PENCIL POINTS

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This Modernism

By Dwight James Baum

Editor's Note:—*The seventh of a series of articles in which leading American architects are discussing contemporary design philosophy is presented herewith. Mr. Baum, the author, is so well known for his success in the field of residence design that an introduction is hardly necessary. Future articles in the series will be by Ralph Adams Cram, Louis La Beaume, John W. Root, Charles Z. Klauder, and C. Howard Walker.*

A torrent of words has been written for and against Modernistic architecture during the time that has passed since the first enthusiast appeared on the architectural horizon. Louis La Beaume of St. Louis, at the recent convention of the American Institute of Architects in Washington, said, at the beginning of a debate on the subject:

"I am rather inclined to the opinion that it is the modernists who are forcing this discussion. The standpatters seldom have to force anything. All they have to do is to sit tight or stand tight with the weight of custom and inertia and respectability behind them. This, of course, is maddening to the modernists, and the madder they get the more they indulge in excess. The corollary to this statement is that the greater the excesses of the modernists, the greater and naturally the more irritating the complacency of the conservatives."

Personally, I feel somewhat as does Charles Z. Klauder, of Philadelphia, who recently said, "I am so tired of reading of architecture that is functional, of meeting economic conditions, etc." I believe that most of us are trying to forget the discussion. Perhaps it is fortunate that we are building but little today for we seem to be in a period of experimentation when the desire is only for novelty. So short-lived is any given phase of modernistic design that even *Shelter*, the most modern of our magazines, has, in a recent issue, called one of the important new buildings at the Chicago Exposition a case of Infantile Paralysis. A desire for sensational publicity seems to fill the air. If any of us, after years of study, do not agree with these methods and ideas, we are accused of being old-fashioned and reactionary.

We still have with us in America many horrors of our own past—that epidemic of Victorian Gothic, the vogue of Queen Anne and Mansard, then the flood of heavy brutal Romanesque, cast iron monstrosities, and so on. Now comes the question: "Are we entering upon another period that will be looked at askance twenty years from now?" Always we of the present think we are different from and superior to those of the past. It is always the past generation that made the mistakes for "the King can do no wrong." Therefore, no one is popular who questions the motives of the present.

Now men are coming forward willing to throw away all of the good accomplished since early Colonial days, each believing himself above the mistakes of the past, yet in some way able to accomplish stylistic originality without considering precedent.

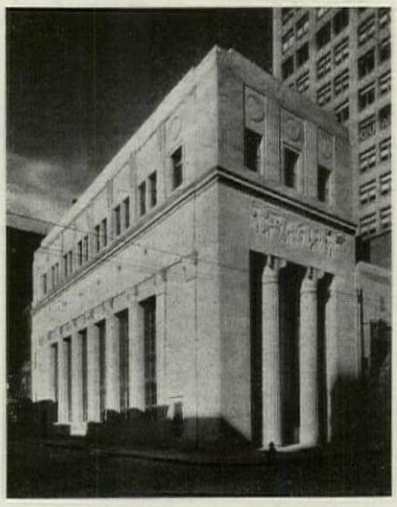
I do not believe that we should copy religiously the Classical or Renaissance or any other of the types that have come down to us, but I do claim that we cannot, as some modernists are trying to do, throw away *all* teachings of the past. We should not be mere copyists. We can, however, still consider the past, even if we *are* at the threshold of the development of a new American Architecture.

To the public and our clients, a building can be a success in only two ways; it can be practical and it can be beautiful. This means that it must function and that it must be good to look at, producing pleasurable emotions, if it is to prove satisfactory. Meeting the first of these requirements is a technical matter, while giving to a building the requisite suitability, expressiveness, and beauty of design is a true art.

Now, an art does not spring up overnight, or in one generation or in ten generations; it grows through the centuries. It is not created from a formula or out of the consciousness of one man or group of men. It does not result from a mere desire to do something different or from any whim or fancy or from any man's longing to appear in the spotlight.

An art develops as an expression of the life of a people and of the race. Its growth cannot be forced. Its roots must strike deep into the rich, fertile soil of human experience. Seeds of desire for popular acclaim sown in the shallow soil of egotism produce only noxious plants that wither and die quickly. Even the efforts of well-intentioned and earnest men to create an art out of their own limited resources meet with failure. Art expressions that reflect the life and characteristics of the few also perish.

That these things are true can be seen clearly by reviewing the history of any art, particularly the art



AMERICAN BANK AND TRUST COMPANY OF PHILADELPHIA

W. POPE BARNEY, ARCHITECT

A notable modern building, successful because the old and the new are combined with great restraint.

of architecture, the mother of them all.

The Egyptians, the Greeks, the Romans and all others down to our own day took what was adaptable to their needs from the architecture of times earlier than theirs. They incorporated these traditions, forms, and principles with their own methods of building, with motives derived from their surroundings and with expressions of their own life and times, creating characteristic styles that grew with the rise of the nations and degenerated with their decline.

Are we so much more highly endowed with artistic ability that we can wisely take an entirely independent course? Or is it simply that there are those among us who are incapable of recognizing their limitations and their opportunities?

Traditionalism is not necessarily reactionary. Anyone who is at all well acquainted with Greek architecture knows that it showed constant growth until it began to decline, and it was developed from older traditions. The same thing is true of each of the great styles.

Consciousness of our own modernity is a good thing; so is our sense of individuality as a people and our desire to solve our peculiar problems. The great nations of the past felt these same things, but did not break with the traditions. They held fast to all that was useful to them and went forward from where they stood.

Regardless of whatever any man or group of men may wish or say to the contrary, that is what we, too, shall do. It is inevitable, for it is the law of natural progress and not to be turned aside.

Our buildings must be modern of necessity, modern in that they meet present-day practical requirements and are built by the methods and with the materials that are most suitable and economical today. But this does not mean that they need to be devoid of everything that recalls the past and be factory-like or ornamented stupidly with zig-zags.

Our buildings must be traditional of necessity, if they are to be satisfactory, for the simple reason that the proponents of radical modernism have not to date produced any new means of giving them the requisite æsthetic qualities, the character and the beauty that are readily available in the historic sources. Radical modernism cannot displace modern traditionalism until it is able to equal the expressiveness, flexibility, and richness of the cumulative results of the thousands of years of earnest effort on the part of the world's ablest architects that are embodied in the traditions. That is rather a large order.

It is true that, in our past, Romanesque was often used in types of structures not fitted to its use, especially before the age of steel when the combination of massive walls and details resulted in dark interiors where light was needed. The same objection holds good in the case of many buildings screened by deep classical colonnades with slit-like windows, providing, with their shaded deep reveals, impossible working spaces beyond.

That does not mean, however, that we are not to use those styles. Any problem must be analyzed and studied to obtain satisfactory results. As an example to illustrate the point, take Richardson's Pittsburgh City Hall, considered a great example of modern architecture when it was built. Then consider the New York Academy of Medicine by York and Sawyer. This latter is not just a "style crib" but a building designed with feeling both as to its function and appearance. The motifs were both derived from the same source, yet the newer example is both practical and attractive.

Nothing can be said for the kind of traditionalism that has been responsible for the perpetration of many architectural absurdities during the past thirty years or so, the sort of thing that gave birth to buildings of modern construction, built to serve modern needs, but designed in elaborate historical fashion which interfered with the proper functioning of the building and called for much costly and unnecessary false construc-

SOUTHERN RAILWAY BUILDING, WASHINGTON, D. C.

WADDY B. WOOD, ARCHITECT

A fine example of a large structure where the design is based on precedent, yet handled in a refreshing manner.

tion. Building investors objected to that kind of thing more vigorously and effectively than the most violent modernists, for it hit their pocketbooks. It reduced the earning capacity of their buildings in addition to increasing the original cost unduly. They, quite rightly, refused to permit that to continue. But it is this misuse of traditionalism that modernists keep on talking about, something that is no longer a live issue.

NATIONAL ACADEMY OF SCIENCES, WASHINGTON, D. C.

BERTRAM G. GOODHUE, ARCHITECT

A building expressing both originality and the best of tradition, a structure that expresses living architecture. Two details are shown below.

Many modernists are not as modern as they would have us think them or as they, perhaps, believe themselves to be. Much of their ornamentation is old Egyptian, Assyrian, or Mayan in basic character and often in its motives as well. Other old sources that are not well known to the public are drawn upon. These designs are not new, but merely unfamiliar, and are rendered with certain mannerisms in an effort to give them the appearance of freshness and to tie them in with the general design of the building. This kind of modern ornament is usually much superior to the inventions, the lightning strokes, and linoleum patterns. There is plenty of this unfamiliar documentary material to draw upon. The old Polynesian, carved-wood canoe paddles, illustrated in a single article in one of our architectural magazines about twenty-five years ago, provide enough fresh designs to ornament the entire modernist output of buildings for a long while to come.

The recourse of modernism to historic sources is not confined to ornamentation, for the origin of the silhouette and massing of many of the buildings is to be found in older buildings, some in Europe, others far afield. Much of the interior treatment is basically Japanese and it has had an influence upon the exterior design.

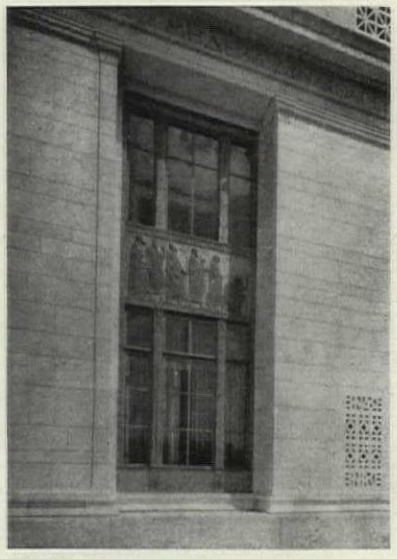
A "Greek" detail showing freshness and originality without being ugly.

So far as the much talked of "abstract ornament" is concerned, the idea is old and perfectly good. Possibly sometime a modernist may produce a design as excellent as the classic egg-and-dart derivative of the old Egyptian painted lotus border or something comparable in beauty to the Saracenic abstractions in fretwork. Objection to traditional design is sometimes made on the ground that it is decoration, but where is the difference in this respect between the egg-and-dart moulding and the favored modernist mouldings. The most pleasing type of modern applied decoration seems to be the old fluted flat pilaster effect of Greek Doric antecedents (with the base and capital shaved off). A very successful example of this treatment is shown in the new Southern Railroad Building in Washington. This seems to be a rational surface decoration, when handled with as much skill as is shown here. While there is a feeling of originality, there is still a traditional background worth considering.

We hear a great deal about truth and expression of construction, but how about the trick that has come to be one of the chief formulas of modernism—that of suppressing the spandrels, which mark the floor levels, to create vertical lines on a building? Or what about the other school which stresses the horizontal lines and hides the supports? Is it not better and more honest to enrich the outer shell of a building with good detail of historic origin, used with due regard for modern requirements and construction, than to resort to such juggling of the construction to secure a decorative effect?

The poverty of radical architecture is appalling, its stark nakedness and its feeble attempts at adornment are usually ridiculous when they have not some traditional origin. It drives designers to subterfuges such as the typical one just mentioned.

It is not only in good ornament that modernism is sadly lacking,



A window, original in conception yet using traditional forms.

but in the development of structural elements into architectural forms. The column was a structural part of the Greek post and lintel system of building, but it was not allowed to remain merely a post. Without any contradiction of its structural function, it was made beautiful. Its part in the construction was even more fully expressed by this treatment. What parallel is there in modernism for this?

The importance of the plan is spoken of as though its recognition were peculiar to modernism and contrary to the practice of traditional design, but was not every well-trained architect who received his instruction previous to the present furore impressed with the fact that the plan must be the starting point of his design and that it must be studied to function in such a way as to serve the purposes of the building?

Starting with the plan in this way, the designing of the building is largely determined by it. The character suitable to the nature and environment of the building is also considered. This decided upon, the appropriate detail naturally follows, all of those elements being combined to make a modern building that is enriched by traditions that give it a completeness and human appeal which radical modernism lacks.

As in any movement, there are men of ability who take the middle course, who design without thought of sensationalism, with respect for the past and in a new spirit, evolving a live architecture. This, I believe, is best expressed in some of the work of the late Bertram Goodhue.

Recently it became necessary for two of the great institutions teaching architecture to issue warnings to their students. The director of the Beaux-Arts Institute of Design warned students in part as follows:

"It would seem to be wise at this time to bring to the attention of the students, particularly in the work of the Beaux-Arts Institute of Design, and their instructors, as well, a growing feeling of conviction on the part of the Juries that the standard of design, as evidenced by the current exhibition, leaves much to be desired.

"We are no doubt in a period of experiment and investigation. The men writing the programmes endeavor to make their problems interesting and stimulating. The Juries, finally, do their utmost to be sympathetic, patient, and understanding. What lies between is the effort of the student and his instructor and we of the Juries can only judge results as we see them. We find a universal tendency to present so-called modern solutions in façade, and the plans suggest the same principle. What we also find, to our annoyance (and it is said advisedly and firmly), is, that the bulk of the work is modern merely in the fact that forms supposed to be characteristic of the new architecture are shown with little understanding of the antecedents of these forms and with little conception of the real bases of modern design.

"Let us face the facts squarely. If modern architecture, by which we mean rational interpretation of new problems, is to be good, we will be just as careful to avoid repetition of unpleasant modernistic detail as the cast incongruities of the Victorian Era. Modern architecture is not going to become a style based on Gropius or Taut: Wright or Corbusier. It will demand intelligent, clearly reasoned solutions of plan—as ingenious as you like, but above all things simple, direct, and honest in the expression of the problem."

The dean of the Department of Architecture at New York University recently issued a statement along similar lines. While recognizing the modern trend as "one of the most significant developments in the whole history of architecture," he emphasized the necessity for arrangement and composition "to satisfy man's love for beauty" and objected to what he termed "a crude mixture of misunderstood modern motives thrown together without regard to construction, functional requirements, or common sense."

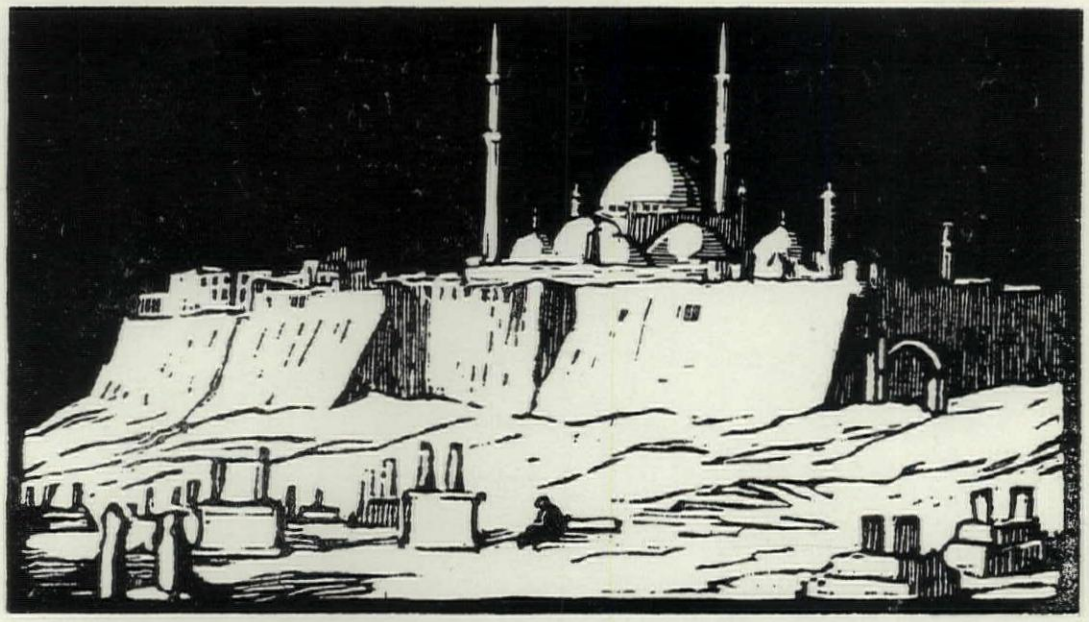
Of course many students feel that modern architecture offers a fine opportunity to avoid the research and study involved in working in the various historical styles. This tendency is being curbed which is one of the most hopeful signs. Where we find thorough training in the best traditions of design we find men designing buildings which will endure.

A point forgotten by many men who admit they are modernists is that Goodhue, probably the most original of our able men, did not throw overboard all considerations of the past. Because Cram or Bacon designed in Gothic or Grecian does not mean that they wanted to design only in those periods. Our problems are different from those of any other people and yet a large number of our men have met them so successfully that our architecture has won admiration of the world. Yet some want to start anew instead of continuing on from where we are now. Our only quarrel with a new architecture is on that point. Let us continue if we can to improve, with the hope of eventually developing a distinctive architecture. We can't do it if we start out with cubist methods.

Packing box architecture with misplaced color may be evidence of a striving for a new architecture but it is quite painful while it is being administered. The Chicago Tribune building is modern and new, an able handling of the problem, yet it was based on precedent. On the other hand, some of the buildings of nearly the same mass on Fourth and Seventh Avenues in the New York midtown sections are surely new as to mass and color but also a failure as to all principles of good design.

There seem to be two classes of moderns. The able, thinking men are striving to express modern terms in a manner that will live, the radical element is apparently thinking only of clever effects.

One group appears to feel that the past is endeavoring to shackle the present. Instead of that, it is only showing the way to greater heights and progress. There has been a gradual upbuilding through centuries, now one country, now another continuing on until now it seems as though *we* have the great opportunity. I hope that we are on the road to a distinctive American architecture, that our approach will be gentlemanly, and that American genius will evolve something of scholarly merit instead of depending on mere superficial cleverness.



THE CITADEL OF CAIRO—WOOD BLOCK PRINT BY CHARLES HALLO

The Sketches and Woodcuts of Charles Hallo

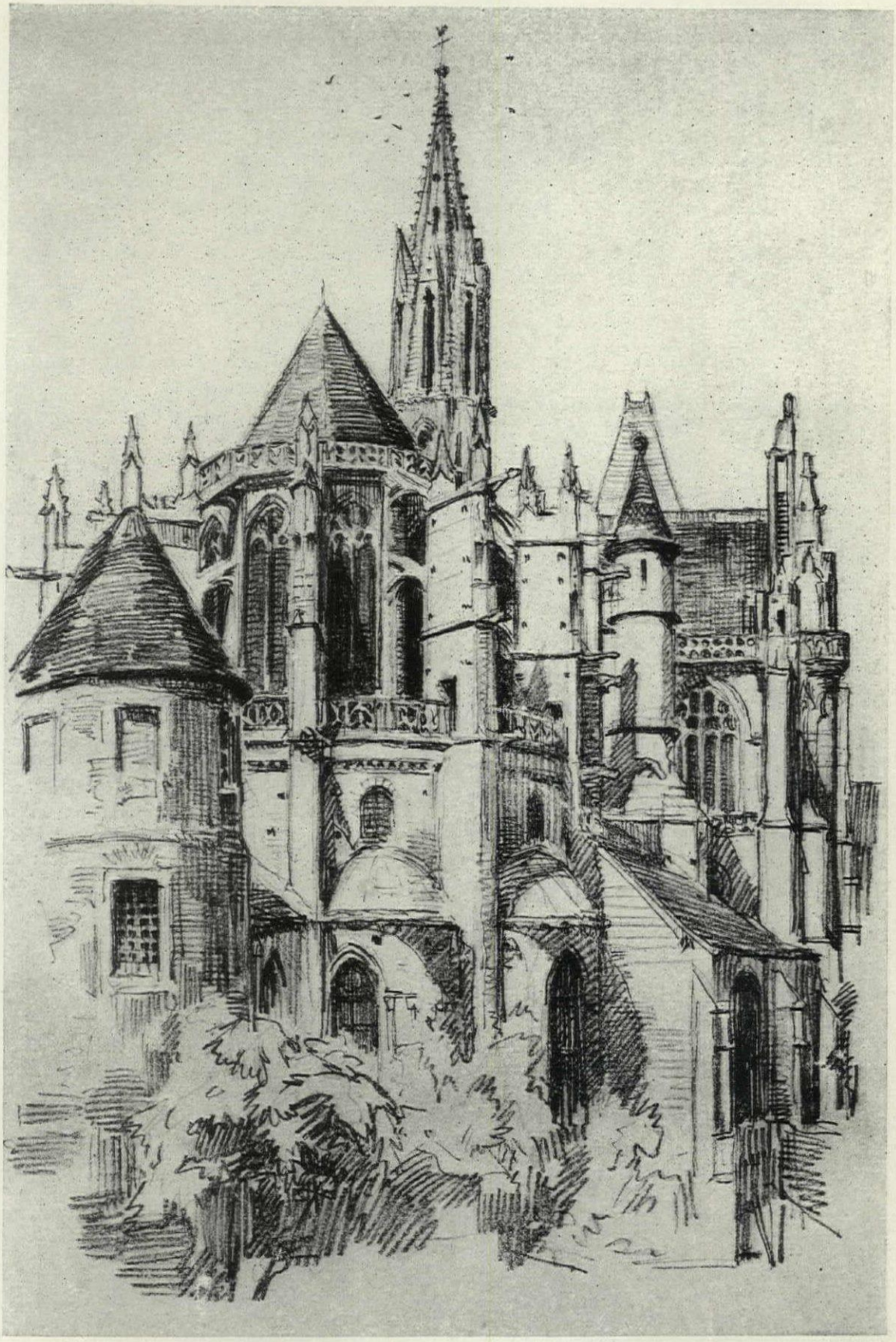
By Samuel Chamberlain

If you should happen to stroll around the wooded fortifications of the little town of Senlis, the chances are you would notice a dignified old house with long French windows, framed in a grove of maples. It is a conventional old 18th century town house save for one thing: its top floor is embellished with a tremendous studio window. If you were to investigate what was behind that window, you would discover a gargantuan "atelier" such as the movie directors dream about. The walls are covered with rare etchings. There are Rembrandts, Dürers, Brangwyns, Naudins, Lepères. Higher up are oil paintings galore, sketches by Raffet and Willette and Zuloaga, animal sculpture by Barye. Tapestries are everywhere, and scattered about is a collection of old furniture which would drive an antiquarian to Anis Del Oso. At one end of the studio is a towering set of bookshelves, studded with fine bindings, both old and new. Through the window the cathedral towers of Senlis silhouette themselves against a gray French sky. At a table in front of the window you would probably find a flashing-eyed, black-haired, good-natured, polished French gentleman in the act of gouging a miniature chisel into a block of pear wood. He is Charles Hallo, and you will have to search over many a French "département" to find a more vivacious, cordial and altogether charming person. The mediæval chests and the old Breton cupboards in his studio are crammed with enough material, not for one brief article on his work, but for a dozen. There are oils, pastels, lithographs, etchings, water colors, posters. The *embarras de choix* places this intruding correspondent in something of a predicament, if these notes are to escape the amplitude of an atlas. Out of the wealth of material that Monsieur Hallo has placed at my disposal, a choice *must* be made however, and I am choosing his wood blocks and a few of his sketches as a theme of greater interest to readers of PENCIL POINTS.

