number of apparently very important and little understood physical and physical-chemical problems relating to paints which demand **investigation** by an experienced and able chemist. Among these phenomena may be mentioned apparent great differences in the effects of different liquids on the surface of finely divided solids, such as pigments, changes in viscosity or plasticity of paints in keeping, or on addition of substances which are, so far as known, chemically inert.

(*b*) The **paint-exposure tests**, begun over a year ago, are in progress, but several years may elapse before conclusions can be drawn. A record will be kept by means of photographs and inspection of the test panels, which, in three kinds of wood, have been painted with a number of well-known brands of white paints for outside exposure.

(*c*) A method for the determination of oil and resin in **varnish** . . . and for the detection of resin in driers . . . has been worked out at the Bureau, which is believed to be more reliable than any previously published method. (See Technologic Paper No. 66.)

(*d*) An investigation of the constants of **linseed oil** mixed in paste form with white **lead** and **zinc** indicates that no material changes take place when the pastes are kept in closed cans. The results of this investigation are embodied in Technologic Paper No. 71.

(*e*) In Technologic Paper No. 76 it is shown that for the determination of volatile **thinner** in oil varnish, any one of a number of proposed methods yields results that are sufficiently accurate for ordinary purposes.

(*f*) The electrical division of the Bureau is testing an **insulating varnish**, prepared in the chemistry division, after considerable work extended over a period of several months. The varnish is made from tung oil, calcium resinate, cellulose acetate, acetone, and pyridene or other organic base.

(*g*) A large amount of matter has been prepared for use in a projected circular of information on **paint materials**.

(*h*) A chapter on **paint, paint oils, and varnishes** has been prepared for the projected circular on **household materials**.

[NOTE.—We are advised, Nov. 19, 1917, by Director Stratton that it will probably be some time before (*g*) and (*h*) are available for distribution.]

2 *American Society for Testing Materials*

(*a*) Committee D1 on **Preservative Coatings for Structural Materials**, P. H. Walker, Chairman, Bureau of Standards, Washington, D. C., is one of the dominating factors in this country with respect to all matters concerning paint and other coatings. It consists of ninety-one members drawn from authorities in the producing and non-producing fields, and includes representatives from the Bureau of Construction and Repair, U. S. Navy, Underwriters' Laboratories, Maintenance of Way Divisions of Railroads, Paint Manufacturers' Associa-

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tion of the U. S., National Varnish Association, chemists, manufacturers and others.

An excellent idea of its work may be obtained from the "Statement of **Plan and Policy of Committee D1**," pp. 685–689 in A.S.T.M. Book of Standards, 1916.

The range of the subjects covered are indicated by the character of its subcommittees, named as follows: Advisory, **Testing** of Paint Vehicles, **Linseed Oil, Definitions of Terms** Used in **Paint Specifications**, Accelerated Tests and the Influence of Pigments on Corrosion, **Methods and Analysis** of Paint Materials, **Varnish**, Paint **Thinners** Other Than Turpentine, **Turpentine, Shellac**, Preparation of Iron and Steel **Surfaces** for Painting, Specifications for Pigments Dry and in Oil When Marketed in the Form, **Terms** used in Reporting the Condition of Painted Surfaces, Testing of Pigments for Fineness by the Use of Screens, Physical **Properties of Paint Materials.**

(*b*) There were formerly subcommittees on **Inspection of Havre de Grace Bridge**, on **Inspection of Steel Plates at Atlantic City**, and on **Inspection of White Paint Test Fence** at Washington, D.C., but these were discontinued in 1916, their duties having been performed.

The reports of these Committees printed in A.S.T.M. Proceedings previous to that date form interesting documentary records of these tests and of examinations also made by the leading railroads of the country and others interested.

(*c*) The most extensive series of **panel paint tests** ever conducted were those located at the Experimental Farm of the U. S. Department of Agriculture at Arlington, Va. At this place over one hundred white paints of different compositions, used upon lumber surfaces, were exposed in 1912. The tests, to be typical, were located in the center of farming lands, within close proximity to a river and a railroad. Inspections of the tests were annually made and reported to the Society.

(*d*) The exhaustive reports of Committee D1 are always a feature of the conventions of the A.S.T.M. and of the published Proceedings (1A4), in addition to which these reports have been issued as a separate bound volume as mentioned under 1F8.

3 *Standards Adopted*

See, also, the A.S.T.M. Standards under 11C2*a*.

(*a*) **Standard Definitions of Terms Relating to Paint Specifications** (A.S.T.M. Serial Designation D 16–15). All architects and other specifiers and users of paints and allied products should certainly familiarize themselves with the terms here given as relating to various materials, processes, and methods of application and endeavor through usage and constructive criticism, or suggestions for amplification and additions, to still further crystallize understanding of these subjects. (See, also, (*b*) next.)

(*b*) The Paint Manufacturers' Association at its meeting, November 1916, adopted **Definitions and Nomenclature** to replace manufacturers' titles or trade-names in common use, consonant with (*a*), and issues Circular No. 42, 4 pp., giving same.

(*c*) Standard Specifications for Purity of **Raw Linseed Oil** from North American Seed. A.S.T.M. serial designation D1–15.

(*d*) Standard Specifications for Purity of **Boiled Linseed Oil** from North American Seed. A.S.T.M. serial designation D11–15.

(*e*) Standard Specifications for Purity of **Raw Tung Oil**. A.S.T.M. serial designation D 12–16.

(*f*) Standard Specifications for **Turpentine**. A.S.T.M. serial designation D 13–15.

(*g*) Standard Tests for **Paint Thinners** other than Turpentine. A.S.T.M. serial designation D 28–17.

(*h*) Standard Tests for **Shellac**. A.S.T.M. serial designation D 29–17.

(*j*) Standard Methods for Routine **Analysis of White Pigments**. A.S.T.M. serial designation D 34–17.

(*k*) Standard Methods for Sampling and Analysis of **Creosote Oil**. A.S.T.M. serial designation D 38–17.

(*l*) Tentative Tests for Analysis of Creosote Oil. A.S.T.M. serial designation D 38–17 T. To be added, when adopted, to the Standard Methods for Sampling and Analysis of Creosote Oil (A.S.T.M. serial designation D 38–17).

4 *Paint Manufacturers' Association of the U. S.*

This Association maintains an **Educational Bureau**, instituted in 1904, which was in 1906 subdivided into three sections: A Scientific Section to have charge of research work and demonstration; a Professional Section to have charge of lecture work; and a Publicity Section to have charge of newspaper, circular, and similar work.

(*a*) In "The Educational Bureau—A Résumé of Its Activities from Its Establishment to the Present Time (1915)," will be found historical data concerning various **tests** conducted by the Association or in coöperation with the U. S. Forest Products Laboratory, the American Society for Testing Materials, the Southern Cypress Manufacturers' Association, colleges, technical institutions, and others, at **Fargo, N.D., Pittsburgh, Pa., Atlantic City, N J., Nashville, Tenn., Washington, D.C., Manhattan, Kan., St. Louis, Mo.**, and elsewhere.

The **results** of all these tests at different **stages** are published in one form or another by the Association and may be found on the list of publications, with prices, obtainable from its Secretary. Many of them are also referred to in the Proceedings of the A.S.T.M. and other publications, particularly in (*b*) and (*c*).

(*b*) **"Paint Researches and Their Practical Application,"** H. A Gardner, Director Scientific Section P.M.A., and Assistant Director of the Institute of Industrial Research. Dedicated, 1917, to past and present members, Educational Bureau, P.M.A. Describes the tests elsewhere referred to and draws deductions to date from the results; contains chapters on **prepared paint** and **pigment** industries, **physical characteristics**, etc., and others that will be found referred to under the subdivisions in this issue.

(*c*) **"Paint Technology and Tests,"** H. A. Gardner. Presents results of exposure tests and research work for the Scientific Section of the P.M.A. 256 pp., illus.

5 *The Institute of Industrial Research*

The **Division of Paint Technology** is under the direction of H. A. Gardner, who has long been in charge of the experimental work carried on by the Paint Manufacturers' Association, which is being continued in the paint laboratories of the P.M.A. at the Institute.

The extensive **exposure tests** in different sections of this country, which were designed to determine the comparative merits of protective coatings and paint products for various structural materials, are being continued and inspected from time to time in order that reports and bulletins may be issued and information distributed, in conjunction with important laboratory researches to determine the physical and chemical properties of oils and oil mixtures.

Advice to engineers, architects, or painters regarding the better types of **protective coatings** for the **exterior** or **interior** of buildings is given out from time to time without charge in bulletin form. Bulletin No. 3 describes the scope and organization of the Institute and contains a list of publications issued by it or under its auspices.

6. In **"The Specifying of Paints and Varnishes,"** in *The American Architect*, Oct. 3, 1917, G. B. Heckel writes; "Beyond the painter as a basis for intelligent specification stands experience. . . . It would seem imperative, therefore that the **practising architect** should have always in progress a series of **field tests** systematically examined and reported on at regular intervals. . . . Better still would it be if the American Institute of Architects, for example, through a standing committee should conduct such tests continuously for the benefit of the entire craft, issuing from time to time lists of approved brands or materials. One can easily conceive how such a committee or organization might eventually speak with authority on the entire range of products and materials. There is such an organization now in operation in New York (Building Data League) and, if wisely conducted and developed, it should accomplish much."
7. See references under "Manufacture of Oils and Pigments" (1F8*c*).
8. See **"Paints and Pigments,"** A. H. Sabin, *Journal*, Association of Engineering Societies. 1911.
9. "The Analysis of **Paints and Painting Materials,"** H. A. Gardner and J. A. Schaeffer.
10. **"White Paints** and **Painting Materials,"** W. G. Scott. A treatise on source and manufacture, composition and properties, use and formulas. 493 pp.
11. See **"Painters' Colors, Oils and Varnishes,"** George H. Hurst.
12. "American Civil Engineers' Pocket Book," M. Merriman, 1916, section on **"Paints and Oils,"** p. 374.
13. **"Paint and Painting,"** P. W. Nelson, *Journal*, Society of Constructors of Federal Buildings, February, 1917.
14. See "Students' Handbook of **Paints, Colors, Oils and Varnishes,"** J. Furnell. 94 pp. illus.
15. "Simple **Method for Testing** Painters' Materials," A. C. Wright. 160 pp., illus.
16. **"Pigments, Paints and Painting,"** George Terry. 392 pp., illus.
17. "The Industrial and Artistic **Technology of Paint and Varnish,"** A. H. Sabin. 372 pp., illus.
18. "Chemistry and **Technology of Paints,"** Maximilian Toch. 373 pp., illus.
19. "Drying **Oils**, Boiled Oil, and Solid and Liquid **Driers,"** L. E. Andes. 356 pp., illus.
20. "The Manufacture of **Paint,"** J. C. Smith. 285 pp., illus.
21. "The Manufacture and Comparative Merits of **White Lead** and **Zinc White** Paints," G. Petit. 103 pp.
22. "Manufacture of **Varnishes** and Kindred Industries," J. G McIntosh. Illus. Three volumes.
23. **"Dictionary** of Chemicals and Raw Products Used in the Manufacture of **Paints, Colors, Varnishes** and Allied Preparations," G. H. Hurst. 392 pp.

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24. "**Paint and Varnish Facts** and Formulas," J. N. Hoff. 179 pp.
25. "Chemistry of **Paints and Paint Vehicles**," C. H. Hall. Illus.
26. "**Linseed Oil** and Other Seed Oils," Wm. D. Ennis. 330 pp.
27. For references in Industrial Section applicable to this division, see:
    (*a*) **Inspection** Service, **Laboratory Service**, Robert W. Hunt & Company, p. XXIX.
    (*b*) Matheson **White Lead**, Matheson Lead Company, p. XIX.

12C Treatments and Coatings for Metal and for Walls and Floors, Exclusive of Wood

See Preservation of Iron and Steel (1F8); Protective Coatings (1F8*b*); Corrosion and Treatment of Metals (11B2); and, Protective Coatings (11B3). Also, as of interest, see Floor Treatments and Coverings (11D4) and reference to Committee on Treatment of Concrete Surfaces (11D6*r*). See, also, 12E6 and 8.

1. In "Paint Researches and Their Practical Application" (12B4*b*) see Chapters: VI—Paint Protection for Portland **Cement Surfaces**; VII—Paints to **Prevent Electrolysis** in Concrete Structures; VIII—Paints for Metal (this includes recommendations for **painting galvanized iron**, and painting **tinned surfaces**); IX—Marine Paints (includes preservation of **tanks**); XVI—The Light **Reflecting Values** of White and Colored Paints (this includes a page of colored samples giving the coefficients of reflection of various wall colors compared with a block of white magnesium carbonate).
2. Lefax Data Sheet, 6–224, "**Paints for Metal Surfaces**," contains information from Chapter VIII of "Paint Researches and Their Practical Application" (12B4*b*).
3. See "Building Code" recommended by the N.B.F.U., 1915, for "**Protection of Structural Metal** against Corrosion," p. 96.
4. See requirements for **Shop Painting** of steel work, Manual American Railway Engineering Association, 1915 edition, p. 503.
5. "**Red Lead** Paints for Metal Surfaces," G. W. Thompson, *Metal Worker*, Jan. 19, 1917.
6. The **Painting of Iron and Steel**," J. Scott, *Railway Engineering*, June, 1916. Illus.
7. "Paints to **Prevent Electrolysis** in Concrete Structures," H. A. Gardner, *Journal*, Franklin Institute, March, 1915. 24 pp., illus. Diagrams and figures, showing specimens of reinforcing metals under tests and tables of results under differing compositions of paints.
8. See "Mechanical Engineers' Pocket Book," Wm. Kent, 1916, for information on **Roof Paints**, p. 192; **Chrome Paints**, p. 469.
9. See "American Civil Engineers' Pocket Book," M. Merriman, 1916, for painting of structural steel, paints commonly used for **painting steel** in buildings, and paint for steel bridges.
10. See "Civil Engineers' Pocket Book," J. C. Trautwine, 1913, regarding **paint coatings** for iron, zinc, bridges, and concrete.
11. See "I.C.S. Building Trades' Handbook," for information on fireproofing and **painting of metal** columns, p. 120; and for painting of **tin roofs**, p. 312.
12. Among the Miscellaneous Rules in the "Hand Book of Fire Protection," E. U. Crosby and H. A. Fiske, is one on **Painting and Bronzing** (p. 340), which says: "Where pipes are painted or bronzed for appearance, the moving parts of sprinkler heads should not be so coated."
13. **Paint for Steam and Hot Water Radiators**, Circular No. 7, P.M.A., 1913, gives a résumé and tables showing results of investigations conducted by Prof. J. P. Allen at University of Michigan (see, also, 10K2*b*) in which it is stated that "aluminum, copper and metal pigments in **bronzes** reduce the heat transmission." Results of these "**Transmission Values**" given also in a table on p. 1247, Kidder's Pocket Book 1916. These tests also described in "Painting School Buildings," S. B. Heckel in *School Board Journal*, November, 1917, in which is also described **treatment of other special surfaces.**
14. "**Technical Paints**," A. H. Rhett, *Journal of Society of Constructors of Federal Buildings*, February, 1917.
15. For labor applying waterproof paints, see "The Building Estimator's Reference Book," Frank R. Walker, Chapter IV on "**Water- and Damp-Proofing.**"
16. In 1909, in Philadelphia, the Educational Bureau, P.M.A., instituted a series of tests on **cement coatings**. See Bulletin No. 20 on **Cement Paints.**
17. In 1912, the Bureau Laboratories having been transferred to the Institute of Industrial Research at Washington, a **concrete test fence** was erected there for the testing of cement coatings. The general results of the tests at the end of a two-year period, with an outline of the composition of the paints tested, are given in "Paint Researches and Their Practical Application" (12B4*b*).
18. In 1910 a series of similar tests was instituted on the **concrete walls and floors** of the Institute building itself. The results are given in Circular No. 24, Educational Bureau, P.M.A., and in a paper entitled: "Paint Protection for Portland Cement Surfaces," presented by H. A. Gardner to the A.S.T.M. in 1914.
19. The results of these tests are quite in line with the results obtained by Ware and Schott. (See "Paint Films as Protective **Coatings for Concrete**," *Journal of Industrial and Engineering Chemistry*, Vol. VI, No. 3, March, 1914) in a series of paint-exposure tests made upon exterior concrete surfaces.
20. The Building Data League (2A5) has issued the following:
    (*a*) "Standard Specifications for **Concrete Hardeners**;" No. 598, "**Liquid Penetrating Coatings**;" No. 902, "Incorporated Additions."
    (*b*) "Standard Specifications for **Damp-proofing Exterior Walls** above Grade," No. 395–1.
    (*c*) News Letter, July, 1917. 4-page digest of paper by Bassett Jones on "The Characteristics of **Interior Building Finishes as Affecting Illumination**—to show the real economy in applying finish to walls and ceilings that will make them permanently **efficient as reflecting surfaces** and how such finishes may be produced."
21. See article on "The Economic Value of **Mill Whites**" in *Textile World Journal*, June 2, 1917.
22. In *Journal of Society of Constructors of Federal Buildings*, see,
    1. "The **Painting of Green Plaster**," J. E. Langley; discussion by E. G. Schurig. July, 1915.
    2. "My First Experience with **Distemper**," C. M. Pritchett. May, 1916.
23. "Paint and Painting" (12B13) contains information on "Paintings of **Interior Surfaces** of Ceilings and Walls."
24. For "**Government Whitewash**" Formulas, see 2B9*d*.
25. For references in Industrial Section applicable to this division, see:
    (*a*) "The Theories of Rust" and "a **Rust-proofing Process**, Patton's Ironhide," p. xv.
    (*b*) R. I. W. **Protective Products**, Toch Brothers, p. xvi.
    (*c*) **Rust-Resisting Paint**, The Solvay Process Co., Semet-Solvay Co., p. xix.
    (*d*) **Inspection** Service, **Laboratory Services**, Robert W. Hunt & Company, p. xxix.
    (*e*) "To remedy **dusting** and **wearing concrete floors**," **liquid chemical** Lapidolith, L. Sonneborn Sons, Inc., Third cover.

12D Wood Preservatives, Shingle Treatments, and Fire Retardants

See "Treatments of Woods: Preservatives and Fire-Retardants" (5E1), and, "Piling, Piers, and Bulkheads" (5F).

See, also, "Treated Wood Flooring and Paving" (5E2).

