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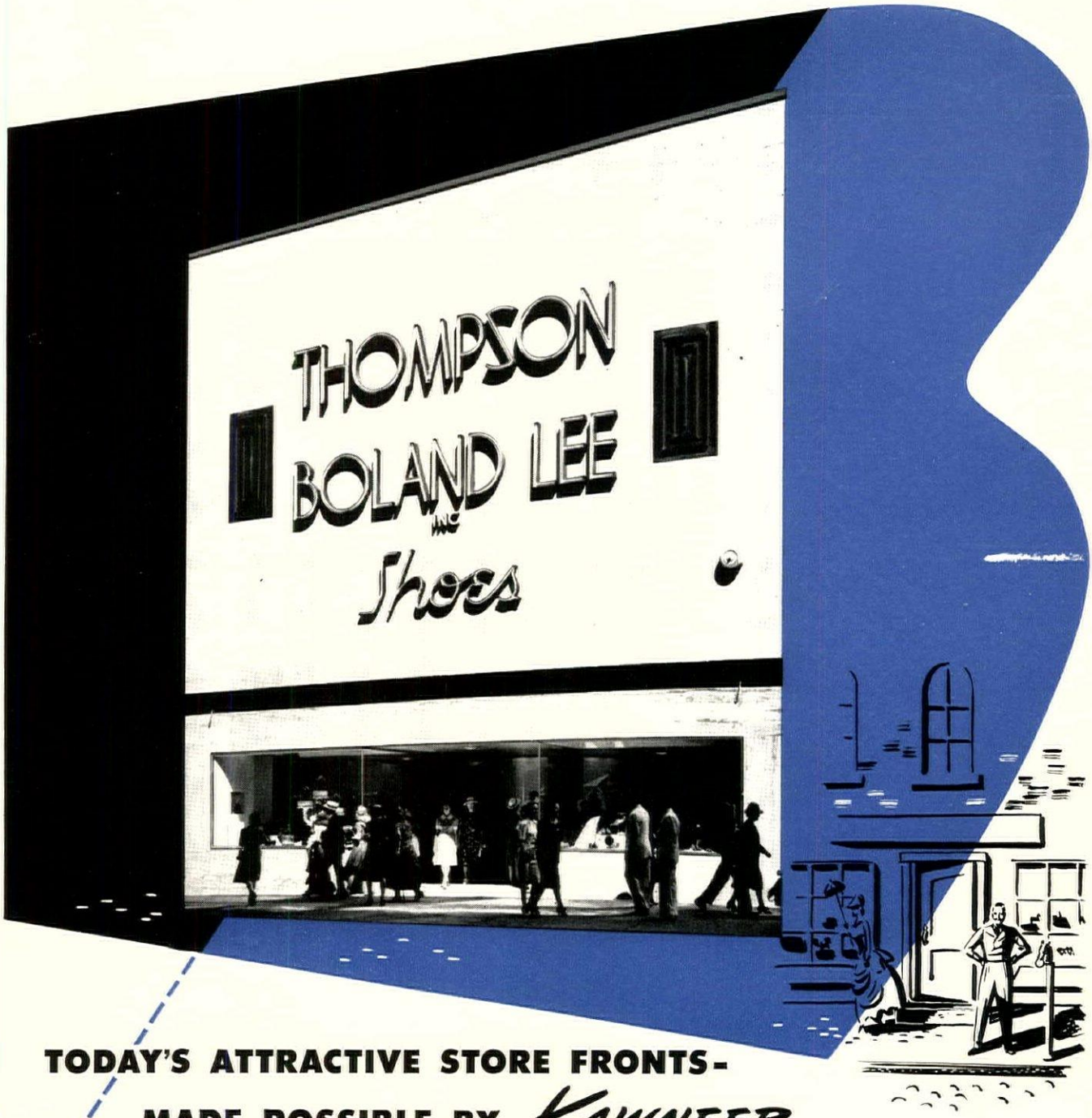
JANUARY. 1943

architecture *civic design* *the arts*

Typical of the products of the future is magnesium, which has a tremendously high strength-to-weight ratio. Not commercially available in the past, it is now being produced in quantity, from sea water, for armaments. What will happen to building design when our newly achieved capacity to produce magnesium is channeled into peacetime uses? This is a photomicrograph of part of a magnesium casting for an aviation engine.

RUDOFSKY

NEW PENCIL POINTS



TODAY'S ATTRACTIVE STORE FRONTS-
MADE POSSIBLE BY *KAWNEER*

★ Back in 1905, the average store was without show-window display facilities—there was no store-front architecture as such, because no practical method of holding large plates of glass had been worked out. • But what a difference today! Much of the effectiveness of modern retailing is based on the display function of the up-to-date store front. Architects have met this problem, and the country abounds with splendid examples of their work. • All because the Kawneer Company was founded by a practicing architect who devised the first resilient, rustless metal store front. Although the Kawneer Company is now engaged in war work exclusively, a time will come—and before long—when new and better Kawneer Store Fronts will again be available. The Kawneer Company, Niles, Michigan.

Kawneer *ORIGINATORS OF THE*
RUSTLESS METAL STORE FRONT
AND ALL-ALUMINUM RESIDENTIAL WINDOW

New Pencil Points, January, 1943

1

KENNETH REID, Editor; FRANK G. LOPEZ, Managing Editor; DON GRAF, Technical Editor; ALFRED E. GALL, Associate Editor; PHILIP H. HUBBARD, Publishing Director; JOHN ZELLNER, Circulation Manager; ELMER A. BENNETT, Drafting.

Cover design, layout, and typography are by RUDOFSKY, who also designed the montages in this issue. Preparatory work on the montages was done by SAMBERG. The drawing on page 18 was contributed by XANTI, and is from his series, "The Face of War," now on exhibit at Harvard University. Cover photograph courtesy Wright Aeronautical Corporation.

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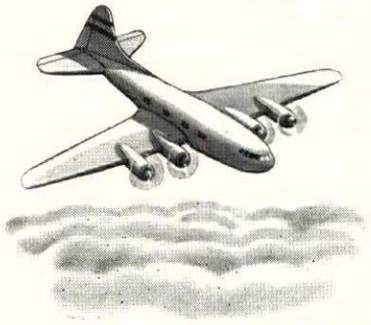
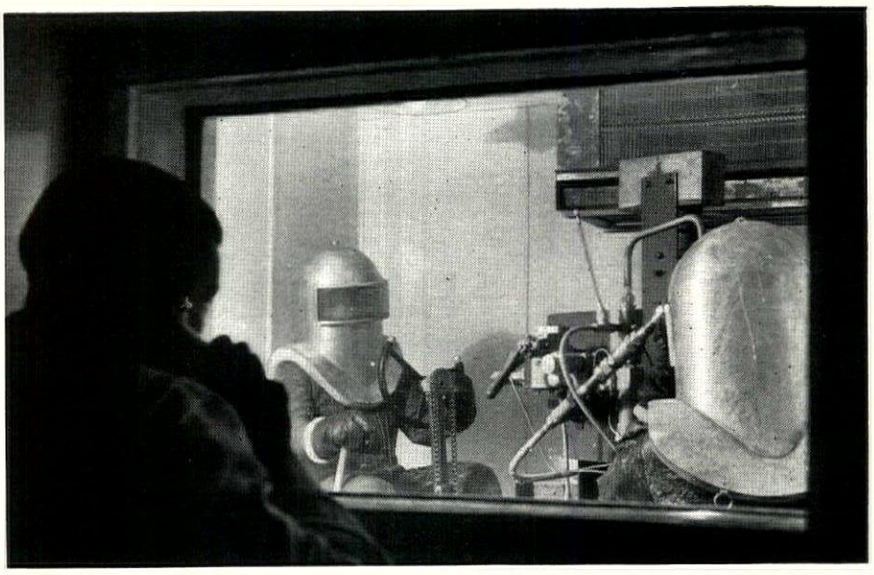
GLASS HELPS BRING THE STRATOSPHERE *Down to Earth!*





Six . . . seven . . . eight miles up. Up in the stratosphere. Soon our flyers and planes will be streaking through heights fit only for angels, before.

Because these heights do strange things to men and machines, industry is untiringly testing the performance of special motors, instruments and parts under actual stratospheric conditions. It is also seeking facts that will help medical science protect the men who rise to these rarefied heights where concentrated oxygen must be breathed and —100° cold combated.

Large testing chambers, like the one in the Douglas Aircraft Company plant, pictured above, bring the extreme temperature and atmospheric conditions of the stratosphere down to earth. These chambers are built with large glass windows so that work inside can be observed.

Because of the bitter cold inside, this would have been one of the most difficult windows in the world to glaze if it had not been for a remarkable Libbey·Owens·Ford glass development . . . Thermopane.

Thermopane might be likened to an air-conditioned glass sandwich. It is made of multiple panes of glass bonded together in one unit. The air space between each pane of glass is dehydrated and sealed. This unusual insulating window eliminates condensation between panes, even under conditions of extreme cold. No dirt nor dust can get inside the glass to impair vision. In short, Thermopane, for the first time, provides a glass window that insulates and affords the clearest vision at the same time.

Today, Thermopane is making an important contribution to the war effort. Tomorrow, this new glass unit, perfected by Libbey·Owens·Ford, promises to open the way to revolutionary benefits in the fields of clear-vision insulation and window conditioning for postwar construction.

Libbey·Owens·Ford glass research is multiplying the usefulness of flat glass, both for military and civilian needs. L·O·F flat, bent or tempered glass products undoubtedly will help solve design and construction problems for architects who will plan the buildings of the future. Libbey·Owens·Ford Glass Company, 1340-A Nicholas Building, Toledo, Ohio.

L O F

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Please send Booklet RE-200 describing Rotary Levelators.

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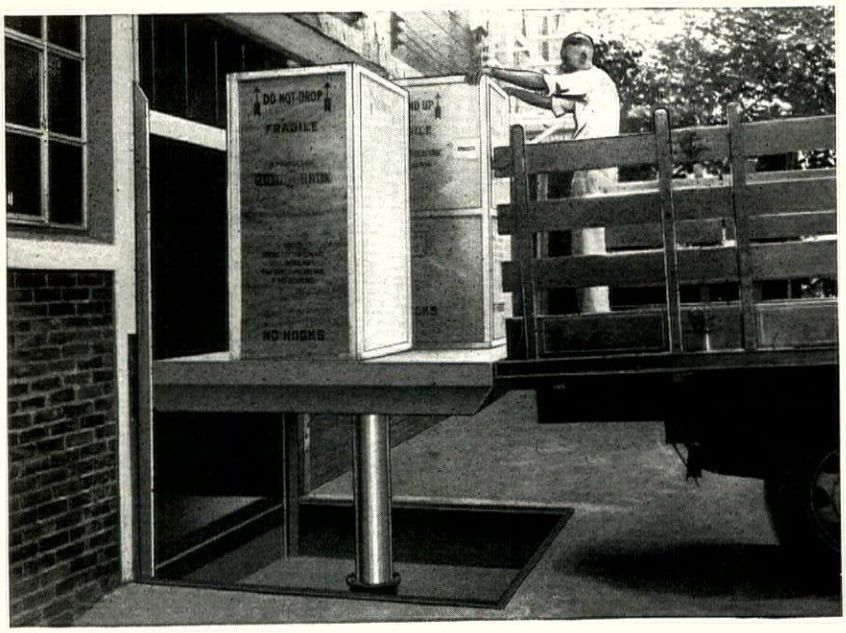

(above)

A Rotary Levelator Installation at a General Electric Supply Company warehouse. GE recognizes three advantages: "Drastically cuts handling costs, speeds up deliveries and is FAR SAFER."

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HANCOCK 8800

STOFFLET & TILLOTSON
BUILDING CONSTRUCTION
2043 EASTBURN AVENUE
PHILADELPHIA, PA.

September 10, 1942.

Re: [redacted] Defense Housing Project
No. Pa 36281 - [redacted] Penna.

The Upson Company,
Lockport, N. Y.

Gentlemen: Attention - Mr. G. G. Ellinwood - Supervising Engineer, War Housing Projects

The writer is happy to advise that he was not only pleased with the "Dry Wall" product itself which your company manufactured and furnished for the [redacted] Defense Housing Project at [redacted], Penna., but with the services your company rendered on this job of 200 family units.

We further desire to commend you on the fact that you furnished ample materials with no delays, which, you will recall, was the thing we were most concerned about when placing our order with you. Your representatives furnished all of the working drawings, handled the distribution details in an able manner, relieving us of all of these responsibilities and added materially in our being able to complete the job in record-breaking time.