Charles Hallo is an indefatigable, inveterate, insatiable sketcher. Most of his more ambitious work is built up from sketches, and he has been making them for thirty years. His technique is therefore a matter of interest. He is a Frenchman, and he sketches like a Frenchman. That is, he is more interested in effect and ensemble and vivacity than in delicate nuance of line. We Anglo-Saxon draftsmen often err on the other side, and become too taken up with the subtlety of the pencil line, the fascination of detail. Tightness is frequently the result. Broadly speaking, the Anglo-Saxon freehand draftsman sharpens his pencil three times as often as his French colleague. Charles Hallo's sketches are French, and temperamentally different, both in technique and subject matter. He finds a sketch subject anywhere. From insects to mastodons in the zoo, from Breton huts to cathedrals, from spahi

HOUNDS IN THE FOREST OF ERMENONVILLE

FROM A CRAYON DRAWING BY CHARLES HALLO



THE APSE OF SENLIS CATHEDRAL

FROM A CRAYON DRAWING—ORIGINAL EIGHT INCHES WIDE

warriors to cabinet ministers, his choice flutters about. He loves to sketch from church steeples, or in subterranean caves. Sketching is a perpetual adventure with such constant change of scene. Hallo never becomes rusty. If he feels the pall of monotony approaching, there is always the expedient of a touch of colored crayon, or a small splash of wash, to bolster his enthusiasm. The sketches reproduced on these pages give some idea of his alert and adventurous carbon pencil. The good Breton dame mending nets had to be jotted down in a few brief minutes, but the steel blue lobster was obligingly immobile, and permitted a detailed study of his shiny sides. If the saplings in the forest stay still, the adolescent stag does not. Yet Hallo's quick impressions of these fleet and timid animals are curiously alive and authentic. Hallo is a fervent enthusiast of the forest, and a zealous huntsman. More often he hunts with a pencil. Hour upon hour he spends patiently in the woods, camouflaged with his sketchpad among the ferns. He comes back with hundreds of sketches of stag, of rabbits, pheasants, wild boar, hounds, horses and huntsmen. These he uses as documents for illustrating rare editions on hunting. Only such faithful observation would permit him to sketch the hounds dashing through a sunny clearing in the pine woods with such direct freshness. Directness is one of Hallo's sketching virtues. No eraser lurks in his vest pocket. Look, for example, at the clear, deliberate portrait sketch of the spahi soldier, done with bold strokes of a rough pencil. There is nothing mussy or hesitating about it. Incidentally the spahi's own strange signature is in the lower left corner of the sketch. Hallo's material for these sketches is extremely simple: the softest carbon pencil he can obtain, and sheets of "simili-Japan" paper, measuring about ten by thirteen inches. This paper is a European substitute for smooth Japan book paper, and is extremely receptive to carbon pencil.

Courtesy Editions Fayard

CARNIVAL IN SEVILLE, BY CHARLES HALLO

WOODBLOCK ILLUSTRATION FOR "LA FEMME ET LE PANTIN"

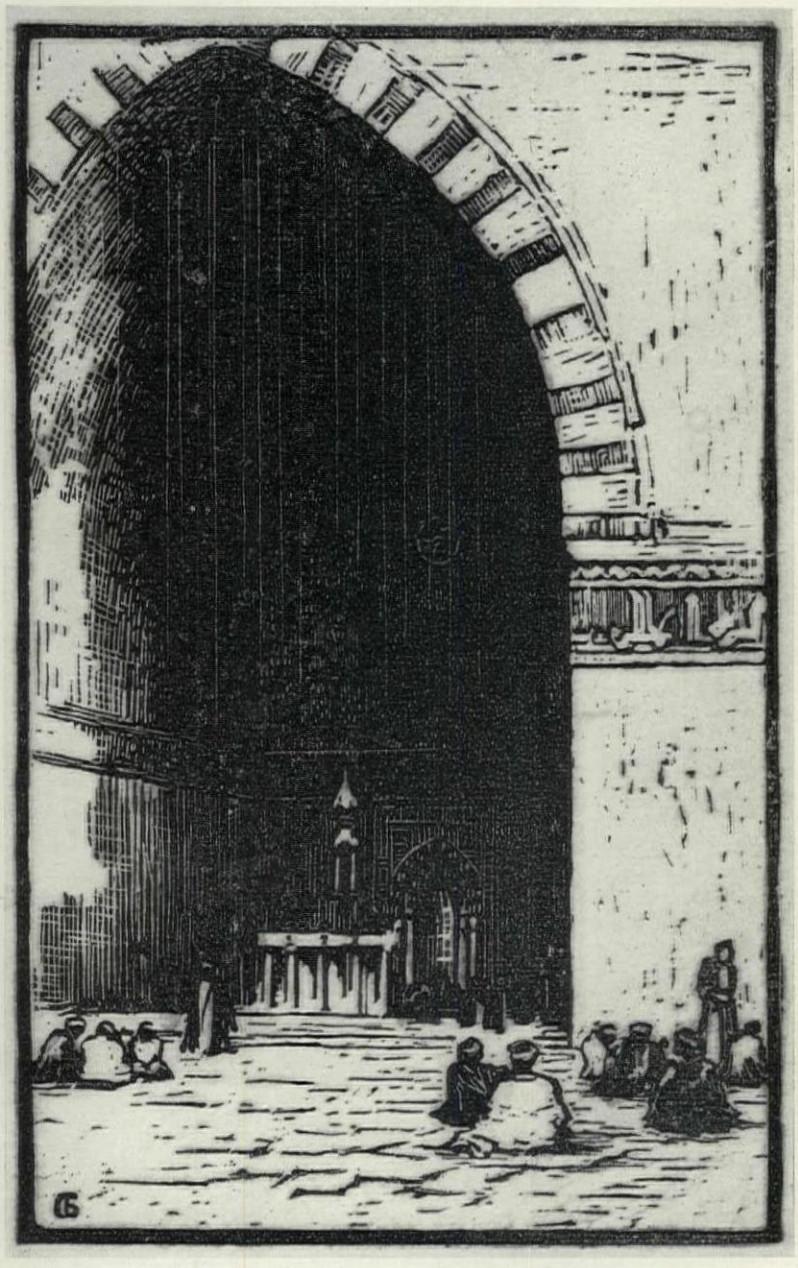
Many of Hallo's sketches are preliminary studies for his wood block illustrations, for which he is justly celebrated. Woodcut is perhaps the simplest of the graphic processes. This should not be confused with the exquisite, meticulous wood *engraving* of such masters as Lepère and Timothy Cole. Cutting a wood block is not a complicated matter, as Monsieur Hallo's procedure shows. He first works up his subject in pen and ink on white paper. Then he orders a wood block of the same dimensions. The blocks themselves have a beautiful finish, of almost voluptuous smoothness. They are made by two tottering old artisans in Paris, the sole survivors of their once flourishing profession. The flat cutting surface of the block is the end grain of the wood, so there is no danger of accidental splits or splinters. No wood finish, no oil or wax or veneer, could hope to achieve the rich, dull lustre of these blocks of boxwood, "cormier," and pear wood. Only the patine of centuries can rival it. The woods are of different degrees of hardness, and some cut more easily than others. Boxwood, the hardest of the three, can be printed up to four or five thousand impressions without faltering. On the working surface of the block, Monsieur Hallo brushes a very thin, soluble coat of white tempera. This gives him a working surface of exactly the tone of his paper. Next he makes a tracing of the principal lines of his drawing, and rubs this in reverse on the dried tempera. Next he works up the reverse drawing in India ink with pen and brush, making a very com-

plete and detailed study. Monsieur Hallo's method is to let the creative work stop here. He prefers to make the actual cutting a matter of reposeful routine.

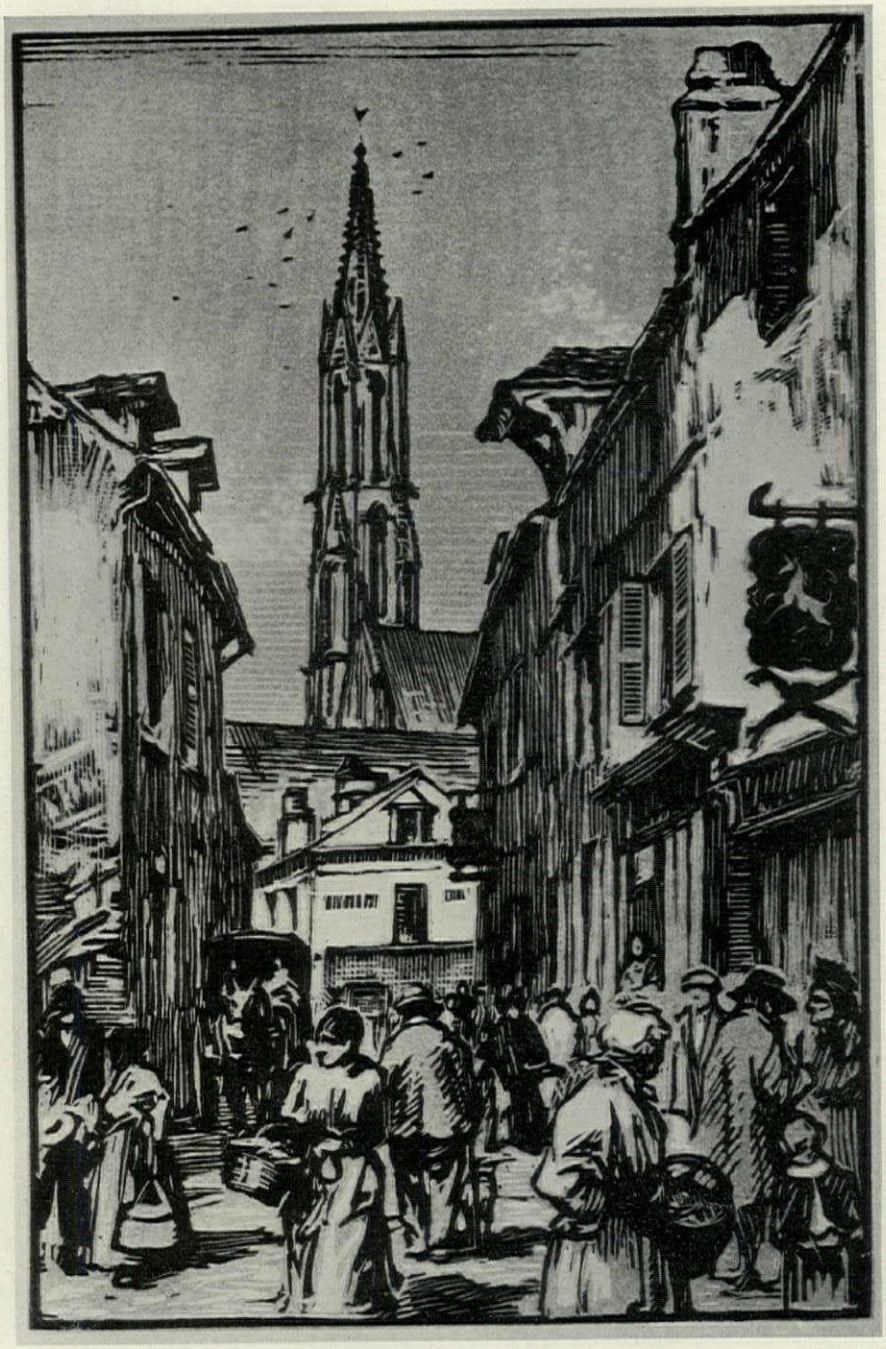
"When you cut on wood," he informed me, "try to achieve the relaxation of a plate of noodles. You get much better results." There are two principal tools for woodcutting—the burin for line cutting and the gouge for digging out areas. They come in many sizes. Their manipulation is extremely simple, but they lend themselves to plenty of technical subtleties. The beginner has only to gouge away for a time to realize this. It is a most encouraging medium, all in all, one that has delighted many a dabbling amateur. Once the cutting is finished, the whiting is washed off and the block is ready for a first printing, a process much less complex than pulling proofs of etchings and lithographs. For of course, the printing of a wood block is the same in theory as ordinary typographical printing. And here wood blocks have a decided advantage. They can be printed on all sorts of papers that would never stand up under the wetting and manipulation needed for etchings, papers of gossamer thinness, spongy oriental papers, silky web-like papers.

Charles Hallo passed the colorful youth that is the lot of most French art students. His family had an army career mapped out for him, but he hated mathematics (what artist does not?), and induced his family to enroll him in the art school at Dijon. Here his talent attracted the eye of the venerable "maître" Charles Cottet, who urged the buoyant young man to leave the school at Dijon, "where one learns to paint a picture like a bootmaker learns to make shoes," and to study in Paris. After the conventional chore of military service, Hallo found himself in one of the ateliers of the Ecole des Beaux Arts, painting under René Menard, Albert Besnard and Lucien Simon. Those were the gay rollicking days. Hallo became one of a joyous group of daubers in the Atelier Blanche. Two of his carefree "copains" were Dunoyer de Segonzac and Luc-Albert Moreau, both of whom now occupy an enviable niche in modern French art.

Hallo won several scholarships, and traveled widely in his vacation time. One year it was Brittany, Normandy and the Savoie. Another year, Spain and Morocco. Then Egypt, then London, then Sicily. He was a prodigious worker on these trips, and came back with valises full of drawings. But the career of the young artist allowed only a few years of such wandering. By 1907 it was time to get down to brass tacks. Instead of painting in oil, Hallo began to work up his drawings in etching. His plates of Breton fishing villages and old Paris streets took well with print collectors, and an etcher he became. But the conventional subjects did not interest him. He went from Spanish bullfights to Burgos cathedral to French men-of-war, in search of stimulating subjects. He was fascinated by the Opera, and obtained permission to work in the vast spaces behind the scenes. Wisely he left the ballet girls to Degas, and concentrated on the gargantuan back stage spectacle of Garnier's masterpiece. From deep in the wings, from high in the flies, he sketched the amazing perspectives, the colossal contrasts in scale, the grotesque effects of light which are only to be seen by the privileged few behind the curtain. The result of his work was an album of

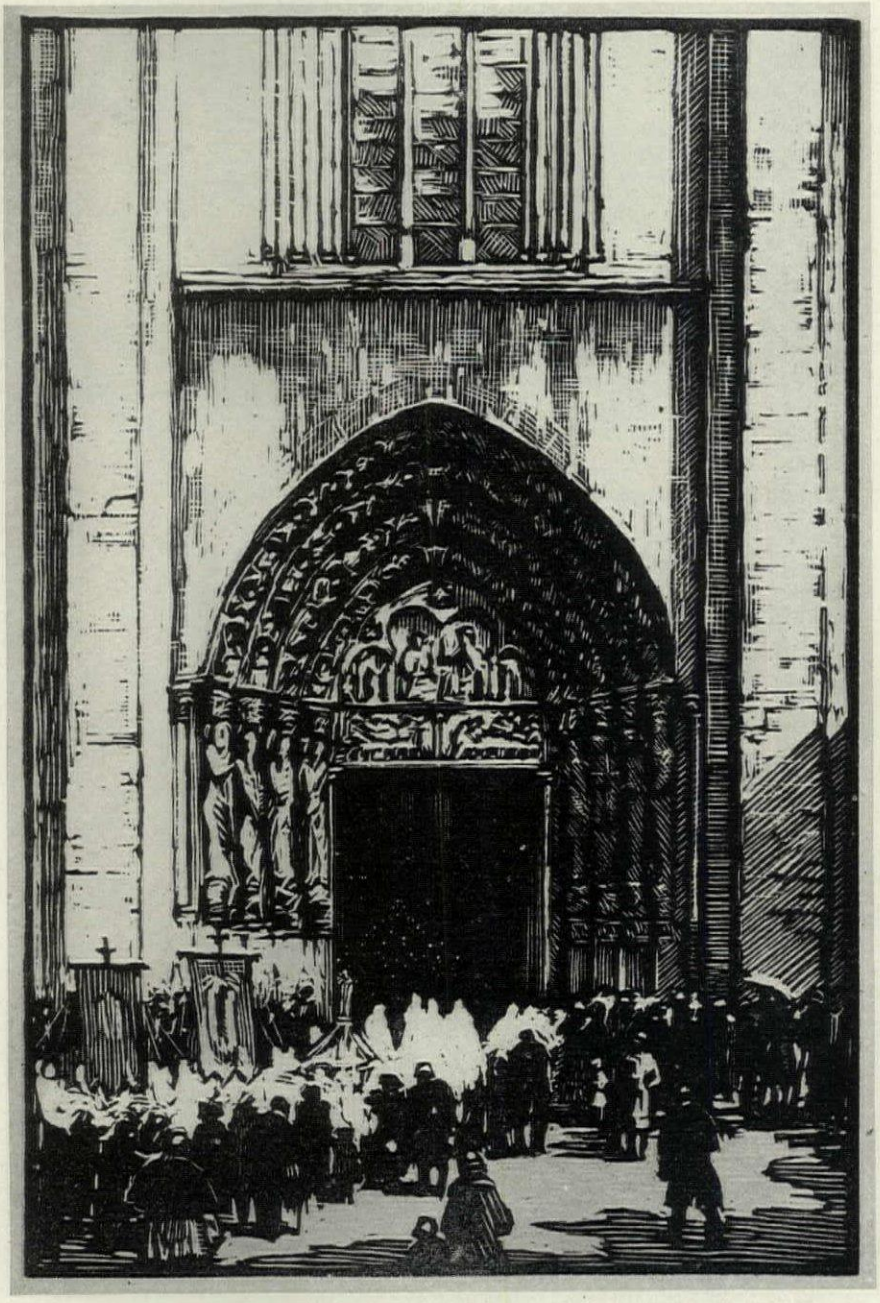


MOSQUE OF SULTAN HASSAN—CAIRO
FROM A WOODCUT BY CHARLES HALLO



MARKET DAY IN SENLIS

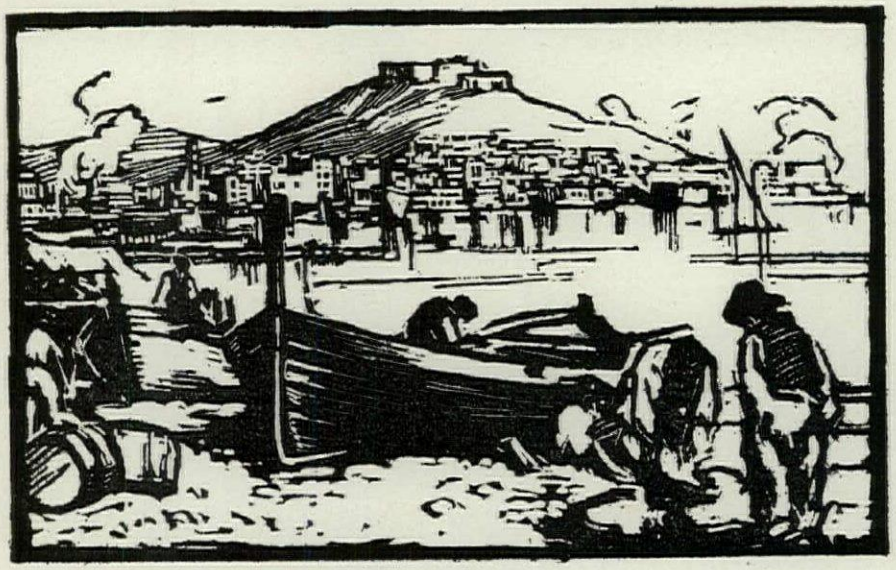
WOOD BLOCK PRINT IN TWO COLORS BY CHARLES HALLO



THE FIRST COMMUNION—CATHEDRAL OF SENLIS

WOOD BLOCK PRINT IN TWO COLORS BY CHARLES HALLO

"EL DJEM—TUNIS"
WOODBLOCK
ILLUSTRATION FOR
"THE DIVINE CHANSON"
Reproduced at exact size of original by courtesy of Editions Fayard.



"NAPLES"
FROM A WOODBLOCK
ILLUSTRATION FOR
A BOOK PUBLISHED BY
EDITIONS FAYARD
Reproduced at exact size of the original.

"TUNISIAN LANDSCAPE"
WOODBLOCK
ILLUSTRATION FOR
"THE DIVINE CHANSON"
OF MYRIAM HARRY
Reproduced at exact size of original by courtesy of Editions Fayard.

THREE WOODCUTS BY CHARLES HALLO

A SPAHI SOLDIER—CRAYON DRAWING
NOTE ARABIC SIGNATURE OF SUBJECT

seven huge etchings, which had an instantaneous success. He followed this up with etchings of Morocco and Spain, and then, in 1913, he published a monumental series of large plates of the temples and pyramids and sphinxes of Egypt. These quickly found their way into the portfolios of collectors. *The Studio* and *L'Illustration* recognized his merit and consecrated considerable space to him at this time. The future looked bright and Hallo, much encouraged, made a trip to Sicily. Coming back with the usual bulging sketchbook, he began to etch the Greek temples of Girgenti. He was hard at work one summer morning, and the first plate was half done, when the doorbell rang and a messenger left a yellow telegram, the notice of immediate mobilization in his 27th Regiment of infantry. Needles and acids and plates were hastily put away and forgotten. The plate of Girgenti remains unfinished to this day. The young artist sped to his regiment and for five years was swallowed up in the army, first as an infantryman and later, when his talents were discovered, as an aerial observer. He developed an aviator's eye and had an uncanny skill in detecting and deciphering modifications in photographs of the enemy trenches. So invaluable were his services that his officer's stripes multiplied rapidly, and he became Chief of the Section of Air Photography of the Army, a post which he held to the end of the War. And here is a peculiar coincidence. Charles Hallo's grandfather, Monsieur Véron-Bellecourt, had been an artist also, and during the Battle of Fleurus in 1793 had also been a dare-devil young soldier. One of the first attempts at aerial observation in history occurred at this time. A balloon was sent up, amid great excitement, and "grandpère" Véron-Bellecourt was one of the observers. In his spare moments he amused himself by painting decorative designs on the fat neck of the balloon. That his grandson, more than a century later, should pursue an almost identical career is curious, to say the least.

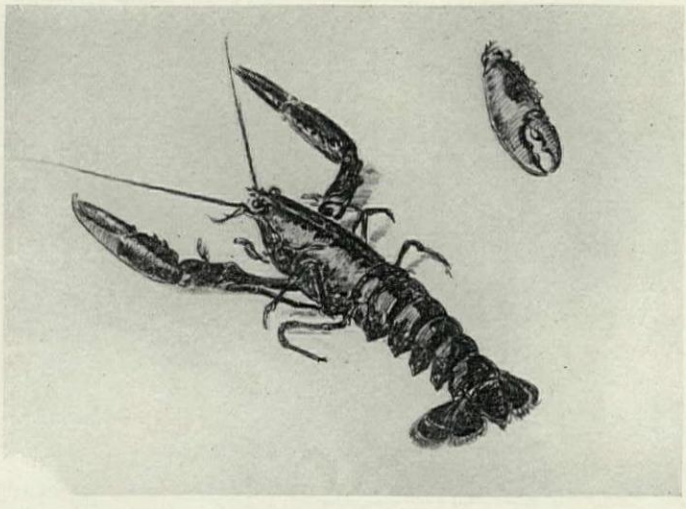
Hallo forgot art completely during the years of the war, and rarely stepped in his Paris studio in his precious days of leave. Occasionally, during odd moments at the front, he would whittle away on blocks of wood (for wood *is* convenient), and almost by accident he made his first wood block. A problem faced the artist as he placed his uniform in moth balls and resumed a long interrupted career. The war had wrought a change in him, had made him more insistent upon bold vigor and truthful simplification. Wood blocks appealed much more to his mood than the complicated cuisine of etching. So an etcher he ceased to be, and it was with wood blocks that he plunged back into the troubled and neglected world of art. He showed his prints from wood to a few publishers, and soon was illustrating limited editions. His success was immediate, and with the renaissance of the bibliophile after the war, he became one of the best

CRAYON AND WASH STUDIES OF FAWNS
FOREST OF ERMENONVILLE

BRETON NET MENDER—CRAYON DRAWING BY CHARLES HALLO

known book illustrators on wood in France. Incidentally he carved an "Ex Libris" for many a noted book collector. He illustrated a noteworthy "La Morte de Philæ" by Pierre Loti and a dramatic "La Femme et le Pantin" of Pierre Louys. More recently he has illustrated two elaborate books on stag hunting and an altogether irresistible volume on the little town of Senlis, where he lives in the summer.