1. "Specifications for the Purchase and **Preservation** of Treatable **Timbers**," from Report to American Wood Preservers' Association; *Railway Age Gazette*, Jan. 26, 1917.
2. See *Journal of the Association of Engineering Societies* for the following papers:
    (*a*) "Paints for **Preservation of Wood and Metal** Structures," Onward Bates, 1898, p. 1168.
    (*b*) "**Preservation of Timber**," Samuel M. Rowe, 1899, p. 283.
    (*c*) "**Preservative Treatment of Timber**," O. Chanute, 1900.
    (*d*) "The Preservation of Railroad Cross Ties" (abstract), 1900.
    (*e*) "Preservation of Timber from **Decay**" (bibliography), 1900.
    (*f*) "Factors Which Cause the **Decay of Wood**," Hermann von Schrenk, 1901, p. 89.
    (*g*) "**Timber Treating** Plants," W. W. Curtis, 1903, p. 541.
    (*h*) "Preservation of Wood from **Fire and Decay**," Joseph L. Ferrell, 1904, p. 38.
    (*i*) "**Wood Preservation** from an Engineering Standpoint," C. T. Barnum, 1910, p. 346.
3. In "Paint Researches and Their Practical Application" (12B4*b*), see Chapters: XII—**Impregnated** Panel Tests; XIII—**Fire Retardant Paints** for Shingles and Other Wooden Structures.
4. "Test Compounds for Making Wood **Fire-Retardant**," *Engineering Record*, June 17, 1916.
5. In coöperation with the National Lumber Manufacturers' Association and others, a series of tests was instituted by the Educational Bureau, P.M.A., in 1912, on **Fire-Retardant Shingle Paints**, and a preliminary report was made thereon in Bulletin No. 42. Later the Scientific Section, at the suggestion of the U. S. Forest Products Laboratories, prepared three series of tests in duplicate, which were exposed in Washington, St. Louis, and Atlantic City. These comprise both impregnated and unimpregnated woods, panels for which were prepared by the Forest Products Laboratories. The test is described in Bulletin No. 44. The final report is now in course of preparation by Dr. von Schrenk.

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The results of these tests have led to the **manufacture of fire-retardant** shingle paints in accordance with a formula licensed by the P.M.A. of the U. S., the same being known as **"Pamak."** The Educational Bureau of the P.M.A. has just issued a leaflet containing information on this subject and a list of manufacturers licensed to manufacture fire-retardant shingle paints under the official **trade-marks** of the Association.

6. "Woods treated either with **antiseptic materials**, for purpose of preservation, or with chemical salts, to render them **fire-resistant**, are coming into general use. In conjunction with the United States Forest Products Laboratory, the lumber associations, etc., the Scientific Section of the P.M.A. is investigating the proper method of painting wood so treated. The work is described in Bulletin No. 44 and in the Section Reports."
7. See "Fire Prevention and Fire Protection," J. K. Freitag, 1912, "Fireproof Wood," p. 260; **Fire-retarding Paints**, p. 938.
8. See, "Hand Book of Fire Protection," E. U. Crosby and H. A. Fiske, **Fire-Retardant Paints**, pp. 81–82.
9. "Notes on **Preservation of Wood**—Some Microscopic Features," James Scott, *Railway Engineer*, January, 1917, illus.
10. "The **Preservation** of Structural Timber," H. F. Weiss. 361 pp., illus.
11. "American Civil Engineers' Pocket Book," M. Merriman, 1916, **painting of drydocks**, p. 1476.
12. For references in Industrial Section applicable to this division, see:
    (*a*) **Cabot's Old Virginia White** for shingles, siding and similar woodwork, Samuel Cabot, Inc., p. xix.
    (*b*) "Dixie White" **"Creo-Dipt" Stained Shingles**, Creo-Dipt Company, Inc., p. xxxvii.

12E Painting, Varnishing and Finishing in General

See, also, references to Coatings, Mill-whites, etc., under 12C.

1. In "Paint Researches and Their Practical Application" (12B4*b*), see various Chapters, including: XI—Observations on Painted Lumber; XVII—Formation and Inhibition of **Mildew in Paints**; XVIII—Fungi on Painted Surfaces; XXII—**Paint Driers** and Their Application; XXIV—The **Application** of Paints and Finishes to **Wood**. In the latter Chapter it is stated:
    (*a*) "The majority of the high-grade paints to be purchased from reliable dealers will closely approximate the **prepared paint** called for by the **specifications** of the **U. S. Army**, which are as follows:
    (*b*) "The paint must be furnished in prepared form, ready for application. White paint must contain not less than 65 per cent nor more than 70 per cent of pigments, the balance to be liquids. The liquids shall consist of pure raw linseed oil, containing a total of not over 10 per cent of turpentine and turpentine drier. The pigment portion of the paint shall consist of white lead (basic carbonate or basic sulphate) and zinc oxide. There shall not be less than 25 per cent nor more than 50 per cent by weight of zinc oxide. Paints of this composition containing, in addition, not over 15 per cent by weight of such white pigments as barytes, china clay, whiting, asbestine, and silica will be accepted under these specifications.' "
2. The P.M.A. of the U. S. (12A1) issues circulars, bulletins of the Scientific Section, tabloids, pamphlets and booklets. Many of these are of special interest to architects and constructionists. It is suggested that a list of these publications, with prices, be obtained from the Secretary and consulted for those applicable to **any particular purpose** desired.
3. At its Convention, on Nov. 16 and 17, 1917, the P. M. A. of the U. S. took the following action:
    To **reduce the number of paints and shades** offered on color lists to a maximum of 42, exclusive of black and white. (Some of the leading manufacturers have already reduced to 36.)
    To **eliminate the half-gallon can** for all paint products on and after July 1, 1918. (The varnish manufacturers are expected also to fall in line with this action.)
    To **eliminate the pint can** at the same time for liquid house paints.
4. The National Paint, Oil and Varnish Association issues a Year Book and Bulletin to members and maintains a Bureau for the **registration of trade names** and trade titles, having over 5,000 listed.
5. The "International Association of Master House Painters and Decorators of the U. S. and Canada" (12A5) is devoting particular attention to the trade education of the youth through a special committee and has a Paint Legislative Committee of which John Dewar, of Pittsburgh, is Chairman, which is actively agitating for a Federal law requiring the **plain paint label** with a correct analysis attached to all packages.
    (*a*) NOTE.—This activity is along the lines of the action of the American Institute of Architects at its 1916 Convention in Minneapolis in adopting Mr. Tomlinson's motion that "the Committee on Materials and Methods, or another, be instructed to work for Federal legislation analagous to that governing **weights and measures** or to that governing pure foods which shall provide penalties for furnishing other than the **kinds and qualities of materials**, or the **weights and measures required** under specifications and contracts."—"Proceedings" Fiftieth Annual Convention A.I.A., p. 28.
    (The P.M.A. is opposed to the formula on practical grounds but advocates the passage of laws forbidding any form of **misbranding** and requiring statement of **net weights or measure** similar to those now in operation in Pennsylvania, Ohio, and some other states.)
    (*b*) At the next Convention of this Association (12A5) at Peoria, Feb. 5–8, 1918, Prof. E. F. Ladd, President of the Agricultural College of North Dakota, under whose auspices the first paint-test fence in this country was erected, will deliver an address on **"Paint and Paint Materials."**
6. The Brotherhood of Painters, Decorators and Paperhangers of America (12A7) issues monthly *The Painter and Decorator*, its official publication, containing items of interest in connection with the craft.
7. **"A Paint Catechism** for Paint Men," G. B. Heckel, Secretary P.M.A. 48-page booklet. Third Edition. Revised and extended February, 1917. 25 cents. This handy collection of terse, practical definitions of paint materials and answers to questions met in everyday practice will be found helpful to all specifiers and users of paint. It describes **Lithophone, Soya Bean Oil**, and other products of recent usage and gives recommendations of the kind and character of **applications** to be made to **wood, metal, and other materials** under varying conditions.
8. **"A Varnish Catechism** for Varnish Men," also by Mr. Heckel, is similar in the informative character of its contents to the next preceding reference. 45 pp. 1912. 25 cents.
9. **"Painting with Prepared Paint**—A Guide for Consumers" is the title of a 32-page booklet reprinted from *Drugs, Oils and Paints*, which may be obtained from the Editor, Bourse Building, Philadelphia. Defines **classes of lumber** and recommends **treatments** for each and for **new and old work**, and for **metals** (including galvanized iron), **bricks, plaster**, and other materials.
10. The proper treatment of the woods in which they are interested has naturally appealed to the various lumber interests to the extent that they have issued instructive literature on the subject, much of it in collaboration with painting and varnishing interests, and in some cases under the guidance of individual authorities. Some of the following references merit partial repetition from **"Exterior and Interior Wood Finish**, Veneering and Finishing" under 5H:
    (*a*) In "Lumber and Its Uses" (5B1*f*) see Section on "Paints and Wood Finishes," describing Preparatory Treatments and giving **Specifications of Master Painters for Exteriors, Interiors, Hardwoods, and Softwoods.**
    Southern Pine Association issues:
    (*b*) "Directions for Finishing Southern Yellow Pine," 19 pp., containing colored facsimiles of finished woods and other illustrations, including interiors, with notes on **painting, staining, and varnishing** of this wood.
    (*c*) "Service and Economy in Building" (5G2*n*). Similar in contents to (*b*) without colored plates.
    (*d*) "The Interior of Your Home," 24 pp., 8½ x 10, 1917, containing color plates of Popular Finishes in Southern Pine Interior Trim, many illustrations and descriptions with **Directions for Finishing Southern Pine** Interiors as to Painting, Enameling, Staining and Natural Finish and as to Floors. Also Painting Exteriors.
    Gum Lumber Manufacturers' Association issues:
    (*e*) "Technical Information about Red Gum" (no date), 16 pp., with notes on the **care of** hardwood **doors and trim.**
    (*f*) "Red Gum Facts," 13 pp. Formulas for various finishes.
    California Redwood Association issues:
    (*g*) "California Redwood," 70 pp., giving "Directions for **Rear Finishes** on Redwood." Eight large colored panels show in facsimile varying effects of grain also.
    (*h*) "In the Home of Redwood" (5G2*m*2), formulas are given for **interior finishes.**
    Arkansas Soft Pine Bureau issues:
    (*j*) "Arkansas Soft Pine: **Interior Trim**," 18 pp., colored and other illustrations.
    (*k*) "Arkansas Soft Pine: **How to Finish and Paint It**," 1917.
    (*l*) "Not a House but a Home." **Hints for the Layman**; Cottage and Residence Designs, with introduction by Aymar Embury II, architect. 36 pp.
    West Coast Lumbermen's Association issues:
    (*m*) "Suggestions for the **Finishing of Western Woods.**"

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North Carolina Pine Association issues:

(*n*) "Architects' and Contractors' Reference Book on North Carolina Pine," 7 pp., illus. Contains **colored illustrations.**

(*o*) "North Carolina Pine for Architects and Contractors," 15 pp., colored illustrations of **stained boards**, and adaptability to staining and enameling.

(*p*) "Your Home Beautiful," 16 pp., colored illustrations of **stained boards** and colored interior views.

(*q*) "Planning the New Home," 24 pp. Contains colored illustrations of **stained boards**; exterior illustrations and floor plans of ten modern homes, together with information on the characteristics of this wood.

(*r*) "Architects' Reference Book," 16 pp., color plates.

(*s*) "Home Builders' Book, 24 pp., color plates.

Southern Cypress Manufacturers' Association issues:

(*t*) "Cypress Pocket Library." Consists of 41 booklets covering all uses for Cypress (5G1*q*1). See index to same in Vol. I.

11. The next following publications, some of them issued by the manufacturers of the flooring themselves, and one by a varnish association, refer to the **finishing of wood floors**, the remaining contents having been referred to under 5H. (Treated wood flooring and paving referred to under 5E2.)

(*a*) "The Building Estimator's Reference Book," F. R. Walker, 1917, contains a complete section on **wood flooring**, pp. 1318–1381, which gives data on scraping, sanding, and complete finishing, with several pages of illustrations of **parquetry floors** and **wood carpets.**

(*b*) In "Lumber and Its Uses" (5B1*f*), see **Hardwood Flooring**—Kinds, Grades, Uses and Methods of Finishing.

(*c*) In "Directions for Finishing Southern Yellow Pine" (5H2), see section on Finishing Southern **Yellow Pine Floors.**

Publication of the Maple Flooring Manufacturers' Association:

(*d*) "How to Lay and **Finish Maple Floors.**" 1915. Includes Scraping and Sanding, Directions for Finishing Floors (oil treatment, wax finish, and varnished floors), Repairing Waxed Floors, Staining Maple, Beech and Birch Flooring.

(*e*) Publication of The Oak Manufacturers' Association of the U. S. and the Oak Flooring Service Bureau: "Oak Flooring." Seventh Edition, 1915. Contains Directions for Scraping, Finishing (oil, wax and varnish), **Care of Oak Floors**, and Economical Uses.

(*f*) The National Varnish Manufacturers' Association (12A3) issues (1911) "**Modern Floors**" which treats of Preparation of Surface, Paste Wood Fillers, Staining, Varnishing, Proper Conditions, Refinishing Old Floors and Proper Treatment and Care of Floors. 16 pp.

(*g*) "Care and Operation of Federal Buildings," by J. Morton, *Journal of Society of Constructors of Federal Buildings*, July, 1915, describes the preparation used in Federal buildings for **oiling wood floors**, for preservation of the wood, reduction of dust, and simplification of cleaning.

(*h*) "Laying and **Finishing Hardwood Floors**," F. G. Odell. 50 pp., illus.

(*j*) The treatment and **finishing of floors** with various materials is described in the Specifications which follow (11 and 12).

12. For "**Specifications on Painters' Work**," and Notes on Painting Specifications, see Part II of "Building Construction and Superintendence," F. E. Kidder, which treats of painting, repainting, staining, varnishing, graining, enameling, finishing and waxing, with regard to: old and new exterior woodwork, brickwork, plaster, cement and concrete; exterior iron and steel; iron fences, and galvanized iron; copper; tin; shingles; interior woodwork and softwoods; interior plaster and cement; hardwoods; pine and hardwood floors.

13. For complete notes and observations on "the Painting, Enameling, Staining and Finishing of Woods Generally—in a Medium and First Class Manner, also for the Painting of Brick, Plaster, Cement Concrete, Iron, etc." see "**Architectural Specifications.**" John Dewar. Endorsed by the Pennsylvania State Association of Master House Painters and Decorators, Jan. 15, 1913.

14. See "Kidders' Pocket Book," 1916, "**Paint and Varnish.**"

15. "Mechanical Engineers' Pocket Book," Wm. Kent, 1916. Section on "Preservative Coatings," pp. 471–472, describes Paint, Varnishes, Methods of Application, **Quantity of Paint** for a Given Surface, and Qualities of Paints.

16. "Mechanical Engineers' Handbook," Lionel S. Marks. 1916. Section on "**Paints and Protective Coatings.**" H. A. Gardner, treats of preparation of surfaces, cost, paints for wooden surfaces, paint oils, carbon paints. See also p. 532 for information on aluminum bronze; p. 627, for insulating varnishes; and p. 643 for shellac.

17. In "Handbook for Architects and Builders," published under the auspices of the Illinois Society of Architects, Vol. XX, 1917, see "**Varnish**," by R. B. Johnson, pp. 341 and 343; also, "**Protective, Preservative** and **Decorative Coverings**," pp. 345, 351.

18. See "The Building Estimator's Reference Book," F. R. Walker, 1917, Chapter XIX on "**Painting and Varnishing**" for information on the Measurement of Buildings for Painting; **Covering Capacity** of Various Kinds of Paints; Material, Labor and Actual Costs of Painting and Varnishing; Dry, Cement and Oil Colors.

19. See "Civil Engineers' Pocket Book," J. C. Trautwine, 1913, for information on **paints and painting**, and for cost data.

20. See "The Building Foreman's Pocket Book and Ready Reference," H. G. Richey, "**Painting and Glazing**," p. 504.

21. "Cyclopedia of Architecture, Carpentry and Building," American School of Correspondence, Vol. I, contains information on **Outside Finish, Inside Finish**, and **Decorating.**

22. See "I.C.S. Building Trades' Handbook," section on "Estimating" for **Painting and Papering**, pp. 372–375.

23. "**Color in Architecture** at the Panama-Pacific Exposition," Wm. L. Woollett, *Architectural Record*, May, 1915. Illus.

24. "The Use of **Paint on the Farm**," P. H. Walker, Farmers' Bulletin No. 474, U. S. Department of Agriculture (12H1).

25. In the "Proceedings" of the Municipal Engineers of the City of New York, 1915, will be found a paper by Houston Lowe on "**Some Paint and Painting Factors**," followed by discussions, comprising 39 pages of illustrated data of interest in connection with the use of paints and the maintenance of bridges, buildings, and other structures. In same is given a form of "**Specifications for Mixed Paints for Wood—Outside**," as prepared for the Board of Water Supply, particularly for use on fences and buildings along the Catskill aqueduct.

26. "**House Painting**," Alvah Horton Sabin. 121 pp.

27. "The Preparation and Uses of **White Zinc Paints**," P. Fleury.

28. "**Commercial Paints** and Painting," Arthur S. Jennings. 236 pp.

29. "How to Get **Good Results** with Paint," G. W. Thompson, *The American Architect*, April, 1915.

30. "**Painting Schoolhouses**," S. B. Heckel, *School Board Journal*, various issues prior to November, 1917. (See 12C13.)

31. "How to **Mix Paints**," C. Godfrey. Illus.

32. "Paint and Color **Mixing**," A. S. Jennings.

33. "**Enamels and Enameling**," P. Randau. 196 pp., illus.

34. "**Practical Painters' Work**," Paul N. Hasluck. 160 pp., illus.

35. "**Facts and Figures** in Connection with **Outside Painting**," G. E. Walsh, *House and Garden*, September, 1911. Illus.

36. "739 **Paint Questions Answered**," Wm. T. Comstock. 383 pp. (Reprinted from the *Painters' Magazine*.)

37. "One Thousand More **Paint Questions Answered**," Wm. T. Comstock. 630 pp. (Reprinted from the *Painters' Magazine*.)

38. "Philosophy of **Color**," Chandler R. Clifford.

39. "**Color, Harmony and Contrast**," James Ward. Illus.

40. "Grammar of **Coloring**," G. Field. New edition enlarged by E. A. Davidson.

41. See the following in *Journal of Society of Constructors of Federal Buildings*:

(*a*) "The **Priming** Coat," Harry G. Richey, May, 1915.

(*b*) "The Painting of Green **Plaster**," July, 1915.

(*c*) "High Grade **Varnishes**; Their Manufacture and Use," C. T. Bragg, March, 1915.

(*d*) "**Fumed Oak**," C. E. Morrell, November, 1915.

(*e*) "**Transparent Finishes**," E. G. Schurig, July, 1915.

42. Lefax Data Sheet, 6–303, "**Light-Reflecting Values** of White and Colored Paints," contains material from Chapter XVI of "Paint Researches and Their Practical Application" (12B4*b*).

43. In "What You Should Know When Building A Little House," C. E. White, Jr., see the following: "**Finishing the Interior**," p. 26; and Painting and Finishing of Trim on the **back**, p. 27.

44. "Architectural **Hardwood Finisher**," Geo. Whigelt.

45. "**Natural Woods** and How to Finish," Wm. T. Comstock.

46. "The Modern **Wood Finisher**," F. Maire.

47. "The Up-To-Date **Hardwood Finisher**," F. T. Hodgson, Architect, 320 pp., illus.

48. "**Wood-Finishing**," Paul N. Hasluck.

49. "The **Hardwood Finisher**," C. Godfrey. 112 pp., illus.

50. "**Polishes and Stains** for Wood," D. Denning.

51. "Care and Operation of Federal Buildings" (12E10*g*). See p. 231 for reference to Treasury Department's formula for **furniture polish**, and to other preparations for the **removal of ink** and grease **stains** from varnished surfaces.

52. "Painting for the **Imitation of Woods** and **Marbles**," as taught and practised by A. R. Van der Burg and P. Van der Burg. Illus.

53. "Practical **Graining and Marbling**," Paul N. Hasluck. 160 pp.

54. "French **Polishing and Enameling**," R. Bitmead.