To the best of our knowledge, this product has proved entirely satisfactory. We have had many comments upon its appearance and it certainly went up fast. You cooperated with us and the forces of the Government to the highest degree and we sincerely trust that we may have the pleasure of working another proposition of this character with you in the near future.

Yours very truly,
STOFFLET & TILLOTSON
By: [signature]

hms/ms)

Left: Crackproof full wall construction completed with Strong-Bilt Panels by Stofflet & Tillotson.

Above: Strong-Bilt Panels for quality, speed and lower costs in a big Stofflet & Tillotson project.

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UPSON STRONG-BILT PANELS

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Planning for Housing

William Lescaze, AIA, New York Architect, attended the recent joint conference of the National Association of Housing Officials and the New York Citizens' Housing Council, held in New York. At the request of the Editors of THE NEW PENCIL POINTS, *he has provided the following informal report and discussion of the proceedings.*

My first impression of the meeting was this: how very encouraging to find a meeting of this kind so well attended by its members. My second impression was: how unfortunate that so few architects in our metropolitan area made the effort to attend. (I don't believe that I noticed more than two of my colleagues during the first day's meeting.) My next impression was what an encouraging phenomena it is to find a group of men talking to each other without any "pussyfooting." This indeed, in itself, constitutes a challenge to the architect.

War and Housing

I missed the opening remarks of Dr. C. E. A. Winslow, but I heard Hugh R. Pomeroy, John A. Kervick, and John Taylor Egan. They stated frankly the problems which today confront housing officials and the responsibility which these men have. Herbert Emmerich, FPHA Commissioner, stressed the fact that as our war effort was requiring more and more of the building materials available, the housing projects must become standardized, some of them perhaps being of a convertible type, that is, in a somewhat unfinished state for the duration, to be completed after the war and thus becoming later an integral part of the community. Obviously in such a program, although everyone knows of the real need of features such as day nurseries, infirmaries, rooms for adult recreation, etc., these may have to be either drastically curtailed for the present or omitted altogether. Mr. Emmerich felt that local authorities should probably not have too much to do with the new war housing centers because their work is essentially long range planning, while the centers' work is expedient. He stated that, in his estimation, more battles would have to be won before one could devote much time and thought to a postwar program, that the Spring of 1943 would be early enough, and that it was important that the relationship between federal, state, and local governments in the undertaking be the relationship of partners.

Charles Ascher, NHA Regional Representative, explained the functioning of the Homes Use Program which has been criticized on several counts.

In the afternoon, I attended a round table discussion on management aspects of design. John MacGathan, Executive Director of the Housing Authority of Schenectady, presided. Elizabeth Coit, an architect, now on FPHA, started the discussion. She mentioned several of the many small items which make or break a house and implied a challenge to the ingenuity of architects and planners. The next discussion leader was Joseph B. Belay, FPHA Management Advisor. Obviously, managers appear to be more concerned with the workings of permanent housing than with temporary solutions for the present emergency. But I could not help feeling that somehow, somewhere, a clear signal should have been given. For example: up to July 1942 such and such standards had to be the norm, i. e. permanent housing; from July 1942 until the end of the war, such and such standards—much lower ones, naturally —had to be the norm, i. e. temporary housing.

Management and Design

Victor D. Abel, Architect's Consultant, Philadelphia, surprised me by raising the question, "Did housing managers favor projects on which different types of accommodations—some one story, others two stories, maybe some three stories, some detached houses, some row houses—would be combined?" I thought the question had been answered, and that it was "yes". It is quite simple to see that those permanent housing projects which look most drab and most like institutional affairs are those in which either the architects showed little imagination or in which they were compelled to use throughout the same type of housing unit, which inevitably resulted in monotony.

Mr. Abel seemed to regret that from time to time some experimentation has been made with new and untried apartment layouts, while, of course, quite a few of us feel that on the whole not enough experimentation has been made and that it has been taken too much for granted that the families to be housed in low-rent housing projects wanted nothing else but a five-and-ten-cent-store version of Park Avenue layouts. Even if Park Avenue layouts were good, were we to make the effort to learn how the people we want to house *actually do live,* we could do a much better job.

Larry Lloyd, Assistant Director of NHA Region 2, made some excellent suggestions which I hope will be followed through; namely, now that a number of housing projects have been built, they should be reviewed and analyzed by housing managers, and the results of such analyses should be compiled in order to provide managers and planners of the future projects with black and white comments on errors or good points obtained in the past. I could not help wondering if it ever would be possible to have the manager of a particular housing project *designated at the inception* of that project, so as to have him collaborate with the architect from that early stage on. Most of us would welcome that kind of personal relationship which would, to some extent, approximate the one we experience with an owner for whom we build a private home.

While this discussion went on in one room, other discussions were taking place in other rooms—Community Life in Wartime Housing, Priorities and Allocations, Meeting the Personnel Problems, Homes Use Service.

Postwar Housing

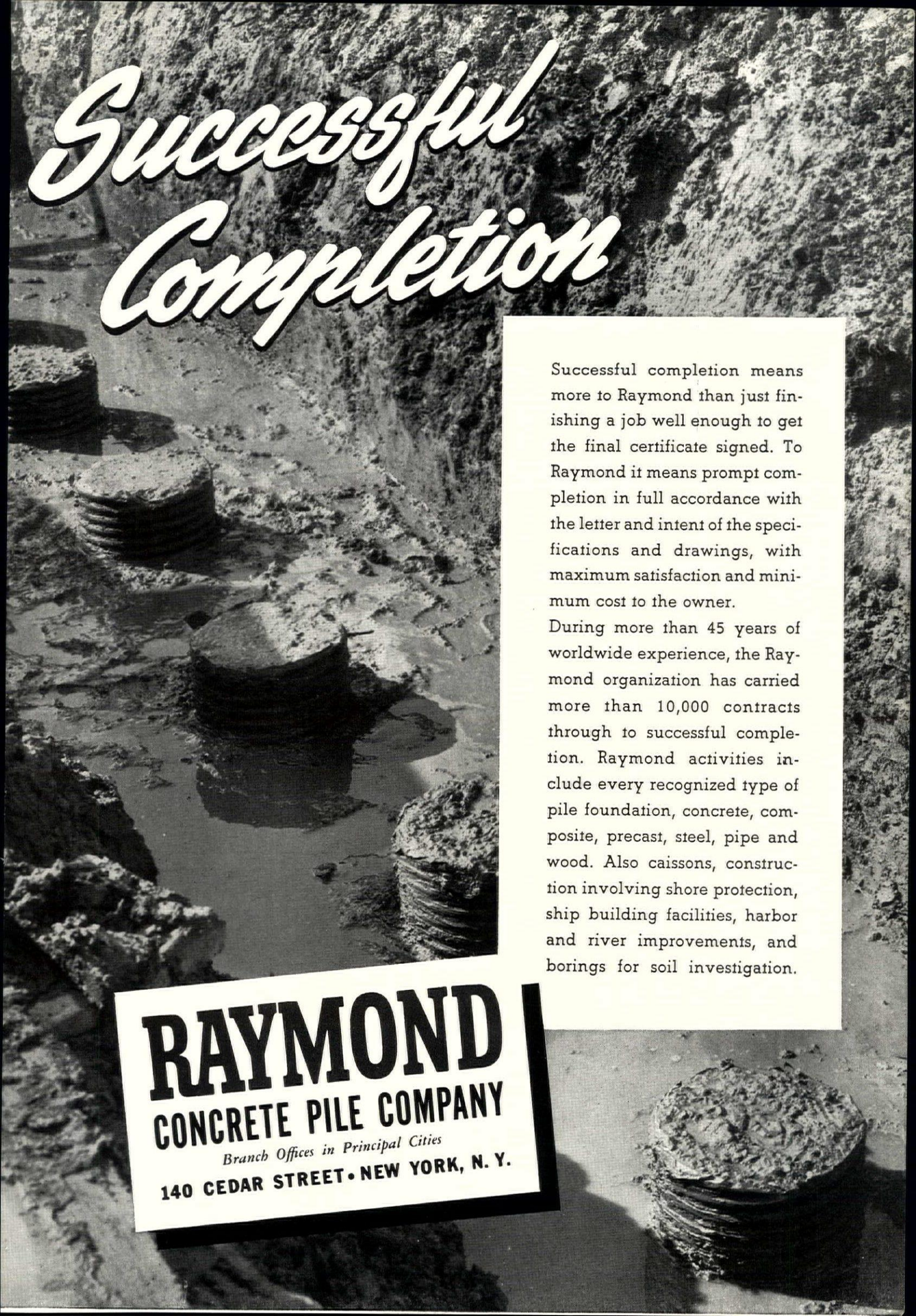
The next day, Dr. B. J. Hovde, Administrator of the Housing Authority of Pittsburgh, presided and the principal speaker was Edward Weinfeld. Commissioner of the New York State Division of Housing. Commissioner Weinfeld pointed to the 15 projects costing in the neighborhood of $90,000,000 (eight of which are outside New York City) to which three more would shortly be added, raising the total expenditure to between $110,000,000 and $115,000,000.

Commissioner Weinfeld took a very strong stand for undertaking postwar planning *now,* and revealed that the New York State Division of Housing had not only discussed planning but had actually done something about it, in the form of a reservoir of projects all ready to be built as soon as the war is brought to an end, money having been made available for acquisition of land *now* and for payment of fees to architects and engineers in order to prepare the necessary blueprints and specifications *now.* That brings to my mind what so many of us have felt all along: it may be very interesting to develop one theory or another of planning, but has not the time come for us to roll up our sleeves, stop theorizing, buckle down, and actually do some *concrete work* if we mean what we say when we talk of full and continued employment after the war and rehabilitation of our cities? When are we going to begin to resolve to work together? When are we going to begin to learn how to bring together private and governmental agencies?

What of the Future?

A discussion on "What of the Future?" followed, in which John Ihlder, Executive Officer ot the Alley Dwelling Authority; Frank Palmer, President of the Pennsylvania Association of Housing Authorities; Harold J. Buttenheim, President of Citizens' Housing

(Continued on page 8)



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(Continued from page 6)

Council of New York; Dr. Carl Baccaro, Chairman of the Housing Authority of the City of Newark; Mrs. Dorothy Rosenman, Chairman of National Committee on the Housing Emergency, and Charles Abrams took part. Each one stressed cooperation, cutting out of red tape, and urged that more authority be vested in local authorities. Mrs. Rosenman announced the proposed undertaking by her committee of definite studies of pilot cities in order to demonstrate needs and methods of meeting them. Charles Abrams attacked the Homes Use Service, and advocated what he has all along believed in — a system of billeting somewhat similar to the British system. Leon Keyserling urged that we recognize that the strongest argument for housing will become the need to maintain employment through construction and that it would become necessary to recognize more and more that the only determination between what could be private and what must be public housing would have to be the public's interests.

The afternoon round table meetings discussed such topics as Rental Policies, Experiences in Maintenance of Grounds and Buildings, The Latest on the Financing Side, Dormitory and Trailer Management, and Housing Managers in Wartime.

30 Years of Controls

The three day conference ended with a well-attended luncheon, jointly organized by the Citizens' Housing Council of N. Y. and the National Association of Housing Officials. At the luncheon, Ralph Walker, chairman of the meeting, introduced Joseph D. McGoldrick, Comptroller of the City of New York, who in turn introduced the guest of honor, Sir Ernest Simon, and recalled how years ago he had discussed with him problems of municipal administration. Sir Ernest, who is now with the British Ministry of Works and Planning, spoke about the rebuilding of Britain. Three main directions of effort are being explored by the MOWP: (1) planning of the building industry, (2) housing, (3) town and country planning.

In regard to planning of the building industry, it is hoped to bring about an expansion of industries related to the building industry, and to maintain a control of them in order to carry out in an orderly manner a balanced program of building lasting between 20 and 30 years. As obviously more men will be required, and since the established trade unions might object to such an increase*, guarantees of steady employment would be given to the trade unions by controlling by means of programming: the right number of men, buildings in the right locations, and availability of building materials.