Having laid aside the palette for the etching needle, and this in turn for the woodcutter's burin, he seems temporarily content to cram his skill and knowledge into his blocks of wood, and to observe the limitations and discipline which wood block illustration imposes. But Charles Hallo is a joyous and adventurous workman. An exuberant and restless *verve* is evident in all that he does. Once he reaches the heights in woodcut, he will not mark time. His enthusiastic nature will surely lead him into new fields to conquer. As he approaches fifty, I would not be at all surprised to see him become a sculptor, and a very good one.



THE LOBSTER—CRAYON STUDY BY CHARLES HALLO

Up-state

By Frederick A. Muhlenberg

Referring to McGuffey's "Readers," Mark Sullivan's "Our Times" and various other authorities on the Ancient of Days, we arrive at the conclusion that a thousand and one architects were born during the Mauve decade destined to practice in alphabetical centres from Allentown to Zenobio. By sitting quietly at 1741 New York Avenue, N. W., Washington, D. C., we learned that One has arrived. The fame of that One has been bruited about nobly, and by observation of his fame and by reading twenty-five-dollar books about his office, himself, and his draftsmen we arrive at conclusions greatly benefiting mankind. Stimulated, perhaps, by the wave of the success of this Captain of the Craft, we would jot down, sketch and observe some incidents, temptations, and rewards in the life of the average A.B. embarked on high water up-state: so that they who still have before them that day when they will cease depending on a sure salary and embark in their very own canoe may see part of both sides of the architect's picture: and may, perhaps, be more able-bodied navigators on the high seas of success than a mere certified A.B.

So we would today sing, not of ships and shoes and sealing wax, but in a minor key of a smaller subject—architectural practice up-state. In the approach to the matter we are reminded of the words of a very obscure author—being most modest we are certain the author is obscure—

"Wherever I'd think of a round
Of bright repartee to be said
Gravely I bow to the ground
Then everything runs to my head
Weighty thoughts—which of course I possess—
My gravity brings to my brain;
And so to relieve my distress
I rise and repeat them again."

We, editorially speaking, have practiced on Main Street since the War (you know nothing much happened before that anyhow) and being still imbued with patriotic ideals it has occurred to us that someone should rise to defend the provinces. We have observed with sadness that our own best works are not shown to the architecturally-minded through the pages of our best journals—and we wonder what beside ranges are being built in Kalamazoo or what beside Keene's Cement in Medicine Lodge—and would have an issue of a magazine devoted to illustration of such work. To the many men now drafting in New York, Boston, Philadelphia, Cl-v-l-nd (deleted by a Detroit Censor), Burnham's town (which shall be nameless), Kansas City, and large points West, we of the provinces desire to point with pride to the rising tide of color (mostly terra-cotta) in the sticks: and to declare the old slogan, that subscription without representation is tyranny.

To elaborate mildly on the subject aforesaid we would lay before you an average day in the sticks (without any preface by a distinguished architect-writer and without illustration by a famous renderer) so that the youth of the land may see both sides of the picture of architectural practice everywhere, and get the proper frame for their own best accomplishment.

Carefully omitting for the purpose of this essay into the journalistic field any reference to the relative brightness of the country sun and to the family joy at finding us home for lunch (for with all its wide-open spaces an up-state town is not a city of magnificent distances), we start the day and this description by arriving at the office leisurely, early, and in order. There we go over the mail. This is always a joy. There are so many sheets of advertising matter folded queerly or printed in red ink, or without a filing number—and so thrown away unopened—that all through the day there is a pleasant undercurrent of uneasiness lest we may have tossed into the discard the one circular that would have helped us. But we stick to our resolve to read nothing that is not 8½″ x 11″ with a reference to Dewey (not 1898) in upper left corner.

The rest of the mail is routine—we never find announcement of our having been awarded a big job.

Then come the salesmen arriving on the ten o'clock from the big city. We have a great deal of sympathy for salesmen because we know we are the experience they require. All proper manufacturers putting future sales managers through a course of sprouts wish them "on the road." They see us and in a day or so we receive a letter from the "Home Office" thanking us for the "cordial reception afforded" them (it's always that phrase). We do not learn from them what they expect and it is a pity that they receive such a strained audience—but they must get in their calls and their reports of cordial reception so that they may get the raise in salary required to maintain life at Headquarters. We are learning by listening to their line, maybe not of kitchen furniture or ventilators or other concrete products (properly said indeed, and who can quarrel with that?), but the latest approach of the schools of salesmanship—and we there highly resolve that such approach shall be tried on the next "Board" we meet so as to create the impulse which shall nail that Board to our shingle.

As far as actually learning points about products unfamiliar, that fine instructor of the callow, Vandervoort Walsh, taught us the simplest trick long ago—for which we must depend on our PENCIL POINTS—the finding of the weakness of one appliance by reading the point of superiority made by its competitors in their advertisements. Should we read "Not a cough in a carload" we immediately are faced by the conclusion that some competing product causes us to

cough behind our hand—or if elsewhere we read "Hasn't scratched yet"—we know at once by intuition that we will have lots of grit if we specify other articles. So to learn, we carefully read and compare our advertisements. The specification writer, who, living near 101 Park Avenue, and thus at the fountainhead of all architectural information, need not be at all familiar with details of any contraption, and may throw away the back pages of his magazines—but not we. And we do not specify any article which has not been advertised three years at least—remembering that we do not want to do missionary work.

We were asked some time ago by one high in authority (being none other than ye Ed.) whether country architects really had problems. Being polite he did not put it quite so bluntly as that, but we read his hidden meaning.

Of course, we have problems—and the main one is getting enough work. We meet the competition of the old practitioner who died mentally in ninety-five—a grave and reverend senior who never heard of the Beaux Arts Society and cares less, but who will continue to blithely build atrocities because he knows nothing better. Bill Hough, who with John Harbeson is Paul Cret's right-hand man (it takes at least two to equal a small portion of that man's body), talking one day about this problem said, "Well, after all, these old bucks will die sometime: someone will take their places, and we might as well be the ones—" so we sit in patience and wait for some first-class funerals.

And then there is salesmanship that we meet in our own line. Many local men have wept bitter tears over the approach to the Chamber of Commerce or other Boards of the high pressure salesmen of (a large city unmentioned by courtesy) architects. We all know they work banks and hospitals and schools at least and the local man not knowing the patter is rather aghast at seeing his best prospects lost to him. Even at the A.I.A. Convention learned and reverend seniors from larger centres talked gravely of the advantage of employing local men—but do they call in the local talent as associates when they do a project in the provinces?—alas no! But fortunately for us we have had pointed out to us the Communist idea of boring from within, of touching local pride, of giving the young fellow a chance, of letting him call in the specialists as his own consultants. And then, of course, there is the work done by public boards—politicians all, and there we being voters and having friends high up are of more importance than the out-of-towners, and can often get work through our political acumen. So, if the competition is with men who will do a decent piece of design we welcome it and do not weep bitter tears if they get an occasional piece of work from us. The more good architecture is done the more examples there will be before the "peepul" and, seeing that it is smart, the more will be demanded—of which we will get our share.

The most disagreeable competition we meet in getting work is that of the truly-rural man. We do not speak Swedish or Acadian French or Spanish or Pennsylvania Dutch and are occasionally put to rout by our truly localized contemporaries who know the workings of the bucolic mind: who talk learnedly and know little of things architectural. The ancients have their happy meeting-ground with this man—and our ideas seem out of order to them. But remembering we take a leaf from T.R.'s book and philosophize in balanced sentences—on the one hand our solution is better thought out, but on the other hand maybe the thought is wrong: on the one hand our design is better, but on the other they may not appreciate it.

The thought about men we meet brings up naturally a thought of some of the ones who meet it—and many names come to mind of men who are quietly doing a master's work. If we were to mention those who have already achieved their niche it would be necessary to particularize many—for their work is possibly the most difficult—the pioneering which carries the fair banner of the arts to newer fields—to be Elysian to later men. Theirs is the task of educating, not one or two men, but an entire community to a new sense of the possibilities of fitting together brick and stone and timber. They must give advice against "Monuments" (often to their financial disadvantage): must hold down expenditures to the real dollars worth: must, at a distance from centres, decide the most practical devices to include in their work: must meet and overcome the prejudices of the local workmen to new methods which the architect must teach: and see ideas, brilliant as they may be, rejected as not being in accord with the education of the owner.

We do admit that there are a few disadvantages in work in a small community—the first is that one almost insurmountable—working in your birthplace: and it should not be done unless you are willing to remain small. The expense of building anything is so monumental to the people undertaking it that they want the very best talent there is—and that is never a man who passed his boyhood in the community. Many men greater than any architects, Savonarola and Napoleon, Abraham Lincoln and Simon Bolivar, to name only a few who come to mind, have found their own birthplaces and people unwilling to believe in them: and as we cannot hope to succeed where such men have failed we put down as the first maxim in the copy-book that no architect who wants to hold his community's respect should practice in his birthplace.

And he should, going further afield, somehow or other keep his work at as great a distance as possible from his personal circle. We have often heard the story that Sidney Martin of Thomas, Martin & Kirkpatrick once lost a job because his possible client found that they had many mutual friends, and the client bluntly said he wanted his building relationships business, not social—and Sidney was probably thereby saved many heart-burnings. Nothing is so disheartening as to have whispered among our own friends that we can't be very good after all—that we personally—for it all comes back to the proprietor—forgot a drain in so and so's cellar, though the truth is that the Owner told us to put in no drain—or that we designed a fireplace that never did draw in the Brown house, though again the truth is that they build the fires on the

hearth and so smoke up the room, or that we forgot a necessary I-beam—though the Owner didn't tell us he was going to put his safe under the grand piano.

People in the small towns have, it seems, except for the few *nouveaux riches* possibly, a horror of being talked about for putting on dog. Sinclair Lewis described his Babbitt on Main Street pretty well when he linked him up with the mob instinct: and we find a definite dread that the building will be too "Fancy" and that the Owner will be accused of high-hatting. Once we did a large store—and still remember the warning given by the Owner—"Now remember that most of our customers are country people: make this store a place where they can feel at home—the farmers chew tobacco and the women gum—put plenty of cuspidors around and don't put in a marble floor."

And usually builders up-state say they want very inexpensive architecture—if you are given the job—assuming, it may be supposed, that if they want high-class finish they had better get some one from the big city who is "more familiar" with that type. So that if we hesitate on substitutes and for our own protection get them to suggest and admit satisfaction with a lower grade in the end we are blamed for lack of knowledge: or if, being conservative, we give them a high estimate of cost when approached on that delicate question, the brand is promptly put on one's forehead "an expensive architect," damning us forever in the eyes of many a country merchant or banker.

There are difficulties, of course, and there are remedies—there are discontentments and heartening incidents—and probably as much happiness united with the unhappiness in a small town as there is in a large one. It probably comes down to a definition of success—which cannot be set in the geographical frame of a Main Street or tied to a certain sphere only of activity. Once a writer said something to the effect that youth was ambitious—that as long as people had ambition they were young and that when they ceased to be ambitious they were old: that the prudent man chose a goal well within his reach, achieved it and dry-rotted of contentment: and that the wise man sought a goal beyond him, strove mightily toward it and died a glorious failure.

And we can safely set our goal as not that of building large and renowned buildings; not that of national fame and Fellowship in the A.I.A.—these be for more burly men than we—but as possibly a more intimate mix with our own neighbors and a gradual raising of their standards (not to ours necessarily, for we have been brought up on the old saying De Gustibus non Disputandum—which means "God knows who's right"—and it is *our* tastes that may be wrong)—by a leavening of sound building judgment and commercial sense to a raising of the community to a newer standard of better building and more of it?

So we spend part of the afternoon hunting for new work (in these days hard to find), recognizing the demand—and another part interviewing politicians—and another part finishing the detail of Mrs. Brown's fireplace—then if it is pleasant weather and our dues are paid, off to the country club at 4:30 for eighteen holes and back for dinner at seven. And thus to bed.

Much can be written of many subjects of interest in the provinces—the local draftsman who knows nothing of design, except that which you teach him—the floater who either quickly makes acquaintances with the town's best bootlegger (a wonderful draftsman sober, but seldom sober), or who by his beautiful, inaccurate drawings quickly shows us why he has been in so many good offices in such a short time—but these are maybe the problems common to all—even those in larger centres. It may be that enough has been said to indicate that there are two sides to every problem and two locations where a man may be happy—either in the city or in the country—in the big time, or in the sticks—and that all depends on what you want.

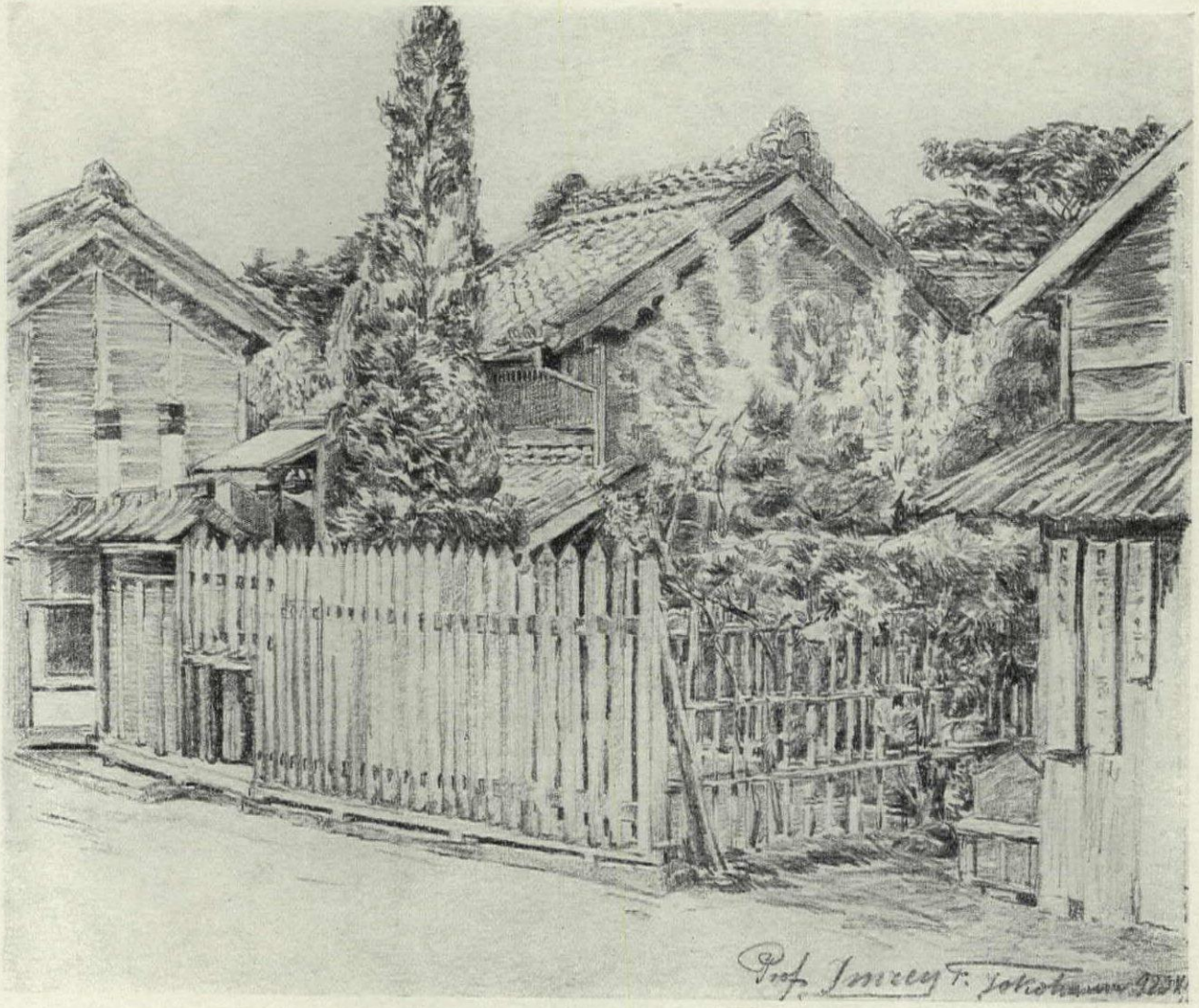
William Hazlett, an English essayist of the brilliant period of eighteen hundred, once wrote a long essay in the Spectator entitled "Self-love and Benevolence" in which he said in effect that man always got in the end what he really down-in-his-heart wanted. That if money was his secret desire he would instinctively and automatically sacrifice wife and family and honor for it; that if it were self-indulgence or fame or regard of the community, or the love of his family or merely the exercise of his talents, automatically and entirely without volition everything was cast into the discard which did not tend toward that aim, all of which seems to us true.

And we rise to remark just before the adjournment that it is a small modicum of praise we would plead for those of the provinces. Remembering the satires of Emerson, "If a man make a better mouse-trap than his neighbor, though he live in a forest the world will make a beaten track to his door," we proudly call attention to Claude Bragdon in Rochester and his icosahedroids, or Burnham Hoyt in Denver or Albert Simmons in Charleston or other fair men tilting in far pastures—who are perhaps representative of the best development of the up-state career. Our accomplishments are not on the financial scale of larger centres and must seem meagre in total: our work appears to be tiny in relation to greater problems and can therefore have but little influence—but we hearten when we think in the words of that leader and student of men, Napoleon, "Baubles?—Yes, truly, but it is with baubles that men are led."

And if sometimes we seem slighted in our own provinces we can be comforted in the thought that maybe recognition may come from afar (yea even through our esteemed own 152) and that after all we don't care enough to sacrifice everything else to get it. We may not seem to get very far, but we can be comforted with the famous old statement of the Queen to Alice, who on a journey in Wonderland breathlessly asked why they weren't getting anywhere after all the running they were doing. "Why, my dear," said the Queen, "in this land it takes all the running we can do to stay in the same place."

MIOSHINJI TEMPLE GATE IN KYOTO

FROM A PENCIL DRAWING BY FERENC IMREY



ON A STREET IN HOMMOKU, A SUBURB OF YOKOHAMA

A Group of Pencil Sketches

By Ferenc Imrey

Which, in View of Recent Disturbances
in the Far East,
Should be of Especial Interest at this Time

SHINTO SHRINE IN GUMMYOGI, JAPAN

FROM A PENCIL DRAWING BY FERENC IMREY

OCTAGONAL TEMPLE IN NARA, JAPAN

FROM A PENCIL DRAWING BY FERENC IMREY

ENKAKUJI TEMPLE GATE IN KAMAKURA, JAPAN

FROM A PENCIL DRAWING BY FERENC IMREY

Shop Signs of Stockholm

By Dorothy Brink Ingemann

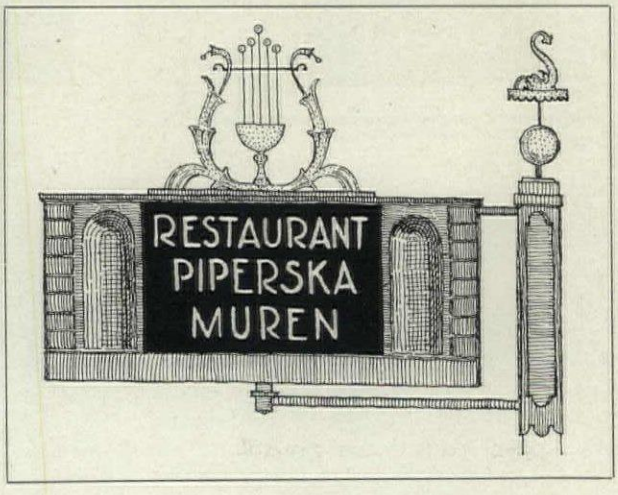
Among the many treasures Stockholm offers the visiting architect, a minor one, yet very useful and interesting, is the wealth of fine shop signs along her streets. There is hardly a square without its interesting sign and many streets are lined with them. Curiously enough, although the signs are most modern in character, it is the older streets and shops which seem to have the best. We find there is excellent precedent for the use of these hanging signs from olden times, for in the *Nordiska Museet*, the museum of native arts, there are a number of very beautiful and elaborate wrought iron signs, usually wreaths or bunches of grapes signifying inns. A few of the very old signs are still about the city, especially in the quaint, oldest island, but newer signs are as beautifully designed and quite as significant, although, in some cases, a little more self-conscious.

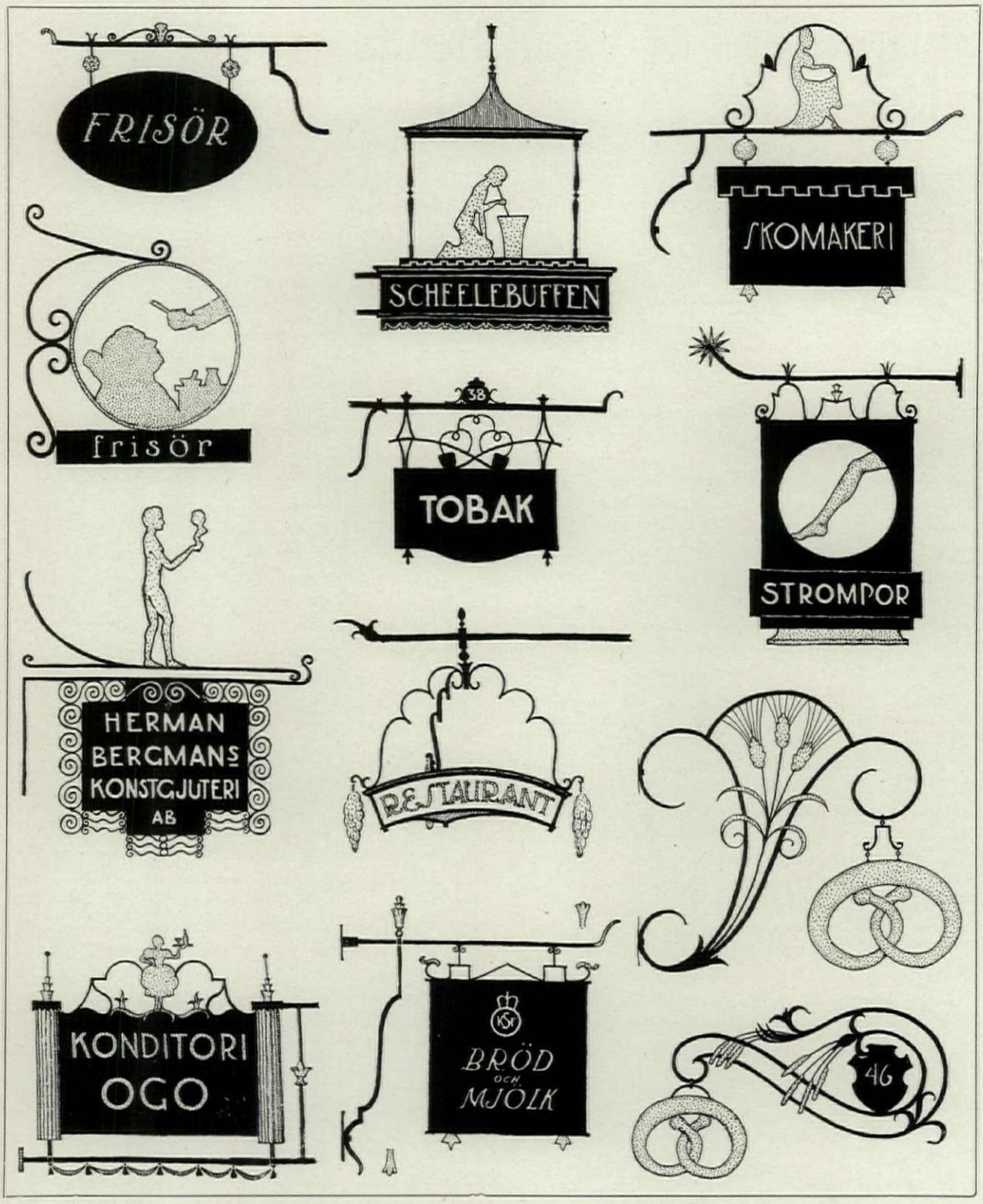
The better signs are usually of repoussé copper but, as most of them are painted, their material is not important and the brackets and standards, of excellent wrought iron, are painted also. The colors are very simple, usually black and gold, an effective combination and very effectively used. Bristling finials and dangling ornaments are usually gold, and gold letters are placed against a dull-black ground. The brackets are almost always painted black and are of a surprising lightness. A great deal of Swedish wrought iron work is extremely light in section and the sign work is no exception, seeming often hardly sturdy enough to do its duty. It is usually of great delicacy and sharpness of design. The drawings may not express this character fully as it is difficult to show without losing clarity.