55. "Painter, Gilder and Varnisher's Companion," Wm. T. Comstock.

56. "Modern **Mural Decoration**," A. Lys Baldry. Illus.

57. "House **Decorating and Painting**," W. N. Brown. 150 pp., illus.

58. "Three Hundred **Shades** and How to Mix Them," A. Desaint.

59. "**House Painting, Glazing, Paper-Hanging** and **White Washing**." A. H. Sabin. 121 pp.

60. The following will be found in *House and Garden:*

(*a*) "**Papering and Painting** Problems," H. D. Eberlein, March, 1914. Illus.

(*b*) "**Color Schemes** in Exterior Paint," Suggestions for Painting the New House and Re-Painting the Old, A. A. Kelly, February, 1917.

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(*c*) "Thirty-six **Facts about Color**," The Fundamental Principles Governing Color Selection and Color Arrangement in a Room, October, 1917.

(*d*) "The Return of the **Painted Panel**," Its effective Use in the Modern Room—Other Suggestions for Paneled Wall Treatment, A. Foster, January, 1916. Illus.

61. See *The Journal of the Franklin Institute* for various papers read before the Society applicable to all phases of painting.

62. For references in Industrial Section applicable to this main heading, see:

(*a*) **Architectural Varnishes** and book "**Rare Woods**," Murphy Varnish Co., p. xvii.

(*b*) Statement as to **painting** and **staining** of **white pine**, White Pine Bureau, p. iv.

12F1 *Glass and Glazing in General*

(*a*) *The National Glass Distributors Association* (12A8) has issued, 1916, "**Glass and Glazing**," a 46-page booklet, "to present to the users of glass a standard or guide for the architect, owner, or contractor, by which the material may be better known and more readily understood."

It contains brief instructive and interesting descriptions of the process of manufacture of various kinds of glass, and gives the commercial thickness and size and the terms used in designating the different **grades** and **qualities**, the characteristics of which are defined. It also includes notes on **installation**, **puttying**, and many pages illustrating various kinds of glass and gives tables of **maximum sizes**, **thicknesses**, and **approximate weights**.

Among the kinds referred to are: **Plate Glass**, including Special Quality and Bevelling and Wheel-cut Mitred Work; **Mirrors**; **Window Glass**, including Crystal Sheet; **Bent Glass**; **Glazing**, including Appeal to Architects; **Metal Store Front Construction**; **Leaded Glass**; **Wire Glass**, including Underwriters' Requirements and illustrations of typical patterns or surfaces; **Rolled Figured Glass**, with illustrations of kinds; **Ornamental Polished Plate Prismatic Glass**; **Prism Glass**; **Sidewalk Glass**; **Skylight**, **Floorlight**, **Milk-white**, **Opalite**, **Vitralite**, **Carrara**, **Chipping and Grinding**, **Enameling**, **Embossing**, **Etching Colored Glass**, all except the latter containing illustrations appropriate to each section.

(*b*) *The Plate Glass Manufacturers of America* (12A9) issue a 12-page booklet called "**Plate Glass**" which is in large part similar in context to the plate-glass section of Glass and Glazing and bears the imprint, "Issued by Permission of The National Glass Distributors Association." It contains, however, additional material relating to **Sizes and Thicknesses**, under which it is stated: "Polished plate glass is manufactured in thicknesses ranging from 5/16″ to 1½″. **The Standard product runs from ¼″ to 5/16″ full.** The other thicknesses (whether thicker or thinner) are made specially and at an increased cost. The **sash or rabbet** for regular plate glass glazing should be made to accommodate glass full **5/16″** thick. It also treats of **Mirrors** and **Glazing**.

1. This Association **has a Bureau of Publicity and Information** "to furnish free of expense to architects, contractors, builders and owners general **information** relative to Plate Glass Products and the many uses to which they may be put."

(*c*) The Building Data League issued (to members) August, 1917, a 6-page "News Letter" containing résumés of articles on:

1. "**Glass, Specifications and Tests**," Prof. A. Silverman.
2. "**Glass, A Series of Notes**," E. H. Bostock. These notes were submitted to several glass manufacturers and their criticisms and comments embodied in the article.

In a later letter the subject of **transmission and diffusion of light** by glass will be discussed.

(*d*) See "Civil Engineers' Pocket Book," J. C. Trautwine, 1913, for **cost, dimensions, expansion, friction, strength**, and **weight**.

(*e*) See Part II of "Building Construction and Superintendence," F. E. Kidder, "**Window-Glass and Glazing**." Tables and illus.

(*f*) See "Kidders' Pocket-Book," 1916, "**Window-Glass and Glazing**," with tables of cost, pp. 1487–1495.

(*g*) In "Handbook for Architects and Builders," by Illinois Society of Architects (12E16), see section on "Glass and Glazing," pp. 353 and 355, treating of **Window**, **Plate**, **Cast or Rolled**, **Wire**, **Ornamental**, **Colored**, and **Prismatic Glass**, and containing **details** for "art glass" glazing as mentioned under 12F2*b*.

(*h*) "Mechanical Engineers' Handbook," Lionel S. Marks, 1916, on glass, including **window**, **plate**, **skylight**, **pressed**, **prisms**, **quartz** and **wire glass**.

(*j*) "The American Civil Engineers' Pocket Book," M. Merriman, 1916, **information on glass**.

(*k*) "Mechanical Engineers' Product Book," Wm. Kent, 1916, information on the **weight** of glass, p. 177, and the **strength** of glass.

(*l*) "I.C.S. Building Trades' Handbook," pp. 273–275, on "Glass," contains table of **weights and thicknesses** of glass, and **illustrations**.

(*m*) For "**Classification, Manufacture and Strength** of Glass," see LeFax Data Sheet, 7–213, compiled by C. H. Riggs.

(*n*) "The Building Estimator's Reference Book," F. R. Walker, Chapter XVIII on "Glass and Glazing" contains information on How to Estimate the **Quantity of Glass Required** in any Building; Labor Cost of **Glazing**; **Putty Required** for glazing Wood and Steel Sash; Net Prices; **Leaded** and Art Glass; **Structural Glass**; and the Actual **Costs** of Glazing. Also contains complete **illustrations**.

(*o*) "The New Building Estimator," William Arthur, contains sections on Millwork and **Glass**.

(*p*) "**Plate Glass**," H. S. Wherett, *Journal of Society of Constructors of Federal Buildings*, March, 1915.

(*q*) Read "The Heat Loss from Buildings and How to Reduce It," *Engineering and Contracting*, March 28, 1917. An editorial advocating and describing the **double glazing** of windows.

(*r*) "**Glass Manufacture**," Walter Rosenhain. 264 pp., illus.

(*s*) "**Distinction in Windows**"—Devices for Glazing—The Arrangement of Sills and Flower Decoration That Add to the General Attractiveness of Rooms—The Possibilities for Making the Most of Our Windows, M. H. Northend, *House and Garden*, October, 1914. Illus.

12F2 *Wire Glass, Roof Openings and Vault Lights*

(*a*) See, also, 12F1*a* and other references under Glass and Glazing in General.

(*b*) In connection with the use of **Wire Glass**, whether for windows or doors in either exterior or interior openings, the **procedure** to be followed is described in 4C3, Standards Adopted, under Vertical Structural Features, with especial reference to Underwriters' Laboratories "Hollow Metallic Window Frames for Wired Glass." Many other references to Wire Glass will be found under this 4C Section.

(*c*) The 1915 N.B.F.U. Building Code **defines "Wired Glass"** thus: "Glass not less than ¼″ thick enclosing a layer of wire fabric reinforcement having a mesh not larger than **7/8″** and the size of the wire not smaller than No. 24 B. and S. Gauge."

It gives recommendations for the use of wired glass under several instances. See "**Wired glass**" and "**Fire windows**."

(*d*) See Reports of the Committee on Fire Resistive Construction N.F.P.A. in various Proceedings resulting in "Specifications for Construction of a Standard Building" and others therein described. Also see "Index to Subjects Covered in the Printed Records" under "Wire-Glass" and **Fire Protecting Coverings** for Window and Door Openings."

(*e*) The Building Code of the City of New York, 1916, says: "When **wire glass** is required or permitteed . . . for fire-doors, fire-shutters, or fire-windows, the **panes shall not exceed** seven hundred and twenty square inches in **area** and shall not be less than ¼″ in **thickness**, and shall be **set** not less than ⅝″ in the frame. When the use of glass is permitted in any fire-door or fire-shutter, only wire glass shall be used. For the glazing of fire-window only wire glass shall be used."

It also states "All opening protectives required or permitted . . . shall be constructed as prescribed in such rules, consistent with the provisions of this chapter, as may be promulgated by the superintendent of buildings, or in the absence of such rules as specified in the **standard requirements** of the National Board of Fire Underwriters; or they may be constructed in any manner and of any material that will comply with the fire-test hereinafter prescribed."

(*f*) The use of **wire glass for stairway** and other **enclosures** will be found illustrated and referred to in many of the publications listed under Exits, Stairways, Fire Escapes, etc. (4E.)

(*g*) See, also, Windows, Doors and Metal Trims (11B7).

(*h*) See List of Inspected Mechanical Appliances, Underwriters' Laboratories (3A6*b*) for makes and distinctive characters of meshes of **wired glass**. The following is quoted: "One-quarter inch wired glass manufactured by the following companies is **standard** for protection against moderate exposure when used in sizes not exceeding **720 square inches** and with neither dimension in excess of **48 inches**, and provided with distinctive marking as noted. Wired glass protection is not the equivalent to that furnished by standard fire-doors and shutters except for moderate exposure. Notice is called to the need of using **standard frames and sash** and **glazing**, and to the necessity for careful **inspection** before acceptance, in order to obtain wired glass of the required thickness."

(*j*) See, also, reference, under 11D2, to latest report of Committee on **Roof Openings** and Cornices, 1917 Proceedings N.F.P.A.; section on "**Skylights**," in 1915 N.B.F.U. Building Code; and, the "Regulations" of the N.B.F.U., as recommended by the N.F.P.A., on "Skylights." (3A3*e*20)

(*k*) See "Fire Prevention and Fire Protection," J. K. Freitag, 1912, for information and for **illustrations** of **Wire Glass**, p. 264; and for data on **Prism Glass**, p. 267. See, also, pp. 450–461.

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(*l*) For **sizes and weight** of Skylight Glass, see "Mechanical Engineers' Pocket Book," Wm. Kent, 1916, p. 196.

(*m*) The chief information obtainable on **"Vault Lights"** and other forms of glass construction for **sidewalks, roofs, and similar purposes** is that issued by the various manufacturers which usually includes details, though not always for the **setting, caulking** or other manner of making the surrounding joints water-tight. In 12F1*a* are illustrations and descriptions of **Prism Glass** and **Tiles, Sidewalk Glass, Glass Lenses, Skylight-Floorlight,** Description of **Installation Conditions.**

(*n*) For **"Prismatic Sidewalk Lights,"** see "The Building Estimator's Reference Book," F. R. Walker pp., 2901–2903.

(*o*) For references in Industrial Section applicable to this division, see:
1. Illustration of **Wire Glass,** Mississippi Wire Glass Co., p. xvi.
2. Illustration and description of **Skylight Construction,** David Lupton's Sons Co., p. xxviii.

12F3 *Leaded and Decorative Glass*

(*a*) The National Ornamental Glass Manufacturers' Association (12A9), which publishes the "Ornamental Glass Bulletin of the U. S. and Canada," at a meeting June 2, 1914, *Resolved:*

"That the use of **zinc,** commonly known as hard metal, for the use of glazing church windows shall be **discouraged** on the ground that it is **impractical** and not a proper material to use in exterior glazing as **a substitute for lead** (for four reasons which are amplified).

"That the means and methods used by some salesmen as arguments that their **lead,** their **glass,** their **ventilators,** their **iron bars** and their **cement** are superior to that of any other salesman's materials is misleading and should not be countenanced by this Association, since all these materials are **standard,** and are used by all firms who make Art Glass."

(*b*) See **details approved and recommended** by the above Association as the **minimum size of rabbets, jambs** and **sills** for art glass glazing; also details for **metal sash** and **ventilator construction** in "Handbook of Illinois Society of Architects," 1917.

(*c*) The following are a few of the special references which might be given; others will be found under 12E and 12F1, including "Suggestions and Practical Points" and **"colored glass," cathedral glass,** etc., in 12F1*a*:

(*d*) "Vitrail (**Stained Glass**)," par Mons. Viollet le Duc, translated by Leicester B. Holland, *Architectural Record,* December, 1912, p. 487. Illus. English translation from the "Dictionnaire Raisonne De L'Architecture Francaise" by M. Viollet-le-Duc, of the portion forming a scholarly and authoritative treatise on stained glass. This is the first of a series of four articles comprising the entire treatise.

(*e*) **"Decorative Glass** Processes," Arthur Louis Duthie. 279 pp.

(*f*) "The Art of Making a **Stained Glass** Window," with notes on the Work of C. M. Burd, by C. H. Dorr, *Architectural Record,* February, 1914, p. 163. Illus.

(*g*) "The **Development of Art Glass** Windows" in *The Painter and Decorator,* October, 1917, by Col. Livermore, from "Ornamental Glass Bulletin."

(*h*) "Treatise on the Art of **Glass Painting,"** E. R. Suffling. 150 pp.

(*j*) "Recipes for Flint **Glass Making,"** D. Van Nostrand Company.

(*k*) For **"Stained, Mosaic** and **Wrought Glass** Workers," see Industrial Section, Heinigke and Smith, p. XLI.

12F4 *Store-Front Construction and Store Fittings*

The chief literature concerning latest developments in the **metal and glass construction** of store and shop windows is put forth by the manufacturers of either the metal or the glass, frequently by the two together. These publications generally give details for the **setting** of the frames as well as of the glass, which provide for **ventilating, condensation** and other essential features.

See some of the references given under Glass and Glazing in General, particularly 12F1*a* and *c*.

(*a*) See Part II of "Building Construction and Superintendence," F. E. Kidder, for early and modern forms and methods of "Store-Front Construction," pp. 221–229, showing plans, details, and sections. See, also, **Specifications for Store-Front Construction,** pp. 790 and 791.

(*b*) **"English Shop-Fronts, Old and New,"** Horace Dan and E. C. M. Willmott. A series of examples by leading architects, selected and specially photographed, together with descriptive notes and illustrations.

(*c*) **"Store-Fronts** and **Interior Details,"** W. T. Comstock, gives designs, plans, and details for small stores; also designs for special fronts for restaurants, cafés, banks, etc.

(*d*) **"Store Fittings,"** W. T. Comstock, counter and showcase, wall-shelving, telephone-case, etc., with details.

12F5 *Glassware and Glass Products*

(*a*) For information on, and illustrations of, **glassware for** use in connection with lighting fixtures, see references under **"Lighting Fixtures"** (11B13).

(*b*) See "Illustrations of Electrical Fixtures and Equipment," pp. 93-133 (includes **glassware** for **inside** and **outside** use) in "General Electrical Specifications No. 6, Prepared in the Office of the Quartermaster General, U. S. Army, March, 1915."

(*c*) For brief information on **Glass Tile,** see section on "Memoranda on Tiling" in "Kidders' Pocket Book," 1916, p. 1520.

(*d*) See "I.C.S. Building Trades' Handbook," for brief information on **glass tile,** p. 317.

(*e*) **"American Glassware,** Old and New," A Sketch of the Glass Industry in the U. S., and Manual for Collectors, E. A. Barber.

(*f*) "The Art of **Repairing** and Riveting **Glass,** China and Earthenware," J. Howorth. 23 pp., illus.

12F6 *Greenhouses, Horticulture, Landscaping*

With respect to the construction of greenhouses, the details and literature obtainable from the makers is the chief source of information to be had.

(*a*) For publications of interest in connection with this section, obtain from Superintendent of Documents, Washington, D.C., list of publications issued by the Department of Agriculture, Bureau of **Plant Industry,** Federal **Horticultural Board,** and **Forest Service;** also of the Department of the Interior, **National Park Service,** and **Reclamation Service** (for reference to the latter, see 9D3). Also of Bureau of Education (12G1) for **School Gardens,** etc.

(*b*) **"Greenhouse Construction,"** L. R. Taft. 210 pp., illus.

(*c*) **"Greenhouse Management** for Amateurs," W. J. May. Illus.

(*d*) **"Greenhouse Construction and Heating,"** B. C. Ravenscroft. Illus.

(*e*) See "Mechanical Engineers' Pocket Book," Wm. Kent, 1916, for information on **heating greenhouses** by steam and hot-water.

(*f*) "America First in **Conservatories,"** The Possibilities of Plant-growing under Glass the Year Around—Tropical Gardens for Northern Winters, R. Dixon, *House and Garden,* January, 1917.

(*g*) "Does the Small **Greenhouse** Pay?" Yes. . . . The Vital Questions of Cost and Yield, F. F. Rockwell, *House and Garden,* November, 1917. Illus.

(*h*) "Plants That Live in Glass Houses," W. C. McCollom, in *The Independent,* Nov. 3, 1917. Describes procedures, **illustrates greenhouses,** and gives **cross sections** showing details of construction.

(*j*) The "Official Code of **Standardized Plant Names,"** adopted by the American Joint Committee on Horticultural Nomenclature, is the result of the labors of committees representing the American Association of Nurserymen, Ornamental Growers' Association, American Society of Landscape Architects, American Pharmaceutical Association, and American Association of Park Superintendents. Harlan P. Kelsey, Secretary, Salem, Mass., can supply copies at 25 cents.

(*k*) For **"Specifications for Sodding with Bermuda Grass,"** adopted 1915, see Manual of the American Railway Engineering Association (1A9*b*). In same will also be found specifications for **Clearing, Grubbing, Grading, Surface and Subsurface Drainage,** and **Price and Measurement of Grading.**

(*l*) "The Gentle Art of **Hedging,"** The Best Shrubs and Trees from Which to Build a Growing Wall, G. Tabor, *House and Garden,* January, 1917. Illus.

(*m*) See "The Planning and Planting of **Golf-Courses,"** F. N. Evans, in *Landscape Architecture,* 1917. Illus.

(*n*) **"Outdoor Theatres;** The Design, Construction, and Use of Open-Air Auditoriums," R. G. Badger, Boston. 1917. 151 pp., illus. A collection of examples, many in the United States.

(*o*) **"American Gardens,"** edited by Guy Lowell. 240 pp., illus.

(*p*) See **"City Planning Progress** in the U. S.," 1917, American Institute of Architects, and sections on Town Planning and Housing in *The Journal of the American Institute of Architects* for **review** of subjects of allied interest.

(*q*) "A classified List of **References** on City Planning" (50 cts.), prepared by T. Kimball, Librarian of the School of Landscape Architecture, Harvard University, is issued by the National Conference on City Planning, now the American City Planning Institute, which also publishes *The City Plan,* its official organ, quarterly, and issues many other publications as of interest here.

(*r*) **A bibliography** of recent publications of interest to landscape architects (compiled by Harvard University, School of Landscape Architecture) was published in *Landscape Architecture* (quarterly); 1917.

(*s*) "Popular Education in Architecture and **Landscaping,"** A **Summary** of The Work of Federal and State Agencies, C. F. Pilat, *Architectural Record,* June, 1917, p. 542.

(*t*) **"Landscape Architecture,"** George Burnap, *The American Architect,* January, 1914, Illus.