Sir Ernest pointed out that between 1930 and 1939 they had succeeded in having 2,500,000 dwellings built by private building agencies and 1,500,000 by public agencies, and that the estimated need will be about 6,000,000 more dwellings after this war. He further pointed out that the former dwellings were often on the basis of what he called the "Unwin" house, since Sir Raymond Unwin had contributed so much to their standards, particularly the density of 12 houses to an acre—which constituted a great step forward. Sir Ernest stated that in downtown parts of cities the density had to be raised to 40 houses to the acre. One thing which particularly distressed me and of which, strangely enough, Sir Ernest seemed to be almost proud, was that "nothing architecturally exciting" was contemplated, clothing it with some reference to his country's conservatism. He seemed to feel that nothing would ever be as good as the time-honored brick, which may be true, but it seems to me to be awfully short-sighted to rule out anything else without looking into it, and hardly commensurate with the breath-taking program contemplated.

Signposts for Planning

Sir Ernest listed five conditions necessary for the achievement of town and country planning. I believe them to be exceedingly wise signposts:

(1) There must be a powerful authority somewhere; obviously, first in a national authority, then in regional authorities, then in local authorities.

(2) Policy regarding financing must be settled.

(3) Control of land must be obtained. He naturally referred to the Uthwatt Report, which is an extraordinary and forward-looking report.

(4) There must be a plan. Sir Ernest seemed to think that although many questions, such as satellite towns, were far from being settled it would be a relatively easy matter to get a plan. I am not so sure that he is right. It all depends on what you call a plan. If you call a plan the things which have been published in our press here about the future London, showing pretty sketches with clouds in the sky, shadows in the streets, and gondolas on the Thames, that's one thing. But as we all know, I hope, that is not a plan for a living city; it's not much more than a dead formula.

(5) Unless the public demands reform, every effort on the planners' part is sheer waste. There must be definite, articulate, public determination and, as Sir Ernest expressed it, this must become a national aim.

(Continued on page 10)

WAR denies the use of rigid steel conduit for all except most vital needs. If your need qualifies you for it, you will find war-time Buckeye Conduit the same dependable product—insuring permanent protection to vital electrical wiring.

But if war bids you say goodbye to Buckeye for the duration, remember this:

After Victory is won and there is steel to spare, the same dependable Buckeye Conduit will be available.

26-22E

(Continued from page 8)

Professor Robert S. Lynd then spoke on Urban Planning And Human Needs, and pleaded eloquently the cause of the little fellow who is, after all, the one for whom planning is done. He warned us of the danger of taking the results of polls too literally, saying that, after all, polls should not be more than a means to an end and not an end in themselves.

Financing Planning

Edmond Borgia Butler, Chairman of the New York City Housing Authority, spoke of public housing after the war. He also believes that public works planned *now* are essential as a means of obtaining employment and thus lessening the hardships which may follow the sudden halt of war industries. He urged that the legislature appropriate now the remaining $150,000,000 put aside, and ended by making a most moving statement — referring to the appalling conditions in Harlem— in that he for one, would discriminate in favor of those who for so many years have been discriminated against.

All in all it was a very good conference. Those who attended must have come away with a rekindled enthusiasm and a greater awareness of the importance of the job which they are doing. When you realize that NAHO has not been in existence for so many years you can't help admiring what they already have succeeded in doing.

* * *

Scientific Personnel

Following the recent increases in demand for technically-trained personnel, the National Roster of Scientific and Specialized Personnel has urged senior and graduate students of chemistry, physics, engineering, and other specialized fields to register their skills. The Roster is a compilation of the nation's technical manpower resources, for such use as the war emergency may demand. Registration with the Roster, however, is not to be considered application for employment.

The overall information of the Roster is used as a basis to determine shortages in any technical field, and to supply needed professional and scientific personnel for the armed forces, war industry, and Governmental agencies.

To register, a man or woman with scientific or other specialized training should write to Dr. Leonard Carmichael, Director, National Roster of Scientific and Specialized Personnel, War Manpower Commission, Washington D. C., mentioning the field or fields in which he or she has training or knowledge.

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(FA) Busduct is designed for 2, 3 and 4-wire feeder systems; 250 volts DC, 575 volts AC, maximum. Plugin type capacities, 125 to 1,000 amperes; Feeder type, 250 amperes and up. *All standard types of (FA) Busduct are fully approved by Underwriters' Laboratories, Inc.*

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which gives full details of (FA) Busduct installations, with photographs, diagrams, prices and suggested specifications . . . Frank Adam Electric Co., St. Louis, Mo.

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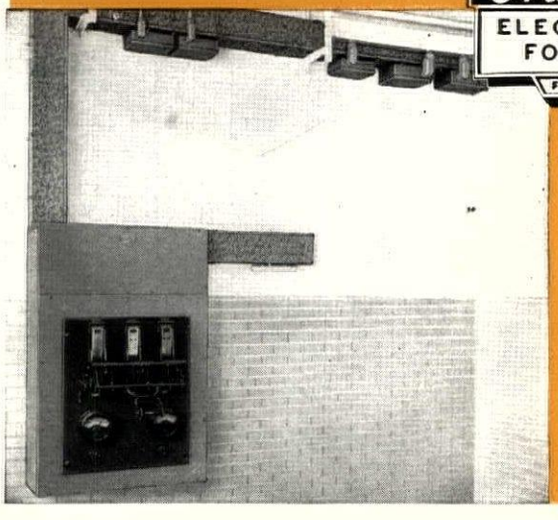
Part of a "loop" system of Plugin (FA) Busduct feeding a battery of automatic screw machines. Low headroom required duct to be mounted against ceiling.



Action on Employment

A plan to prepare unemployed, practicing architects and draftsmen to take positions in vital war industries has been proposed by Professor B. K. Johnstone, Head of the Department of Architecture, Pennsylvania State College. In brief, the plan proposes three months of intensive training to fit an architect for a particular, specialized job in a vital war industry. Professor Johnstone believes that an architect, because of his general training and experience, is equipped with the background which would make it possible to prepare him, by a short intensive course of instruction, to fill many of these positions.

Professor Johnstone's letter to AIA President Shreve, and excerpts from the ensuing exchange of letters with him and others, follow:

August 31, 1942

Dear Mr. Shreve:

Concern for the architect's full participation in the war effort has led us to an investigation which may be of interest to The American Institute of Architects, for it can be of benefit to the nation as well as to the profession and the individual.

As head of an architectural school which is an integral part of a school of engineering, two variations of the industrial picture are constantly before me. On the one hand industries responsible for war production are frantically searching for skilled technical personnel. Reliable estimates point out that 70,000 men with engineering training are needed *at once* by industry alone. In a normal year the colleges would graduate approximately 12,000 of these. Last June the number of engineering graduates available to industry was reduced to 5,000 because of the large number who entered military or Civil Service. The next graduating class will supply industry with even less since the Army and Navy enlisted reserve programs have begun. Furthermore, Selective Service is calling thousands of young, recent graduates who until recently have been given occupational deferments. Industries already recognize that the situation is critical, and many people believe that it will not improve in the near future. On the other hand, building construction has so diminished that thousands of architects and experienced architectural draftsmen must find employment in other fields.

Architect Has Broad Training

We are inclined to overlook the fact that we call "mechanical engineer" the man who builds a machine, "civil engineer" the man who builds a bridge or dam, "electrical engineer" the man who builds a dynamo, but "architect" the man who builds a building. We are inclined to modestly forget that the average architect has an excellent, broad technical training that covers the fundamentals in a great variety of fields, i. e. electricity, heat transfer, strength of materials, structural analysis, flow of liquids, pressure piping, etc. We normally refer to these fields as plumbing, heating, wiring, reinforced concrete, etc. He not only has fundamental training but, for the most part, field experience. He further has the capacity to organize work which is detailed and complicated, as well as a capacity for getting a job done.

Three Months Training

With the above in mind we approached each of four divisions of the College asking in each case just one question. Specifically, a member of our Chemical Engineering faculty was asked, "Given a man with the training and knowledge of an average architect, could you make a chemical engineer of him and how long would it take?" The answer was an emphatic "Yes, in three months. We could teach him everything he would have to know to operate some portion of a synthetic rubber plant, for example, a distillation column. He would not be a chemical engineer, but he would know everything about a specific field of work in a specific manufacturing process. His employment would thus release a more skilled chemical engineer." The same question was asked in aeronautical engineering, naval architecture, and hydraulics, and the answer each time was an emphatic "Yes, in about three months."

A few weeks ago we consulted a representative of the United States Office of Education which now sponsors the Engineering, Science and Management War Training program and they would consider a request to finance instruction of this kind. It is our further hope that industries might employ the men while they are in training, as Civil Service and Signal Corps are now doing. A case brought to our attention recently leads us to believe that industries might be sympathetic to a proposal of this nature. One industry near here had to buy another company in order to get eighteen engineers. The same money spent to train architects would have netted them many more men equally as valuable.

Dean H. P. Hammond of our School of Engineering has consulted General Hitchcock, Commander of the Army Specialist Corps, about using the technical training of an architect as a foundation upon which to build specialists and the response was sympathetic. Moreover we have approached the United States Maritime Commission with a similar proposal and their response was a request for architects immediately. They will give them what training they need, and we were told that they could use forty or fifty at once. We are recommending a group today, but this field will bear cultivation.

At the last meeting of the Central Pennsylvania Chapter of The American Institute of Architects I sketched briefly what I have already covered in this letter, asking the members present for a frank expression of opinion as to whether it made sense. The enthusiasm of their response was far beyond my expectations since four months ago the same group had frowned on a proposal that they offer their services to engineering firms or industries.

If one wished to take issue with this proposal he might say that no one need worry about architects finding employment, and no doubt all of them can, for the most part, as draftsmen. Our contention is that men with an architect's technical training and knowledge are too valuable today to waste in drafting rooms. If a short period of training will develop their already present skills to the point where these skills can directly contribute to war effort then some means should be found for providing this training. *Three months of time is all that is needed to supply ten or fifteen thousand new engineers.*

Unfortunately the school's problem is education and not promotion. We cannot approach industries with a plan for supplying them with men. We can, however, and would bend every effort to meet a request from an industry or a national organization to provide training of a specific kind. This too would be the attitude of every school today. If The American Institute of Architects, acting jointly with one or a group of industries, should ask us to find the men and train them there is not a school in the country that would not cooperate. We are led to believe that the architects would too.

I have discussed this with Mr. Roy Larson of Philadelphia, asking him to discuss it with you if you meet soon. Since it is difficult to sketch a proposal of this nature by letter, I could come to New York at any time at your convenience if you feel the matter of sufficient importance.

(Signed) B. K. JOHNSTONE

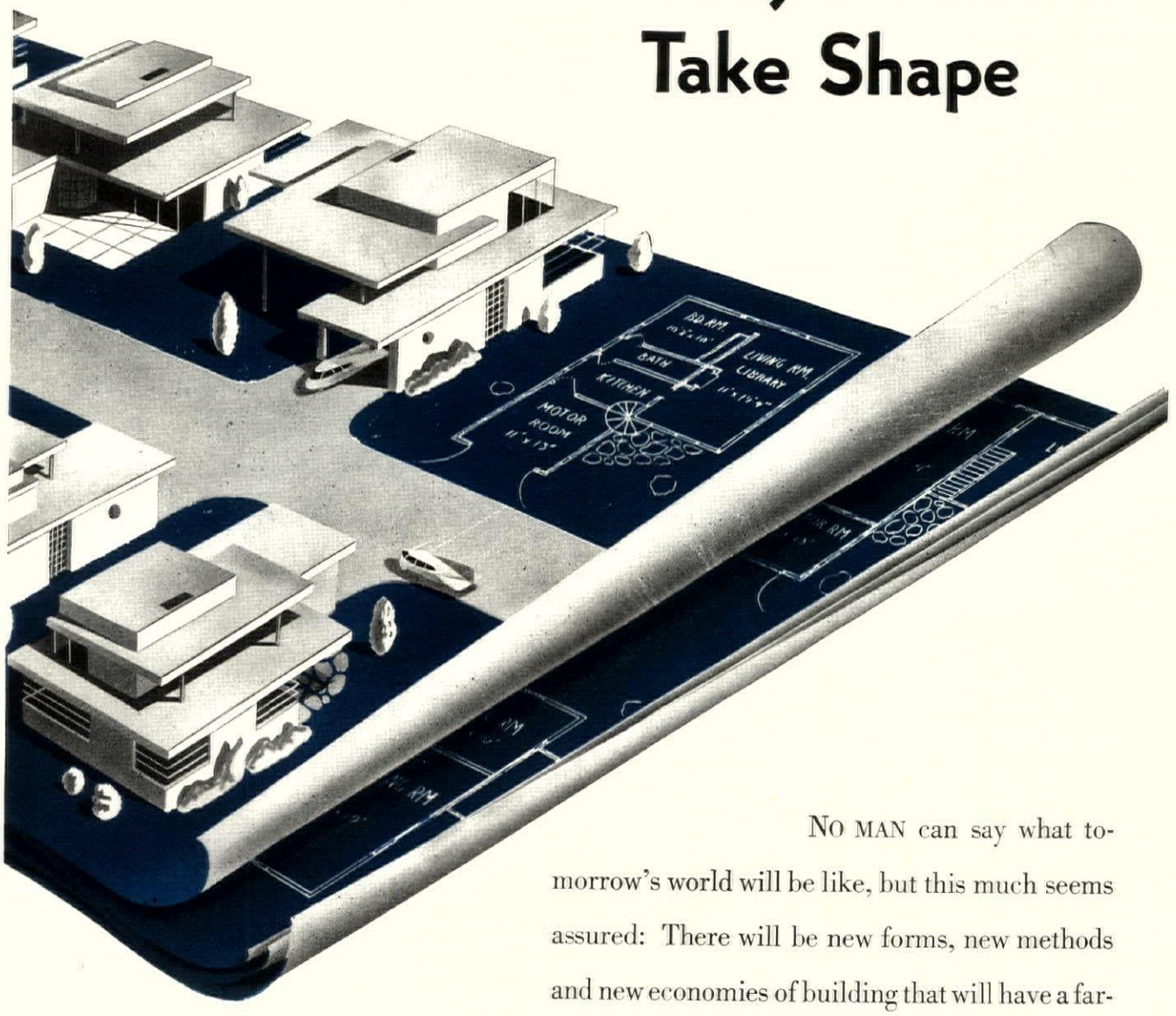
September 4, 1942

Dear Professor Johnstone:

Your letter of August 31 was most interesting . . . because you have studied and emphasized an important need in the architectural profession. Copies of your letter have been sent to the Washington Representative of the Institute, as well as to Secretary Ingham and Mr. Kemper. Through their consideration of your comment, it should be possible to indicate further lines of effort which can be adopted to

(Continued on page 70)

When Today's Visions Take Shape



NO MAN can say what tomorrow's world will be like, but this much seems assured: There will be new forms, new methods and new economies of building that will have a far-reaching effect on the way of life in this country.

Today, Stran-Steel is doing things with steel that enlarge its scope and create new fields of usefulness. Traditional limitations of design have been overthrown, old practices revised, and a vast fund of engineering knowledge acquired as a reservoir for peacetime problems. Stran-Steel is a progressive organization, well qualified to serve the men whose visions will shape the future.

STRAN STEEL

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UNIT OF NATIONAL STEEL CORPORATION

Architects Today

Presented here is the first installment of results of The New Pencil Points *survey on the architect's status today. The listing includes the name of architects, by states, who are in the uniformed services.*

Of the many letters of comment received on the questionnaire, the following summary of the attitude of the Tacoma Society of Architects is typical. The Editors are printing herewith the Society's answer to two questions—what type of activity will engage the architect in the postwar world, and how will the practice of architecture after the war differ with what has prevailed in recent years.

No one has any idea of what is in store, except that it will be different from what we used to consider as "straight architecture." A new economic set-up, probably quickly evolving from the "morning after" world chaos, will find new materials, methods, and relationships.

We will not return to "normalcy" because there has not been any such program to go back to since 1914. To obviate collapse, new world-wide emergency operations will be necessary—such as vast housing projects, removal of slums, opening up congested cities, etc., for all of which engineers will be employed as "surgeons." It is in the performance of these bone-settings, excisions, and transfusions that the architects will act as the surgeon engineers' assistants, nurses.

We cannot do the surgical work ourselves, for we are not capable, due to our lack of political and financial training and ineffective organization, of diagnosing these world maladies, nor of removing the malignant growths, nor even staunching the wounds. But we can at least apply the splints as directed and try to make the patients more comfortable.

As the architecture which we used to define as "decorated construction" is as dead as the Sphinx, we will gradually adapt ourselves to the new appellation of "functional design," and use our resourcefulness in making the engineers' and town-planners' factories and spaces for imitation living as well proportioned as they will let us, if they will let us. But after their clients have wearied of their bare boxes there should arise a desire for some new forms of beauty such as talented architects can put into their work. Thus, for the first time since the Renaissance, architects will need to think originally instead of copying old forms, which will be good for the profession and for the buildings.

Kenneth Reid, Editor of The New Pencil Points, *replied, in part, as follows:* I congratulate you for the sensible outlook represented by your answers to questions 5 and 6. The only fault I have to find is that you are perhaps too modest in giving full sway to the engineers to control the world rehabilitation operations. I will freely admit that architects have been backward in informing themselves about the economic and sociological and political aspects of civic design, but I do think they can and should remedy these defects in their mental outlook, at least as far as possible, by intensive study during these coming months.

I am glad to see a determination on your part to maintain the search for beauty as an essential part of the architect's activity. Don't ever give that up. It is one of the things architects have that engineers cannot grasp.

IN UNIFORMED SERVICES

(A) Army, (A.S.C.) Army Specialist Corps, (C.G.) Coast Guard, (M) Marine Corps, (M.M.) Merchant Marine, (USNR) Naval Reserve, (W) Waves. Asterisk sign (*) indicates overseas service.

Alabama

Lt. Wm. Frank McCall, Jr. (A).

California

A. J. Acland (N), Chief Petty Officer Mark L. Berry, (N), Lt. Richard Cook (A), Cecil Rhodes Curtis, Major Clifford N. Franklin (A), Arthur Frick, LeRoy Harris (A.S.C.), Otto G. Hintermann (C.G.), Capt. Robert Ray Inslee*(A), Lt. Col. Gordon B. Kaufmann (A), Capt. R. R. Matheu (A), Lt. William S. McCay (USNR), Brig. Gen. Henry C. Newton (A), Lt. Ben H. O'Connor (M), Major Donald B. Parkinson (A), Arlos R. Sedgley (N), Capt. Harold G. Spielman (A), Ernest J. Steiner (USNR), Dale Ford Thomson (N), Capt. Burnett C. Turner (A), Robert M. Williams (A), Frank Wynkoop (A).

Colorado

W. M. Matthews (A), Pfc. William D. Proudfoot (A), Lt. Wesley R. Budd (A).

Connecticut

Flavian F. Arsenault (A), Lt. H. Lawrence Coggins (A), Edward M. Johnson (N), Pfc. Henry A. Judd*(A), Capt. L. Bancel LaFarge (A).

Delaware

Samuel E. Homsey (USNR).

District of Columbia

Lt. J. H. Etter, Jr. (N), Lt. (j.g.) Mary

(Continued on page 78)

STRATEGISTS ARE ABLE TO THINK MORE CLEARLY...

Because He

Planned QUIET into this Room!

ARCHITECTS RESPONSIBLE FOR CELOTEX SOUND CONDITIONING IN COUNTLESS BUILDINGS WHERE WAR DECISIONS ARE MADE

IN metropolitan office buildings—in offices of war industry plants—in headquarters buildings at army and navy centers—war decisions are being made daily. And in those meetings, many a wise head is functioning more efficiently because a far-seeing architect planned QUIET into those offices.

Noise scrambles thoughts, puts nerves on edge, sabotages plans by hindering coherent planning. That's why so many architects lay emphasis on the prime importance of Celotex Sound Conditioning.

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And remember: The responsible firm that installs Celotex Sound Conditioning gives the owner full assurance of (1) *Proved engineering practice,* (2) *Uniformly dependable sound conditioning materials,* and (3) *Guaranteed results.*

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SOUND CONDITIONING

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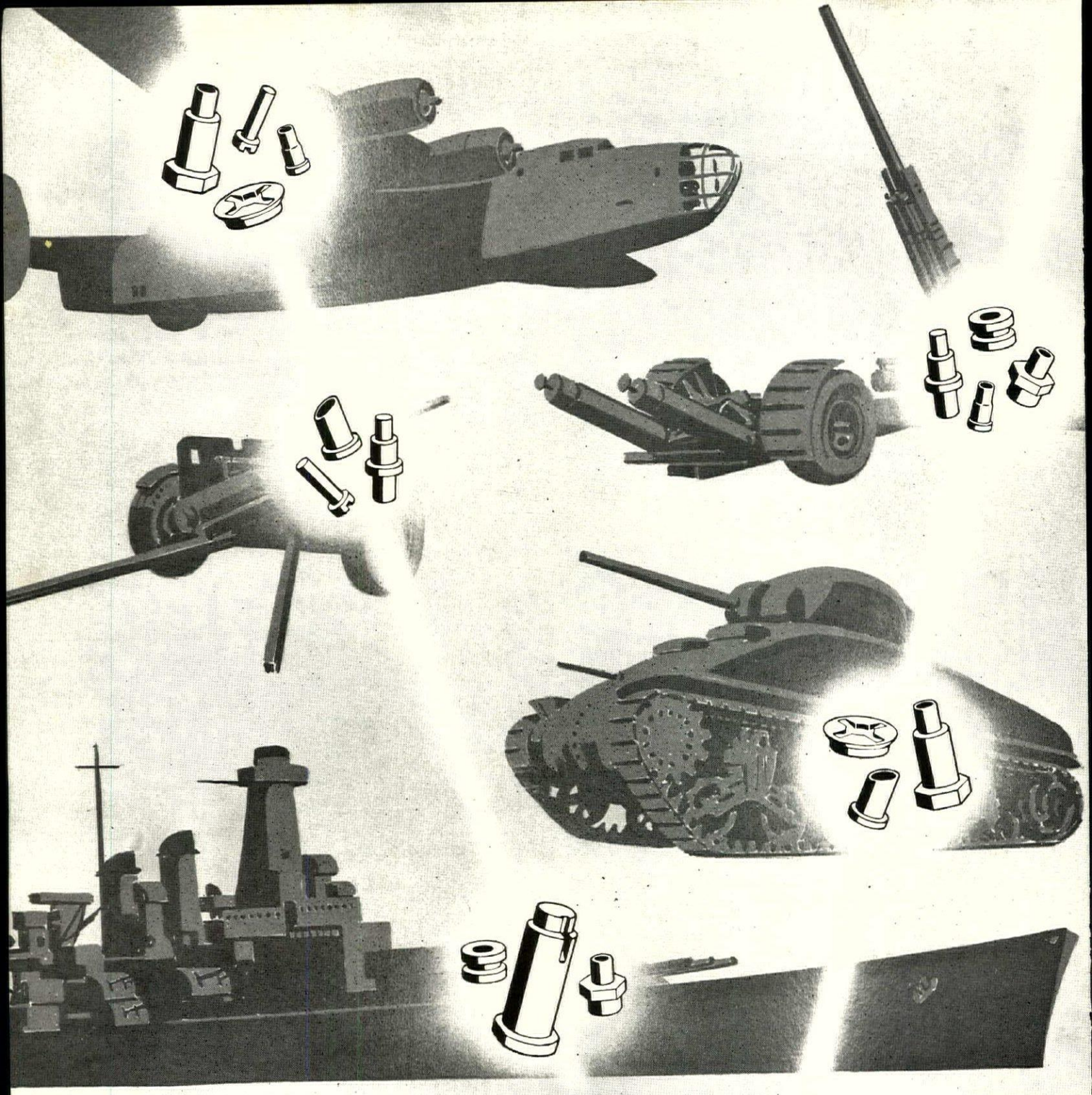
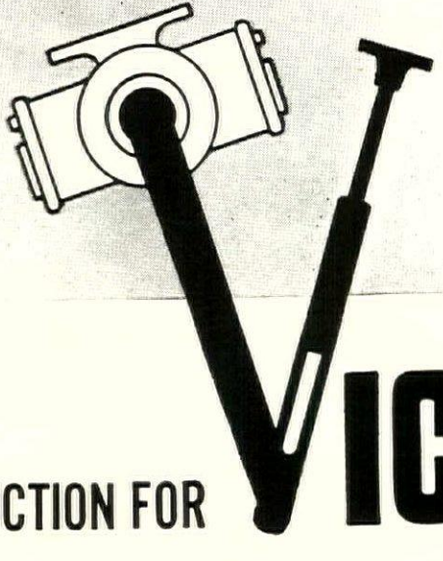
THE CELOTEX CORPORATION • CHICAGO



LCN

DOOR CLOSERS



NOW 100% SMALL PARTS PRODUCTION FOR VICTORY

New Pencil Points News

January 1943

THEY SAY . . . .