Many kinds of provision are made for illuminating these signs, either directly or indirectly, although illumination does not seem so essential as with us. Metal canopies or cylinders conceal electric lights, as in the *Konditori Ogo* and *Skomakeri* signs; hollow boards contain lights which shine through transparent letters as on the *Scheelebuffen* sign, or well-shaped letters are silhouetted against an illuminated panel as on the triangular Restaurant sign. Most, however, are content to reflect the generally excellent street lighting and their gilded ornament and letters glitter most invitingly.

The various types of the few signs I have chosen are generally indicative of the ratio of shops in this city of good living, with restaurant and food purveyor signs far outnumbering all others—hairdressers, or *frisörs*, running a feeble second. Even their excellence, however, cannot begin to portray the excellence of the wares they advertise since Swedish cooking is superexcellent, indescribable, and well appreciated. One is never more than a few hundred feet from a place to eat and any hour of the day or night seems to be the hour for a meal in Sweden. Jewelry shop signs, too, and glass store signs only indicate the richness of the wares behind the panes, for the town abounds with such shops and even the smallest and poorest has some pieces of fine Swedish pewter, silver, or engraved crystal to delight the window shopper. The commandment against coveting is very difficult to obey in Stockholm.

Of course, one can only depict a few of the many fine signs and perhaps not always the best, but generally we found that a few simple and characteristic motifs, variously handled, made up the majority of them. A delicate, typically Scandinavian finial is often used—dangling cones, leaves, and garlands, stars of four to six points, or bristling gilded burrs, with the magic golden pretzel the constant symbol of a bakery. The wholesomeness of Swedish living is characterized by the many *Bröd och Mjölk* signs and even such an anomaly as *Mjölk Bar* is not infrequently seen. Some of the symbolism seems a little obscure, as the stork on





a restaurant sign; which place prudent folk might assiduously avoid. [It looks more like a swan to ye Ed.]

Stockholm, of course, is not alone in its possession of fine shop signs. Gothenberg and Uppsala, and smaller towns as well, have many as fine or finer, but in the capital they are so common and plentiful as to be almost a symbol of this delightful city. Here is a paradise for architects—a city full of superb modern buildings, of excellent detail and unusual character. The Scandinavians are doing work in a refreshing and vigorous manner, using simple and inexpensive materials. They are very sane in their work, growing from, not discarding, the old ideas—and with a strong and individual classic feeling. Their big work, of course, deserves more attention than a comparatively unimportant subject such as shop signs but these small things are often interesting and useful and may help to lure the architectural wanderer north to Stockholm to his everlasting satisfaction.

A Plumbing System for the House

By Arthur Bates Lincoln

Water must be brought to every plumbing fixture, frequently at two temperatures. Waste products must be carried away. While that action is being accomplished, foul gases in certain pipes must not be allowed to enter the house. To prevent failure of the water seal through siphonic action, vents must be extended from each trap through the roof to the outer air.

Good plumbing is so important a factor to the health and sanitation of a community that municipal building codes treat the subject with as great a definiteness as they do any other part of the building construction. The architectural profession would be less subject to criticism at the hands of the plumbing contractors if greater consideration were given to the problems which confront the plumber and his helper.

It is very easy to write into the specifications that all plumbing pipes shall be run concealed; and then leave methods of so doing in the hands of the practical men at the job. In the small house field, particularly, there is a tendency to show as little as possible on the working plans, most architects contenting themselves with giving scanty information upon location of the fixtures.

No logical person would recommend that the plan of a small house be cluttered with an over-supply of lines. Then it would become a meaningless jumble, and mechanics are too easily confused even with the simple plan of most straightforward draftsmanship. However, it is highly important that the man who lays out a plan be aware of the future problems and that he keep them in mind when arranging rooms and locating partitions, to the end that economical installation will be furthered.

Like the ancient Gaul of Julius Cæsar, a complete system of plumbing is divided into three parts. One is intended to guarantee a plenteous supply of fresh water; a second, adequate and prompt disposal of waste products; the third, positive protection for the water seal in the trap, so that at every fixture the inmates of the house are guarded against passage of foul sewer gases. One-way traffic is the rule in each part of the piping. Thus water flows toward the fixture, waste disposal away from it toward the sewer, while vent lines conduct gases from the fixtures to the outer air.

Water Supply

Once the shut-off valve leading in from the street main is opened, water pipes are kept full under pressure. Hence it is necessary that all joints be watertight, and it is further desirable that the pipe be of rust-resisting metal. The diameter of water pipes as a general rule is smaller than for other parts of the system, the most common exception being the supply for flush valves placed on water closets under certain circumstances. Constant supervision during installation of the roughing, and insistence upon adequate testing before pipes are covered up, will prevent many subsequent leaks that would endanger expensive decorations.

Water at two temperatures is piped to all of those fixtures in which any portion of the body is bathed. The twin pipes, hot and cold, as they are run across the cellar ceiling and up in partitions to the different fixtures should never be nearer to one another than six inches, otherwise the colder will rob the other of some of its heat, undesirable in the case of both. It is another of the cardinal rules of plumbing that no water pipe be run in an exterior wall. The reason is easily understood, this slender column of water within its metal tube is very likely to freeze up during cold weather when placed in an exposed location.

The Sewer Connection

The entire waste system must drain into a street sewer, or if none is available, into a private sewage disposal system. In the former instance the unwary architect is apt to take it for granted that, when the survey shows a sewer under the street in front of the property on which the house is to be built, it is deep enough under any conditions. This may not always prove to be the case. Levels should be checked, particularly if the property is lower than the grade of the street. Sewers are unchangeable, the distance therefrom to the house can be varied but little, and the pitch required to give adequate flow must never be less than $\frac{1}{8}$ inch to the foot; many plumbing codes will permit nothing less than $\frac{1}{4}$ inch to the foot.

If, when the plumber arrives at the job to start roughing in, he discovers that the level established for the finished cellar floor is too near or even below that of the street sewer, valuable time is lost, and there are frantic telephone calls to the architect's office, ending in his hurried dash to the job. Lucky the architect then who finds that the foundation walls may be carried up another foot, thereby permitting raising of the cellar floor level. If the first floor beams have been set, it may be possible to keep the cellar floor low and place the house trap on an outside wall where it will be exposed to view. That implies ability to run all soil and house drain lines across ceilings or along walls, since nothing may be run under the floor. It is not possible under such circumstances to place plumbing fixtures, such as laundry trays, in the cellar.

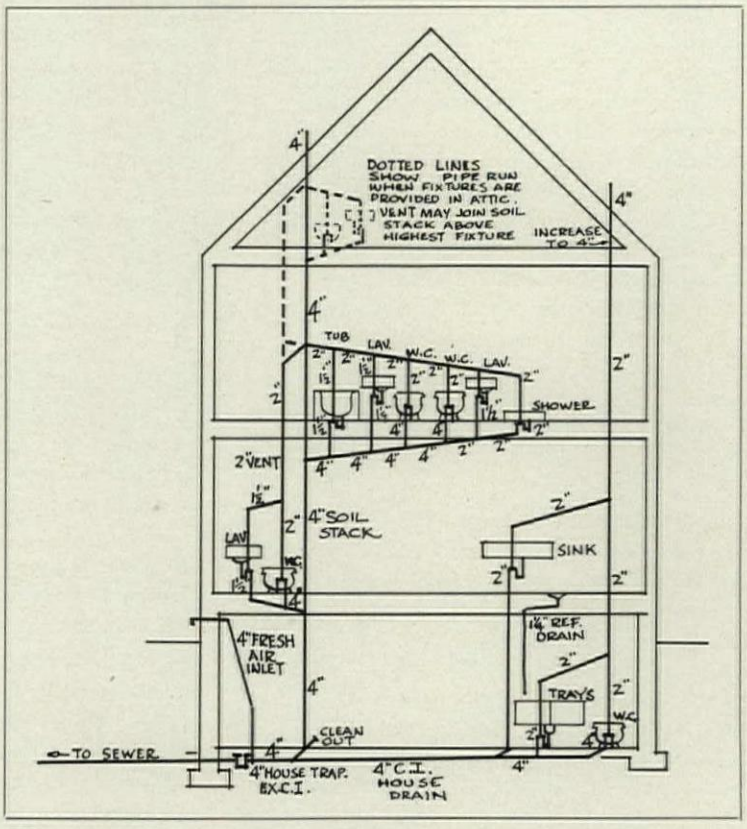
If there is no street sewer, and a septic tank is specified, the disposal field must be located within 18 inches of the ground level. A sufficient slope to permit this with plumbing fixtures in the cellar will only be possible on the unusual plot marked by extreme changes in grade. The laundry will be better located in a first floor room.

Main Soil Stack

After the sewer connection has been established, the main soil stack is the next concern of the plumber. The more direct this may be run, the simpler the problem. Where the rooms containing plumbing fixtures are placed above each other, the small house will show economy in the cost of rough piping, and thereby merit the praise of the average plumber. It is seldom justifiable, however, to allow this detail of the plumbing system to dictate the manner in which the house shall be planned. A second soil stack is but a nominal item of cost when compared with a possibly impractical or wasteful floor arrangement.

Every architect and draftsman of experience knows that the cast-iron pipe used for the soil stack is 4 inches in diameter, inside measurement. He must likewise remember that each section of this pipe has an expanded hub on one end, whereby two units may be joined together by over-lapping, the joints being made tight with oakum and melted lead. These conditions render complete concealment of the installation possible only when not less than 6 inches is allowed for the structural thickness of partitions enclosing this particular pipe riser. Wherever an unthinking draftsman indicates that this stack is to go in a 4-inch stud partition, or when he does not take trouble to mark a location or so plans the house that no other place is available for it, the existence of the pipe will be impressed upon the consciousness of the future occupants of the house. If the plumber is literal in his interpretation of the plan and places the stack in the center of such a narrow partition, the awkward break around the furred pipe will show in the wall surface on both sides of the partition.

Changes of direction in pipe of this large diameter require a great deal of room and introduce hazards of clogged pipes. They should be avoided whenever possible; where necessary, generous space provisions will minimize cutting of floor beams. An offset of 8 or 10 inches between first and second floor partitions may seem inconsequential on plan, but it involves many fittings and slow work to negotiate it successfully with a 4-inch soil line.



THE PLUMBING SECTION

The 4-inch cast-iron soil pipe does not stop at the second floor where the water closet will be hooked on later, it is run on up through the attic and roof into the open air as a vent. It is always set as far away from any windows as possible. In every case it is a 4-inch pipe when it pierces the roof, for when smaller vents, which are connected to just a few fixtures, reach the under side of the roof boards, they are increased to this uniform size.

Failure to consider this vent in the plumbing system has many times marred the complete satisfaction which an architect might have felt in a house of his creation. The plumber's one concern is to run his vertical pipe stacks as direct as possible. When he comes to the under side of the roof his only idea is to bore straight through and finish up. If the roof surface into which this unlovely bit of plumbing is going to protrude forms an important part of some charming bit of detail, the pipe will invariably spoil the picture.

The surest way to avoid this hazard is to place all rooms containing plumbing fixtures at the rear of the house if, as is usually the case, that is the less important elevation. Outlook onto the street is the poorest place for bathrooms in the average suburb anyway. If it is not possible to plan the rooms thus, the alternate method of protection is to specify that all vent lines be run up to the attic, sloped to the rear under the roof, and extended through to the outer air behind the ridge. To be sure that this is done as you want it, camp on the job while the plumbing is being roughed in. Otherwise you will find that the plumber has probably overlooked this stipulation of your specifications, and has worked on the theory that the shortest way through is the quickest way to get the job finished. If at this late date you try to have completed work changed for æsthetic reasons, you will have a real fight on your hands, unless there is evidence of faulty work which may be condemned.

The House Trap

Turning our attention to the cellar, the lower end of the main soil stack usually connects to a house drain which extends along under the cellar floor. The change in direction from vertical to horizontal must be

accomplished by a sweeping curve of ample radius to preclude stoppage. The house drain itself, buried under the cement floor, terminates at the house trap.

This latter is an important water seal in most plumbing codes, although some others will not permit it. The intention is to keep sewer gases from backing up into the house from the street sewer. To prevent siphonage of this trap a fresh air inlet is connected to the drain on the house side. This extends through the foundation wall above grade and is visible from the outside. Despite its unlovely appearance it must be kept unobstructed if it is to perform its function of balancing the pressure upon the water seal at the trap.

The pipe connections in the wall or partition back of each fixture form a loop; one half, the waste, leads to the soil stack for disposal purposes; the other taps into the vent, so that no siphonage action can at any time destroy the water seal in the trap at any fixture.

The sole function of the vent pipe is to maintain this atmospheric pressure, which it can do so long as the pipe remains unobstructed and open to the air. Plumbing codes consider it an important asset to the health and sanitation of the household. Branches from fixtures into vent risers, although termed horizontal, must in reality slope up toward the vent and may not extend too long in a horizontal direction.

Distance from the vertical soil stack to the water closet is limited quite definitely by many plumbing codes. This particular fixture should be placed near to the stack, regardless of the floor arrangement of other fixtures. The plumber is very logically opposed to connections from water closets which have to be run under a tub in order to reach the stack.

Waste and soil pipes are always designed large enough to carry away the normal discharge from fixtures with which they may be connected. Due to the propensity of the human individual to credit small diameter pipe with a greater ability to perform this service than is within physical reason—implied in the careless way in which grease and even cloths are discarded—clean-out plugs are advisable. These should be placed at all turns in lines which change from vertical to horizontal direction. The location of these clean-outs, in places where they will be readily accessible, is of the utmost importance.

In isolated instances, leaders are connected to plumbing systems. They should always be thus hooked up whenever the sewer is of ample size to take care of the flow of rain water during heavy storms. Such leaders may be placed on the outside wall of the house until they come down to the foundation, but then they must be brought into the cellar, independently trapped, and run into the house drain back of the house trap, using cast-iron pipe.

No mention has been made of anti-siphon traps because they are seldom used except in unusual circumstances. Under ordinary conditions the plumber will be found to prefer the standard methods of plumbing installation. Plumbing codes and inspectors likewise look with disfavor upon this type of fixture.

One final consideration which is fast becoming obsolete. Old-fashioned ice boxes require a 1¼ inch diameter drain pipe, which must drip into an open sink and never be connected directly into the system.

Materials for Pipe

All of the piping in the plumbing system is concealed within the walls. Being hidden from view it need not possess beauty of looks, but since it is difficult of access in case of failure resulting from depreciation of material, durability is something to be greatly desired. Large soil lines conduct solid matter and are always of cast iron. The waste and vent lines have but little water to handle, and may safely be made of galvanized iron. All water supply lines are kept filled with water at all times, right up to the faucet. Pipe that will not readily corrode becomes very important for this service. Brass and genuine wrought iron are in customary use. There are various grades of brass pipe, the amount of copper content determining the resistance to the action of water.

Copper tubing is a recent newcomer in the water supply field. It is very practicable for use in alteration work because of its flexibility in bending about angles and the ease of snaking it through existing partitions, floors, etc. Due to the fact that it will sag under the weight of the water unless supported at frequent intervals, and that connections if ever pulled out are difficult to seal tight again, plumbers are not enthusiastic about it as a universal substitute for more rigid pipe.

Only the poorly equipped house will have to depend solely upon the valve on the house main, just inside the front foundation wall, to stop water flow when some leaky faucet washer needs to be changed. Valves at each fixture make it possible to shut off water from any one unit without disturbing any other. In some cases valves on the cellar ceiling, at the foot of water supply risers to the plumbing fixtures above, will make it possible to shut off one room without upsetting the entire family routine.

The Plumbing Section

Now let us discuss the plumbing section; that drawing that is looked upon as of such importance by practically all plumbing codes. Draftsmen often try to superimpose the necessary information upon some cross or longitudinal section intended for another purpose, but with indifferent success. Dotted lines to represent fixtures hidden on the far side of partitions become confused with other dash lines intended to show parts of the system which are in front of the plane of the section. This drawing should be nothing more than a graphic presentation of a system of piping. Its purpose is to indicate the number and floor location of plumbing fixtures in the house; to show that the system of piping as proposed will provide a trap and vent for each fixture, and that protection against sewer gas from the street is assured by a house trap and fresh air inlet located at the front foundation wall. Information should be specific, each fixture named and the diameter of the pipe plainly marked. The trap at each fixture must be shown leading to the sewer outlet with the vent extending to the outer air.

If the main vent should not appear on the front roof, pipe should be shown sloping up under the rafters and piercing the roof behind the ridge.

FROM A LITHOGRAPH BY B. C. GREENGARD

MARSHALL FIELD BUILDING, CHICAGO—GRAHAM, ANDERSON, PROBST, AND WHITE, ARCHITECTS

In Reply to Mr. Anderson

By Henry S. Churchill*

The interesting discussion, entitled "Dogmatic Functionalism," by Robert L. Anderson in the July issue touches on a matter of much more importance than the unmuddling of Mr. Howe—namely, that all of the architectural controversies now current have nothing to do with architecture as an art.

The indefiniteness of the word "architecture" has much to do with this, to be sure. We say "architecture" when we mean shelter, or construction, or use. We talk of the practice, or business, of architecture. We are all trying to make a living, "architecture" is what we use to try to make it, and since the glorious days of Uncle Dan Burnham hardly anyone has dared to think of it as an art, for fear of losing the respect of the Great Minds of 1929. Of course we put a little Art on, just as the tailor puts a crease in a pair of pants—it's customary, and you can't sell 'em without.

But there is more than that to architecture, surely; something that makes some of us stick to it in spite of its domination by the Great Minds. That "more" has to do with the despised art, with creation to the extent of our capacities, with the eternal emotions with which art is concerned and which, for some accursed reason, we can express (well or badly, it makes no difference) only through the art language of architecture.

That the art of architecture should suffer from the contempt of the business man was to be expected; but what is tragic is the complete surrender of the Architect—the rich man's contumely is wallowed in, the Architect has grovelled in the mud, as reading of professional dicta for the last thirty years shows.

It is probable that the devastating effects of this surrender would have been less wasting if there had been, during all these years, a body of sound architectural criticism. Since the passing of Montgomery Schuyler there has been no one who has seriously written about architecture as a fine art. Architecture as Sociology, as Economics, as Structure has received much space; as art, very little, and that little confused by the obvious difficulty that in order to have common intercourse about any art except Literature, a medium alien to the art must be employed—verbal language.

Words are notoriously hard to master; their emotional associations, the power of rhetoric, lead us astray and betray our judgment and our reason. Particularly is this so when we try to translate music, painting or architecture, non-verbal arts, into words, and to thus indirectly explain to the mind what should be felt directly by the emotions. If the critic is thus merely a virtuoso, attempting to interpret to an audience, the artist himself is in no better case, for the greater artist he is the more directly he works in his own medium and the less need he has of verbalization. Indeed it might be said that an artist is great in proportion to his command of his own medium and his inarticulateness in words.

Architectural criticism has been, as Mr. Anderson pointed out, mostly by specialists in other fields. Taine turned architecture into history, as Ruskin turned it into ethics and as Mr. Mumford turns it into sociology. Every specialist interprets an art into terms and service of his specialty. But the reverse is also true if not so commonplace, and that is that with the collapse of architecture as an art the architects have been trying to turn sociology into architecture, engineering into architecture, business into architecture. Now this is perfectly legitimate, but it isn't, wasn't, and won't be, *architecture* in the great historic sense of the word.

One of the few critics today who is trying to approach architecture as an art fails dismally because he has been seduced by the rhetoric of a writing-architect without, apparently, seeking for himself the philosophical basis of criticism. I refer of course to Mr. Hitchcock and LeCorbusier's obscurantism, an obscurantism that stems, by devious ways, from Louis Henri Sullivan. Sullivan was a great pioneer, and a bitter, frustrated man. Instead of being allowed to express himself through his own language, architecture—and how fundamental to him that language was the Autobiography makes manifest—he was forced into words. "Form ever follows function!"—look what that has come to by way of exegesis! The International Style—the bleached bones of Sullivan in a form-fitting functionalist coffin!

Isn't it time now to go back and quite seriously ask "Form follows *what* function?"

Further, and may God forgive me the heresy, isn't it time to make serious inquiry as to whether or not "function" has anything to do with the art of architecture, or with any art? Perhaps function is a question only of utility, not of æsthetics. The actual functioning of a contemporary structure, considered only as a *machine à vivre,* is important to the user; but we do not worry overmuch about the functioning of the Parthenon, or the Eroica, or the View of Toledo.

The great difficulty in the evaluation of architecture has been the appearance of a new æsthetic, one for which rules and disciplines have not been formulated, and for which we have no great traditional standards. A wealth of new materials have developed new physical possibilities and new visual concepts. It is natural in trying out these new materials to push their

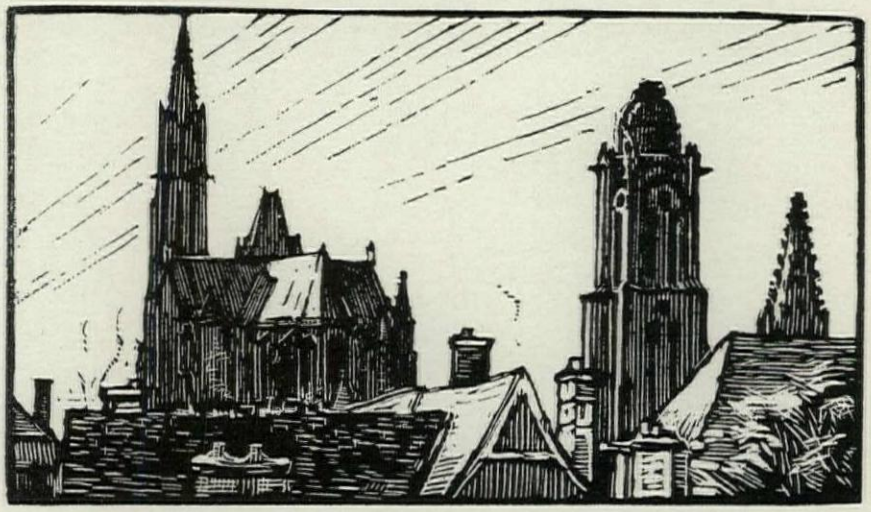
*Of Thompson and Churchill, Architects, New York.