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(*u*) "**Landscape Gardening** as Applied to Home Decoration," S. T. Maynard. 338 pp.
(*v*) "**Landscape Gardening**," S. Parsons, Jr. Illus.
(*w*) "**Landscape Gardening**," F. A. Waugh. 152 pp., illus.
(*x*) "**Architectural Landscaping**," C. E. White, Jr., *The House Beautiful*, March, 1914. Illus.
(*y*) The **Garden** Blue Book, L. B. Holland. Illus. and contains special **charts** showing Color, Height and Season of Bloom.
(*z*) "The Final Touch to the Landscape Scheme," is supplied by the **Water Feature**, be it Pool or Fountain, Stream or Lake—Suggestions for Planning, Construction and Care, R. S. Lemmon, *House and Garden*, June, 1917. Illus.

12G Schoolhouses, Grounds and Equipment

12G1 *U. S. Bureau of Education, Department of the Interior*

Commissioner: Philander P. Claxton, Washington, D. C.

Anyone interested in the **planning and designing of schoolhouses** and in the development of general **educational matters**, including **vocational training** and **civic education**, should not fail to send for and read the latest "Statement of the Commissioner of Education to the Secretary of the Interior" and to secure "Available Publications of the U. S. Bureau of Education, July, 1917." Some of these are still in stock for free distribution, others may be obtained from the Superintendent of Documents at the price stated. The Bureau serves as a clearing-house for accurate and comprehensive information in respect to all educational agencies and all forms of education in the U. S. and all foreign countries, and to disseminate this information among school officers, teachers, students of education, and all others directly interested in any form of educational activity. It also undertakes, after correspondence and personal conference, to formulate the consensus of expert opinion.

It makes or directs surveys of state, county and city school systems, of individual schools or groups of schools, and reports its findings, together with constructive suggestions, to the proper officials. It works out plans for promoting education in agriculture, trades, and industries; for home-making and for the consolidation of rural schools; for making homes for teachers and school-farms part of the equipment for rural schools; for bringing the school and the home closer together; and for everything which makes for better schoolhouses and the care of the health of school-children.

A special agent of the Bureau located at Nashville, Tenn., has, on request, given specific advice to school authorities in regard to the **architecture of school-buildings** and the **hygiene and sanitation of schoolhouses** and **grounds**, particularly in rural communities. He has had charge of the **models of rural schoolhouses** which the Bureau has been lending to communities about to erect new buildings, and has distributed them among school officers where they could be utilized to the greatest advantage in guiding and developing a taste for a better type of rural school architecture. Counties in several states have taken these models as **standards** and are working out better school-buildings for their rural districts.

In coöperation with S. C. Kingsley of the Elizabeth McCormack Memorial Fund of Chicago, this special agent has prepared a bulletin on **open-air schools** (1916, No. 23), and in coöperation with Miss H. Le Garde, of Providence, he is preparing a bulletin on **school-baths**. He has also completed a bulletin on **schoolhouse architecture**, which is supplementary to a comprehensive bulletin which he prepared for this Bureau in 1910, and which has been of very definite value to school boards and school architects in this and other countries. The Bureau has on file approximately 1,000 **bibliographies** on various subjects of **education** and **school administration** which will be sent to those making special request. The Bureau carries on an extensive correspondence and will place upon its **mailing-list** the names of those who desire to be notified when publications **relating to school architecture** are issued.

Among these publications are:

(*a*) "**American Schoolhouses**," F. B. Dresslar, Professor of Philosophy and Education in the University of Nebraska, Bulletin No. 5, 1910 (75 cents), contains 106 pp. of text relating to every consideration, from the selection of architect and site to all phases of the subject, including lighting, stairways, and complete equipment. Illustrated with 267 plates, including "**Standard Designs**" of states. Contains also an appendix in which is given "**References on School Architecture and Sanitation**" (to that date).

(*b*) "**Rural Schoolhouses and Grounds**" by same author as (*a*), Bulletin No. 12, 1914, 162 pp. of text completely treating the subject, including collateral **sanitary features** and 44 plates, among which are included illustrations of some of the **models** referred to in the foregoing description of the Bureau.

(*c*) "**Sanitary Schoolhouses**," Bulletin No. 52, 1913, legal requirements in Indiana and Ohio. 5 cents.

2. See the reference under 5G1*a* to "**The One-Story Schoolhouse Idea**" issued November, 1917, by the National Lumber Manufacturers' Association, prepared in coöperation with the U. S. Bureau of Education.

3. For the many other references which have been made throughout the year to various features of schoolhouse construction, particularly in Serials Nos. 4 and 5, see the Index to Vol. I of the Structural Service Book.

4. Many states have "**School Codes**," some provisions of which relate to area of rooms, area of light, ventilation, fire-resistant construction, exits, and other important structural features. The Division of School Administration of the U. S. Bureau of Education compiled a **digest of the general school laws** of all the states which has been published as Bulletin No. 47, 1915.

5. The **Carnegie Foundation for the Advancement of Teaching** in its 1916 Report covers studies undertaken in Agricultural Education and Engineering Education but apparently nothing of structural significance.

6. The **National Educational Association has a** Committee on **Standardization of Schoolhouse Planning and Construction**, of which F. Irving Cooper, Architect, Boston, is Chairman. The work of this Committee is not intended to hamper or bind freedom of design by architects but to present to the Association certain definite standards in connection with details of construction and in minimum requirements of space for stated school activities.

7. Accounts of **investigations** undertaken and various **results accomplished** along the above lines, and other matters of interest, will be found with frequency in *The American School Board Journal* whose coöperation with the Institute in matters of public information has heretofore been acknowledged.

8. **The American School Hygiene Association** in Proceedings of Fifth Congress publishes "**Schoolhouses and the Law**," an address by F. I. Cooper, containing a chart and digests giving status of compulsory regulation of schoolhouse construction in the U. S. (to 1910).

9. See "**Building Code**" recommended by the N.B.F.U., 1915. States when **schools** may be non-fireproof, p. 20; when **doors** should open inward, p. 56; describes and illustrates **stairs and stairways, smokeproof towers** and other **means of egress**, and gives the height of stairway risers in primary schools, pp. 55–77.

10. See other references under **Exits, Stairways and Fire Escapes**, etc., 4E.

11. Chapter XXIII on "Schools," in "Fire Prevention and Fire Protection," by J. K. Freitag, 1912, pp. 740–756, treats of **fire-resistive construction** and contains plans and tables.

12. "**School Architecture**," Edmund M. Wheelwright. Illus.

13. See "The **Schoolhouse Department** of Boston, Mass., viewed as a method of relieving boards of education or school committees of the direct responsibility for the purchase of land and erection of buildings," R. Clipston Sturgis, formerly chairman Boston Board of Schoolhouse Commissioners, in *School Board Journal*, 1913.
See, also, **Annual Reports** of the Schoolhouse Department, City of Boston.

14. See "The **Cost of School Buildings**" by William B. Ittner, formerly Architect to the Board of Education, St. Louis, in *School Board Journal*, August, 1915.

15. "**American School Building Standards**," Wilbur T. Mills. 225 pp., illus.

16. "**Modern Schoolhouses**," A. D. F. Hamlin and C. B. J. Snyder.

17. See Bruce's School Architecture Library, prepared under the direction of Wm. C. Bruce, Editor *American School Board Journal*, more for:
(*a*) "**High School Buildings**." 200 pp., illus.
(*b*) "**Grade School Buildings**." 256 pp., illus.

18. "**School Architecture**," Wm. Geo. Bruce, assisted by W. C. and F. M. Bruce.

19. "**Mechanical Equipment of School Buildings**," Harold M. Alt. 112 pp., illus.

20. "**Modern School Building**," Wm. T. Comstock.

21. "Modern School Buildings—**Elementary and Secondary**," Felix Clay. Illus.

22. "**Modern American School Buildings**," Warren R. Briggs. 411 pp., illus.

23. "I.C.S. Building Trades' Handbook," contains a section on "**Schoolroom Data**," pp. 397, 398.

24. "For **Fireproof Schools**," *The American Architect*, February, 1914.

25. See "The American Civil Engineers' Pocket Book," M. Merriman, 1916, for information on **floor loads for schools**, pp. 715 and 722.

26. "The **Ventilation of the Schoolroom**," Wm. J. Baldwin. 46 pp., illus.

27. See "**High School Planning**," Dwight H. Perkins, *School Board Journal*, for Oct., 1917. Plans and illustrations of four buildings.

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28. Also "**Relations between Boards of Education, their Superintendents and the Architect,**" John J. Donovan, A.I.A., *School Board Journal*, November, 1917.
29. "**The School Building as a Neighborhood Center,**" R. Weintrob, *School Board Journal*, December, 1917.
30. See "**Social Center Features**" in New Elementary School Architecture and the Plans of Sixteen Socialized Schools," C. A. Perry. 55 pages of text and other illustrations. Published by the Division of Recreation, Russel Sage Foundation, 1912. 25 cts.
31. The Department of Child Hygiene, Russell Sage Foundation, publishes many pamphlets, among them (full list upon application to 12L7):
    (*a*) **Vacation Schools.** 32 pp. Illus. and Bibliography. 5 cts.
    (*b*) **Evening Recreation Centers.** 32 pp. Short Bibliography. 5 cts.
    (*c*) The **Community-Used School.** 9 pp. 5 cts.
32. See "**Wider Use of the School Plant,**" C. A. Perry, Department of Child Hygiene, R. S. F. 404 pp., illus.
33. "Among **School Gardens,**" M. L. Greene. 380 pp., illus.

12H Farm Buildings, Accessories and Rural Engineering

12H1 *Department of Agriculture*

(*a*) **Office of Public Roads and Rural Engineering.**
(*b*) **Bureau of Animal Industry.**
(*c*) **Bureau of Plant Industry.**
(*d*) **Weather Bureau.**
(*e*) (**Forest Service**, described under 5A1).
(*f*) (**Federal Horticultural Board**, referred to under 12F6*a*).

The activities of the Department of Agriculture, which are of interest to those concerned in structures, their equipment and accessories, are confined to subjects bearing upon agriculture and are centered chiefly in the Division of Rural Engineering of the Office of Public Roads and Rural Engineering, although information relating to structures of various kinds and their equipment may be found in publications emanating from other Bureaus.

With regard to structural matters, the public service of the Office of Public Roads and Rural Engineering consists of the preparation of designs for all kinds of **farm structures and equipment**, the planning of **farmsteads**, and the designing of **farm water-supply** and **sewage-disposal systems.**

Upon request, accompanied by a statement of the requirements or conditions to be met, a selection of the available designs which most nearly meet the conditions are issued without charge. Advice is given on all matters relating to these subjects.

There are a number of publications issued by the Department of Agriculture which bear directly or indirectly on subjects pertaining to **agricultural construction.** The Division of Publications of the Department of Agriculture publishes a list of the Bulletins, etc., issued since July, 1913. Some of these publications are available for free distribution, while others, so designated, may be had only from the Superintendent of Documents, Government Printing Office, for the prices stated. This list is revised once a year and is mailed upon request.

The Division of Publications also issues a **monthly list of new publications** which is sent regularly to those making application for it. Reference to reports of the Weather Bureau of interest to architects, heating contractors, and owners was made under 10C1*h*.

The Superintendent of Documents, Government Printing Office, publishes a price-list of the Department of Agriculture publications, that is, Farmers' Bulletins, Department Bulletins, and Yearbook Separates. This list is available upon request, and the following is a selection applicable to this section:

Bureau of Animal Industry:

Circular No. 131—Designs for **Dairy Buildings.** 5 cents.
Circular No. 136—How to Build a Stave **Silo.** 5 cents.
Circular No. 173—The Sanitary Construction and Equipment of **Abattoirs** and **Packing-Houses.** 5 cents.
Circular No. 195—A Plan for a **Small Dairy-House.**

Farmers' Bulletins: (Price, from Superintendent of Documents, is 5 cents each.)

No. 32—**Silos** and Silage. Chas. S. Plumb. 1895.
No. 40—**Farm Buildings.** E. G. Elliott. 1896.
No. 43—**Sewage-Disposal** on the Farm and Protection of **Drinking-Water.** T. Smith. 1896.
No. 126—Practical Suggestions for **Farm Buildings.** Geo. G. Hill.
No. 138—**Irrigation** in Field and **Garden.** E. J. Wickson. 1901.
No. 150—**Clearing New Land.** F. Williams. 1902.
No. 187—**Drainage of Farm Lands.** E. G. Elliott. 1904.
No. 235—**Cement Mortar and Concrete.** P. L. Worseley. 1905.
No. 239—The Corrosion of **Fence Wire.** A. S. Cushman. 1905.
No. 270—Modern Conveniences for the **Farm Home.** E. T. Wilson. 1906.
No. 338—**Macadam Roads.** A. B. Fletcher. 1908.
No. 367—Lightning and **Lightning Conductors.** A. J. Henry.
No. 403—The Construction of **Concrete Fence-Posts.** 1910.
No. 458—**Hog-Houses.** J. A. Warren. 1911.
No. 461—The Use of **Concrete on the Farm.** 1911.
No. 463—The **Sanitary Privy.** C. W. Stiles and L. L. Lunsdem. 1911.
No. 474—The Use of **Paint on the Farm.** P. H. Walker. 1911.
No. 475—**Ice-Houses.** L. B. Corbett. 1911.
No. 481—**Concrete Construction** on the Live-Stock Farm.
No. 524—**Tile Drainage** on the Farm. A. G. Smith. 1913.
No. 574—**Poultry-House** Construction. A. H. Lee. 1914.
No. 623—**Ice-Houses** and the Use of Ice on the Dairy Farm. J. T. Bowen and G. H. Lambert. 1915.
No. 628—A Simple Trap-Nest for **Poultry.** A. R. Lee. 1915.
No. 689—A Plan for a Small **Dairy-House.** E. Kelly and E. E. Parks. 1915.
No. 744—The **Preservation** Treatment of Farm **Timbers.** G. M. Hunt. 1916.
No. 786—The **Windbreak** as a Farm Asset. C. G. Bates. 1917.
No. 810—Equipment for Farm **Sheep-Raising.** V. O. McWhorter. 1917.
No. 825—**Pit Silos.** T. P. Metcalf and G. A. Scott. 1917.
No. 828—Farm **Reservoirs.** Samuel Fortier. 1917.
No. 842—Modern Methods of **Protection Against Lightning.**

Department Bulletins:

No. 57—**Water-Supply, Plumbing and Sewage-Disposal for Country Homes.** R. W. Trullinger, Office of Experiment Stations. 1914. 10 cents.
No. 230—**Oil-Mixed** Portland Cement **Concrete.** 1915. 10 cents.
No. 277—**Cotton Warehouse** Construction. R. L. Nixon. 1915. 10 cents.
No. 552—The Seasoning of Wood (Professional Paper). H. S. Betts. 1917.

Yearbook Separates:

No. 634—Y. B. 1914. **Clean Water** and How to Get It on the Farm. 10 cents.
No. 712—Y.B. 1916. **Sewage-Disposal** on the Farm. 5 cents.

12J Workmen's Houses, Workmen, Industry, Safety to Life

1 *Bureau of Labor Statistics*, U. S. Department of Labor:

Commissioner: Royal Meeker, Mills Building, Washington, D. C.

The Bureau of Labor Statistics collects and collates statistics of the conditions of labor and distribution of the products of labor, and the Secretary of the Department of Labor publishes such statistical information in his **Annual Report.**

It issues, "**Monthly Review** of the U. S. Bureau of Labor Statistics" and also publishes, from time to time, **Bulletins.** No charge is made for any Department's publications in stock.

The Bureau of Labor Statistics has recently conducted a study of **housing conditions** in the U. S. A full report is now being prepared for publication, and an article in summarization and anticipation of this report appeared in the November issue of the *Monthly Review*, in which also will be found "**Employers' Housing in the U. S.,**" by Leifur Magnusson, describing company towns and houses, with illustrations and plans of typical company houses in various towns.

(*a*) In September, 1904, the Bureau of Labor, then a part of the Department of Commerce and Labor, issued **Bulletin No. 54** (1490 pages, 266 plates), describing the housing of working people and giving statistics on labor, descriptions of public baths in the U. S., trade and technical education, with plans and illustrations of employees' homes.
(*b*) The Department of Labor issued Bulletin Whole No. 158, Miscellaneous Series No. 5, 1915, entitled "**Government Aid to House Owning and Housing of Working People in Foreign Countries,**" 450 pp.

2 *The U. S. Bureau of Mines* (2A3) has issued:

(*a*) Bulletin No. 87: "**Houses for Mining Towns,**" described under 9L1*e*.
(*b*) Technical Paper No. 116: "**Miners' Wash and Change Houses,**" described under 9J1*b*.

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3 *The Journal of the A.I.A.*, September, 1917, contains a bibliography or **selected list of references** on **industrial housing**, and in that and other recent issues of the Journal appear what are perhaps the most important contributions to this subject now to be found.

4 *National Association of Real Estate Boards*

Secretary: Tom. Ingersoll, Minneapolis, Minn.

At a meeting of the Housing Committee it was:

"*Resolved*, That we, the Executive Committee of the National Association of Real Estate Boards, in regular meeting assembled, in the city of Indianapolis, Ind., on Oct. 23, 1917, approve of the Government of the United States financing the building of **workingmen's homes** as a war-measure in munition centers, provided such homes are built in a **substantial manner.**"

5 *The International Association of Industrial Accident Boards*

Sec.-Treas.: Royal Meeker, Mills Building, Washington, D. C.

This Association, the U. S. Department of Labor, the various state labor agencies, the American Federation of Labor, and the six next named bodies are concerned with the subject of accident prevention, safety to life, and improvement of conditions in the building trades. Their activities will be recorded in subsequent issues.

6 *American Museum of Safety*

Secretary: Wm. J. Moran, 14–18 W. 24th Street, New York City.

7 *National Safety Council*

Secretary: W. H. Cameron, Continental and Commercial Bank Bldg., Chicago, Ill.

8 *National Association of Manufacturers of the United States of America*

Secretary: G. S. Boudinot, 30 Church Street, New York City.

9 *The National Association of Builders' Exchanges*, of the United States of America

Secretary: E. M. Tate, Fulton Building, Pittsburgh, Pa.

Sixty-three Builders' Exchanges in various cities throughout the country, some of which issue **Bulletins** and similar publications, are affiliated with the National Association.

This Association has coöperated with the Institute in the preparation of "**The Standard Documents.**" For Prices and Titles, and list of Dealers see the Industrial Section, page xxxix.

10 *The Master Builders' Association*, of Boston

Secretary: W. H. Sayward, 166 Devonshire Street, Boston.

Issues "**Monthly Letter**" to members and others interested.

11 *American Federation of Labor (Building Trades Department)*

Secretary: Wm. J. Spencer, A. F. of L. Building, Washington, D. C.