"History is merely gossip."
—*Oscar Wilde*

—That food production (essential in war and equally vital, if we are to feed people of occupied countries, after the war) is not just an agricultural problem. We must not only *produce* food; we must also *process* much of it. Does this imply the construction of many food processing plants, refrigeration buildings, etc.?

—That employment on new construction in 1943 will drop to an average of little more than a million workers (slightly over half of the average for 1942) thus releasing a million workers for other war employment in 1943.

—That Washington officials believe they have saved about 400,000 tons of steel, 30,000 tons of copper, 200 tons of aluminum, and 3,000 tons of rubber by reviewing their designs of construction projects for possible material savings before granting priority ratings.

—That the Army had offered to share the new Pentagon Building quarters with the Navy which refused the offer. Reason: Navy's apprehensiveness of embroilment in a "could-be" Congressional investigation of its cost and location.

—That the amount of annual new construction on farm service buildings which will be allowed, without permit, per farm will be lowered from $1,000 to $800 under WPB's L-41 conservation order.

—That the War Manpower Commission is getting down to brass hats . . er, tacks. It's reported that we're going to have really complete manpower allocation and utilization shortly. Men over 38, classified 4H by their draft boards, may be requested (!) by Civilian Manpower Selective Service Boards to report for civilian duty at war production centers.

—That the postwar auto is going to be a 1942 model, according to manufacturers, because nobody has time, what with the war and all, to design us the kind of car we are technologically able to produce today. Boy, what a chance for a maker of better mousetraps!

—That the report of thirty years of controls over all phases of the building industry, envisioned by the British Ministry of Works and Planning (MOWP) for the British Isles after the war, may well have some of our more rugged American individualists worried. Just suppose the scheme should work!

SERVICES TO TRAIN COLLEGIANS

ARMY, NAVY, WMC PLAN WILL PROVIDE TECHNICAL TRAINING

Washington—The Army and Navy, working with the War Manpower Commission, are completing plans to send selected enlisted men to colleges and universities for technical training. The WMC is also preparing a program for scientific training of needed civilian specialists similar to the Army-Navy program. In addition, it is estimated that more than 150,000 college men will get temporary draft deferments to continue engineering, medical, and other specialized scientific training.

Primarily, the Army wants short courses giving men quick training in specialized skills. Under their plan, enlisted men under 22 who have completed or are undergoing the basic training course are eligible. Upon completion of the courses, men will either be sent to officer-candidate schools or will be given technical, non-commissioned rank.

Navy Training Plan

The Navy's scheme calls for longer and more rounded training. Only men between 17 and 19 will be eligible, except for men already enlisted, who will be accepted up to the age of 22. The men will be selected by examination in high school or college, and will be assigned, about June 1, to a college without the basic training course such as the Army requires. Navy courses will range from 8 months to three years. The latter is equivalent to a regular four-year technical curriculum.

Until the WMC completes the drafting of regulations now being prepared, no detailed content of the courses will be known.

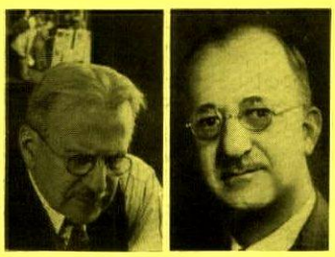
Industry to Train, Too

Plans are being formulated whereby certain students will be deferred and trained for industrial work, but these plans are still in a preliminary stage. In the meantime, WMC has instructed local draft boards to grant deferments

continued on page 2, column 3

ALBERT KAHN DIES; WAS 73

Detroit, Mich.— Albert Kahn is dead. With his passing, at his home in Detroit, last December 8, the world lost the man who for many years has been recognized as the No. 1 industrial architect of this industrial age.



Albert Kahn *Louis Kahn*

For four decades his fame had grown and spread and when the end came, he was in the midst of the greatest program that even he had ever undertaken—that of making America in reality the arsenal of democracy by building war plants bigger, better, and faster than such plants had ever been built before. The Detroit (Chrysler) Tank Arsenal, Wright Aeronautical plants, Ford Bomber plant, Glenn L. Martin plants, Curtiss-Wright plants, Pratt and Whitney plants; these are but a few of the great war plants which his organization has built since the present emergency arose. And almost without exception, the completion of each such undertaking marked new world's records for speed in steel and concrete construction.

Packard Was First Job

It was Packard Motors that gave him, in 1903, his first commission to design a factory. Using reinforced concrete frame and steel sash, Kahn produced for Packard the first factory of its kind in America and introduced a new form of industrial architecture to the world.

Albert Kahn was a poor immigrant boy who had to make his way through sheer ability and determination. Born in Rhaunen, Germany, March 21, 1869, he came to America at the age of 11 and soon thereafter got his first job as an errand boy in an architect's office.

His foresight was often considered almost uncanny, but perhaps he was correct in attributing this to nothing more unusual than logical inference based on close observation. Among other observations, he had noted that successful firms

continued on page 4, column 3

PRODUCERS FORECAST CONSTRUCTION DIP

Washington, D. C.—New construction of all kinds in 1943 is estimated at $8,500,000,000 by the Committee on Construction Forecasts of the Producers' Council, representing a 37 percent decline from the 1942 record peak. The program is still one of large projects of specialized types, not distributed over the whole country and, therefore, not affording work evenly to architects, engineers, contractors, and consruction labor. The estimate does not take into account any possible increase in construction costs and assumes the announced WPB policy of reducing the war construction program will be carried out to a substantial degree.

Repairs Get AA-1 Rating

War construction will taper off this year, with publicly financed construction expected to be as high as 85 percent of the total. Since WPB has authorized an AA-1 rating to essential repair and maintenance of productive facilities, utilities, and housing, it is expected that there will be a substantial market for such maintenance and repair service which will provide work for the smaller and specialized contractors.

Residential construction may decline as much as 46 percent this year in spite of the unsatisfied demand for housing accommodations for war workers, points out the report, with the possibility that privately-financed war housing may decline a greater percentage. Any resulting housing shortage will be met, apparently, by more intensive use of existing structures.

The Council expects plant construction to drop off, since practically all plant expansion in 1943 will be for the government account. The prevailing type will be the processing plant such as for synthetic rubber and high octane gas.

Farm construction is estimated to decline because of WPB restrictions, and in spite of higher farm income. It is expected that necessary provision will be made for essential farm buildings to support the expanded food production program.

CONSTRUCTION EMPLOYMENT

Washington, D. C.—Secretary of Labor Perkins reported recently that employment on new construction in 1943 will drop to an average of little more than a million workers, or slightly over half of the average for 1942. Employment on privately-financed construction is expected to drop to an average monthly level of 290,000; labor requirements for publicly-financed construction are expected to drop to a monthly average of 750,000.

BOONDOGGLING GOES

Washington, D. C.—Operation of WPA projects will close by February 1 in the District of Columbia and in the following 16 states, in accordance with a recent Presidential order ending the WPA'S existence: Arizona, Connecticut, Delaware, Idaho, Maine, Maryland, Nevada, New Hampshire, North Dakota, Oregon, Rhode Island, South Dakota, Utah, Vermont, Washington, and Wyoming. During its existence, WPA had spent 9¾ billion dollars in construction projects.

NURSERY SCHOOLS

Washington — As the WPA liquidates its program, many of the child care centers which have been conducted by the WPA will be operated by FWA under the Lanham Act. A study is now being made to determine which of the hundreds of WPA nursery schools are serving children of mothers engaged in war work. Communities have been assured that where funds are available and the Lanham Act makes it possible, FWA will assist both war nursery and school lunch projects formerly operated by the WPA. The President has already approved 39 war nurseries and day-care centers for children of working mothers, financed by Lanham Act funds.

WPB CLAMPS DOWN

Hammond, Ind.—Acting under the policy of curtailing the use of materials for construction projects, the WPB recently stopped all work incidental to the construction and equipment of the $4½ million expansion for the Continental Ordnance Plant here. All construction programs, under WPB policy, must balance with production programs, and the proposed expansion at Hammond would not be completed in time to justify the materials expenditure.

HOUSING MANUAL ISSUED

Washington — Prospective builders of war housing may now get for the asking a manual which combines in handy form the rules and regulations governing this type of construction, and suggestions for speeding building applications. Copies are free, may be had from the War Production Board, Bureau of Construction. The manual includes a new "War Housing Critical List" which establishes maximum materials allowances for all types of war housing construction. Another section of the manual includes the "Housing Utility Allowances," as amended to August 25, 1942.

The manual presents in a general way a digest of procedures and requirements covering the filing and processing of applications for war housing. It is designed to make it possible for persons or agencies sponsoring, financing, constructing, and furnishing materials for war housing projects to understand procedures and thereby speed to completion this essential part of the nation's war effort.

HARDWOOD LUMBER PRODUCTION DOWN

Washington — Estimates of hardwood lumber consumption for 1943 totaling almost 5¼ billion feet were presented recently to WPB, indicating a decrease from 1942 in all uses except boxing and crating. Hardwood production is 10 per cent below that of the same season last year and may be down 20-30 per cent in some regions as a result of reduced log inventories, according to members of the Hardwood Lumbers Manufacturers Advisory committee. Scarce items are No. 2 and 3 common oak, thick birch and maple, and tupelo.

HOME BUILDERS UNITE

Toronto, Canada—A Canadian National Home Builders' Association is reported to have been organized with M. M. Walker, Canadian Lumbermen's Association, Toronto, as acting secretary. The proposed association will attempt to secure priorities for materials for speculative builders on the same basis as Wartime Housing, Ltd., the government housing corporation. Other purposes: extension of the National Housing Act to cover low-cost housing up to costs of $3,500; recognition of rights of private enterprise in postwar building projects.

ROBOTS AND CONCRETE

Washington—The use of reinforced concrete in naval architecture was demonstrated recently when the Phantom, an ocean-going cargo vessel designed by Vladimir Yourkevitch who designed the Normandie, went through a series of tests. The boat, elliptical in shape, does not use steel plates but is constructed of reinforced concrete. The ship runs through a remote control radio system, developed by Frederick B. Woodworth.

CONCRETE SPECS OUT

Washington, D. C. — National emergency specifications for the design of reinforced concrete buildings became effective January 1. The specifications are contained in a booklet available at WPB field offices.

HOTELS FOR WAR WORKERS

Southern Pines, N. C.—Highland Pines, a resort hotel here, has been leased by the FPHA for conversion into a 100-unit dormitory for women war workers at a nearby aircraft training base. Similarly, the Pine Forest Inn, at Summerville, N. C., was leased and is now being converted into a 600-unit dormitory for shipyard and industrial workers.

SERVICE TRAINING *continued from page 1*

to students (until the end of the semester underway March 1) and faculties (until July 1) of engineering colleges. Graduate students and undergraduates who have completed a year of training are to be deferred until the end of the semester underway March 1.

Women Engineers Due

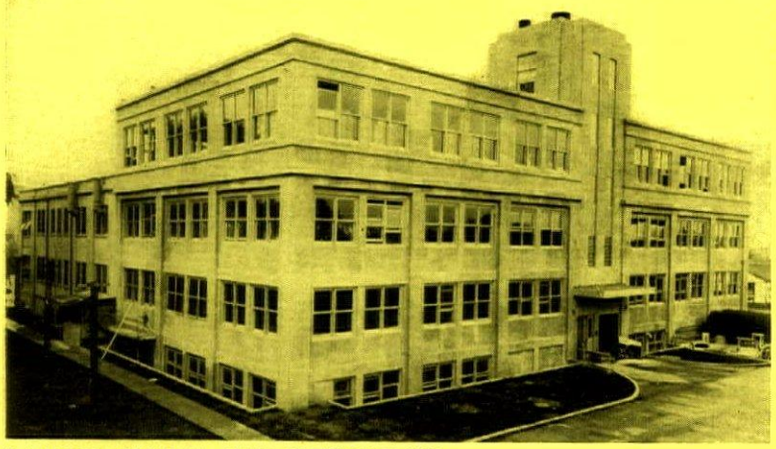
In New York, Dr. Albert B. Newman, regional advisor of the United States Office of Education, said that 50,000 women will be needed in engineering jobs during the next six months. To help train some of these women, eight engineering colleges in Greater New York are sponsoring the government - supported Defense Training Institute, Brooklyn, N. Y., where women high school graduates receive intensive, daytime training in engineering subjects for jobs as testers, inspectors, draftsmen, etc. A ten-week course has been designed for college graduates to prepare them as juniors in the civil service.