æsthetic expression to the limit or beyond. We do not know what is enough until we have had more than enough. Hence Functionalism, hence the god as machine.

Nor is it strange that in a world as awry as that in which we find ourselves the obvious appeal of "function" should be capitalized and become a slogan. It is so easy to be functional and so hard to create beauty. Function may be a starting point for an æsthetic, but surely it is not in itself one. That is the mistake of rhetoric mongers like LeCorbusier, into whose receiving-station of a mind have come all the odds and ends of current socio-mecano-navigo-medico-psychico ideas. An architect, he confuses these with architecture (except when gazing at the Past); seeking to find a standard for himself as architect, he endeavors, wrongly I think, to find it in the shifting sands about him rather than in himself. To that extent he is a child of his time, truly; but to that extent he fails as genius. Knowing that he thus fails, not inward master of his art language, he tries to translate what he feels and seeks into words—words, alas! contradictory and obscure, clamant and shallow.

I do not mean that verbalization does not have its place as clarifying agent. A little clear thought, a little rigorous logic about what *architecture* is would be invaluable in freeing it from the "accidental denaturants" that are barnacled over it. Life at present is without standards and without disciplines, and contemporary building mirrors that only too clearly. The mistake is in thinking that architecture can become a basis for life. It may flatter the architects' self-esteem to think so, but if they are convinced of their mission let them forget architecture and call themselves what they would become—sociologists, politicians, or practical men. What they will produce may be a Better World, but it won't be architecture.

When our new techniques of being and building have become unified, when some philosophy underlies the lives of multitudes, we will again have an architecture, for architecture based on life is not a basis for life. The coming of that time can be best helped by a seeking of the verities of architecture as an art, not by a surrender to the moment. The temporal practicalities will always take care of themselves.



THE TOWERS OF SENLIS—WOODCUT BY CHARLES HALLO

A Description of the Engineering Studies

Required in the Proper Development of a Country Estate

By William T. Dobson, C. E.

Editor's Note:—*While the estate described in this article is a large one, the procedure in making engineering studies for the utilities of many smaller country house projects should follow along the same lines. The article, therefore, should serve as an outline or check list which may be read through before going ahead with the work.*

Early in 1929 the Office of John Russell Pope, Architects, were commissioned to design the building and appurtenances for a Country Estate on a property near East Aurora, New York, owned by Mrs. Frank H. Goodyear.

Mindful of the requirements of the design and in order to coordinate the several problems into a workable and harmonious whole the architects advised the owners, as a necessary preliminary to the final scheme, to employ a landscape architect of ability and an experienced engineer to study, investigate, and report on the landscaping features and utilities required and, later, to design and execute them.

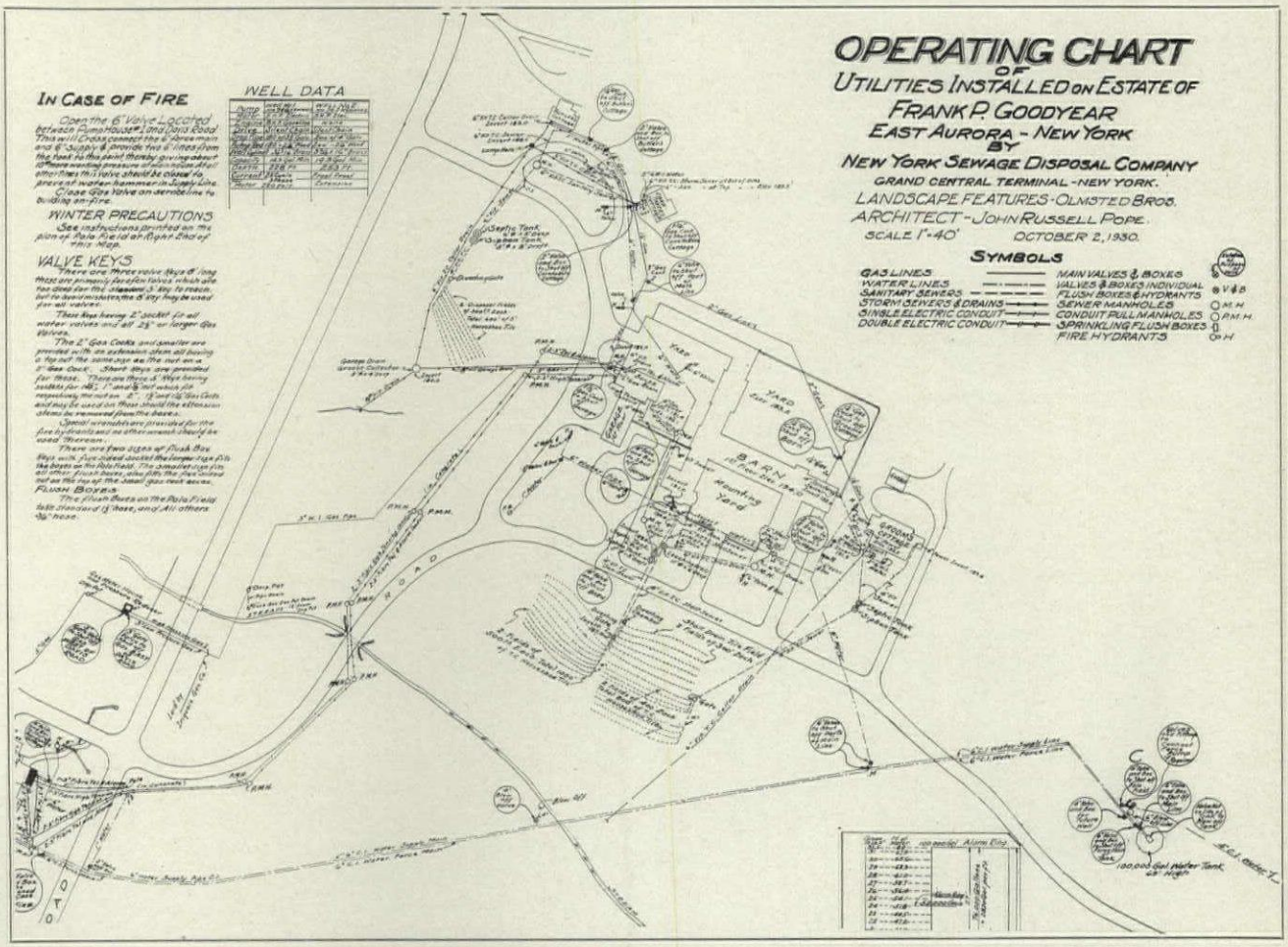
The Water Supply, which is always the most important item, was first considered. All known available and possible productive sources were studied. There were five in this instance:

(1) Cazenovia Creek, which was the apparently surest unfailing source, was eliminated because of the first cost of installation and the continued cost later of operating a treatment plant which would be required to treat the badly polluted water to render it safe for consumption.

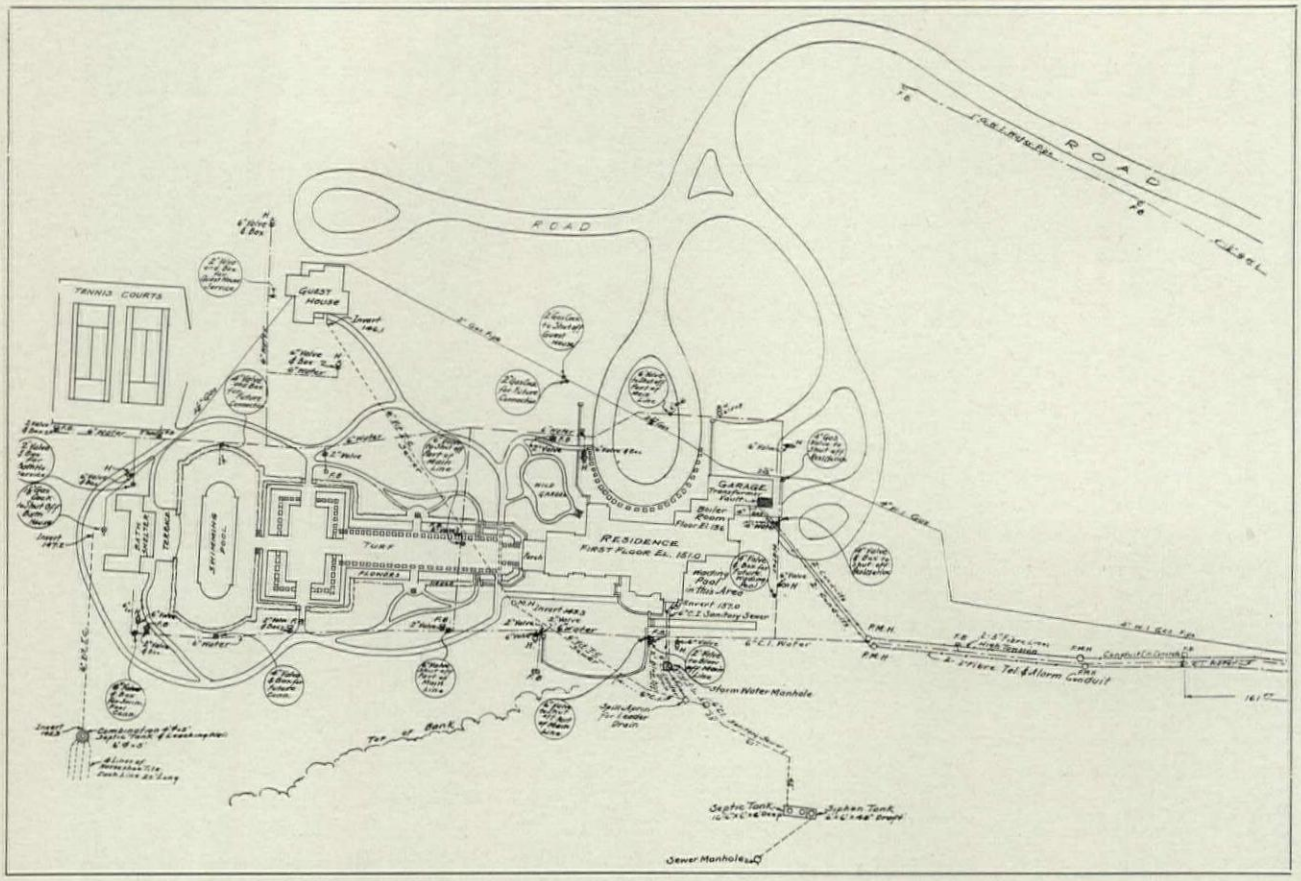
(2) Shallow wells were investigated not only by measuring the production of an existing well on the property, but by investigating neighboring wells for two miles in all directions from this site.

(3) Four springs were located on the property, measured for flow and checked for possible pollution.

(4) Deep wells in the region were studied, and in



PORTION OF OPERATING CHART OF UTILITIES ON ESTATE OF FRANK H. GOODYEAR



LAYOUT OF UTILITIES IN VICINITY OF HOUSE—ESTATE OF FRANK H. GOODYEAR

this connection a study of the geology of the land adjoining the creek showed the topsoil layer to be underlaid generally with shale 30 to 60 feet thick. Limestone was generally found below this and in this vein of change water was sometimes found.

Gas, sulphur, pyrites, and salt were found to be prevalent water dangers in the region.

Successful and unsuccessful wells of the surrounding territory were investigated, and all of these findings and observations were listed in the report.

(5) Piping water from East Aurora town supply, 2½ miles away, was considered and then eliminated because it was found that East Aurora at that time did not have enough water for its own use.

(a) The requirements of the owner were, of course, considered. This was done by ascertaining the probable population of the three separated groups of buildings and stables. The outside water requirements for gardens, lawns, sprinklers, swimming pool, tennis courts, polo field, etc., were considered, as well as fire protection, in order that the engineer might arrive at a logical and economical method of storage and distribution after the water was obtained.

(b) Samples of various waters were analyzed as to their hardness, bacterial, and mineral content.

(c) The possibility of taking water from several separate sources was considered.

(d) Fire protection and insurance rates were studied.

(e) Electric power sources and characteristics, probability of interruption, etc., were noted.

(f) Available sources of gas for heating and cooking were likewise investigated.

(g) The disposal of sewage was studied with particular reference to the total elimination of possible water contamination and every possible nuisance.

A full report containing all the observations and findings, briefly indicated above, was prepared for the architects, together with the engineer's recommendations.

After considering all the known facts it was decided to drill a well in the location previously chosen for the gardener's cottage and the greenhouse group, adjacent to the public road through the property, allowing future plans to await the test of this well. An 8-inch casing was sunk and sealed in the rock and the hole was continued to a depth of 228 feet. Fifteen gallons per minute of potable water was obtained in a protracted test, and a second well was started 350 feet south of the first. From the second well twenty gallons per minute was obtained. Although this was not considered enough water to serve ultimately the needs of the entire estate, it was decided that additional supply might later be obtained from future wells and the water system was laid out accordingly.

In view of the comparatively low rate of water production it was deemed prudent to install as large a storage capacity as was economically practicable, consequently an elevated tank of 100,000 gallons capacity

was designed and located in the woods east of the road 1400 feet from the wells.

The tank was so designed that the extreme cold weather of the region would not interrupt the water supply.

To stop "pump throb" in the lines, separate supply and service lines were used to and from the tank.

Fire protection was provided for all buildings by a sufficient number of strategically located hydrants at all three groups of buildings, the water mains being so designed that at the main house groups with one hydrant full open and flowing 500 gallons per minute there was a residual pressure of 45 pounds at the next hydrant.

Tree, shrub, and garden insurance was provided by means of flush boxes set at convenient points for garden hose attachments.

The storage capacity provided for a minimum delay in filling the swimming pool without impairing a fire reserve or house and stable services.

All construction was subject to Underwriters inspection.

Automatic sprinklers were considered in the barn group, but were eliminated because of unwarranted first cost for the small additional fire insurance saving.

The water lines were installed first in ample time for use in erecting the buildings and for the roads and landscape planting, with the added advantage that the system received a thorough test during the building period before being turned over to the owner.

Polo Field sprinkler connections were provided with the understanding that service to these connections would be provided by additional wells.

The deep well pumps were electrically driven, one having in addition a gasoline engine connection for emergency use. This emergency engine was used entirely for the first year of construction work.

The water was chemically analyzed before the material for house piping was selected or softeners installed.

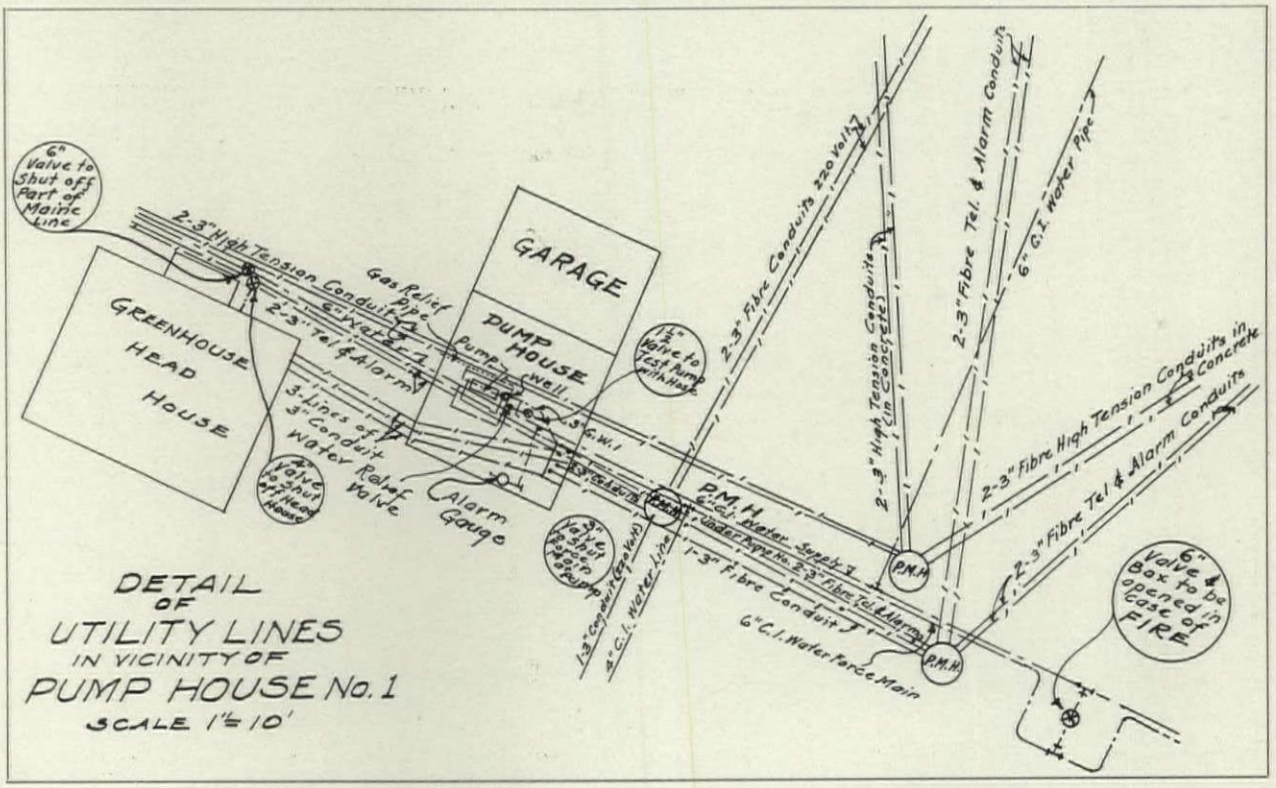
Telephone and alarm conduits were laid underground parallel with the electric lines.

High pressure gas service was taken into a separate meter house near the public highway, and from there after being reduced in pressure was run to the various buildings.

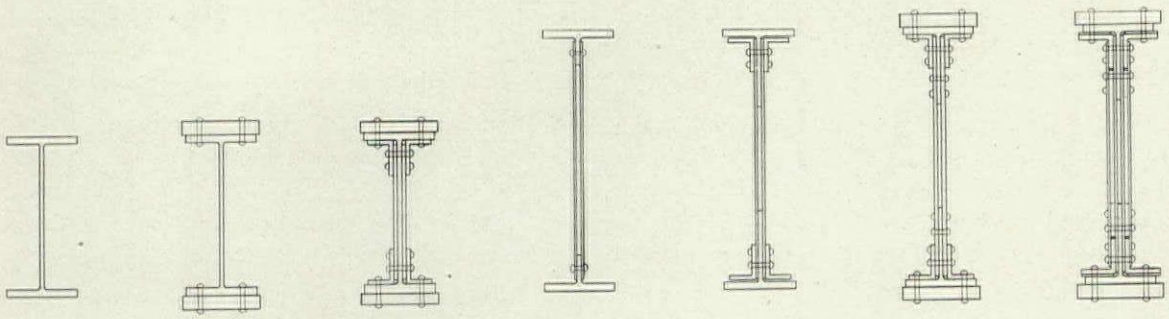
The sewage disposal requirements were cared for with utmost economy by handling each group separately.

As the underground work progressed a working guide for the owner and his employees was prepared. Portions of this map are reproduced herewith.

Admitting that the estate above described is somewhat larger than the average country house project, it is nevertheless a typical example of the thoroughness that should be used by all architects in the selection of those all important and too often neglected utilities which are absolutely requisite for the proper purposes, comfort and enjoyment of living in any home, no matter what the cost or how harmonious and artistic the design. Experience has proved that such consideration is most economical from both the owner's and the architect's viewpoint.



UTILITIES IN VICINITY OF PUMP HOUSE—ESTATE OF FRANK H. GOODYEAR



GIRDER SERIES

ILLUSTRATING RANGE FROM PLAIN ROLLED BEAM THROUGH W P GIRDERS

FIGURE 1—DEVELOPMENT OF PLATE GIRDERS

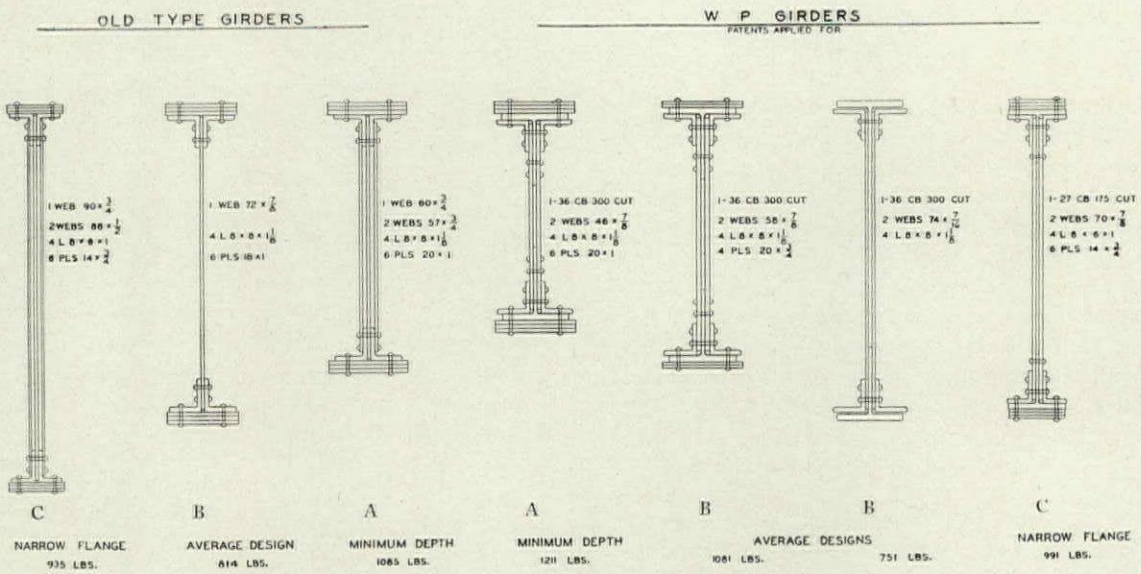


FIGURE 2—COMPARING OLD AND NEW TYPE GIRDERS

W P GIRDERS

PATENTS APPLIED FOR

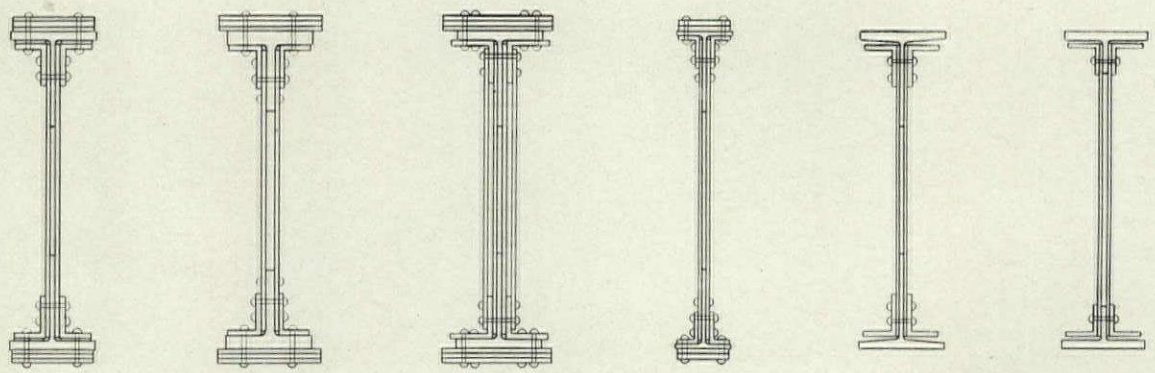


FIGURE 3—SHOWING GREATER WEB-RIVET CAPACITY OF NEW T-FLANGE GIRDER

T-Flange Girders

A New Development in Heavy Steel Construction

By William Rice Pearsall

Architects are of necessity looking for new materials and methods that will effect reduction in costs and increased return from occupied space. Among the recent developments along this line is the new T-Flange girders for heavy construction. In my quest for further data the designers Mr. Weiskopf and Mr. Pickworth explained in detail its advantages over the previously accepted girder forms.