The entire resources of the Department have been placed at the disposal of the Council of National Defense in connection with the war program of the Government, in the belief that a recognition of workmen's rights and standards should be maintained in order that normal conditions may prevail in the building industry when the war is over. In various states there exist **building trades councils**, and the following is a list of the affiliated **Internationals** which comprise the **Building Trades Department:**

(*a*) International Association of Heat and Frost Insulators, and Asbestos Workers: Sec'y: T. J. McNamara, 4833a Natural Bridge Avenue. St. Louis, Mo.
(*b*) Bricklayers, Masons and Plasterers' International Union. Sec'y: Wm. Dobson, University Park Bldg., Indianapolis.
(*c*) International Association of Bridge and Structural Iron Workers. Sec'y: Harry Jones, 422 American Central Life Bldg., Indianapolis, Ind.
(*d*) United Brotherhood of Carpenters and Joiners. Sec'y: Frank Duffy, Carpenters Bldg., Indianapolis, Ind.
(*e*) International Brotherhood of Electrical Workers. Sec'y: C. P. Ford, Reisch Bldg., Springfield, Ill.
(*f*) International Union of Elevator Constructors. Sec'y: F. J. Schneider, Perry Bldg., Philadelphia, Pa.
(*g*) International Union of Steam Engineers. Sec'y: J. G. Hannahan, 6334 Yale Ave., Chicago, Ill.
(*h*) Granite Cutters' International Association of America. Pres.: James Duncan, Hancock Bldg., Quincy, Mass.
(*j*) International Hod Carriers, Building and Common Laborers' Union. Sec'y: A. Persion, 82 State St., Albany, N. Y.
(*k*) International Union of Wood, Wire and Metal Lathers. Sec'y: R. V. Brandt, Superior Bldg., Cleveland, Ohio.
(*l*) International Association of Marble and Stone Polishers, Rubbers and Sawyers. Pres.: S. C. Hogan, 406 E. 149th St., New York City.
(*m*) International Alliance, Amalgamated Sheet Metal Workers. Sec'y: J. E. Bray, Nelson Bldg., Kansas City, Mo.
(*n*) Brotherhood of Painters, Decorators, and Paperhangers. Sec'y: J. C. Skemp, Drawer 99, Lafayette, Ind.
(*o*) Plasterers Operative and Cement Finishers' International Association. Sec'y: T. A. Scully, Castell Bldg., Middletown, Ohio.
(*p*) United Association of Plumbers and Steam Fitters. Sec'y: T. E. Burke, 411 Bush Temple of Music, Chicago, Ill.
(*q*) International Brotherhood of Composition Roofers, Damp- and Waterproof Workers of United States and Canada. Sec'y: D. J. Ganley, 14 N. Oxford St., Brooklyn, N. Y.
(*r*) International Union Slate and Tile Roofers. Sec'y: J. M. Gavlak, 3643 W. 47th St., Cleveland, Ohio.
(*s*) Journeymen Stone Cutters' Association of North America. Sec'y: W. W. Drayer, Central Life Bldg., Indianapolis, Ind.
(*t*) Ceramic, Mosaic and Encaustic Tile Layers' and Helpers' International Union. Sec'y: J. P. Reynolds, Martin Bldg., North Side, Pittsburgh, Pa.

11. For references in Industrial Section applicable to this division, see:
(*a*) Assurance of **Safety to Life**, National Automatic Sprinkler Association, p. v.

12K Acoustics and Sound-Transmission Prevention

It had been the intention to publish a list of references on this important subject, but the collection has increased to such an extent that it is impossible to give space here for a proper listing. The S.S.D. possesses a complete list of references, beginning with discussions in the 16th Congress of the U. S., 1821, and the 21st Congress, 1830, taken part in by Charles Bulfinch and Wm. Strickland, Architects, down to the present writings of Wallace C. Sabine, W. R. C. Rowan, Alexander Cooper, and others, copy of which list will be furnished upon request to the Journal.

For references in Industrial Section to the subject of Acoustics, see

1. **Acoustile**, The Perfector of Acoustics, Mazer Acoustile Company, p. xiii.
2. **Acoustical Service**, H. W. Johns-Manville Co., p. xiv.

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Church, Johnstown, Pa.

Court House
Asheville, N. C.

Stanley Presbyterian
Church, Montreal, Canada

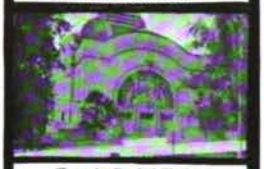
Court House
Uniontown, Pa.

Municipal Auditorium
Denver, Colo.

Municipal Auditorium
Houston, Texas

Kingan & Co., Offices
Indianapolis, Ind.

Court House, Ironton, Ohio


Temple Rodef Shalom
Pittsburgh, Pa.

Jas. H. Matthews & Co.
Offices, Pittsburgh, Pa.

State Capitol Building
Cheyenne, Wyo.

Temple Beth Zion
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Main Street M. E. Church
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Court House, Wichita, Kansas

Hershey Auditorium
Hershey, Pa.

St. Cecelia's Catholic Church
Hastings, Neb.

Court House, Houston, Texas

Avondale Temple
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Temple Israel
St. Louis, Missouri

Soldiers' Memorial Hall
Dayton, Ohio

American Bank Building
Suffolk, Va.

Court House
Scranton, Pa.

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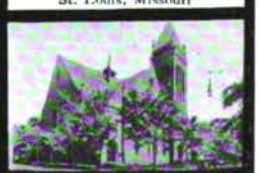
Church, Wilkinsburg, Pa.

Court House
Beaver, Pa.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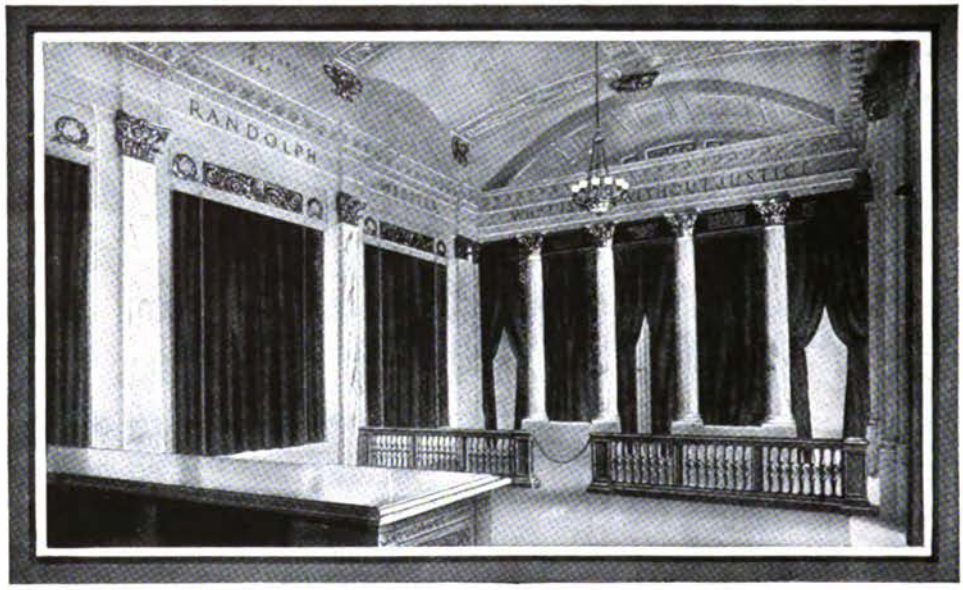

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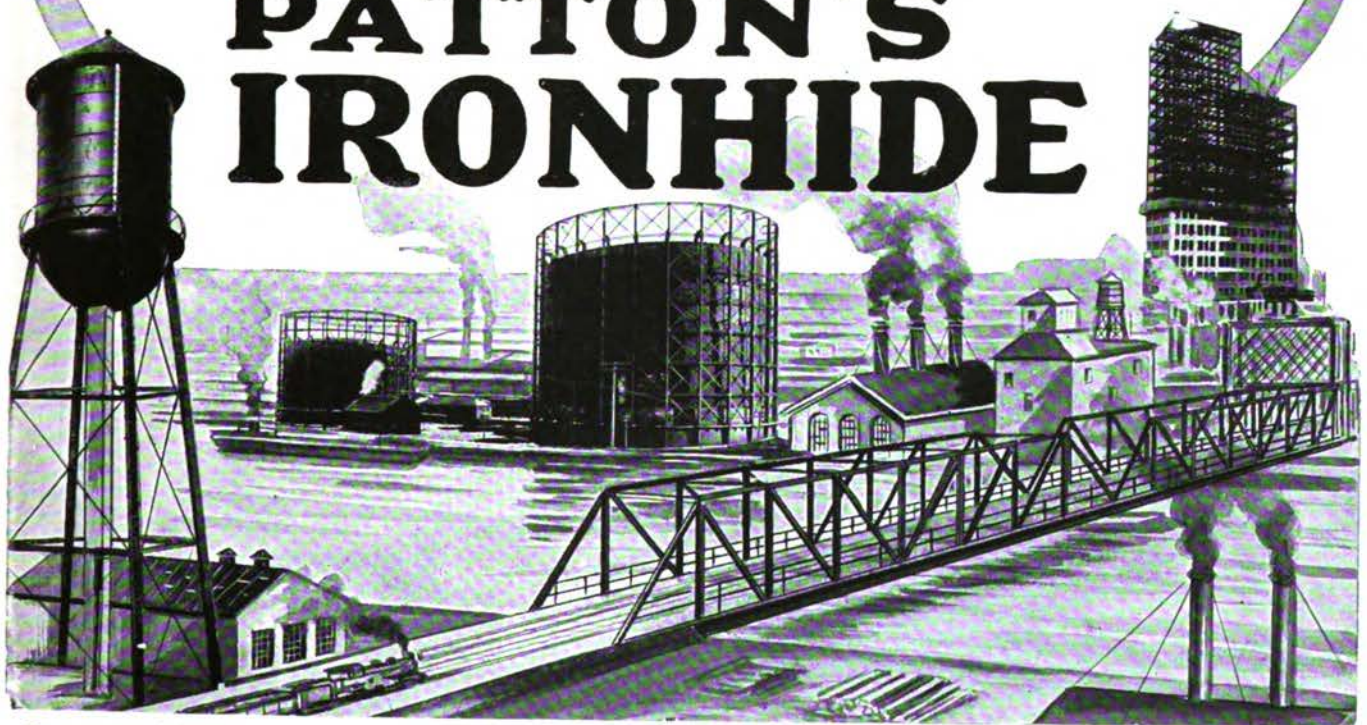

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Houston, Texas
Architects: Warren & Wetmore

All steelwork protected with "R. I. W." Tockolith (patented) and No. 110 and No. 112 "R. I. W." Basements waterproofed with "R. I. W." Toxement (patented).

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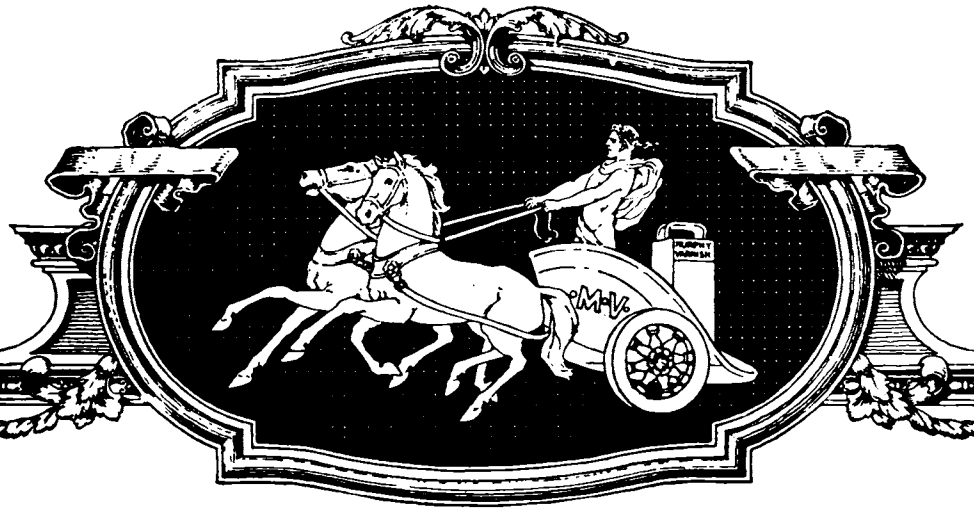

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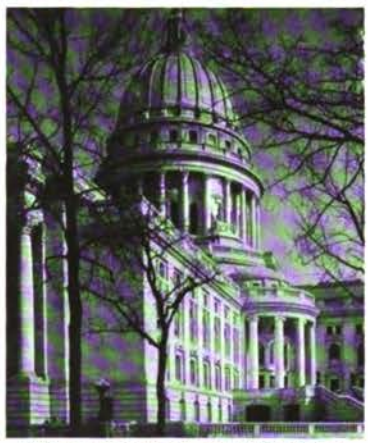

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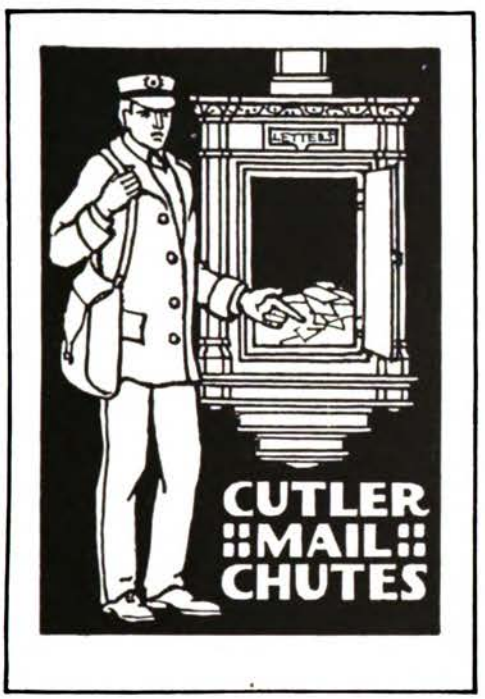

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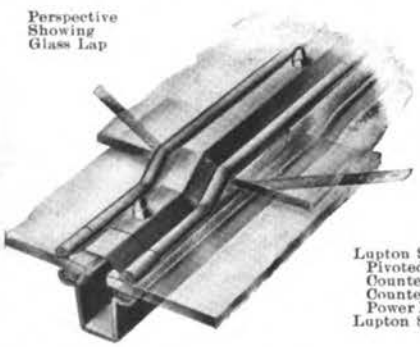

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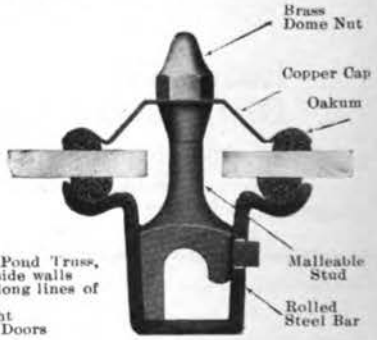

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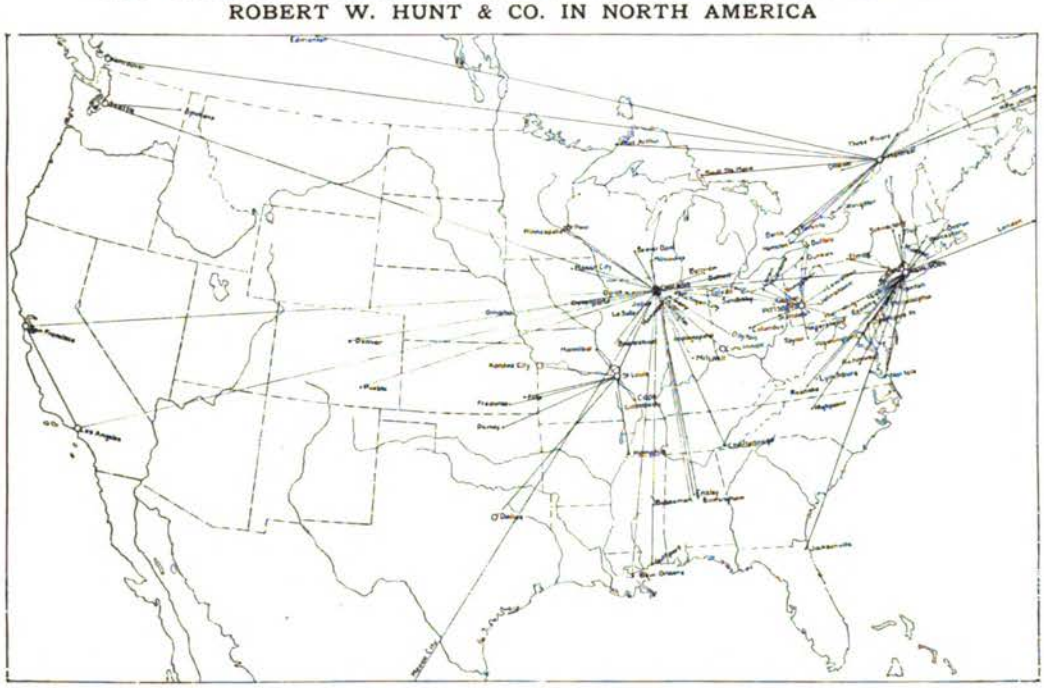

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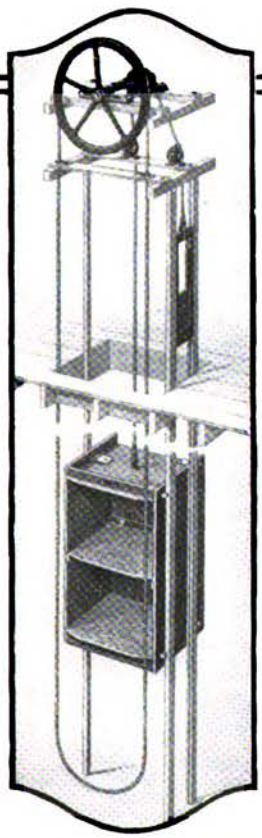

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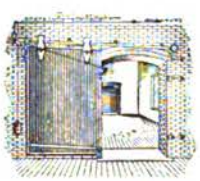

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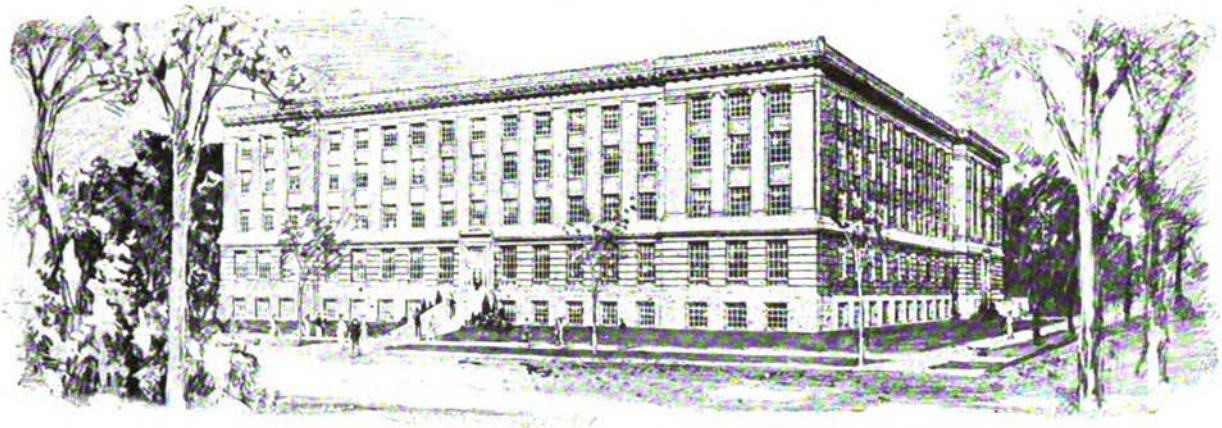

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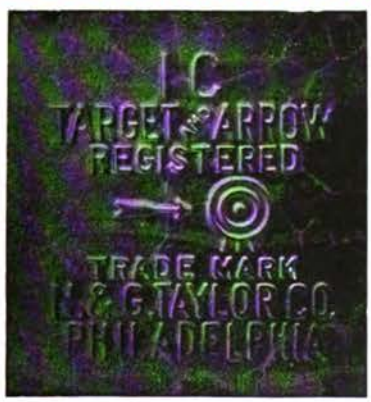

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JOURNAL OF THE AMERICAN INSTITUTE OF ARCHITECTS
SUPPLEMENT TO THE ISSUE OF AUGUST, 1917

The Discussion in the United States Senate of an Amendment to the Bill for the New Treasury Department Building Providing that the Plans Therefore Should Be Submitted to the Commission of Fine Arts.