BOND SALES BOOM

Gilbert Hall, of the architectural firm of Holabird & Root, Chicago, who drew the designs for the Palmolive Building (Chicago), was invited recently to design war bond booths for the building. Mr. Hall designed a booth utilizing a miniature replica of the building, perfect in every detail. (Hedrich-Blessing Studio photograph.)

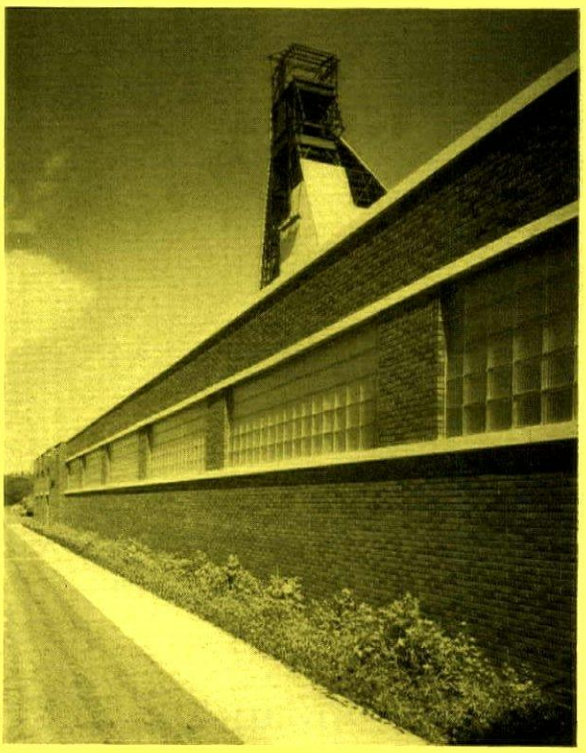
CHANGE HOUSE

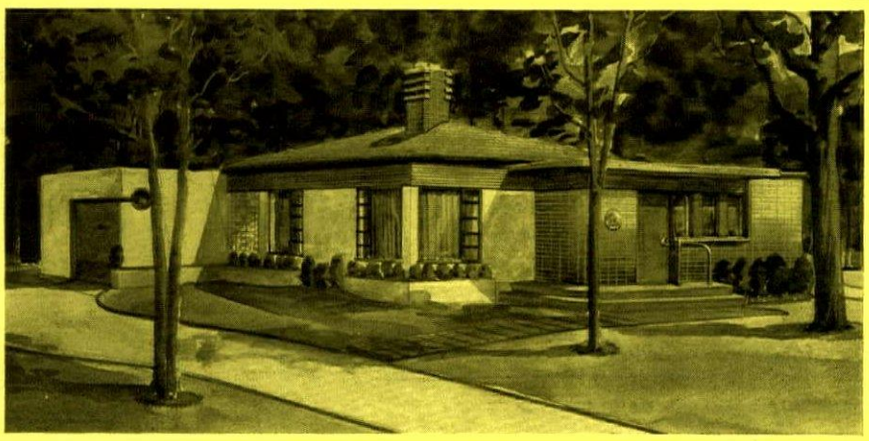
Miners at the Negaunee Mine Co.'s new Mather Mine change their clothes in a series of spacious rooms in the building shown below. The building, part of a group designed by The Austin Co., Engineers & Builders, has long panels of glass block, is constructed of red tapestry brick with limestone trim. Salt-glazed tile on interior wall surfaces, and glass block instead of windows, make it possible to wash sidewalls as well as concrete floors with high-pressure spray hose. An automatic ventilating system provides proper temperature at all times. A 2-inch air space in exterior walls reduces heat losses.



LABORATORY AND RESEARCH

Newest contribution to the construction and design of medical laboratory and research buildings is represented in the three new additions to the biological facilities of E. R. Squibb & Sons, New Brunswick, N. J. Engineers were Abbott, Merkt & Co.; contractors, Turner Construction Co. The 3-story and basement extension shown above is of reinforced concrete, with all partitions and furring on the first and second floors finished with brick tile. Two smaller buildings house the small-pox vaccine laboratory and the typhus vaccine laboratory.





METAL CONSTRUCTION

This steel-framed residence was designed and constructed by arc welding, and won for Lawrence Blazey, Cleveland, Ohio, and George B. Rogers, Lakewood, Ohio, a $150 award in a welding-study program sponsored by The James F. Lincoln Arc Welding Foundation. The erection routine: On a 12-gauge angle fastened to the concrete foundation, the 16-inch prefabricated panels of full height were assembled by starting at one corner where aligning and plumbing was done. "Z" sections were bolted on the top and bottom of the panels into which the ceiling and floor sections were tack welded.

BEITER INTRODUCES POSTWAR BILL

Washington — Congressman Alfred F. Beiter, New York, has introduced a bill in the House (since referred to the House Ways and Means Committee), HR 7782, "First Post War Planning Act of 1942," which would provide $25 million for federal agencies and $75 million for advancement to local and state agencies for plan preparation.

Highlights of the bill: (1) none of the planning shall interfere with the conduct of the civil functions of the Corps of Engineers; (2) advances made to state and local agencies for architectural and engineering plans of specific projects shall be repaid in full; (3) money will be advanced for local planning by the President; (4) local requests for funds will be reviewed for the President by FWA, NHA, or other "appropriate federal agencies."

The Congressman believes that the $100 million will finance plans for $3 billion worth of public works. He bases his estimate on the fact that preparations would average about 3½% of the total construction cost.

STEEL PRODUCTION DOWN

Washington, D. C.—The trend in structural steel production clearly indicates that the construction phase of the war program is nearing completion as far as steel is concerned, according to Hiland G. Batcheller, director of the WPB Steel Division. The lowering of the production of structural shapes from a July high of 481,814 tons to an estimated 325,000 tons monthly in 1943 is a drastic WPB step to curtail nonessential construction.

WAACS ARE HOUSED

Des Moines, Iowa — Candidates for the WAAC are being housed in cantonments constructed of structural tile. The project includes 112 buildings —63 barracks, 10 mess halls, 21 storage and company administration buildings, 9 classroom buildings, 2 recreation halls, an infirmary, 4 general administration buildings, a chapel, and a general headquarters building. Roof and interior framing are of wood. Walls of the barracks are made of hard-burned tile, 4x5x12" and 8x5x12", with a 1-inch air space between.

WPB, NHA AGREE ON POLICY

Washington, D. C.—A joint declaration of policy, applying to all war housing whether publicly or privately financed, has been announced by WPB Chairman Nelson and NHA Administrator Blandford.

Quarterly Allotments

Briefly, the agreement provides that quarterly allotments of materials for use in housing will be made by WPB, and NHA will decide into what housing the materials will go.

The new policy was agreed upon after existing policies had been reviewed in the light of shortages of critical materials used for all construction. It formalizes certain changes already observed in practice by WPB and NHA — particularly regarding the conservation of materials and the occupancy of war housing by in-migrant war workers—and modifies some previously-established policies. The agreement eliminates, for the duration, any new housing not directly contributing to the winning of the war.

New Standards

Washington — To conserve construction material needed in the war effort for essential uses which cannot otherwise be satisfied, all future housing construction must meet standards of design and material consumption established by the WPB in consultation with NHA. WPB will not issue preference rating orders for new prefabricated or site-constructed housing unless their construction complies with several provisions, chief of which are: (1) all types of construction shall use a minimum of lumber; (2) all structures shall be laid-up masonry, or other lumber substitute exterior wall construction, except in areas where masonry materials or labor are not obtainable. Laid-up masonry means walls or floors constructed of clay or concrete products; (3) wood wall sheathing shall not be permitted when other materials—fibre, insulation, gypsum boards —are obtainable.

NHA RENTALS EXEMPT

Washington — The OPA has announced that housing accommodations rented to the NHA for remodeling and conversion into dwelling quarters for war workers are exempt from Federal rent regulations.

HENRY KAISER FORESEES $1500 HOME

Oakland, Calif. — Henry J. Kaiser, industrial tycoon who does the impossible in shipbuilding, envisions a three-room home, completely furnished, for $1500, for postwar America. The prefabricated steel house would be insulated with glass wool, furnished and equipped with all sanitary and disposal facilities. Mr. Kaiser pointed out that such a house could be erected in one day by eight men, and could be readily dismantled and moved to a new location.

TVA EXTENDS

Chattanooga, Tenn.—Plans to acquire 40,000 acres of land in North Carolina to expand the Great Smoky Mountains National Park and to build a $3 million highway through the area were announced recently by the Tenessee Valley Authority.

$6 MILLION FOR HOUSING MINERS

Washington—The allocation of $6,000,000 by the FPHA to cover construction costs will make available 2,000 dwelling units for non-ferrous metal miners in Arizona, Colorado, Idaho, New Mexico, Nevada, Utah, and Wyoming. The WPB has granted a blanket priority for the housing.

PUBLIC WORKS NEEDED

Washington, D. C. — Public works, planned in advance to the last engineering detail so that construction can start immediately when needed, would be "perhaps the most useful of all projects to take up the employment slack during the national conversion from a wartime to a peacetime basis," stated FWA Administrator Fleming recently.

ASHVE TO MEET

New York—A streamlined program which includes such subjects of wartime interest as fuel conservation, heating plant operation, resistance of various building materials to vapor transmission, and performance of air duct outlets, has been scheduled for the annual meeting of the American Society of Heating and Ventilating Engineers, which will be held at the Hotel Gibson, Cincinnati, Ohio, January 25-27.

DRAFTSMEN NEEDED

Washington—Draftsmen in all fields are being sought by the Civil Service Commission, which offers yearly entrance salaries from $1,440-$2,600, not including payment for authorized overtime. No written test is required and there are no age limits. Simplified requirements: at least six months of experience, or appropriate training in drafting in high school, resident drafting schools, or college. Announcement 283, and forms for applying, may be had from first- and second-class post offices.

WOOD SUBSTITUTES SHOWN

New York—The use of a wood as a substitute for scarce metals in a number of industrial products was revealed at the recent National Exposition of Power & Mechanical Engineering. One firm showed a line of laminated wood pulleys for shaft and machine drives; there was, also, a laminated fabric and plastic blade to replace aluminum.

NAVY "E" TO WEBSTER

Camden, N. J.—The presentation of the Army-Navy "E" to Warren Webster & Co., manufacturers of steam heating equipment here, was made on January 5.

ALBERT KAHN DIES *continued from page 1*

built on the reputation of one individual often tend to disintegrate after their leader is lost, and he early took steps to insure that his own organization would be enduring.

As far back as twenty years ago Albert Kahn called in the key men of his organization, gave them an interest in the business and a chair at the conference table, and began to train them to carry on after he was gone. This policy was continued without interruption and it culminated about two years ago when the name of the firm was changed to Albert Kahn Associated Architects and Engineers.

At a meeting of the board of directors, held January 6, a complete roster of officers was elected. Louis Kahn, who for many years has been secretary-treasurer and executive head of the corporation was elected president. Three vice presidents were elected: Sheldon Marston, George H. Miehls, and Robert E. Linton. George E. Scrymgeour was elected secretary, and Saul Saulson was elected treasurer.

PLAN

"PLAN" as a name for our magazine is out! Another publication, in another field, has this name registered and copyrighted and there appears nothing we can do about it, save shed an editorial tear.

"PLAN" as a guiding spirit for our editorial course, however, is very much of a reality. We see it as the key word—or rather the key idea—of the future, both before the end of the War and after.

It is the destiny of these times to be a transition period into a human tomorrow. The length of the transition and the quality of that tomorrow depends on how well plans are made and executed by men living today.

The planning must be of different kinds. It must be done by sociologists and economists, by business men and industrialists, by lawyers and law makers, by engineers and scientists and technologists, and by architects.

That which concerns us especially is the part that will be done by the architects; but since the whole process must be harmoniously integrated if it is to result in effective over-all progress, we shall be concerned also with all other related types of planning.

For example, in this issue, we have attempted to peer over the shoulders of the designers of the products out of which buildings are made; and to see as much as they will let us see, at the moment, of the wonderful things they are visualizing and developing for our use in the future. Upon the designing (or planning) of these new elements of building, and upon the improvements manufacturers are effecting in the older and better-known products, must rest our hope for technological advance in the building field. To design buildings for the expanding future, architects must know of what their enlarged palette is to consist.