This development—in my opinion, the most outstanding in steel construction design—can be advantageously used in medium-sized buildings as well as in buildings having large areas. It is the first radical departure in structural steel design since the introduction, about twenty years ago, of the rolled broad flange beam and column sections.

Figure 1 shows graphically the use of the beam principle in developing plate girders. A plate web with angles to form flange area, increased as required on web and flange by added plates to the limit of proper connection of flange and web.

This girder design is not a guess, it is an inspiration. It is not something just for special use, but quite general use can be made of it in its different forms for many locations—such as over large rooms, transfer of loads where column spacings change, and at setbacks. The design reduces the girder depth by increasing the flange area. The flange area is increased by using standard sections. The depth of the girder has been established not by the amount of flange material that can be accumulated, but by the amount of flange material that can be successfully and properly connected to the web. This means larger flanges than previously possible, permitting girders of less depth for a given strength. Less depth of the large girders saves in the materials of many trades. A girder formerly requiring six feet in depth can be designed in approximately five feet—load considered.

Special heavy girder construction is one of the many problems that have been solved by the design of this T-Flange girder form, and is shown in the charts and tables developed by the designers to meet the various strength and space requirements. These charts show clearly the thought and study that has been given to prove the value of this new type girder.

Figure 2 shows the comparison of this new girder with the present form of plate girders designed for a load of 666 tons in the center of a 24-foot span:—*A* shows the girder where depth is limited; *B*, an average design; *C*, where width of flange is limited by space requirements.

In the heavy girder work that has become increasingly common in buildings, the deepest girder usually determines the amount of waste space between the ceiling and floor, and the engineer must develop the greatest girder strength in a minimum depth. Wide flange beams successfully meet the demand for minimum depth in the range of smaller capacities, but in heavy built-up girders a limit to depth reduction is set by the strength of the connection between flange and web.

In this new girder form the strength capacity of this connection is greatly increased by providing a flange with three vertical stem portions for connecting to two or four web plates. This is accomplished, by using for each flange a T section (which may be obtained commercially today by cutting a rolled beam or column) combined with two angles. Narrow flanges are possible, particularly where depth need not be considered.

It is a fact well known that the saving in space between ceiling and the floor above does not occur on all floors in many buildings, but considerable saving can be made in those structures where the depth of girders does affect each story, and in the large cities where the total height is restricted, the saving might permit of an additional story.

It must be clearly understood, that the basic change is in the cross section detail of the plate girder, or in the manner of assembling the material which makes it possible to connect successfully a greater amount of flange material to the web. Obviously larger flanges give shallower girders for the same strength on a given span. Because the new girder form is a basic improvement in girder form, patents have been applied for.

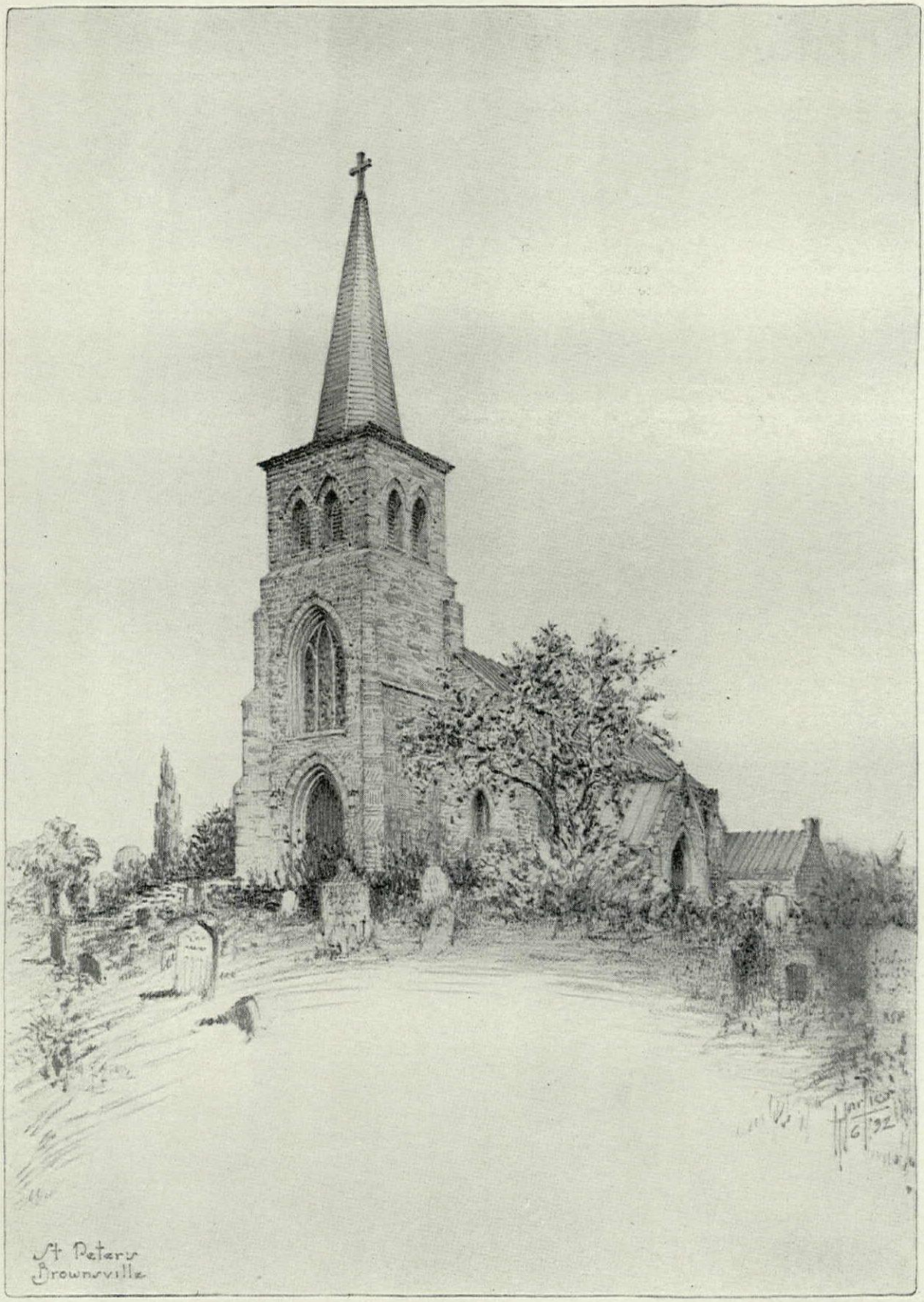
Figure 3 makes clear this basic fact, and shows the possible greater web-rivet capacity in the various forms of this new girder. The web-rivets are in four shears in *A* and *B*, and in six shears in *C*, as compared to rivets in two or four shears in the conventional girder. In *B* and *D*, note an addition to the customary row of rivets connecting flange to web, additional rivet lines are available to connect the long center stem of the flange to the webs. The center stem should be of sufficient thickness, especially where these additional rivet lines are required. Because of the large web-rivet capacity, and because so much flange material is directly contracted to the web, a larger girder flange can be used than is practicable in the conventional type.

The new girder can be used to advantage where a flange clear of rivet heads is desired. This is shown at *E* in Figure 3. This form is particularly useful where a vertical load is transmitted from flange to web of girder, as in grillage where extra lines of rivets in the lower flange aid in transmitting the vertical load to the concrete. In this case, the clear flanges facilitate grouting under the girders, and avoid the counter-sinking and chipping of rivets in the upper flange under the billet.

The important advantages in using the new girder form are:—less depth for same strength; heavy girder for transfer loads or change of column spacing; long span heavy loads; flange face rivet free; additional rivet lines flange to web; a proper selection of readily obtainable rolled sections can be assembled into the new girder.

Its use is not necessarily special. Study of the many problems in structural design will draw attention to many other uses for this improved girder form.

A more technical description of the idea with tables was published in the October 29, 1931, issue of the *Engineering News Record*.



FROM A PENCIL SKETCH BY RAYMOND M. MARLIER

ST. PETER'S CHURCH, BROWNSVILLE, PENNSYLVANIA—DEDICATED IN 1843

An Institution for the State of New York

Winning Design in the Competition for the Selection of an Architect

Fifty-four designs were submitted in the competition for the selection of an architect for a new institution in the Department of Correction of the State of New York. The drawings were judged on July 28th by a Jury of Award consisting of Dr. Walter N. Thayer, Jr., Commissioner of Correction; Frederick L. Ackerman, Architect; and William E. Haugaard, Commissioner of Architecture, who voted unanimously for the design submitted by Thomas & Baker and Thompson, Holmes, & Converse, Inc., of New York. Walter C. Longleway, Deputy Commissioner of Architecture for the State of New York, acted as Professional Adviser. $1,137,500 has been appropriated by the State for the construction of this new institution. The successful competitor has been assigned the commission and architectural fees not to exceed 3½% of the funds appropriated for this project.

The program of the competition called for an institution with a capacity for five hundred inmates for the care, training, and treatment of male offenders between sixteen and nineteen years of age. The winning design, reproduced on the following pages, is described by the architects in part as follows:

The problem as stated by the program is to design, in the congregate type of prison buildings, a Correctional Institution for the care, training and treatment of young male offenders; provision being made for maximum classification and particular attention given to vocational training.

The Plan adopted is composed of comparatively small two and three-story units grouped around a central court and connected by one-story corridors in a manner assuring a maximum of healthful exposure to light and air without sacrifice of compactness of arrangement and accessibility of all functions.

Particular attention has been given to the location and the orderly arrangement of the School and Vocational Shop Units.

The mental outlook of the inmate is undoubtedly affected by his surroundings and it is felt that he will be speeded on his road to rehabilitation by the semblance of a normal living environment. The architectural treatment of the design, therefore, expresses the ideas of training and education rather than confinement and punishment.

Its appearance is that of a school for reformation, not a jail.

The ideal exposure for the Housing Units, that with their long axes running from northeast to southwest, has determined the orientation of the group, and in this plan the School and the Hospital have the same ideal exposure.

All the Units of the group are reached directly from two corridors extending, straight and unbroken, from the entrance front to the furthermost shops at the rear.

The requirements of the problem are well met by a development of this plan, in which the two corridors become twin "telegraph-poles." The grouping that results is simple, compact, easily supervised and administered; and provides adequate classification and segregation of inmates. In addition, it provides in the central court an architectural heart for the group, such as is impossible in any single corridor scheme.

On the major axis at the entrance front is the Administration Building, and connected to it by a one-story wing is the Reception-Observation-Hospital Unit, on the first floor of which, centrally located, is the main guards' control giving access to the prison proper. Adjoining the control on the north is the Reception Entrance and service with stairs leading directly to the Observation Cells above. South of the control is the Hospital Isolation for contagious diseases, the outside exit which is essential to this service being provided. All other Hospital facilities are located on the second floor of this Unit. The operating suite is to the north, the ward patients to the south, and the dispensary for sick calls, clinics and doctors' offices are in the center, readily accessible, through the control, from all parts of the Institution.

The third floor accommodates the fifty inmates under observation, in two cell blocks, each having twenty-five outside single rooms, which are readily accessible from the Reception Service below. The orientation of these cell blocks is the same as that of the Housing Units.

At the foot of the stairways from the Observation Cells the two main corridors start. That on the south leads to two three-story Dormitory Units housing two hundred and fifty inmates; that on the north, to two Cell Block Units of the outside single room type, of similar height and also accommodating two hundred and fifty inmates.

Bathing facilities are provided in the basement of each Housing Unit, and one emergency shower on each floor of each Unit.

The open spaces between the Housing Units are well adapted for use as exercise yards for the inmates.

The corridors, after passing the Housing Group, lead to the centrally located Dining Room and Kitchen Unit, the School and the adjacent Vocational Shops. Over the Dining Rooms are placed the Auditorium, Chapel and Gymnasium Unit.

The two general classifications of inmates can be maintained throughout the entire group by the double circulation leading to these various units.

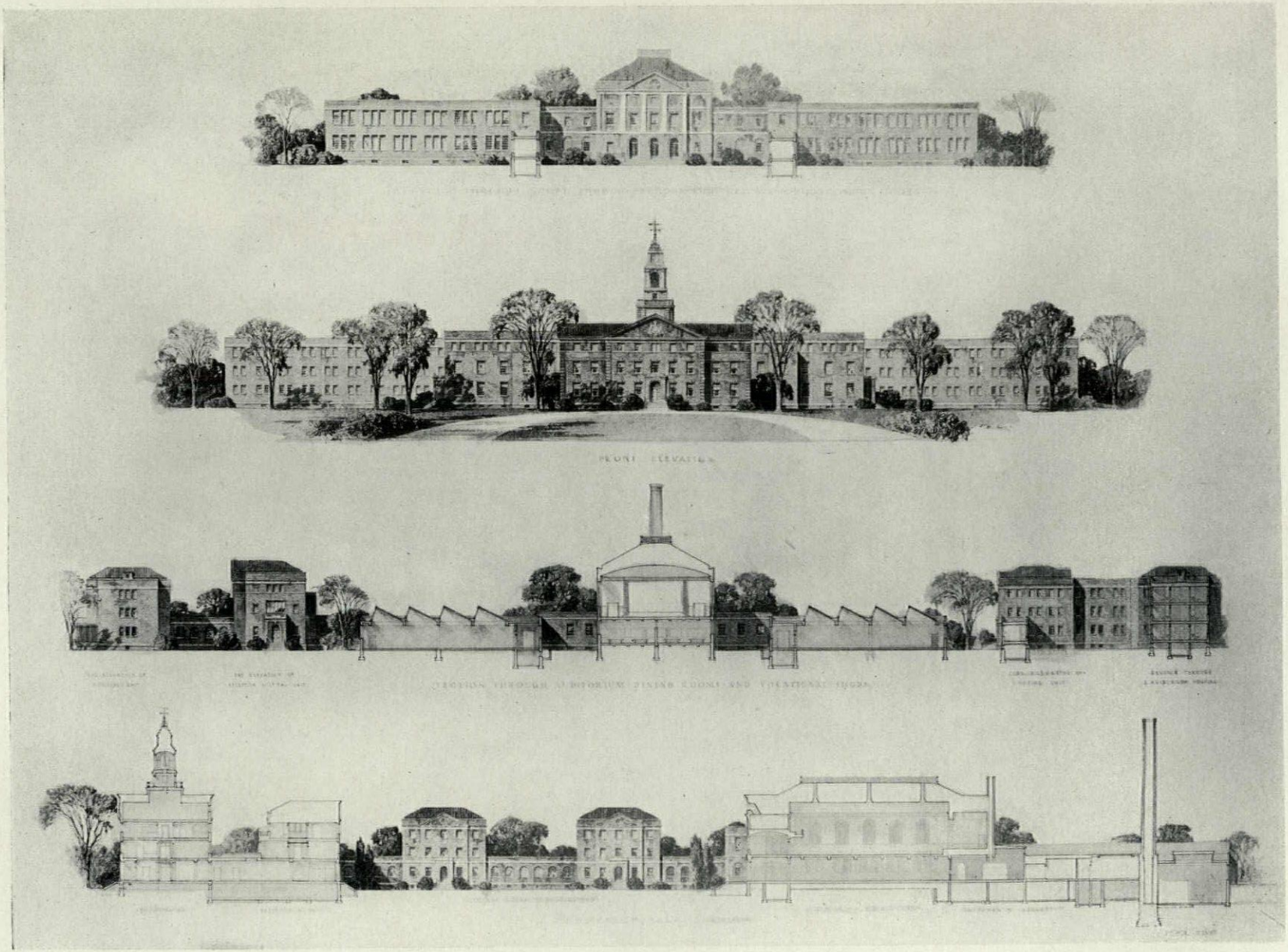
The Power Plant and Laundry Unit is placed on the major axis at the rear of the plan. The Laundry, adjoining the Shops, is approached from the South corridor, while the Power Plant, reached from an outside entrance, can be completely segregated from all other parts of the Institution.

Adjacent to the Power House on the north is the guarded delivery yard for kitchen and other supplies.

The parts of the Vocational Training and School Units, shown on the plan but to be built at a later date, are also outside of the present prison circulation and their later construction can be carried on without interference with any of the activities of the Institution.

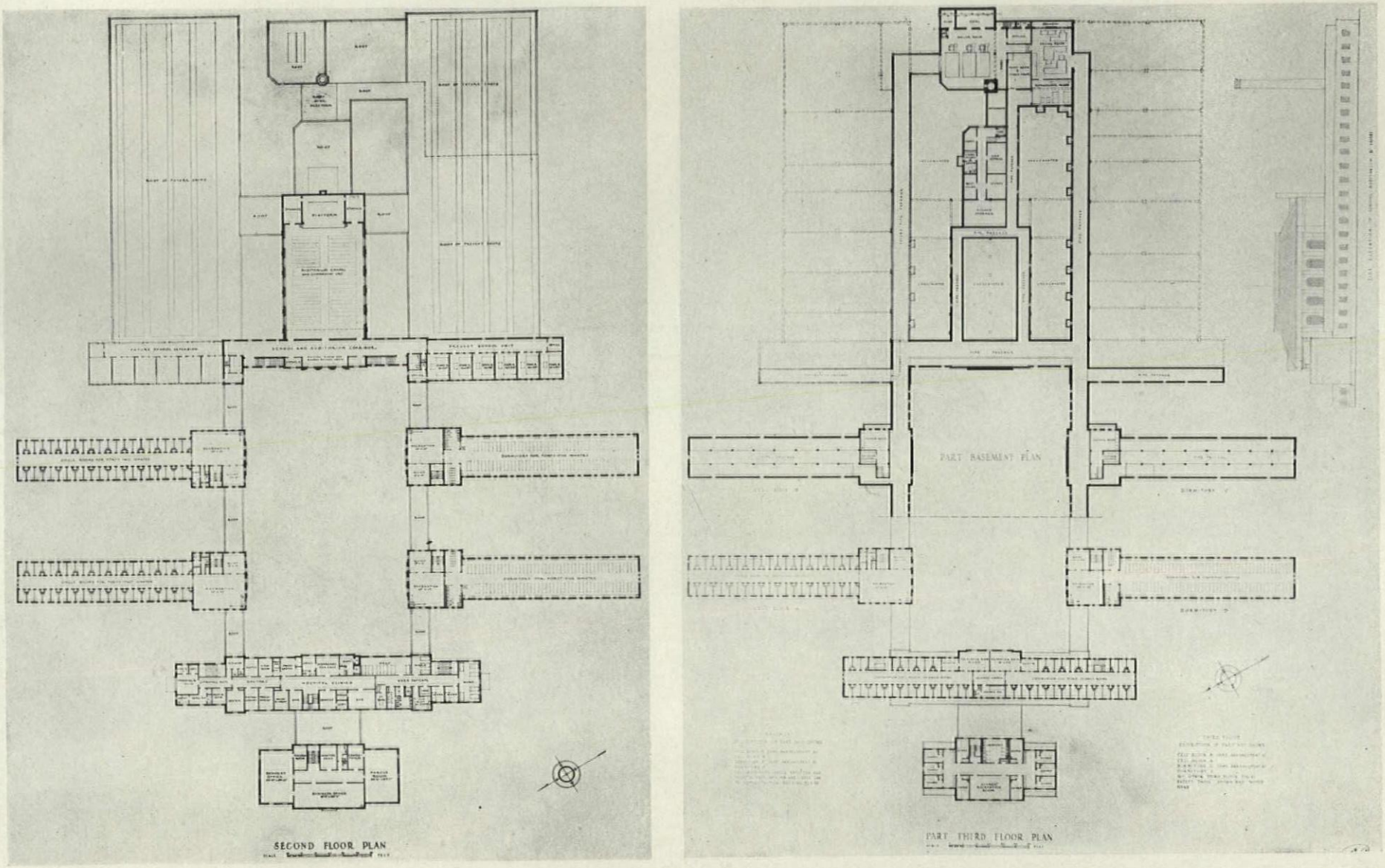
The particular character shown by the exterior has been adopted because it is possible by this architectural expression to achieve distinction with the utmost economy.