NOTE.—In the effort to have the public buildings of Washington conform to the ideal of the founders of the city and thus make the Capital a place where civic beauty will spring naturally out of a coördinated plan, the Commission of Fine Arts occupies an important position, although its powers are advisory, not mandatory. In the following discussion there are revealed two essentially differing points of view. These show, on the one hand, what cannot but be a misconception of the duties of the Commission and the task of the architect, while, on the other hand, it is evident that the fundamental nature of the effort which seeks to safeguard Washington against unsuitable developments is becoming more and more appreciated in Congress.—EDITOR.

Reprinted from the Congressional Record of August 2, 1917

TREASURY DEPARTMENT BUILDING.

The PRESIDING OFFICER. The question recurs on the motion of the Senator from Virginia [Mr. SWANSON] to proceed to the consideration of the bill (S. 2477) to authorize the construction of a building for the use of the Treasury Department.

Mr. POMERENE. Mr. President, I intend to offer an amendment of the pending bill, but it seems there is a committee amendment which is first to be acted upon. I will, therefore, withhold my amendment.

The PRESIDING OFFICER. The committee amendment will be stated.

The SECRETARY. In section 1, page 2, after line 2, it is proposed to insert:

Tbe plans for such public building to be approved by the Commission of Fine Arts.

The PRESIDING OFFICER. The question is on the committee amendment.

Mr. KENYON. Mr. President, I desire to inquire of the chairman of the committee why the Commission of Fine Arts should have anything to do with this building at this time? I should think that in this war time, in view of all the expense to which the Government is put, if we needed any additional building, it ought to be something in a plain, substantial mode instead of a mere work of art. What has the Commission of Fine Arts to do with this building, anyway?

Mr. SWANSON. Mr. President, if the Senator from Ohio will permit me, I will state that this building is to be erected opposite the Treasury Department, west of Riggs Bank and east of the White House; and I do not suppose anybody who has any pride in Washington as the Capital of the Nation would desire a building erected there at any time which would not be in harmony with the architectural surroundings. A building on such a site ought to be ornamental to some extent, and so we have required its approval by the Fine Arts Commission, whose function it is to consider plans for public buildings and make them harmonize with their surroundings.

Mr. KENYON. It does seem to me that during these times the Treasury Department could get along, if necessary, with some plainer structure. It seems a little ridiculous, although my notions may be old fashioned, at a time like this, that we should in erecting buildings require that the plans be approved by the Commission of Fine Arts. Certainly facilities could be doubled up in the Treasury Department or a plainer building could be constructed, if necessary.

Mr. SWANSON. The department has already reported on that matter. If the Senator from Iowa will go to the Treasury Department he will find that the clerks there are out in the corridors. I am informed by the Health Department that that department is already crowded to a degree that violates the requirements of the rules of health.

I differ from the Senator as to the character of building that should be erected. I am not in favor of appropriating four or five hundred thousand dollars to construct temporary buildings. If we are going to construct a shack, we had better rent one. Unless we are going to spend our money on something which will be permanent, something the construction of which is really desirable, it will be a waste of money.

Mr. KENYON. How long will it take to construct this building?

Mr. SWANSON. The Secretary of the Treasury has stated that it could be constructed within a year.

If the Senator will allow me, I desire to say that I have no interest in this matter except a public interest. Every time the Appropriations Committee come in here and report an item for the payment of $1,000,000 rent for public buildings, as it will have to do during this war, there is criticism of the committee, and we are asked, "Why do you not bring in bills to construct buildings, so that the Government shall have no rent to pay in Washington?"

Mr. KENYON. I have no interest whatever in the matter. I am simply speaking for the great unrepresented portion of the American people.

Mr. SWANSON. The unrepresented portion of the American democracy are opposed to renting public buildings in Washington and enriching landlords. They are opposed to letting them erect private buildings on private land and letting the Government pay for the rent on that land, for the taxes on it, and for the buildings on it. We have here Government land upon which we can construct our own buildings more cheaply than we can rent from the landlords of Washington.

Mr. KENYON. The Government has buildings now which it is renting, one for a theater. It can certainly get the use of those buildings in this emergency.

Mr. SWANSON. The land was bought by a Republican Congress upon which to erect a Department of State and a Department of Justice. The appropriation for the land was made; $50,000 was appropriated for the plans; the plans were prepared, but the bill for the erection of the buildings never got through.

It is exceedingly difficult to secure the passage of a bill to put up public buildings in Washington, but it is easy to get through the Senate and the other House bills to erect handsome buildings in little towns all over this country. Such a proposition is scarcely opposed; but when we come here with a proposition to erect for the great Treasury Department—one of the great departments of this Nation—a building on the Government's own land, it is practically impossible to get the bill through the Senate. It is, I repeat, more easy to get bills through to erect a thousand or fifteen hundred little public buildings all over the country.

For one, as chairman of the committee, I have favored putting public buildings on Government land and not buying land for that purpose, and stopping the paying of high rents for buildings here in Washington.

Mr. PAGE. May I ask the Senator from Virginia one question?

Mr. KENYON. I have the floor, I think.

Mr. PAGE. Then, may I ask the Senator from Iowa does he understand that the proposition is to erect this building on land owned by the Government?

Mr. KENYON. The proposition is, as I understand, to construct it on land owned by the Government.

Mr. SWANSON. If the Senator will permit me, this land has been owned by the United States since 1882. In 1882 the Government paid $250,000 for this land to put on it a public building. The proposition got through very easily when there was some one who had land to sell. The Government has held this land, as I have said, since 1882; it was bought for the purpose of erecting a public building on it, and now it is worth $575,000. This is simply a proposition to stop paying rent and to erect a building on the Government's own land.

Mr. PAGE. Where is the land located?

Mr. SWANSON. It is located opposite the Treasury Department and south of the Belasco Theater. It is proposed to erect this building there as a part of the Treasury Department. It will afford 100,000 square feet of space and will be connected by a subway with the Treasury Department.

Mr. KENYON. Mr. President, I hope the Senator from Virginia will not get excited about this matter. He makes the same argument on every public-building proposition which comes along.

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Here is the Government owning many buildings, some of them used for theaters, some of them used for hotels, some of them used as headquarters by woman suffrage societies, that might just as well be used during the time of the war for the purposes on which the Senator is figuring.

Of course, I realize that, as the Senator from Nebraska [Mr. NORRIS] suggested, this is such a small amount it really ought not to be discussed here. When a bill was under consideration the other day we were told that $27,000,000 was such an infinitesimal sum that no one ought to say anything about it. Of course, this is a much less amount, but I insist that we can get along without the new public buildings of which the Senator speaks, which are spread all over the country. No public-building bill of the kind to which the Senator refers has passed the Senate for some little time, though such a bill did pass the other House providing for hundreds of public buildings. I think the chairman of the committee did not care to risk the bill on the floor of the Senate. That is the only thing I am suggesting. I do not do it in any controversial spirit.

Mr. SWANSON. I do not know what the Senator from Iowa means by saying I did not care to risk the bill on the floor of the Senate. I was opposed to a bill for erecting public buildings all over the country at this time.

Mr. KENYON. I am glad of that.

Mr. SWANSON. But I say that when the Government can save from $50,000 to $60,000 a year in rent and when the Government has bought and owns the land, it is very different from a public-building bill providing for the expenditure of $40,000,000 or $50,000,000 for the erection of public buildings one-third of which are not needed and if constructed will not be a saving to the Government.

I did not favor a public-building bill last year, and I do not favor one now, but the time has come when we have got to settle this problem in the city of Washington: Are we going to utilize the land the Government now owns? We have bought the land; we have paid for it; it is valuable. Shall we erect on it a public building such as is now contemplated or shall we abandon it and continue to rent? In our rentals we pay what? We pay for the land; we pay for the taxes on the land; we pay for insurance.

I am not one of those who believe that the Government, owning here a vast amount of real estate, can not afford to erect buildings on its own real estate and stop renting buildings from landlords here in Washington. For that reason, since I have been chairman of the committee I have contended that this is a most important question to settle in connection with the erection of public buildings. The great Treasury Department, which was one of the first departments of the Government to be organized, occupies a building which has not been enlarged since it was erected, in the time of Andrew Jackson. Its employees are scattered all over Washington. New duties have been imposed on it. The Farm Loan Board, the Federal Reserve Board, and the War Risk Board have been placed under its jurisdiction, and when you go there you find the employees are clear out in the corridors. The Department of Health says they are now too crowded, and yet when I come here with a proposition to construct a building, despite the present high prices, for forty-odd cents a square foot, when at the same time, as I can prove, the Government is paying for the Munsey Building and other buildings a dollar a square foot, some Senators seem to think that the Government is not rich enough to provide its own buildings. I say the taxpayers of this country are tired of enriching landowners in Washington. This Government is not so bankrupt that it can not afford to provide suitable accommodations for the conduct of its own business.

Mr. KENYON. Mr. President, the taxpayers are tired of something, but I did not know it was the matter which the Senator has pointed out. The point I make, and which has not been answered, is this: The Senator from New York [Mr. CALDER] has shown that it will cost 100 per cent more to erect this building now than it will after the war, provided prices then become anywhere near normal. That being true, with all the expenses which are necessarily piling up, it is a good deal of a farce to have attached to this bill a provision that the plans must be approved by the Commission of Fine Arts.

Mr. SWANSON. While it may be true that the cost of construction has gone up, at the same time rents are going up. If this Government is required to rent buildings for the next four or five years at the high rentals it will be obliged to pay, in five or six years those rentals would amount to nearly enough to construct a building of its own. Rents are going up in Washington at a great rate. I have a letter saying that the rental of some of the buildings now used for the Government will be advanced to $1.50 a square foot. There is nothing involved in this bill except a desire to see to it that the business of the Government is provided for and that the Government stops paying rent to landlords by utilizing land which was bought and paid for 35 years ago. It seems to me, if the Government is ever going to follow sensible business lines in connection with its buildings, this is as sensible a suggestion as can be presented to it.

Mr. SMITH of Georgia. Mr. President, I am opposed to having the Fine Arts Commission interfere with the building proposed to be erected or with any of the public buildings erected in Washington. I am also utterly opposed to having private citizens erect buildings and rent them to the Government. I think those of us in charge of Government affairs ought to be ashamed of ourselves because of the rents the Government pays in this city.

Mr. BORAH. That is also true of individuals who come here.

Mr. SMITH of Georgia. Well, I do not agree with the Senator about that. They occupy an entirely different position, and rents for individuals are not especially high here. But the Government owns the land; it owns much more land than it needs for all the buildings it requires, and why should a private citizen put up a building for the Department of Justice, for instance, and rent it to the Government upon a basis that must necessarily pay him back in a few years what the building cost him?

Mr. NORRIS. I presume the Senator understands this is a war measure. I should like to ask him if he thinks this building will be completed before the war is over?

Mr. SMITH of Georgia. I am not discussing it as a war measure. I am using this opportunity to criticize what has been going on.

Mr. NORRIS. Then, let me ask the Senator, if he is not considering it as a war measure, does he not think that it is very inopportune to erect public buildings of this kind during the war, when construction costs more than in normal times and when the Government needs the money for other purposes?

Mr. SMITH of Georgia. Not necessarily so. I think that the Government rent roll in the District of Columbia is a reflection upon all of us and an example of lack of business capacity in handling the affairs of the Government.

I repeat, the Government has the land; it has had it for years. I am not discussing simply this bill, but I happened to enter the Chamber, and am taking advantage of an opportunity to say something I have been wanting to say for some time, not with reference to this bill especially but generally.

On Pennsylvania Avenue there are a half dozen new buildings erected for the Government by private citizens. That condition is a shame; it is a reflection upon our business capacity. We can erect buildings as cheaply as private citizens can; we have the land, and why should we not put up our own buildings?

Mr. KENYON. Mr. President——

Mr. SMITH of Georgia. Wait a moment. I think one reason is the Fine Arts Commission. I am opposed to their interfering with our buildings. One reason why the Government has not gone ahead and provided itself suitable accommodations is that there has been an idea that every time the Government erected a building it must erect a monument to art to be seen and admired for all time.

Mr. NORRIS. Mr. President——

Mr. SMITH of Georgia. One moment. Let me finish, please, and then I will yield the Senator the floor. I believe we ought, as business men, to adopt a sensible office-building plan to take care of the enlarging necessities of the Government, and whenever we need more space we should put up such a building, instead of having our rent roll expand, as it has since I have been in the Senate, from about $350,000 a year to nearly a million dollars, where I understand it now is. We ought to use the ground we own, and put up buildings costing, say, $500,000—neat, plain, simple office buildings, to meet the enlarging and increasing necessities of the various departments.

I will vote against the Fine Arts Commission having anything to do with this building; I will vote with the Senator from Iowa on that proposition; but I do believe that we ought to stop paying rent, and not allow private citizens to put up another building for the Government when we can erect buildings as cheaply as the individual and when we already have the ground.

Mr. NORRIS. The Senator realizes, does he not, that this bill does not contemplate the construction of the kind of building he is advocating? The proposed building is to be ornamental in character, to correspond with the Treasury Department Building.

Mr. SMITH of Georgia. The Senator, of course, understood me to say that I was opposed to the Fine Arts Commission having anything to do with it?

Mr. NORRIS. Does the Senator think we would prevent the erection of that kind of building if the provision regarding the Fine Arts Commission were stricken out?

Mr. SMITH of Georgia. You have it entirely in your power to determine the character of the building.

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Mr. NORRIS. I have not.

Mr. SMITH of Georgia. Well, I mean the Senate has.

Mr. NORRIS. The Secretary of the Treasury would have.

Mr. SMITH of Georgia. The Senate has.

Mr. NORRIS. Then the bill ought to be amended if the Senator's idea is to be carried out. I agree with the Senator in the main.

Mr. SMITH of Georgia. I stated to the Senator that I used this opportunity to say something that was in my system which I wanted to get rid of.

Mr. HARDING. I desire to ask the Senator from Georgia how it is in the power of the Senate to pass upon plans for any public building?

Mr. SMITH of Georgia. The Senate can specify the character of building; it can require the plans to be approved by it; it can specify, very briefly, the nature of the building; it can prescribe a type to correspond with office buildings erected in the cities.

Mr. HARDING. If the Senator will allow me, as I understand, the function of Congress usually appertains to appropriations of the amount to be expended.

Mr. SMITH of Georgia. I have an idea that Congress has some additional authority, although I may be mistaken.

Mr. HARDING. Does the Senator think it practical for Congress to specify the plans for public buildings?

Mr. SMITH of Georgia. I do. It could specify an office-building type, according to the ordinary standards of office buildings.

Mr. CALDER. The Senator refers to the Fine Arts Commission. I am surprised that he should object to having the Fine Arts Commission pass upon the character of the architecture, the beauty of the architecture. We have always discussed the city of Washington as a place of magnificent distances. Is it not a proper thing, is it not the best thing in the long run for this city, that there should be a Fine Arts Commission to pass upon every public building erected?

Mr. SMITH of Georgia. No. I will say to the Senator that I have been here for six years hearing that story, and what has happened? Additional buildings have been constructed by private citizens and the rentals paid by the Government have increased from about $350,000 a year to nearly a million dollars. That is what it has meant. It has been said, "Let us wait until we can erect a great, ornamental building of exquisite architecture;" but the building has not been erected by the Government, and in the meantime we have paid hundreds of thousands of dollars to the landlords from whom the Government rents, who continue to erect building after building for use by the Government.

Mr. CALDER. If the Senator will permit me, has not that been the policy of the present administration?

Mr. SMITH of Georgia. No.

Mr. CALDER. If I have been properly informed, the Department of Commerce, the Department of the Interior, the Department of Labor, the Interstate Commerce Commission, the Navy Annex, and the building of the Civil Service Commission, have all been constructed and rented under the present administration.

Mr. SMITH of Georgia. I do not think the new building of the Department of the Interior is a rented building.

Mr. CALDER. I mentioned the new Interior Department Building, but perhaps I was wrong about that.

Mr. SWANSON. Mr. President, I desire to say that I introduced a bill to construct buildings for the Department of Justice and the Department of State on the land bought by the Government opposite the Willard Hotel, contiguous to the Treasury. These buildings would have relieved the State, War, and Navy Department of some of the congestion now in evidence there. The Government paid for the land upon which those buildings were to be erected, and they paid $50,000 for plans for the buildings, which plans were approved. I sought to have that bill passed, but it was defeated repeatedly. Consideration was refused it on the objection of the former Senator from Ohio, Mr. Burton, the former Senator from New York, Mr. Root, and others.

As chairman of the Committee on Public Buildings and Grounds, I desire to say that whenever a vote has been taken, it has been found that a majority of Senators on the other side of the Chamber have voted against constructing such buildings. I hope that will not be so in this case, but ever since I have been chairman of the committee there have been some Members on the Democratic side who were strong for public buildings in their local communities, and who frequently criticized me for not bringing before the Senate public-buildings bills, who united with a large number of the Republicans to defeat every proposition that has been brought forth to construct buildings on Government land for Government uses in Washington, instead of spending thousands of dollars in rent and filling the pockets of the landlords of this city. I hope Senators will stand by me on this matter.

Mr. SMITH of Georgia. Mr. President, I must leave in a moment. I only came up at the ringing of the bells to vote, not expecting to take any part in the debate, but I could not forbear to use the opportunity to express a criticism which I have been inwardly indulging about the silly, extravagant policy which we have pursued in regard to our public buildings. One of the troubles has been that whenever it has been proposed to put up a sane office building for the Government, we have been told that the judgment of the Fine Arts Commission or some other tribunal must be followed or that some peculiar and expensive system of architecture must be employed; and so, instead of constructing buildings for the Government, we have allowed private citizens to erect nice plain office buildings which are seen in the city just as much as if they belonged to the Government.

Mr. CALDER rose.

Mr. SMITH of Georgia. I am going to yield the floor entirely to the Senator from New York in a moment, for I must go to the Finance Committee, as I promised to return at once. I hope, however, Senators will get out of the idea that we must have a great monumental architectural structure every time we put up an office annex for the Government, and that we will adopt the same policy of erecting practical office buildings upon ground owned by the Government, which will economically provide for the Government, and stop running up inexcusable rent accounts, which now amount to nearly $1,000,000, as I understand.

Mr. PAGE. Mr. President, may I ask the Senator a question?

The PRESIDING OFFICER. Does the Senator from Georgia yield to the Senator from Vermont?

Mr. SMITH of Georgia. I will yield the floor to the Senator.

Mr. PAGE. I merely want to ask the Senator a question.

Mr. SMITH of Georgia. Very well.