It is a little early to get at the full range of developments that are taking place now and that will take place before the end of the War, but we have uncovered enough, we believe, to give a foretaste of what the physicists and chemists and other technologists are preparing with which to excite the imagination of the architect of after-the-War. The research and development work that is going on right now in the laboratories of manufacturing industry, and the plans that are being prepared by business men to make and market their products, are representative of one basic type of planning that is vital to the civilization that lies ahead.

But there are larger aspects of planning—which will be perhaps our chief theme through the year 1943. For a long time it has been dawning upon public consciousness that our cities, in which sixty percent of our people live, have been decaying. First observed some years ago by a few pioneer thinkers, this fact has been brought home to more and more people as the evidences of decay have intensified and spread. But the problem of applying the remedy has demanded so great an overturning of existing arrangements, so great a fancied threat to all manner of vested interests, that most of these interests have rather borne with the growing evils than to make the necessary thorough-going move to do away with them. Up to now we have been willing only to apply palliatives.

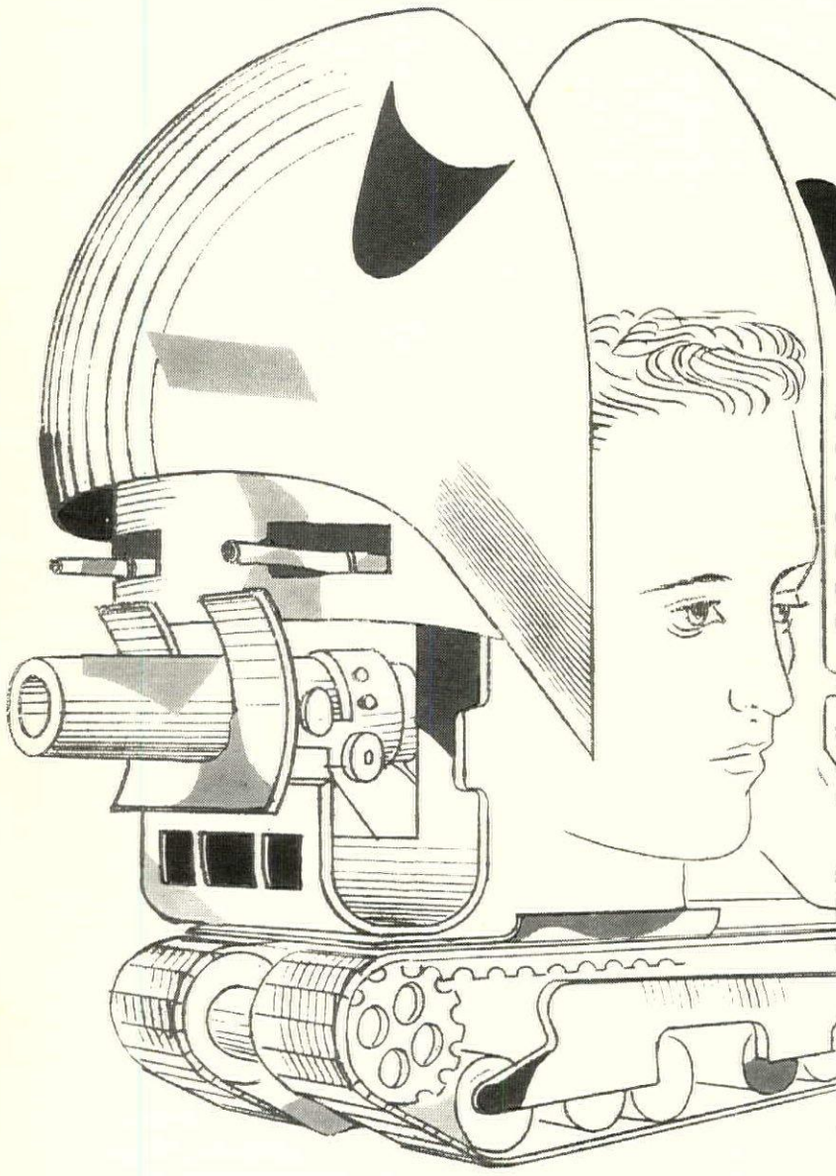
Now, the War, which is functioning as a great "tearer-up" of roots, is loosening the hold upon us of the closely-packed soil of conservative prudence.

Men are, as a result, more willing today to consider daring and far-reaching changes, especially if they promise in the long run to reclaim and restore some of the values that have been lost through the slow erosion of blight. It is a time when big plans will have a chance for success. The rehabilitation of American cities, both in the large and in detail, will be more possible in the near future than ever in their history. It behooves the architect to prepare himself rigorously for taking worthy part in the planning that must be done.

It will be the part of this magazine to help him to do just that and to fight for his right to put his creative imagination into effective use.

Kenneth Reid

Last June Leopold Arnaud, Dean, School of Architecture, Columbia University, wrote of the kind of man the



Peace will come over night: perhaps sooner, perhaps later, but abruptly, regardless of anticipation. The next day, a new era will have begun. Disorder in many parts of the world may require the maintenance of an impressive police force. Nevertheless, civilian life will again be the normal life, and a vast population will be demobilized from the armed services and the war industries.

The urgency of peace needs will be as pressing as are now the needs of war; the great army of fighters and workers will demand re-employment, and the new era of reconstruction will have to be financed.

Building will constitute one of the chief solutions to these problems. Before the war, the building trades and related activities occupied — next to farming — the largest number of workers, while after the war, the scope of the program for construction will be without precedent. Following months or years of complete cessation of work for civilian needs, a vast amount of alteration, repair, and replacement of existing structures will be required; industrial plants will be converted from war to peace production, and a considerable portion of the population, having changed its manner and place of living, will have to be housed.

But as a process and as a product, building will not be what it was before. Production for war has disrupted the traditional methods of procedure; the discovery of new materials, the development of new skills; the institution of new economies — all of these changes now undergoing an accelerated evolution under the stimulus of war production, will later be applied to peace-time production. The gain should be enormous, for building practices have been reprehensibly conservative, uneconomic, and wasteful. Traditional materials will not necessarily be abandoned, but science has opened vast new techniques

Drawing: Xanti

architect must become. Now he discusses buildings the future will demand, and materials for building them.

and fields which the new practitioner must explore and utilize.

New materials will dictate new forms. To give but one example, the development of plastics and glues alone will affect fundamentally the shape and appearance of future buildings, making them as different from the skeleton-frame structures we now know, as these are in turn different from the forms that preceded them. We are rediscovering through the new uses of plywood and concrete what the ancients knew so well: that laminated construction is often the strongest and most economical, and, furthermore, that structures using laminated, aggregate, or small-size material are more easily adapted to an arcuated form, and that the parabolic arch offers perhaps the greatest advantages in strength, and in economy of material and labor. Today we think of contemporary design in terms of trabeated, flat-roofed structures, but the development of an arcuated expression based upon a parabolic form will constitute a radical change in construction and in esthetic.

Prefabrication will have quite a different connotation. It will signify, not standardization of the final structure, but rather the efficient, machine production of building units which will reduce waste of time, labor, and material, and consequently expense. Walls will be made of large plates of pre-cast or factory-processed materials, having high coefficients of insulation. Metal will be supplemented, to a very considerable extent, by plastics. Used as reinforcing rods laid up in truss form, they will give lighter and stronger beams and slabs, which will engender new forms and new proportions. There will also be flexible, non-corrosive, plastic pipe, and countless varieties of lighter and cheaper plastic fixtures.

Panel heating and piped light will change our needs, and ultimately our conceptions of interior space. "Cold light" will be transmitted from a central plant, and piped into the buildings as water is at present. This will allow the development of "plane lighting" rather than "source lighting," will eliminate apparent fixtures, and simulate daylight.

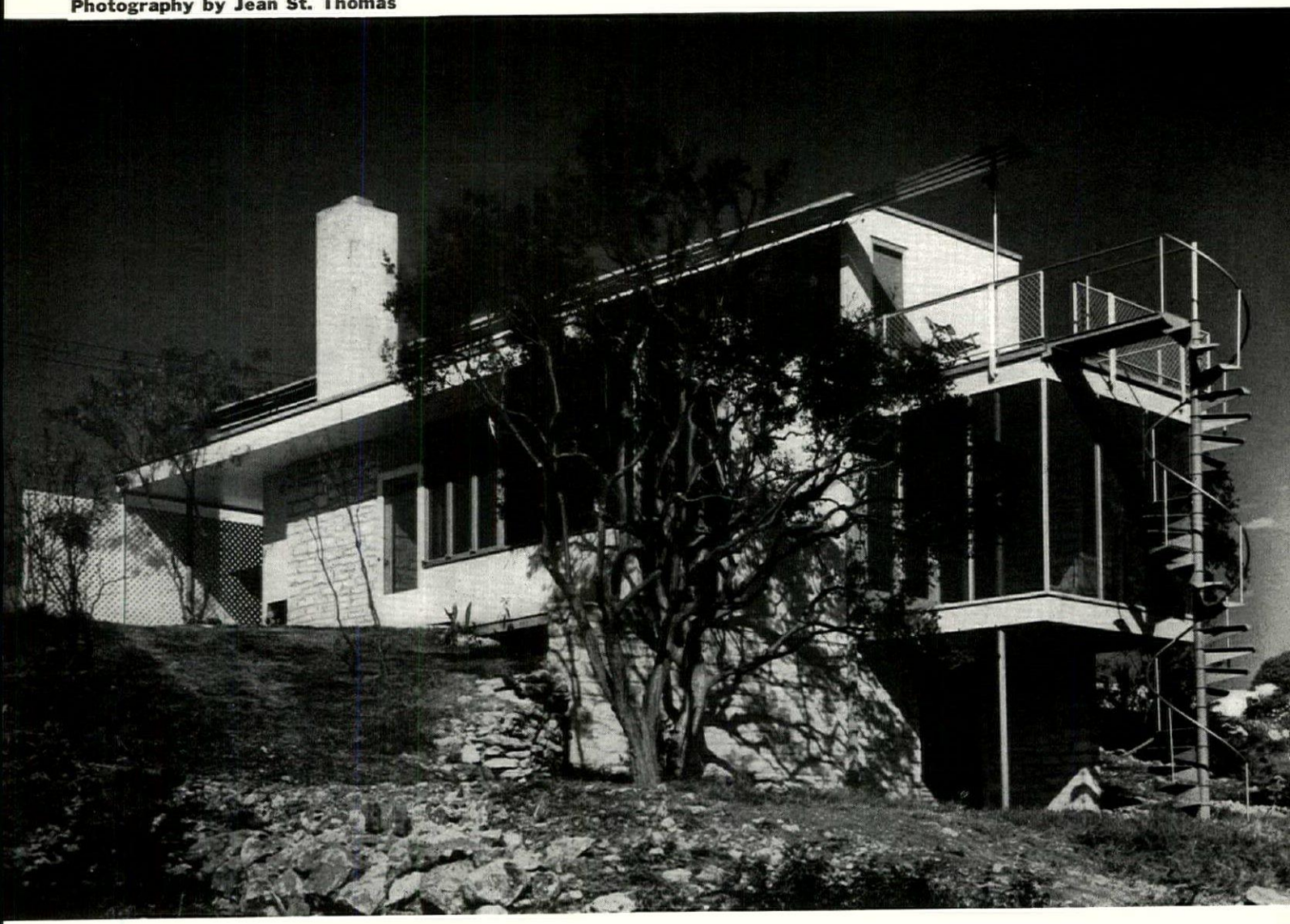
Polychromy will be accepted for exterior as well as interior use. Painting and sculpture again will be recognized as the handmaids of architecture. Landscape design will have a new importance, using not only plants and gardens, but also recent findings resulting from the development of camouflage. Buildings will be designed, not as unrelated structures, but as units in a group plan, and their appearance will be considered as seen from the air as well as from the ground.

The architect, meanwhile, must practice mental calisthenics, so that he will have the necessary flexibility to cope with these drastic changes. While retaining his capacity to conceive in terms of design, it will be equally imperative that he have a thorough knowledge of structural and mechanical requirements. Not only must he create new forms, dictated by new materials and new conditions, but he must also adopt a new conception of cooperative effort. Because of the growing complexity of the problem, a building will not be the work of one individual, who can claim the glory of authorship; it will have — even more than now — the anonymity of group work. Yet the place of the architect in this group will be all-important, for he must have — above all — the vision of the design as a whole, and the ability to coordinate the many factors involved in its realization. His capacity to conceive the broad scope of the problem, coupled with his knowledge of the practices and procedures of building, enable him to integrate the operations necessary to create a functioning and satisfactory whole. Furthermore, it will be the unique mission of the architect to transcend method and mechanization, and to infuse into architecture those intangible qualities which will make the buildings of the future fit for the use of human beings.