The design contemplates the use of red brick for all exterior walls; an inexpensive face brick or selected common brick being appropriate. Sparingly used cut stone



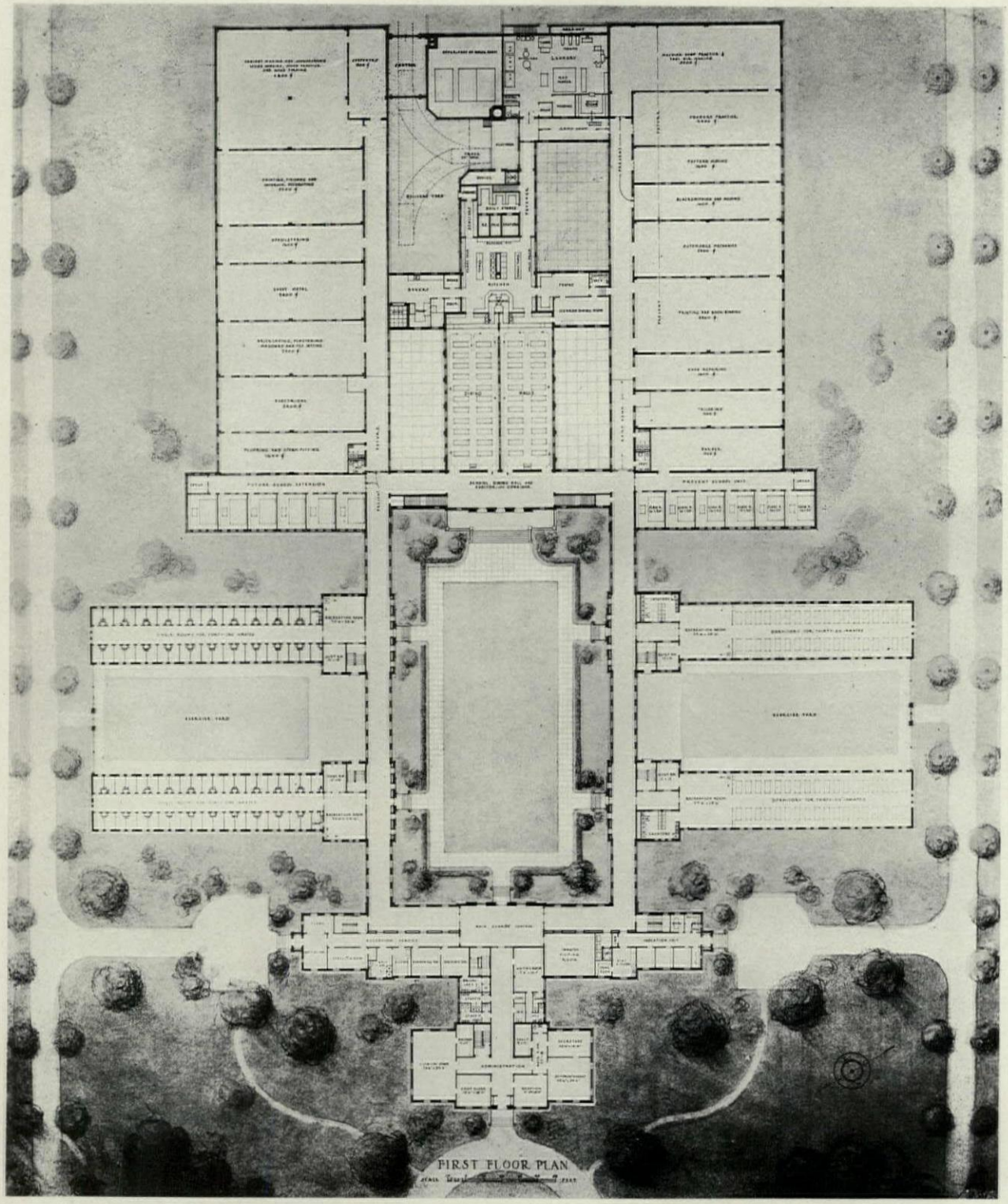
ELEVATIONS AND SECTIONS OF DESIGN SUBMITTED BY THOMAS & BAKER, AND THOMPSON, HOLMES & CONVERSE, ARCHITECTS

COMPETITION FOR A NEW INSTITUTION IN THE DEPARTMENT OF CORRECTION OF THE STATE OF NEW YORK



FLOOR PLANS OF WINNING DESIGN SUBMITTED BY THOMAS & BAKER, AND THOMPSON, HOLMES & CONVERSE, ARCHITECTS

COMPETITION FOR A NEW INSTITUTION IN THE DEPARTMENT OF CORRECTION OF THE STATE OF NEW YORK



PLAN OF DESIGN SUBMITTED BY THOMAS & BAKER, AND THOMPSON, HOLMES & CONVERSE, ARCHITECTS

COMPETITION FOR A NEW INSTITUTION IN THE DEPARTMENT OF CORRECTION OF THE STATE OF NEW YORK

trim of the simplest detail is indicated. Roofs are in general flat, for economy of construction and possible use. The few sloping roofs are assumed to be of lead-coated copper. The fenestration is adequate but the windows are moderate in size and therefore present no unusual problems in making them secure either by the use of prison type steel sash or by the use of steel grilles in addition to ordinary sash, a question which must be left for the decision of the administrative authorities.

It is assumed that the interior treatment would follow the approved lines of prison and hospital finish, using glazed baked clay products for finishing practically all surfaces within reach of traffic.

No mechanical ventilation whatever is necessary to the proper operation of this scheme, with the possible exception of the kitchen range exhaust.

The cubical contents of the group, excepting future construction, amount to 2,397,000 cubic feet.

Photo by Peyser & Patzig, Inc.

Orange Juice Goes Modern

A Solution of a Contemporary Problem

By John Vassos

When the Nedick organization first approached me and asked me to redesign their stands, I realized that it was necessary to understand thoroughly just what the function of these stands was; how they could best serve the public. After working in various of the stands for several days, I made the following observations:

The average man suffers from topophobia — stage-fright, or fear of being conspicuous; the average man does not like to approach an angular form, with lack of comfort; although a glaring light will attract his attention, the average man does not like being exposed to it.

With these points in mind, the new design was conceived. The introduction of synthetic materials and color has proven very successful.

A drop gallery two and one-half feet in width from the ceiling following the shape of the counter acts not only as a means of indirect lighting but as an air purifier and ventilator, the upper half being used for this purpose. This eliminates any smell of cooking or of food, and the customer is able to come to the counter without being made a public exhibit because he is having a glass of orange drink.

The counter is curved at the strategic points where the crowds gather, making it possible for the dispenser to serve efficiently a greater number of people at one time; also the curved shape allows the customer more elbow room than does a straight counter.

There is a recessed kick plate which is an advantage as it permits the customer to get as close as he pleases to the counter.

There are no ceiling lights on the ceiling proper but a trough following the extreme edge of the ceiling holds frosted glass with bulbs inside forming a crown of light at the entrance of this space.

The color scheme is as follows: walls and ceiling are ivory with the exception of a 30″ band running halfway between floor and ceiling of nile green. In this green band are placed the various signs, all uniform in size— 30″ high by 14″ wide. The counter proper is orange, offset with two aluminum bands. The counter top is black, 1¾″ in thickness, overlapping by 1½″. The kick plate recedes 4″, is 6″ high and is black. The floor is of terrazzo and all the metal trimmings are brushed aluminum. Formica has been used throughout.

The word Nedick's is written in green relief letters. The corner column, which is an inevitable problem in the usual New York building, I treated with solid aluminum in a concave and convex design, creating an optical illusion which hides the massiveness of the column but I made a separation at the counter height with a bumper-like design to determine its position to the customer, so he won't run into it.

Here and There and This and That

Conducted by E.L.C.

This department conducts four competitions each month. A prize of $10.00 is awarded in each class as follows: Class 1, sketches or drawings in any medium; Class 2, poetry; Class 3, cartoons; Class 4, miscellaneous items not coming under the above headings. Everyone is eligible to enter material in any of these four divisions. Good Wrinkle Section: a prize of $10.00 is awarded for any suggestion as to how work in the drafting room may be facilitated. No matter how simple the scheme, if you have found it of help in making your work easier, send it in. Competitions close the fifteenth of each month so that contributions for a forthcoming issue must be received by the twelfth of the month preceding the publication date in order to be eligible for that month's competitions. Material received after the closing date is entered in the following month's competition.
The publishers reserve the right to publish any of the material, other than the prize winners, at any time, unless specifically requested not to do so by the contributor.

THE PRIZES in this month's competition have been awarded as follows:

Class I—John Stewart Detlie, Philadelphia, Pa.
Class II—J. H. La Rowe, Manteno, Ill.
Class III—E. Hubbard, Wellington, New Zealand.
Class IV—H. Paulson Legg, Newark, N. J.
Good Wrinkle—Roger B. Morrow, Columbus, Ohio.

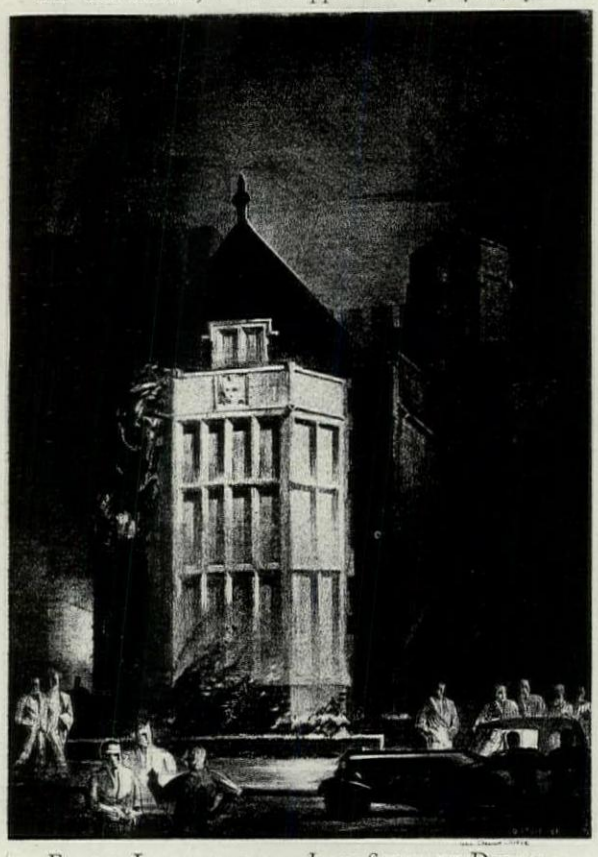
The greatest excitement around these parts for some time was the sailing of Ye Editor-in-Chief of PENCIL POINTS for Italy. The entire force declared a holiday to wave "bon voyage" to this most important of personages. We have since heard that the second installment of the farewell took place when our old friend, Hubert G. Ripley, was on hand when the boat stopped at Boston with a bit of last-minute information for Ye Editor-in-Chief. It was received by E.L.C. in a radio this morning which we publish in toto.

"An old friend, a worshipper of Dyonysos, just returned from a European trip, told us of a recipe for a champagne cocktail that some of your readers might be interested in. A caution goes with it. Don't take more than one at a time or it will be necessary to consign the devotee to the care of Morpheus and Phoebeter.

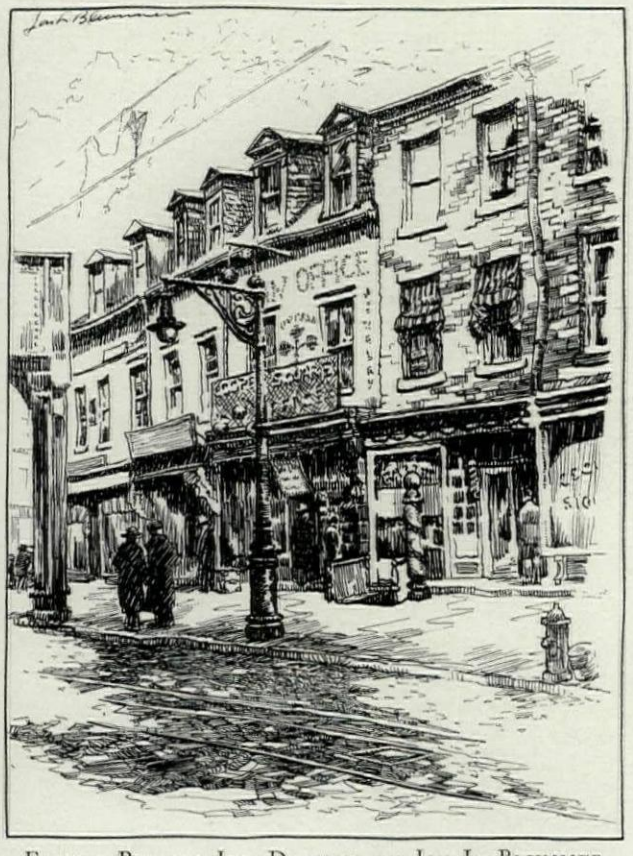
An 18-oz. glass for each person.
One lump of ice—goodly size.
One pony brandy—poured over the ice.
One pint sweet champagne, chilled, poured on top.

"The effervescent qualities of the wine lift the brandy up through its structure, impregnating it and mingling the two bouquets at the top of the glass, the tiny bubbles forming graceful catenaries on the way up. Drink slowly and sigh."

If any of our HERE AND THERE contributors are planning a European trip we urge that they try the above Ripley Recipe. We hesitate to recommend it too highly, as up to the time of going to press we had not had our boss' O.K. regarding the exactness of the proportions of the mixture.

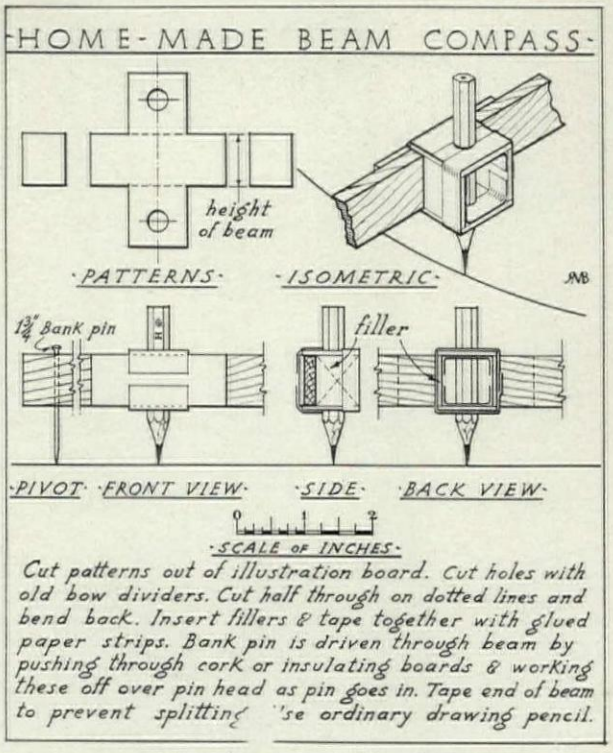


FROM A LITHOGRAPH BY JOHN STEWART DETLIE
(PRIZE—*Class One—August Competition*)



FROM A PEN-AND-INK DRAWING BY JON L. BLUMMER
"Cooper Square"

THE GEOMETRY OF AN ARCHITECT BY E. HUBBARD
With Apologies to Mr. E. I. Freese
(PRIZE—*Class Three—August Competition*)



A GOOD WRINKLE FROM ROGER B. MORROW
(PRIZE—*Good Wrinkle—August Competition*)

IF
(Apologies to Kipling)
By J. H. La Rowe
(PRIZE—*Class Two—August Competition*)

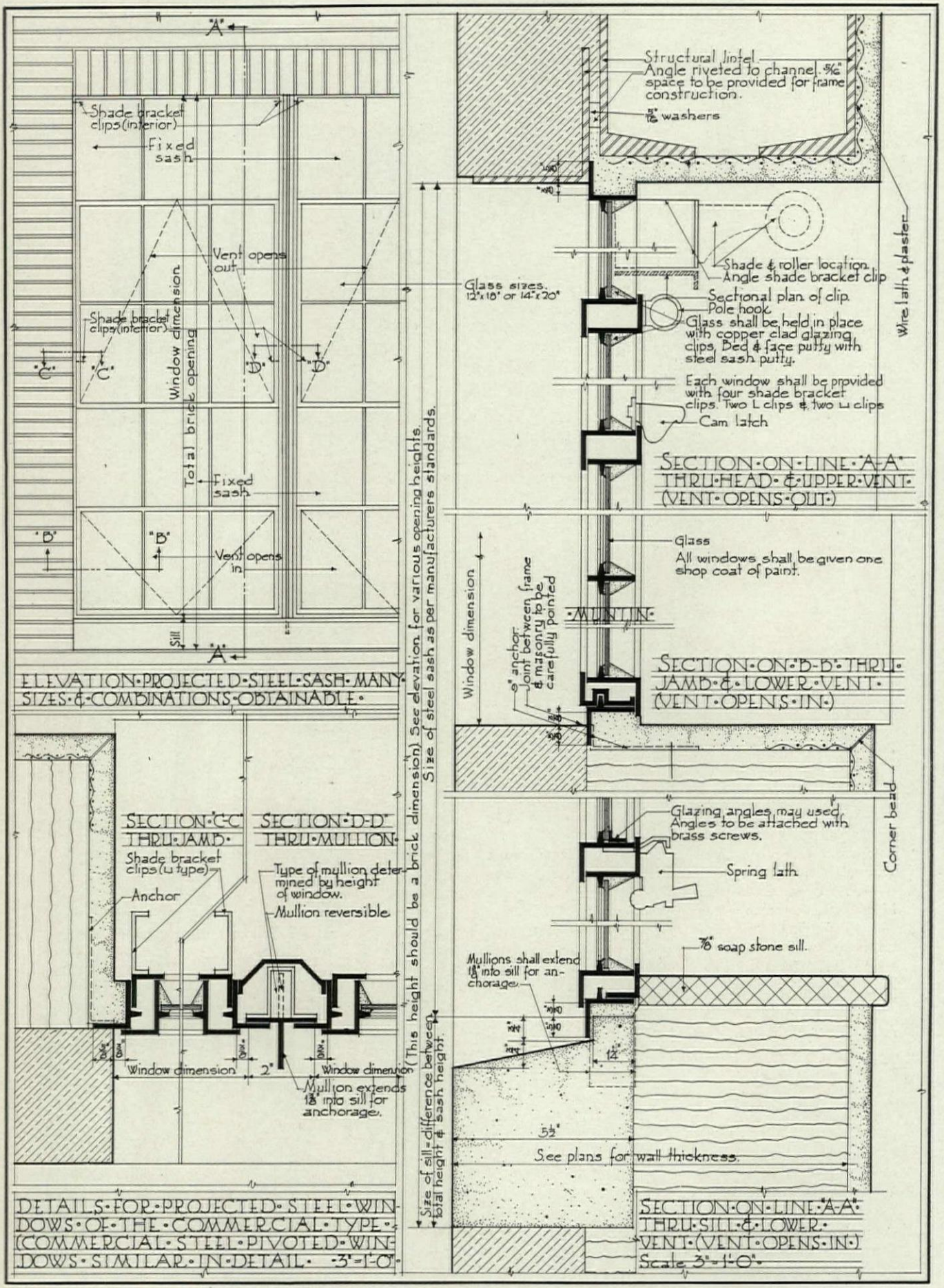
If you inspire your friend to become your client,
And make your client a strong and steadfast friend,
And analyze his needs, both real and fancied,
To reach the right solution in the end;
Prepare the working drawings to conform to
The limits by the appropriation set,
With specifications brief, but all-inclusive
Averting extras when the job is let.

If you can make the water cement ratio
Control the concrete turned out by a man
Whose aim in life seems just to fill his mixer,
And empty it as speedily as he can.
If you can detect any spurious padding
In a pile of "cost-plus" bills, and find what's due,
Or reason with an obstinate general foreman
Who's "Been in this game since 1882."

If you can understand mechanics lien laws,
And keep the city building code in mind,
As well as standard specs A.S.T.M.,
The N.E.C., and matters of that kind.
If you can keep the creditors and salesmen
From forming a stampede outside your door,
And keep your men both busy and contented,
And turn out work on time, if not before.

If engineer, astronomer, and artist,
And scientist are all combined in you;
With diplomat, economist, historian,
Financier and administrator, too;
And all with practical common sense combine
Towards making this world a place of beauty and joy,
Then you're a real Architect—or you may be,
If you pass the State Board Exams, my boy.

FROM A WOODCUT BY H. PAULSON LEGG
"The Waldorf Astoria, New York"
(PRIZE—*Class Four—August Competition*)



PROJECTED STEEL WINDOW—DRAWN BY PHILIP G. KNOBLOCH

THE SPECIFICATION DESK

Bank Vaults

By David B. Emerson

I remember reading an article on bank vaults about twenty-five years ago in which the author made the following statement: "the building of bank vaults has been a race between the crooks and the vault builders, and fortunately the vault builders are about one lap ahead." As it was then, so it can be said to be now, the vault builders are still about one lap ahead, but that lap has been maintained by constant progress and unremitting effort.

Probably no one item which enters into the construction of a modern building has been subject to more marked progress than the bank vault. Only a little over sixty years ago the leading banks of this country were keeping their cash and securities in vaults with brick or stone walls, twelve to sixteen inches thick (oftentimes the party wall of the building served as a side wall of the vault), with wrought iron plate doors, locked with combination or, as they were called, "dial" locks, the combination lock having been perfected by Linus Yale about 1865.

After a few banks had been burglarized by cutting through the masonry walls, steel plate linings were introduced which made the burglars' work that much more difficult. The ordinary type of steel plate lining being easily cut and drilled, laminated, toolproof steel linings and armor plate (a hardened steel) linings were introduced, and did excellent service until the advent of the "cutter burner." In 1874, the time lock, which is the only type of lock which can not be tampered with, was first used and, with the various improvements which have been made, is still the recognized standard lock and is used on practically every bank vault of any importance in the world.

Today the principal dangers against which the bank vault must contend are dishonest employes, burglars, mob violence, and seismic disturbances, and their importance is in about the order as given. The danger from fire is almost negligible, as there is practically nothing to take fire nor to feed fire in the modern fireproof bank building. In fact all the combustible material in such a building would not make a blaze big enough to damage anything protected by an unlabeled Kalamein door.

One of the most important items in the designing of any bank vault is the maintaining of a proper relation between the strength of the walls, floor, and roof and the strength of the door, which should be as nearly equal as possible. Weak walls and a strong door produce a weak vault; strong walls and a weak door have exactly the same result.

With the advent of reinforced concrete, vault, walls, roofs, and floors were built of this material, but it was soon found to be only slightly burglar resistive. The next move, and what for quite a few years was the standard of burglar resistive construction, and which was used in at least one of the early Federal Reserve Banks was steel rail reinforcement, the rails being alternately with flange to outside and head to outside, lapped over the top and bottom, and bolted together with long steel rods. This form of reinforcement was thought to be fairly satisfactory but by actual test it failed to give but a very few hours resistance.

In 1921 extensive tests of vault walls were made by order of the Federal Reserve Board, which resulted in the development of an entirely new type of reinforcement. This new type of reinforcement is a scientifically made reinforcing system, fabricated and arranged in such a manner as to offer the maximum resistance to penetration against such equipment as electric drills, explosives, and cutter burners. There are at least six types of reinforcement on the market which are approved by the Underwriters, three of which have been more or less generally used, but of these three types, two have been used almost exclusively. These reinforcing systems have thoroughly proved their effectiveness in resisting the oxy-acetylene or Blau gas cutter burners which have little or no effect on concrete; the electric drill cannot pierce the specially designed heavy reinforcement, the members of which absorb the force of explosions, and after the outer portion of the concrete has been broken away, the reinforcing cannot be cut with cutter burners until the cement is entirely cleaned off the surface of the steel. As the reader may readily see, it is a fallacy to assume that any type of reinforcement is good enough. In fact it is safe to say that the selection of the vault reinforcement is quite as important as the selection of either the vault doors or the vault lining.

The thickness of the concrete walls, roofs, and floors of vaults vary from a minimum of sixteen inches to a maximum of sixty inches, the average being from twenty to twenty-four inches thick.

Under existing conditions it is very necessary that in addition to the concrete walls, roofs, and floors which have been described, vaults should have a proper lining if they are to be really safe from outside attack. Linings should be applied to all walls and roofs and to the floors, if they do not rest on solid rock. Even a very light lining of one half inch open hearth steel plate is claimed to be a help in resisting burglarious attacks. The reason for this is that in breaching the wall, the steel plate lining prevents the dislodged concrete from falling into the inside of the vault, thereby making the work so much the more difficult, and consuming that much more valuable time and energy.

The most important element in vault linings at the present time is their ability to resist the action of the cutter burner. This is accomplished by the use of different materials. Practically all the safe manufacturers have special torch resisting alloys, known by various trade names, the exact composition being a secret known only to themselves, but all of them, so far as I can learn, contain a certain amount of copper, in some cases not over ten per cent. Although copper is not a hard metal and has a fusing point of only 1981.4 degrees Fahrenheit it re-

sists the cutter burner far better than the hardest steel. The reason for this is that as the copper is melted by the heat of the flame the molten metal runs down and fills the hole which is made by burning, so that it is very nearly impossible to burn through the metal. An alloy composed of twenty-five per cent. copper and seventy-five per cent. cast iron has given very good results as a cutter burner resisting metal and has been quite extensively used for vault linings. One of the several patented torch and tool resisting linings is a composition of alundum (an electric furnace product), with a torch resistant aggregate in the center of the plate. This aggregate is an oxide. When any attempt is made to pierce it with cutter burners it generates a very dense and suffocating smoke, making it practically impossible to continue work. The outer surface of these plates is drillproof. Some well known manufacturers of vault doors and linings install a layer of a chemical smoke producing compound, three-quarters of an inch thick and enclosed with a steel jacket constructed of one-quarter inch steel plates, set between the concrete walls of the vault and the torchproof lining. The heat which is necessary to burn through the steel jacket causes the chemical plate to give off a very dense and suffocating smoke making it impossible to work even with a gas mask.