Mr. PAGE. The Senator from Virginia [Mr. SWANSON] says that the land upon which it is proposed to erect this building is land which the Government has owned for 35 years, and I take it for granted that it is the site near the Belasco Theater. For one, I I want to say that I think I am as much of an economist as is the Senator from Georgia, but I am totally and heartily opposed to erecting on that corner, directly opposite the Treasury Department Building and contiguous to the White House, in a locality where every building is an object of art, a cheap, ordinary, office-style of structure.

Mr. SMITH of Georgia. I answer, Mr. President, that the ordinary office building is not cheap and is not lacking in harmony. The ordinary office building beautifies the streets of New York and beautifies the streets of Boston. Near the Shoreham Hotel there are a number of handsome office buildings, and a building of such character erected on the corner now proposed to be utilized would not be inharmonious and would be amply satisfying, I think, to the eyes of all except the extremely fastidious, or those who wish to be their Government's landlords.

Mr. BRANDEGEE. Mr. President——

Mr. SMITH of Georgia. Does the Senator from Connecticut want the floor for himself or to ask me a question?

Mr. BRANDEGEE. I thought the Senator had concluded.

Mr. SMITH of Georgia. I am through.

Mr. BRANDEGEE. Mr. President, I am not a member of the committee that reported this bill, and perhaps am not so well qualified to speak about it as those who have heard the evidence, but I do carry in my mind the location where it is proposed to erect this building, and, from the dimensions given in the report of the committee, 136 feet on one street and 186 on the other, being at the corner of Madison Place and Pennsylvania Avenue, it would give 25,296 square feet of ground space. The report does not indicate how many stories high it is intended to carry the building, but it estimates that there would be available 100,000 square feet of office floor space. I presume that is after deducting hallways and the dimensions of the interior walls, and that the building would probably be three or four stories high, judging from the square feet of the ground area.

But, Mr. President, I am moved to say just a word in relation to this bill, because, having read the report, it is perfectly evident to me that the Treasury Department, whose duties are increasing by leaps and bounds, needs more space. The principal question which confronts us is whether we will divide up the additional force that they are all the time being compelled to acquire to meet the duties we are imposing upon them and scatter them about in old private dwellings and private buildings throughout the city, or whether we will utilize land that the Government has now held since 1882, a period of some 35 years, and erect a building designed for the purposes and uses of the Treasury Department, the operating of which will be forever much less than would be the cost if they are compelled to

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hire a half dozen different buildings and split their force up; and, if so, whether we can make sure that it shall be built to comport with the surroundings.

I would heartily agree with the statement of the Senator from Georgia [Mr. SMITH] that if a building were to be erected in some other part of the city, in a neighborhood where the buildings are of simple factory or office construction, it would be an unwise expenditure of money to make it subject to the jurisdiction of the Commission of Fine Arts. But I entirely agree with what the Senator from Vermont said. It is universally admitted that the old Treasury Building in the city of Washington is the finest example of pure Grecian art that there is in the country. Where the Government is the proprietor, to put right across the street from that beautiful building, with its monolith granite columns, which will stand there forever, a building merely calculated to protect a certain number of employees from the weather, a mere brick building, or a building with no artistic finish at all, it seems to me among educated men—and we all pretend to be men of some artistic appreciation—would be a public calamity.

In the first place, the services of the Commission of Fine Arts are free to the Government, as I understand. The interior arrangement being the same, it seems to me beyond question that the additional cost of having a decent exterior, approved by men who have the confidence of everybody, to whose judgment anybody would submit if they were to erect a beautiful country seat for themselves or any building where art and beauty were to have any attention at all paid to them, would be a mighty small percentage of the cost of the building. It would be merely a few columns, a few ideas of design.

To have anything placed at that corner, which we all know so well, next to the Belasco Theater, and about which we have all inquired, when we came to Washington, why such a beautiful location continued to remain vacant—to have anything put there about which every stranger who came to town would say, "How in the world does it happen that in the National Capital, where we are attempting by a slight additional expenditure of public funds to set a standard for the whole Nation for art and beauty, to make this model city beautiful, a structure has been erected there that stands out like a sore thumb, incompatible with all its surroundings?" and to have to answer, "Well, Congress thought that the Fine Arts Commission were a set of faddists, or that the Government buildings ought to be built upon the factory plan and severely plain, and it would cost a little more to build it so that it would be a thing of beauty instead of a thing of monstrosity," would be a humiliation for any of us.

I believe, as it lies in my mind, that there is a well-built building immediately adjoining this proposed site on the east. Then comes the Riggs Bank, which itself has a beautiful front, and then the American Security & Trust Co. Building—all buildings of artistic merit, with fine granite columns, and all buildings, I have no doubt, designed with some respect and some attention to the old Treasury Building. Right in the neighborhood, too, there is a magnificent new hotel going up. I believe it is called the Hotel Washington.

If we are going to have this building at all on that site, there can not be any question that it ought to be subjected to some artistic supervision; and while the Senator from Georgia suggests that we can prescribe what sort of artistic effect would be most acceptable in that place, that is an impossible suggestion. While I have a certain degree of artistic perception myself and admire things of beauty, I am not a creator of them; and when the Senators think it over calmly I doubt if they would be willing to submit such a proposition to anybody in the Senate. We are not specialists in that line. We can all admire a beautiful oil painting, but very few of us could reproduce it or suggest the lines upon which it should be created.

For that reason, Mr. President, I hope very much that if the bill is to pass, this provision subjecting it to the approval of the Commission of Fine Arts will remain in the bill. Although we are spending a great deal of money on war measures and it is not pleasurable to have to spend another million dollars or a million and a quarter just at this time for this building, we must realize that it is not a question of spending the amount or saving it.

The question is, Shall we spend it in a way in which it will be of permanent and enduring use to the Government, or shall we spend it in such a way that after a few years we will have to lose a great deal of the amount that we have appropriated?

The report of the committee states that the increased number of employees necessitated in the Department of the Treasury by the additional duties that we have imposed upon them, and are continuing to impose, is 300 additional employees in connection with the liberty bond issue alone, and 300 more on some other duties we have imposed upon them, and more on the next issue of liberty bonds. The Secretary states that this has been somewhat necessitated by the great duties cast upon the department growing out of the great war we are entering upon. He also states, or the committee states, and I assume from evidence before the committee that these increased officials and clerks in the department will not all vanish when the war closes; that many of these duties will have to be kept up. They also state the amount of money they are paying now to private parties for disassociated locations, when the whole business of the department would be much better conducted if they were coördinated and more closely held together.

For those reasons, Mr. President, I fell that I shall support this bill, and I hope the provision in regard to the Fine Arts Commission will be left in it.

Mr. WADSWORTH. Mr. President, I have not thus far been convinced that I ought to give my support to this appropriation of a million and a quarter dollars for the erection of this building during this war, while we are so badly in need of funds; but I very much hope that if the bill is to pass it will contain this amendment, which provides that the plans for the building shall be submitted to the Fine Arts Commission. I feel as strongly as the Senator from Connecticut does about that question.

Mr. President, it is an unfortunate thing that many, many years ago the buildings which were constructed in Washington were not all submitted to a fine arts commission. If we will just go about this town and look at some of the Government buildings that were put up at unfortunate periods in the development of architecture, without any relation to the buildings in their neighborhood, I am sure we will all regret that some standardization of architectural design was not enforced at an earlier period. One has only to remember the Post Office Building, that gray monstrosity that sits down upon Pennsylvania Avenue, and will be there, presumably, for two or three hundred years to come, a sight that can never be avoided by any American citizen visiting the National Capital and seeking to stroll down or up Pennsylvania Avenue. We can think of the Pension Office Building, this red tomb over there that desecrates a park, with no more artistic beauty to it and no more right to exist in a National Capital in that particular place than a great factory building with a tall chimney arising from it; and we can think of other buildings of the same type that unfortunately sprang up and became stationary, as it were, within the limits of the National Capital.

For one, Mr. President, I have been somewhat dismayed at the tendency in recent years to house the departments of the Government in so-called office buildings. I know they are cheaper. I know perhaps the elevators in them run faster. I know that perhaps you can get more clerks in the same cubic space than you can get in a so-called monumental building. I am somewhat dismayed at the suggestion made upon the floor this afternoon that an office building such as we have in the city of New York by the hundreds, is an object of beauty, or that the office buildings in the city of Boston are objects of beauty. I can not agree with that contention. They turn our streets into canyons. In the case of an office building there is nothing that suggests the fact that a great Government is occupying it. There is nothing monumental in their character. I hope, if this bill is to pass, that any and every building erected under its terms, or under any other bill that is brought in here for the erection of a Government building in Washington, at least, before it is put up shall be submitted, so far as its plans and its architectural design are concerned, to a fine arts commission of some kind that shall pass upon it, and prevent this Capital City of the United States being desecrated by buildings which have no place here, and which, were they to be placed anywhere else, would be taken merely as common, commercial office buildings that were to be put up for ordinary purposes.

I do not think the National Capital should be characterized by such buildings, built by the Government upon its own ground. I think the Government should put up the handsomest buildings that the ground can contain. I for one am willing to spend a hundred thousand or two hundred thousand dollars more for a building and be satisfied that the people of the United States, when they come here to visit this city, will regard it as a thing of beauty.

Mr. WEEKS. Mr. President, this is an interesting and an important subject.

I quite agree with what I have heard said this afternoon with relation to the construction of buildings for occupancy by the Government in the District of Columbia, and I hope that a systematic plan will be followed to carry out the provisions of the original plan to develop the city of Washington. While it might be practicable to have an ordinary office building for certain purposes, it does seem to me that, generally speaking, we can afford to erect in Washington buildings of great architectural merit, and I am glad the Senator from Virginia has inserted in this proposition a reference to the Fine Arts Commission. Indeed, that is one of the best things in the bill. We ought to have a systematic plan of character of the buildings to be erected, and only by reference to a competent commission can that be brought about.

I think we have been lax in Congress. I am not sure but that it

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is up to the majority, during the last three or four or five years, if we have not carried out the plans which have been perfected for the improvement of the location between Pennsylvania Avenue and Fourteenth and Fifteenth Streets. The Government owns a large area there, covered by buildings of no importance, and it is the natural place for the beginning of the systematic development of that area south of Pennsylvania Avenue. I wish that years ago we had adopted plans which were approved by a very competent commission of architects, and had erected there buildings which which would be useful at this time or useful at any other time.

I think the Government, as a matter of economy, should, generally speaking, erect its own buildings and manage them in the District of Columbia. I think it would be cheaper than to have buildings erected, as they have been during the last three or four years, by individuals, on a basis which means, of course, considerable profit to them, and which would necessarily mean that the Government could do it on a more economical basis. That is to say, the rates of interest would be very much less.

Personally I do not approve of developing this particular site, and if I had the entire power in the matter I would sell the lot on which it is proposed to erect this building. The Senator from Virginia said it could be sold for perhaps $600,000, or that, perhaps, was its value, which is practically three times what it originally cost.

Mr. SWANSON. Mr. President, if the Senator will permit me, it can not be sold at any price with the conditions that were imposed as to the character of the building that should be put there. The prospective purchasers have refused to consider any sale that will not permit them to put up an immense office building, or something of that kind. I do not think the Government could consent to have an ordinary, common building put up there even by a private individual. As the Senator says, some architects say that the Treasury Department is the finest building we have here; and we have either got to use this site or let it remain vacant. We can not sell it for anything, unless we allow private individuals to put up any kind of a building there.

Mr. WEEKS. I agree that if a building is to be erected there it should be of suitable character for that neighborhood. It is in about the most conspicuous part of Washington, and, in my judgment, it would be a great mistake to erect an unsightly building on that particular location; and yet I would greatly prefer to expend the money on the site south of Pennsylvania Avenue between Fourteenth and Fifteenth Streets.

Mr. SWANSON. If the Senator will permit me, that site was bought for a building for the State Department and the Department of Justice. The money was paid for it for that purpose.

Mr. WEEKS. And the Department of Commerce.

Mr. WARREN. And it was intended, at least, to take in the Geological Survey.

Mr. SWANSON. Yes; but suitable plans were prepared and the Government paid the money for them. It paid $50,000 for the plans to the architect who prepared the most beautiful plans. The money was paid and the plans were adopted. I introduced a bill, and the committee unanimously reported it, to erect the building. If we had it now the Army and Navy Departments would not have to be paying a whole lot of rent that they pay now. The State Department could have moved out, and we would have avoided paying these excessively high rents that we are paying now for the Army and Navy. But I could not get the bill considered. It is nearly impossible to get these bills considered unless you load them down with a general public-building bill for every little village in the country.

I agree with the Senator; but, you see, the Treasury Department needs 100,000 square feet of floor space. It is now renting 67,000 square feet. This will give the 100,000 square feet. The Treasury Department has asked for 37,000 square feet more space. It is already renting 67,000, which makes a total of 105,000. If this building is erected the Treasury Department will not need to rent any space at all. This is the only place where the Treasury Department could be enlarged. The purpose is to have an underground passage. Then it will be a part of the Treasury Department as much as if it were immediately adjoining it. This is the only place I know of where the Treasury Department could be enlarged.

I have seen the plan of the building. It seems to me to be in accord with the Treasury Department and also with the Riggs Bank Building. I agree with the Senator that a building ought not to be put up there that is not in accord with the White House architecture, the Treasury Department, and the Riggs Bank Building, and for that reason I thought that amendment ought to be put on.

Mr. WEEKS. There is one other point to which I want to call attention. I have not any idea that this building can be completed within a year, or that it will be completed within a year; and necessarily it will cost from 25 to 50 per cent more than it would in ordinary times. If it were possible to have this building erected next week or next month, there might be some excuse, I think, for the very large increase in the cost of its erection; but as it is not possible to do that, in my judgment, within 18 months, when in all probability—at least, we hope so—the war will be over, and conditions will have returned to normal, it does not seem to me entirely wise to undertake the erection of the building at this time. But I hope the Senator from Virginia will pursue the course to which he now seems to be pointing, to have erected in the city of Washington suitable buildings, suitable in number and size, to supply the governmental needs. I am confident it will be economy, and that it will add greatly to the character of the city.

Mr. NELSON. Mr President, I only want to say a few words.

I am somewhat familiar with this proposed site. We had a pretty fair four-story brick building there, that some years ago was occupied by the Department of Justice. It was our own building. All at once the report was given out that that building was unsafe and insanitary, and it was torn down. It was a pretty good building, a four-story building. I had occasion to go there several times to consult the Department of Justice. They finally succeeded in tearing down the building, and then they went and rented a residence north of one of the parks in the city for the Department of Justice, that they have occupied ever since. I always thought that it was a great waste to pull down a building that the department could as well have occupied, simply for the purpose of moving them into a private residence.

In respect to this matter of architectural design, I entirely concur with the Senators from Connecticut and Massachusetts. There are only three or four public buildings in this city that have any pretensions to real architecture. The White House is one of them. The Treasury Department is another. The old Interior Department, or what they call the Patent Office, is the best of all, and the building across from there. The Patent Office has the most beautiful Grecian Doric columns that I have ever seen anywhere, and the Treasury Department comes next with its other columns, which I believe belong to the Ionic style, and also the old Post Office Building, now occupied by a part of the War Department.

It seems to me that this building, if the Treasury Department needs it, ought to be erected on this very site, for one or two reasons.

In the first place, it is so near the Treasury Department, and an underground passage can be easily made to communicate with the old building, so as to make them practically one. We have had some experience here with what a great help it is to have the underground passage between the Capitol and the Senate Office Building. The distance from the north end of the Treasury Department across Pennsylvania Avenue to this site is very short, and a good underground passageway would make it very convenient.

When you come to the matter of architecture, a building erected there ought to be erected in harmony with the Treasury Department and the White House. I do not know how other Senators feel about it, but a few years ago I made a trip to Europe, I saw some of the palaces there, and I came back here with a higher admiration for the White House than I had ever had before. The White House is of the most chaste and most perfect style of architecture, and I hope it will not be destroyed or injured or tampered with in any way.

This building to be erected here, being so near the White House and so near the Treasury Building—the two buildings that come nearest to the Grecian school of architecture and to perfection in that line—ought to be in harmony with those buildings. To put up an ordinary office building, like some of these office buildings, would mar the appearance both of the Treasury Building and of the White House.

I have never been enamored with the site that we were forced to purchase some years ago south of the Avenue. It is rather low ground. It is not quite so low as that monstrosity of the Post Office Department, but it is low ground. It sags down south and southeast from the corner of the Treasury Department. Now, there may be room for a State Department building there. I have always felt that the Department of Justice, with the law library and the Supreme Court, ought to be in one building, and that that building ought to be right here opposite the Congressional Library. We want the law library here near us. The Supreme Court have small quarters. If you go into the law library, you will see how confined they are. To my mind, the proper way would be to house the Supreme Court, our law library, and the Department of Justice under one roof; and I think the appropriate place, instead of going into that swampy hollow southeast of the Treasury Department, would be up here on Capitol Hill.

They talk about beautifying the city! That would complete the beautification of this square here. We have on the southeast the House Office Building and on the northeast we have the Senate Office Building and out in this direction we have the Congressional Library. If we should fill this other space, we would have the Capitol surrounded on three sides with suitable and proper buildings.

The Congressional Library is a building that is not only useful

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but is a work of art in itself. No one can criticize that. So I trust that if the new Treasury Building is to be built it will be built just where the Senator from Virginia proposes that it shall be built; but I further trust that when it comes to the erection of a Department of Justice building that building, including the law library and quarters for the Supreme Court, will be built up here near the two Houses of Congress, opposite the Congressional Library. It has no business down in that swamp hole there, that rough, harum-scarum part of the city.

One thing that has discouraged me a good deal has been to see, in the city here, how when people had a lot of property that was not exactly in good order and was not paying good rent, but was a sort of a dead and worthless property, they would manage to unload it on the Government. Now, look at all this space, a lot of it, between here and the depot. A lot of good buildings were torn down—for what? To make a park between here and the Union Depot. They might have had a limited park, but they extended it in front of the Southern Railway office, and extended it down in this direction. Before long there will be another drive made on Congress to take a couple of more squares down here "to round it out," as they call it, and make it perfect.

We had in this Chamber a Senator from the West who had a grand scheme, and that was to have all the Government buildings built in a row on the south side of Pennsylvania Avenue; to have them erected there like a line of Lombardy poplars in that swampy ground where the Tiber, in olden times, before it was covered with pavement, discharged its waters into the Potomac. The remnant of that project was the acquisition—and, thank God, it was limited to that—of those three or four squares next to the Treasury Department. There is a hotel there, there is a theater, and God knows what else there is in that locality; but we acquired that years ago, and perhaps we ought to utilize it for some of the departments; perhaps for the Department of Commerce, who are in that artistic building—no; not artistic, but that building which approximates to a skyscraper down on Pennsylvania Avenue. Perhaps suitable quarters could be found for them there.

Yesterday I called at the Department of Justice, and, much to my astonishment, I found they had vacated the residence that they occupied after they had torn down the brick building on this site next to the Riggs Bank. I found that they had gone into new quarters, and I ventured to state what happened in the case of the Census Office Building and had happened in that great building here on G street once occupied by the Post Office Department. When they succeed in getting the Government to enter into a contract to put up a building and rent it they generally get enough out of it to pay for the cost of the building in one or two years, and then they have the stuff left on their hands, and they always manage to load it on the Government.