Some of the leading vault engineers recommend in addition to the torch resistant lining, an extra interlining. This interlining is constructed by buttressing the walls, roof, and floor with a series of structural H beams, usually 6 inches deep, spaced approximately fifteen inches on centers, closely bolted to the inside of the interlining with intermediate studs tapped into the interlining and the steel inner lining, which is also bolted to the inside flanges of the beams. The spaces between the beams are solidly filled with concrete. The purpose of this inner lining is to render it impossible to cut out a section of the lining with cutter burners, and then to push the cut out section into the vault, thereby making a manhole directly into the vault.

The concrete for vault walls, floors, and roofs should be specified to be a one, two, three and one half mix, with three-quarter-inch broken stone or five-eighths-inch gravel.

As I previously stated, the strength of the doors, and the strength of the wall, floor and roof in a vault should be as nearly equal as possible. In the matter of doors it is an almost universal practice in the larger banks to build vaults with at least two doors, one, the regular door for entering the vault and one, a small emergency door to be used in the event of lockouts and for the ventilation of the vault. Both doors should be of the same thickness and construction, and both should be equally resistive to all forms of attack. Entrance doors are made both rectangular and circular in shape. One is quite as strong as the other; the circular door looks much more impressive, and the rectangular door takes up less room. In designing a bank it is well to keep these two items in mind. Emergency doors are always circular, and the standard size is twenty-two inches in diameter, clear opening.

Burglar resistive doors are built in varying thicknesses, the thinnest door which will give any real protection is six inches, and the high-class doors used in the larger safe deposit vaults are sixteen, eighteen and twenty inches thick, and some few are thirty-six inches thick. The doors in the Federal Reserve Bank in Cleveland are forty-eight inches thick, and the main door weighs one hundred and five tons. The total weight of the vestibule and jambs of the door and the door altogether weigh three hundred tons. This is the largest and heaviest hinged door ever built.

In their general characteristics all high-class doors are constructed on the same general principles, each manufacturer having certain minor details which he believes makes his door a little better than his rival doors. As a matter of policy and good taste, I shall not touch on these differences but adhere strictly to generalities. Two types of door and jamb construction are used by practically all manufacturers, the stepped type which consists of one or more rabbets in the jamb and on the door, and the stepless or plug type, which consists of a perfectly smooth jamb and door, making a male and female truncated cone. Both types when properly machined and polished give a metal to metal fit which is both air and liquid tight. The layup of a typical twenty inch door is one and one-half inches of open hearth cast steel, fourteen and a half inches of torch resisting metal, one and one-quarter inch of hard chemical compound (smoke producing), one and one-quarter inch of five ply chrome steel, hardened drill proof, one and one-quarter inch of cast open hearth steel and a one-quarter inch steel finish plate on the outer face of door. Door frames and doors should be made up of solid steel castings with the bolt frame cast solid with the door, and the cavities in the frames should be filled with torch resisting metal the same as is used in the doors. The finished plates and doors and the architraves around frames are almost invariably made up of stainless steel at the present time. One of the leading vault engineers recommends a door having a pocket eight inches thick, between the outside face casting and the torch resisting metal, filled with a rich concrete in which is embedded two crossed rows of hardened chrome steel bars one inch in diameter, spaced approximately four inches on centers.

Vault doors (except in the case of unusually large doors) are hung on heavy cast steel crane hinges, and are seated in place by means of a pressure system secured to the door frame operated by a pilot wheel mounted on the face of the door. To the casual observer, the hinge and pressure system may look weak and easily cut; very true, but once the door is closed and locked, the hinge and pressure system may be entirely removed and the door will not be weakened one iota.

The usual type of door has from twenty to twenty-four bolts, depending somewhat on the size of the door. These bolts are generally four inches in diameter, and on very large doors they are sometimes four and a half inches in diameter. The bolt work is operated by means of a lever handle and is controlled by means of a time lock and two combination locks. Time locks are made with either two, three, or four movements. The two movement lock is only used where it is absolutely necessary to keep the cost of the door to the minimum, the three movement lock is probably over ninety-nine per cent. efficient. For the best and surest results and where the strictest economy is not required a four movement lock should be used. The usual maximum running time for time locks is seventy-two hours, but they are frequently made to run ninety-six hours, and sometimes as long as one hundred and twenty hours. The ninety-six hour movement was originally devised for use in Japan, where I am told their system of holidays closes the banks as long as three days at a time. Although at the present time our banks are never closed longer than about sixty-nine or seventy hours at any one time, it is the part of wisdom to install ninety-six hour locks, as we cannot foresee the future, and the closing for another twenty-four hours would complicate matters quite a little where seventy-two hour locks are used. The

better type of time locks is equipped with an anti-explosion plate, so constructed that if an explosive is used on the door, the bolt work is jammed and the door can not be opened. When time locks are installed, rubber washers are placed between the door and the lock case, thus giving protection from such jars as might result from an explosion or other cause. Combination locks for burglarproof doors are constructed so that the spindle or actuating member that projects through the door is carried outside the lock case, so that if the spindle is driven in or blown in, the bolt actuating mechanism is beyond attack. As an additional measure of precaution the spindles which are of hardened tool steel are made with shoulders, ground into the door to a liquidproof fit, and are annealed at the shoulders to prevent breakage.

In addition to the various precautions against explosives, the boltwork on many doors is fitted with fusible link connections and plugs, so arranged that if the heat from an oxy-acetylene flame is applied to the door when it is closed and locked, it will cause the boltwork to remain in a deadlocked position, thereby making it impossible to retract it from the outside. On some of the larger and more expensive doors the combination locks and bolt throwing mechanism is located on the door frame. The dial of the combination locks has a steel cylinder mounted on the housing of the pressure mechanism set at an angle and provided with an oval glass window set about eight inches from the illuminated stationary dial, which is provided with two revolving pointers, each of which is connected with the combination locks. This arrangement makes it impossible for any one to learn the combinations by watching the persons who unlock the vault using them.

Emergency doors are constructed practically the same as the regular doors except that the boltwork is of the lug type; that is a series of moving lugs on the outer edge of the door engage with a series of fixed lugs on the inner edge.

Due to the bevel of the door frame which makes a difference in level between the floor of the bank and the floor of the vault, it is necessary to provide the entrance to the vault with a foot bridge. This foot bridge has a double purpose, to prevent persons entering the vault from slipping on the smooth metal, and to protect the jamb so that by no chance the metal to metal fit beween the door and the jamb can become impaired. This bridge is generally made of steel and sometimes of aluminum, and is covered either with rubber or with linoleum. It has an incline at the front and is hinged at the rear, so that it may set in a vertical position when the door is closed and locked.

Some very large vaults, equipped with very heavy doors and where the difference in the floor levels of the bank and of the vault would be too great for easy access, have the door set down so that its bottom is below the floor level. A section of the floor is made to lower, so that the door may be opened; the floor is then raised to make a level walkway into the vault. A slot is left in the movable part of the floor to accommodate the door in its open position. These lowering and raising platforms are controlled by means of hand wheels.

Both the main vault doors and the emergency doors are provided with day gates. These day gates are provided with key locks, which are generally fitted with alarm bells, so that it will be known when the gate is opened and any one enters or leaves the vault. At the present time stainless steel is more or less generally used for day gates.

The interior arrangement of bank vaults is quite as varied as is the business carried on, different banks having entirely different requirements. One of the most important items in practically all vaults are the safety deposit boxes. These boxes are practically a standard article differing only in a few minor details. All boxes are made either twenty-four or twenty-six inches deep, and the standard size fronts are two, three, four and five inches high by five inches wide, and ten and three-eighths inches wide by five and ten inches high. Some safe deposit vaults have special extra sized boxes which are rented to larger corporations and to multi-millionaire estates, which are as large as two feet by two feet by four feet. These of course are extra special equipment. The fronts of the boxes are either of polished steel or stainless steel, and at the present time the more up-to-date banks are favoring the stainless steel. The boxes should have locks provided with two keys; one known as the "guard key" which is in charge of the custodian, and one known as the "change key" or "renter's key" and held by the renter. The guard key must always be used to unlock the guard mechanism before the change key can be used to open the box. There are two types of locks in general use for safe deposit boxes, known to the trade as "single horn" and "double horn" locks. The single horn has one key way, and the guard tumblers and renter's tumblers are both together, the double horn has two separate key ways, one in each horn.

Two very important items to be considered in the construction of the modern vault are the alarm systems and the ventilating systems, one of which adds materially to the security of the vault, and the other to the comfort and health of those who have to work in it. In some of the larger cities the alarm systems are generally installed and connected up by the companies which maintain a regular patrol and protective system, but in other large cities and in the smaller cities they are connected with alarm gongs located both on the inside and the outside of the building and very frequently with the police headquarters. The alarm gong is particularly efficient, as it is a well known fact that most burglars are arrant cowards any loud noise will generally act as a great deterrent to their work and will in practically all cases cause them to stand not on the order of their going, but to go at once. Alarm gongs should be so constructed as to ring from fifteen to twenty minutes, and then automatically cut off. They should be provided with an automatic resetting device, so that after running fifteen to twenty minutes they will automatically reset, and will ring again if by any remote chance a second attempt should be made to burglarize the bank. One of the latest developments in alarm systems is the sound detection system which consists of one or more microphones inside the vault (generally hung from the ceiling) with a proper control panel located inside the vault. This system is very effective in any attack made upon the vault by means of hammering, drilling, burning or explosives. Vault doors are equipped with two different types of alarms. One type consists of heat sensitive contacts located on the inner surface of the door. A very moderate degree of heat closes an open circuit in one or more contacts nearest to the point of heat, and sets off the alarm. This type of alarm is best suited to the thinner types of doors. The other system consists of an electrical lining in the doors, located under the finish plate on the outer surface of the door. This system has to be installed when the door is being built.

The wiring of the vaults for the various alarm systems is usually done by the company installing the system. The method of wiring which is most generally used and which is required by the Underwriters is to surround the four side walls, the floor and the roof of the vault with

lead covered cables spaced about three inches apart run longitudinally in three separate circuits, terminating in a junction box which is connected with the different extensions of the system.

Vaults should be wired for lighting and for a telephone extension located on the inside of the vault for use during the day, and for emergency use in case of a lock in.

The ventilation of vaults should be carefully worked out as it is essential to the health and comfort of those who have to work in the vault as well as those who only have to use it for a brief period at different intervals. This is accomplished by various methods, the best known of which are as follows. The emergency door is so arranged that it opens into a plenum chamber. Air under pressure is forced from this plenum chamber through the door opening, into the vault, is deflected into distributing ducts located either at the ceiling or under the floor, is liberated at the aisles to find its way through the vault, and out through the main door, where it is picked up by a ceiling exhaust register. Where a plenum chamber is not practicable a fan is used to draw air through the emergency door opening, and effects practically the same distribution of air.

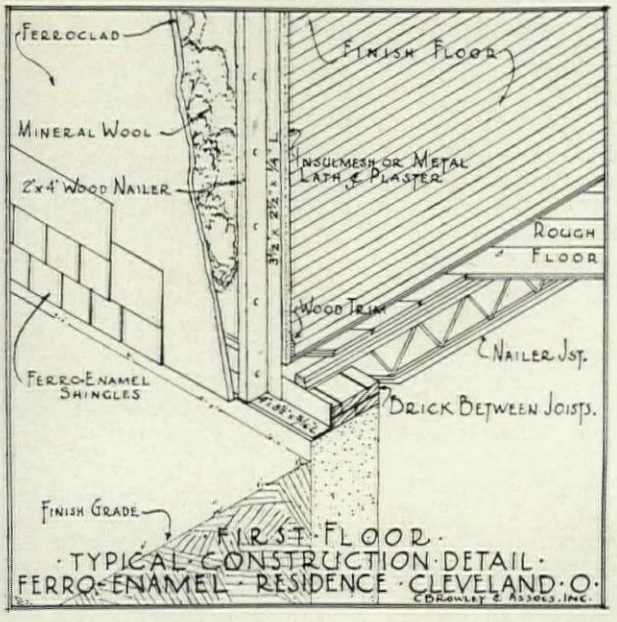
In addition to the regular ventilation system a system of emergency ventilation for use in case of a lock in is a valuable adjunct to the vault equipment. Like all kinds of emergency equipment such as fire extinguishers, fire escapes, and burglar alarms, it is only useful when it is needed; then it is very useful. Some years ago a bank in Paterson, New Jersey, had to call out all kinds of emergency crews to break through the wall of the vault when one of the clerks was accidentally locked in. With an emergency ventilator all of that could have been avoided and the clerk could have remained in the vault with a moderate amount of discomfort until the timelock released the boltwork the next morning.

There are at least two types of emergency ventilators on the market at the present time. Both work by forced draft, drawing fresh air into the vault and driving foul air out. One type is plugged when not in use, and the plug can be drawn out from the inside and the ventilator inserted in its place. The other type is practically automatic, being controlled by a locking, rotary lever inside the vault, the turning of which opens the air ports and starts the fan. It is claimed by the manufacturers that the emergency ventilators offer as much resistance to attack from the outside as the walls themselves, as they are both drill and torchproof.

The floors in vaults should always be of cork tile, rubber tile, or some other durable, resilient, noiseless floor covering.

In the designing of bank vaults a few important items should always be considered which, although they have been told and re-told for years, are nevertheless sometimes forgotten, especially by the designer who thinks far more of artistic effect (a mighty important thing) than of practical necessities. Always place a vault so that all four sides, the top and bottom (if the floor does not rest on rock) are subject to inspection at all times. Also never place a vault so that any one wall becomes the outside wall of the building, or the party wall between the bank and the adjoining building. In designing a vault to be located in a non-fireproof building, especially one that is five or six stories high, it is always well to make the roof thicker than the sidewalls. The reason for this is that in case of fire, falling materials might puncture the roof and, when we consider that a twenty-four inch I beam, twenty feet long, weighs over a ton one can see that it is a possibility if not a probability.

It is not possible in the confines of a short article to tell all of the many technicalities of the construction and equipment of the modern bank vault. With the knowledge of this fact in mind, I have endeavored to cover as much of the field as possible, and to give to the reader, be he architect, specification writer, draftsman, student, a good general summary of the subject which will add something to the sum total of his knowledge.



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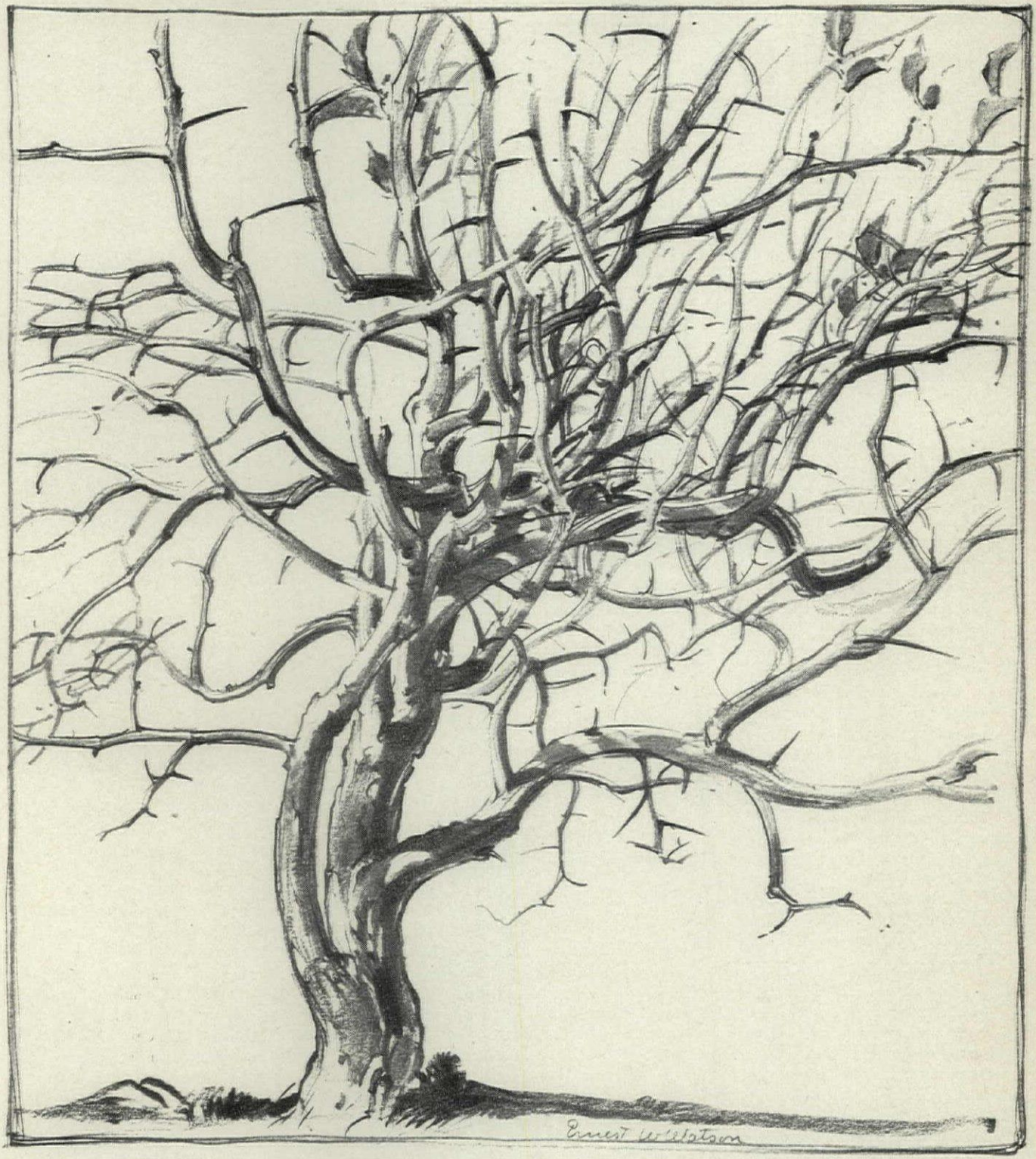

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THE MART

S. P. Curione, architectural student, 6060 Putnam Avenue, Ridgewood, New York, would appreciate donations of old architectural magazines. Will collect them in New York.

Robert T. Bickford, 215 West Water St., Elmira, N. Y., has for sale the following copies of PENCIL POINTS: June, July, and August, 1931.

Robert Ronowski, 410 N. Edgewood Ave., La Grange, Ill., has for sale the following: Guptill's *Drawing with Pen and Ink*, $7.00; 1928 Yearbook Philadelphia Arch., $1.00; *Architectural Record*, from May, 1928, to May, 1931, except year 1930; make offer.

Ralph DeLine, 1144 So. Grand Ave., Los Angeles, Calif., would like to obtain a copy of the May, 1930, issue of PENCIL POINTS.

Will sacrifice architectural library of Albert Mohr, Architect. This includes architectural magazines. Communicate F. A. McKeown, 3620-168th Street, Flushing, L. I., New York.

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Eliza Roberts Birnie, Taneytown, Md., has for sale copies of PENCIL POINTS from September, 1925, to July, 1926.

PERSONALS

HORACE GINSBERG, ARCHITECT, 205 East 42nd Street, New York, has changed his name to Horace Ginsbern, by virtue of Supreme Court Order.

HENDRICK & HAYWARD, 192 Boylston St., Boston, Mass., have dissolved partnership. Ernest Hayward will continue the practice of architecture at the same address.

H. W. TURNEY, draftsman, 4008 Liberty Blvd., South Gate, Calif., would like to receive literature on fixtures and equipment on small homes.

MATTHEW GLASZER, student, 858 N. Wood St., Chicago, Ill., would like to receive manufacturers' samples and catalogs for an A.I.A. file.

KARL SNYDER, ARCHITECT, is continuing the practice of architecture under his own name at the present address, Leibfried Bldg., Bethlehem, Pa., the firm of Wiegner & Snyder having been dissolved.

V. A. GIRONE, draftsman, 214 New Street, Orange, N. J., would like to receive manufacturers' samples and catalogs for an A.I.A. file.

EDGAR C. HANEBUTH, ARCHITECT, 105 So. York Street, Elmhurst, Ill., desires manufacturers' catalogs.

ALBERTO MONCHE ESCUBOS, Rambla Cataluna 116 Pral, Barcelona, Spain, would like to receive manufacturers' catalogs. He desires representatives to call from firms with offices in Spain.

GORDON WALL, architectural draftsman, 741 Sims St., St. Paul, Minn., would like to receive manufacturers' catalogs for an A.I.A. file.

E. PHILIP SCHREIER, ARCHITECT, has opened an office for the practice of architecture at 1517 H Street Northwest, Washington, D. C.

B. FRANKLIN LAHN, draftsman, 861 Dumont Avenue, Brooklyn, N. Y., would like to receive manufacturers' samples and catalogs.

BENJAMIN BAILYN, architectural designer, 442-18th St., West New York, N. J., would like to receive manufacturers' samples and catalogs for an A.I.A. file.

FRANK S. MASSARI, ARCHITECT, has opened offices for the practice of architecture at 137 Main Street, Stamford, Conn., and would like to receive manufacturers' catalogs.

HAROLD H. EHLERT, ARCHITECT, has moved his office from 13133 La Salle Ave. to 2437 Tyler Avenue, Detroit, Mich., and would like to receive manufacturers' catalogs.

IRVIN D. FEIG, architectural draftsman, 2537 Blaine Ave., Detroit, Mich., would like manufacturers' catalogs.

MARION & BORNSTEIN, ARCHITECTS AND ENGINEERS, have opened an office at 458 Broadway, Chelsea, Mass. Manufacturers' samples and catalogs are desired.

BURT C. HUNNICUTT, JR., architectural draftsman, 3033 Wilshire Boulevard, Santa Monica, Calif., would like to receive manufacturers' catalogs for an A.I.A. file.

RICHARD S. MONTGOMERY, draftsman, 141 Upland Road, Manoa, Del. Co., Pa., would like manufacturers' catalogs.

H. L. HOLMAN, JR., ARCHITECT, has opened his own office for the practice of architecture in the Holman Bldg., Ozark, Ala., and would like to receive manufacturers' literature for an A.I.A. file.

JAMES B. HAWKINS, ARCHITECT, formerly of Louisville, Ky., has opened his own office for the practice of architecture at 1928 Ekin Avenue, New Albany, Ind.

CHARLES T. GRANGER, JR., student, 902 Rio Grande, Austin, Texas, would like to receive manufacturers' literature for an A.I.A. file.

CLAUDE ROSSER CATO, architectural draftsman, 1206 Pecan Street, Texarkana, Arkansas, would like to receive manufacturers' literature for an A.I.A. file.

DAVID LEE SOLTKER, architectural student, 2307 Cortez St., Chicago, Ill., would like to receive manufacturers' literature.

WM. E. CAISSE, 180 N. Willard St., Burlington, Vt., would like to receive manufacturers' catalogs.

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