As I go down here on the cars on the line that runs in front of Judiciary Square, as they call it, there is a building that is a sort of a stray building. It used to be occupied by the District government. Then I believe they managed to get it used as a sort of bureau or place for medical supplies, and I believe they have got some other department housed there now; at least there is a Government sign in front of it. What rent they pay I do not know.

Senators talk about beautifying the city. I am heartily in favor of it, but, Mr. President, I think we have allowed the real estate men in Washington to work the Government beyond all rhyme and reason. I hope my good friend from Virginia, now that he has stepped in the breach, will put a stop to this acquisition of dead and down property for the sake of relieving the owners, and stick to good high ground.

Let me call your attention to another matter. What use was there in putting the District Building down in that swampy country? It was nothing but a swamp, as you will see by looking at an old map of Washington. It ought to have been built upon Judiciary Square, where there is high, good ground. But the street car company had an old abandoned power house there. It had been burned and destroyed and the ground was saddled on the Government. The District Building was built there at great expense, for it takes a good deal of money to get a foundation in a swampy piece of land like that.

Take the building where the Post Office Department is. It puts me in mind of one of those old feudal castles that were built for an army of retainers and built as a matter of defense. It was built down there in the swamp. It must have taken a mint of money to obtain a proper foundation. I was told it was built there because two of the leading newspapers of the city fronted on that street and were very anxious to have that feudal castle built right in front of them. They got what they wanted, but the Government, in my opinion, was left in the lurch. If we could dispose of that building for some other purpose and get the Post Office Department on high and dry ground it would be a great benefit to the people.

Mr. President, perhaps I have straggled and wandered on this question. In the matter of architecture and the work of the Fine Arts Commission you may think it strange that a rural chap like me, a farmer, should have any such notions; but I entirely agree with the views of the Senator from Connecticut, the Senator from Virginia, and the Senator from Massachusetts that whatever buildings we construct hereafter ought to be buildings of architectural beauty and not mere skyscrapers, and above all that it is important when we erect structures near the old Treasury Department and near the White House that those structures should be in harmony with those two best specimens of our architecture.

Mr. NORRIS. Mr. President, so that there may be no danger of my attitude being misunderstood, I want to say that I am in favor of the committee amendment. I agree to a great extent with what has been said by the Senator from Connecticut and other Senators in regard to the erection of a building at this particular place. I would not be opposed under ordinary conditions to the appropriation of money for the erection of the kind of a building that is proposed at that place. I think it would be a mistake in this particular locality where it is proposed to erect this building that we should erect a skyscraper. Of course, it ought to correspond with the Treasury Building. My opposition comes not from that but from the fact that at this particular time we ought not to be erecting buildings of that kind. It is conceded that it is to be ornamental. It is conceded that it will not be higher than the Treasury Building. It will not be an office building. As far as financial economy is concerned, it would not meet that kind of a specification, even in time of peace, when we were not so hard pushed for funds. But now we are called upon to appropriate money for the necessities of this war that stagger the imagination. Every citizen, every man, woman, and child, has been importuned from the White House, by every public official, by every newspaper, to economize in every direction. We are asked to eat less. We are asked even to wear our clothes longer. We are asked to eat certain kinds of food as a matter of economy. I have not criticized any propaganda of that kind. It has my entire approval and sympathy. I am trying to carry out in my weak way in my individual capacity those theories. I think as a patriotic duty we owe it to our country, to the men who have to foot the bills, and we owe it out of respect to the men who are going to give up their lives for our cause that we economize in every possible direction.

We are confronted now in the midst of that condition with a proposition from the committee to construct a monumental building for whom? For the Treasury Department, presided over by the son-in-law of the President. From all these men has gone forth the proclamation to everybody, economize, save, do not be extravagant, cut down what you eat, even to what you wear, make last year's machine do for this year's, if you are a farmer, and wear last year's suit and last year's shoes. But the Secretary of the Treasury, with his department right next to the White House itself, will utilize a million and a quarter of this money that we are getting from the hard-worked taxpayers of our country to build a monument of beauty in order that his working force may work in marble halls and at mahogany desks.

Mr. President, that is all wrong, in my judgment. The moral effect of it is wrong. The Secretary of the Treasury is the last man in the United States who ought to ask this. No one man, unless it is the President himself, ought to be more careful about economy now than he, and if he does ask it we ought to decline to comply with his request. It is not right; it is not fair.

If we construct a building at this place, as I said, it ought to correspond, and it will, with the Treasury Building. I am not finding fault with that. Although I have no expert knowledge, I concede, for the sake of the argument, at least, that the experts are right. They say that the Treasury Building is a beautiful specimen of art. I have noticed that beauty in architecture in recent years runs to low buildings, and I can not help but think that that means more buildings. That is more work for the architect. Low buildings will not house as many working people as tall buildings, and hence it just happens—I presume it is a coincidence—that the artistic eye of the architect demands low buildings and more buildings and more work for the architect.

The style of architecture, I think to some extent, is like women's dresses. It changes from year to year.

Senators have taken occasion to make fun of the old Post Office Building, now used by the Post Office Department, down on Pennsylvania Avenue. They call it a monstrosity. It is built out of granite; it is fireproof; it has one of the most beautiful courts in the center I have ever seen and the largest American flag that ever was made. All the workers there are safe from destruction from wind or storm or fire if they are inside of that building. It has not a crack in it from the top of the fifth floor to the bottom of the basement below. It was considered a beauty several years ago. Now it is a monstrosity. If you would take off of it three stories and leave it two stories high, I have no doubt it would be an architectural beauty. It is constructed of the same material as the two wings of the Treasury Department and is better constructed than the main part of the

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Treasury Building, which is not strictly fireproof. It was constructed out of sandstone, and only a few years ago we paid $250,000 to put an outside granite facing on the Treasury Building. The immense structure that is on top of the building, that appears to be a stone fence around the top of it, it was discovered then was nothing but wood.

And yet that is a building that is perfect! We have to run under the street and take part of the next block to get enough room for the Treasury officials to work, when if that building was as high as this monstrosity down on Pennsylvania Avenue it would accommodate twice the number of people that this new building that you contemplate would accommodate.

Mr. President, it would not do for me to say that I thought the old Post Office Building was a nice-looking building, but I happened to have in charge a few weeks ago a party of gentlemen and ladies from the great city of New York. If they had been from my State, you probably would not pay much attention to their opinion on art, but they were from New York, from the very place where the Senator from New York [Mr. WADSWORTH] lives, who expresses the opinion that this building is a monstrosity. They were unable to find the New York Senators. I found them accidentally and showed them around the Capitol and took them out on the west side and pointed out the public buildings. I pointed out the different buildings that I thought they ought to see. The next day, after they had been around, they called on me. It is just a coincidence I remember very distinctly that they commented particularly on this old monstrosity. I had asked them to go up in that building and look over that beautiful court where the mail of the Capital City used to be distributed and handled before we built a two-story building for the post office in the city of Washington, and one that met the views of architects and artists. It is peculiar that these New Yorkers thought that the most beautiful building that they had been inside of. It was a remarkable building, they thought. I have heard expression of hundreds of people to the effect that the old Post Office Building is a beauty. When those visitors from New York had examined it, they thought it was not only beautiful but it was remarkably useful, well constructed, without a flaw and without an error.

I agree—although when I say that I agree I have to confess I am not artistic—I agree with the Senator from Georgia when he says that we might construct buildings like office buildings for some of the employees of the Government with economy and without injury to the Government or to the employees. I conceive that we ought not to do it at this particular time; but one of the finest working buildings that the Government owns is the new Interior Department Building.

That is something like an office building, and they house three times as many people there without any inconvenience as they do in some of these large structures that are exhibitions of beauty and art, where in order to do any business you have to wander around one corridor and another until you are almost lost in a maze of architectural beauty. That does not help out any in the real work. I believe if we had more buildings like that one, more buildings, for instance, like the Southern Building, the office building down here, properly located, we would save money for the Government and at the same time we would not mar the sensibilities of any citizen anywhere who came to the Capital to see the sights. So I agree with the Senator from Georgia along that line. But I do not believe the Senator from Georgia would want to construct that kind of a building at this particular place.

Mr. President, we have a proposition before us that is not practicable. As the Senator from Minnesota [Mr. NELSON] said, we own the building near the corner of the Treasury Building and we own three blocks of buildings there. One of them at least is five or six stories high. We could cut the hotel building into office rooms. As he says, they have all kinds of structures there. H said God only knows what they are; God might not know just exactly all that the Government does own in that vicinity or what is located there. We ought to occupy the buildings now during this war and save rent. The expenditure of this million and a quarter dollars to erect this building will not help the war conditions one iota. It is labeled a war measure, but it has not anything more to do with the war proposition than the flowers that bloomed last spring. The war will be over before this building is constructed. The Senator from Virginia says that the Secretary of the Treasury thinks he can build it in a year. It is well that he said the Secretary thought he could do it. I give is as my judgment they will not have the first shovelful of dirt turned in a year if we pass this bill to-day.

Everybody who has seen the Government construct buildings knows that it does not do it in that way. It will be two or three years before this building will be ready to be occupied. If we want to be patriotic and economical, it seems to me we could just as well occupy such buildings as we now own, or rent quarters for Treasury officials for the time being, if necessary—and I concede that it is necessary. The passing of this bill, however, will not relieve that situation. We shall have to rent just as many buildings and to have just as much space as though we did not pass the bill, for the emergency of the war will have passed, as everybody really knows, before this building will be constructed.

We ought to be able to do and we shall have to do a great many things in the way of economy, governmental and otherwise, before this war is over. Now, when we are hunting means of raising money, instead of passing appropriations like this carrying a million and a quarter dollars to construct a building which will not be erected until the war is over and which, if it could be erected to-morrow, would still be extravagant, so far as any war conditions are concerned, we ought to be willing to put some of the clerks in the corridors, if necessary. If the clerks are patriotic, they will not object to that. While we are asking the women of the country to save food, while we are asking the people of the country to eat corn bread, while we are asking the children of the country to wear last year's shoes, it is not too much to ask, in the same patriotic spirit, some of the clerks and some of the officials—the Secretary of the Treasury himself, if necessary—to have offices in the corridor. The corridor is better than the offices they had before they came here. Mr. President, let them work on ordinary tables, if necessary. Let us be economical in the affairs of Government, the same as we ask the people to be economical. Let them use beer kegs for tables, if it is necessary [laughter]—empty beer kegs, I mean. There will be lots of empty beer kegs when the prohibition law goes into effect.

We must economize in every way; we can not ask the people of the country to economize unless the men who are at the head of the Government will agree also to economize. If the appeal of the President to the people to be economical is effective, as I hope it may be, and if the appeal of the food director, Mr. Hoover, to the people to prevent waste and to economize has the proper effect, as I hope it will have, then the President and his son-in-law, the Secretary of the Treasury, and Mr. Hoover, and all the others ought to practise officially what they preach that the citizens of the country should do privately.

Therefore, Mr. President, this bill ought to be defeated. I am not opposed to this amendment—I am in favor of this particular amendment—but the bill itself ought to be defeated. We ought to construct specimens of architecture and beauty when we have money that comes without the great effort that is going to be made by our people in order to make the necessary contributions to keep this Government on its feet and to carry the war to a successful issue.

The PRESIDING OFFICER. The question is on agreeing to the amendment reported by the committee.

The amendment was agreed to.

The PRESIDING OFFICER. The bill is still before the Senate, as in Committee of the Whole, and open to amendment.

Mr. KENYON. Mr. President, I desire to say to the Senator from Virginia that I have no particular desire to delay the bill. I realize that it is an appropriation bill, and probably can not be defeated; but I should like to ask for a yea-and-nay vote on the bill, and I suppose it is impossible to get that at this time.

Mr. SWANSON. We can have a yea-and-nay vote, and if a quorum is not developed we can adjourn.

Mr. NORRIS. I want to say to the Senator that I have no intention of delaying the bill. I am willing to vote now, so far as I am concerned, but we must have a roll call.

Mr. SWANSON. The Senator can ask for the yeas and nays.

Mr. NORRIS. Very well.

The bill was reported to the Senate as amended, and the amendment was concurred in.

The bill was ordered to be engrossed for a third reading and read the third time.

The PRESIDING OFFICER. The question is, Shall the bill pass?

Mr. NORRIS. I ask for the yeas and nays.

The yeas and nays were ordered, and the Secretary proceeded to call the roll.

Mr. CHAMBERLAIN (when his name was called). In the absence of my pair, the Senator from Pennsylvania [Mr. KNOX], I transfer that pair to the Senator from Arizona [Mr. SMITH] and vote "yea."

Mr. FLETCHER (when his name was called). I have a general pair with the senior Senator from New Hampshire [Mr. GALLINGER], which I transfer to the Senator from New Jersey [Mr. HUGHES] and vote "yea."

Mr. JONES of Washington (when his name was called). The junior Senator from Utah [Mr. KING] is necessarily absent. I am paired with him for the afternoon, and therefore withhold my vote.

The PRESIDING OFFICER (when Mr. ROBINSON'S name was called). I am paired with the Senator from Michigan [Mr. TOWN-

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SEND]. I transfer that pair to the Senator from Louisiana [Mr. BROUSSARD] and vote "yea."

Mr. SAULSBURY (when his name was called). I transfer my pair with the senior Senator from Rhode Island [Mr. COLT] to the Senator from Arizona [Mr. ASHURST], and vote "yea."

Mr. WEEKS (when his name was called). I have a general pair with the senior Senator from Kentucky [Mr. JAMES], which I transfer to the Senator from Maryland [Mr. FRANCE] and vote "nay."

The roll call was concluded.

Mr. HARDING (after having voted in the negative). I notice that the junior Senator from Alabama [Mr. UNDERWOOD], with whom I have a pair, has not voted. I transfer that pair to the Senator from Vermont [Mr. PAGE] and allow my vote to stand.

Mr. STERLING (after having voted in the negative). I have a general pair with the Senator from South Carolina [Mr. SMITH]. I transfer that pair to the Senator from Maine [Mr. HALE] and allow my vote to stand.

Mr. VARDAMAN (after having voted in the negative). I desire to inquire if the Senator from Idaho [Mr. BRADY] has voted?

The PRESIDING OFFICER. He has not voted.

Mr. VARDAMAN. I have a general pair with that Senator and therefore withdraw my vote.

Mr. PENROSE (after having voted in the negative). I observe that the senior Senator from Mississippi [Mr. WILLIAMS], with whom I have a general pair, has not voted. I transfer my pair with that Senator to the junior Senator from Illinois [Mr. SHERMAN] and let my vote stand.

Mr. SIMMONS. I have a pair with the junior Senator from Minnesota [Mr. KELLOGG]. I transfer that pair to the Senator from New Hampshire [Mr. HOLLIS] and vote "yea."

Mr. SUTHERLAND (after having voted in the negative). I have a pair with the junior Senator from Kentucky [Mr. BECKHAM], who is not present. I transfer my pair with that Senator to the junior Senator from Oregon [Mr. MCNARY] and allow my vote to stand.

The result was announced—yeas 21, nays 14, as follows:

YEAS—21.

Brandegee	McKellar	Robinson	Swanson
Chamberlain	Martin	Saulsbury	Thomp...
Fletcher	Newlands	Shafroth	Wa...
Gerry	Owen	Sheppard	
Husting	Poindexter	Simmons	
Kendrick	Ransdell	Smith, Ga.	

NAYS—14.

Borah	Kenyon	Norris	Wadsworth
Calder	La Follette	Penrose	Weeks
Harding	Lodge	Sterling	
Johnson, Cal.	New	Sutherland	

NOT VOTING—61.

Ashurst	Gore	McCumber	Smith, S. C.
Bankhead	Gronna	McLean	Smoot
Beckham	Hale	McNary	Stone
Brady	Hardwick	Myers	Thomas
Broussard	Hitchcock	Nelson	Tillman
Colt	Hollis	Overman	Townsend
Culberson	Hughes	Page	Trammell
Cummins	James	Phelan	Underwood
Curtis	Johnson, S. Dak.	Pittman	Vardaman
Dillingham	Jones, N. Mex.	Pomerene	Walsh
Fall	Jones, Wash.	Reed	Watson
Fernald	Kellogg	Sherman	Williams
France	King	Shields	Wolcott
Frelinghuysen	Kirby	Smith, Ariz.	
Gallinger	Knox	Smith, Md.	
Goff	Lewis	Smith, Mich.	

The PRESIDING OFFICER. On this question a quorum has not voted.

Mr. SWANSON. I move that the Senate adjourn.

The motion was agreed to; and (at 5 o'clock and 35 minutes p. m.) the Senate adjourned, under the order previously made, until Saturday, August 4, 1917, at 12 o'clock meridian.

NOTE.—On August 15 Senator Swanson asked that the Senate again vote upon the Bill. A spirited discussion then ensued in which Senator Hardwick of Georgia contended that the Bill was still debatable. The Chair ruled that it was not; after debate upon Senator Hardwick's appeal from that decision, the Senator finally withdrew his appeal in view of the parliamentary precedents quoted by other Senators. The vote which passed the bill was as follows:

YEAS—45

Ashurst	Hollis	Myers	Shafroth
Bankhead	Husting	Nelson	Sheppard
Beckham	Jones, N. Mex.	Overman	Sherman
Brady	Jones, Wash.	Owen	Shields
Brandegee	Kendrick	Page	Simmons
Chamberlain	King	Penrose	Sutherland
Curtis	Knox	Phelan	Swanson
Dillingham	Lewis	Pittman	Thompson
Fletcher	Lodge	Poindexter	Trammell
France	McKellar	Ransfell	Underwood
Gerry	Martin	Saulsbury	Weeks
Hardwick			

NAYS—16

Borah	Harding	McCumber	Smoot
Calder	Kellogg	McNary	Sterling
Gore	Kirby	New	Vardaman
Gronna	LaFollette	Pomerene	Wadsworth

NOT VOTING—35

Broussard	Hale	Norris	Thomas
Colt	Hitchcock	Reed	Tillman
Culberson	Hughes	Robinson	Townsend
Cummins	James	Smith, Ariz.	Walsh
Fall	Johnson, Cal.	Smith, Ga.	Warren
Fernald	Johnson, S. Dak.	Smith, Md.	Watson
Frelinghuysen	Kenyon	Smith, Mich.	Williams
Gallinger	McLean	Smith, S. C.	Wolcott
Goff	Newlands	Stone	

Mr. Pomerene of Ohio then addressed the Senate as follows:

Mr. President, I desire to explain my vote on the bill just passed.

When this matter was up before I had indicated to a number of Senators my intention to move to amend the bill by striking out the second section, which provides for the employment of special architects to have charge of this work. The Senator from Nebraska (Mr. NORRIS) at the time was occupying the floor. It was thought that the debate would continue for some time, and I momentarily stepped out of the Chamber. Meanwhile he yielded the floor and the bill was passed from the Committee of the Whole and reported to the Senate, and when I returned a vote was being taken on the final passage of the bill.

I voted against the bill because I think it very unwise at this time, when the Government has a Supervising Architect and a corps of assistants whose time could be devoted to structures of this kind, to allow them to devote themselves to the building, perhaps, of small post offices throughout the land when their time could be devoted just as well to this particular structure. I think it was very unwise to provide for the employment of special architects on this work, and I beg to indulge the hope that when the bill comes before the other House they will strike out Section 2, which authorizes their employment.

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