Leopold Arnaud

House in Austin, Texas
Chester E. Nagel, Architect and Owner

Photography by Jean St. Thomas

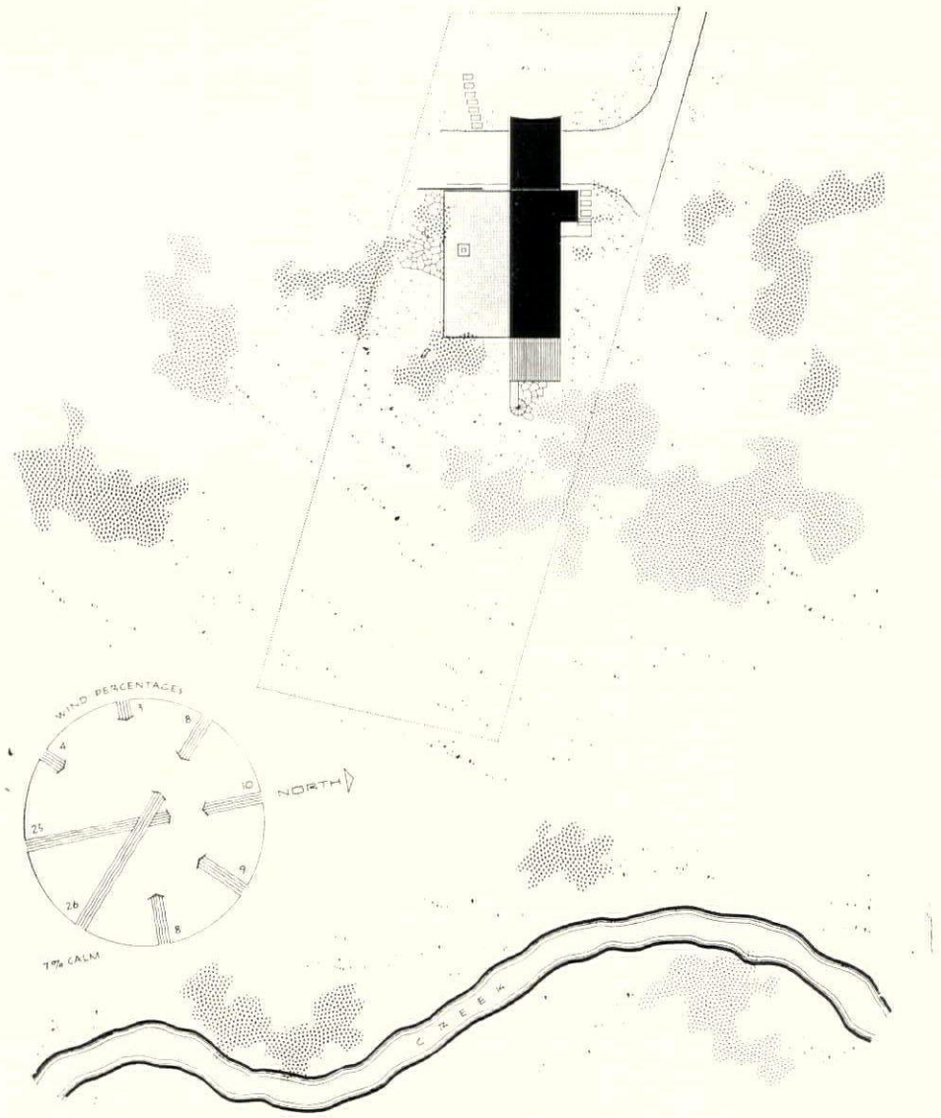


This house is the result of a desire to achieve a group of spaces of such character, and so related and disposed, as to provide the utmost in livability. To this end the forms, colors, and textures used were the logical means.

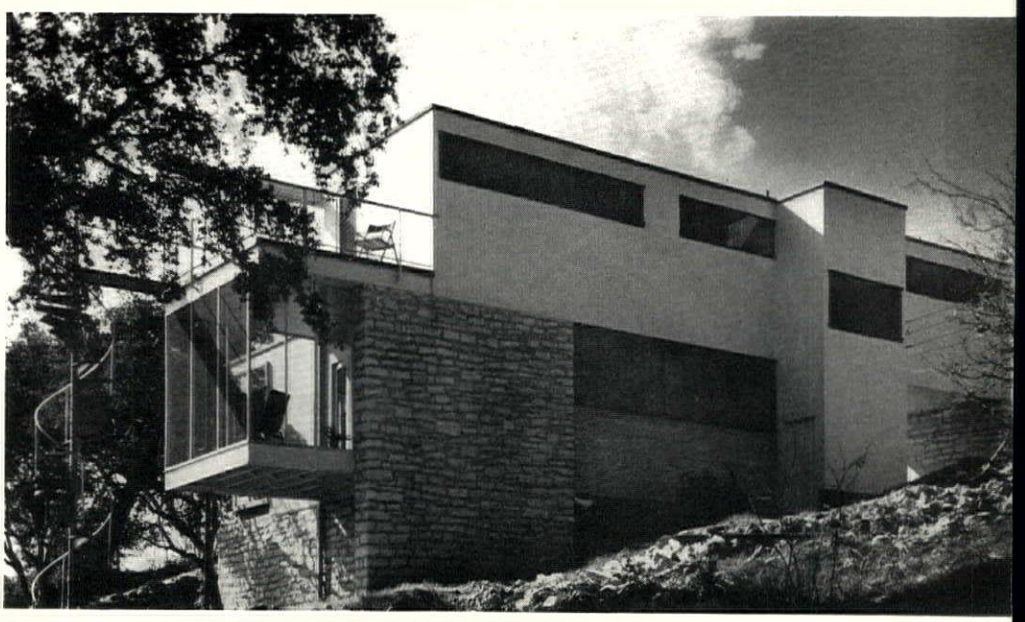
Beauty was sought in its true and natural forms, not borrowed, not imposed. Natural laws were studied and made to act favorably.

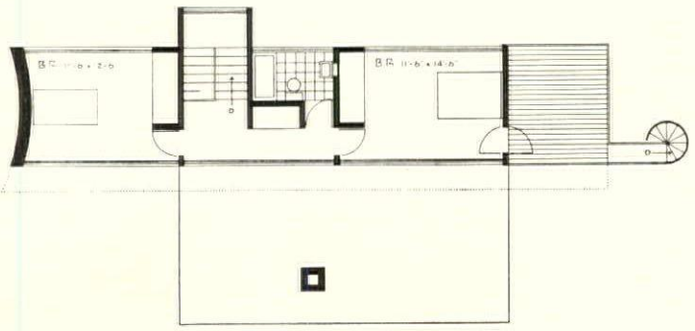
Materials were not wastefully stacked, but chosen and used for what they could do structurally, as well as to satisfy esthetic requirements. The house was planned for today.

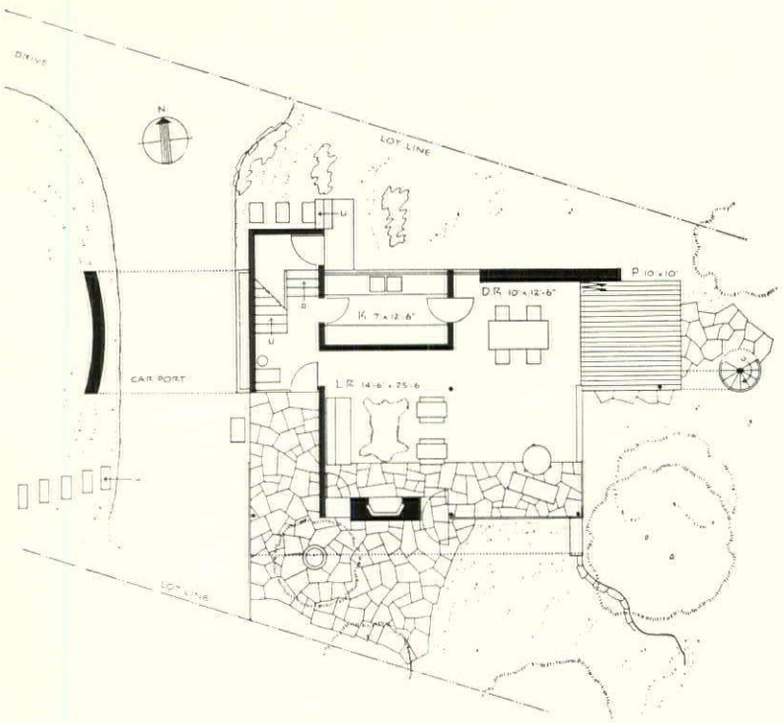
Chester E Nagel



Plot plan: a road runs along the west side of the property, a creek along the east. Both are important to the design of the house. So is the direction of the prevailing breeze, which is shown by the wind-rose in the lower portion of the plot plan.







The true architect accomplishes that which no other professional man can do, something almost impossible to describe adequately. Chester Nagel's house is small and unpretentious. Descriptions of it can hardly convey the spirit, the livability which it possesses. All that can be done is to explain why this or that was designed thus or so.

The house is situated on the outskirts of Austin, on the edge of a slope at the bottom of which flows a creek. The creek curves just at this point and the house lies on the outside of the curve. The building faces approximately south, with its sun deck and living porch at the east, and carport—enclosed garages are not needed in this locality—to the east. These details are essential to an understanding of the house.

Examination of the wind-rose on the plot plan will show that the prevailing summer winds are from the southeast, up the creek bed and up hill, across the long axis of the house. Texas summers are hot; summer winds there seldom rise above moderate intensity; up this creek bed comes an almost never-failing breeze. The house is so designed that, with the windows open, there is always at least a refreshing air movement through the second floor, occasionally almost a gale.

This effect is designed: on the windward side, windows are small and high; on the leeward side, windows are large. Thus the second floor becomes in effect a venturi, which literally pulls air through the bedrooms. (One by-product of the fenestration is that a minimum of insulation was required for the ceilings.)

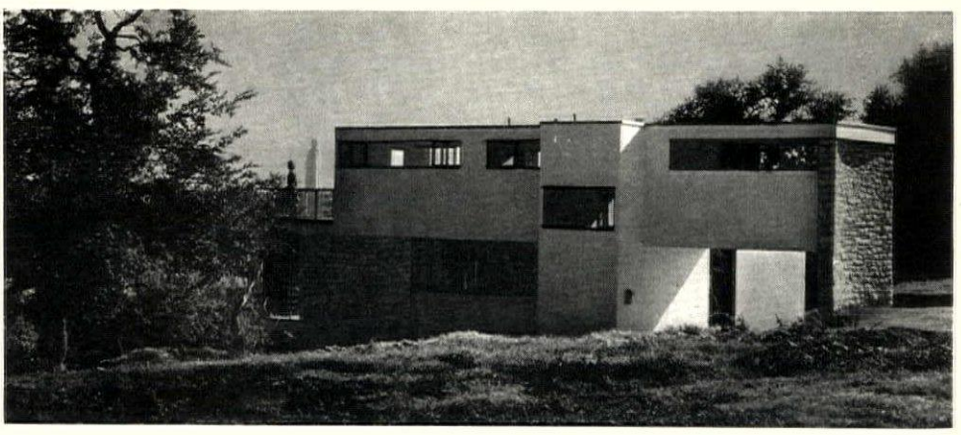
Across this side of the house, at first floor level, the eaves project; at the second floor, an "eyebrow" (or sunshade) protects the wide expanses of plate glass from the summer sun. In winter, when the sun is low, its rays strike as much of the glass as possible and actually heat the house. On an average cold winter day, say 32° F. in the early morning, it is sometimes necessary to warm the house with the small natural gas heaters which are installed in the walls. But by 10 o'clock the sun has already warmed it sufficiently to permit the heaters to be turned off. The house remains warm until perhaps nine in the evening, when the heaters may be turned on again. This is on a typical sunny day, of course; but meanwhile almost everyone else in Austin has heaters going strong.

The orientation accomplishes something else: the view, quite spectacular at night, lies to the south and east. From the living room, porch, and sun deck can be seen almost the entire city of Austin, with the 40-story tower of the University of Texas dominating it.

Construction of the building is extremely simple. In principle, the second floor is bridge-like, supported at one end by the masonry wall of the carport (curved for greater strength and to follow the line of the driveway), in the middle by the stairwell, and at the other end by the walls at the east end of the living room. The spiral iron outside stair is independent of the house, attached only by a gangplank at second floor level. Except for the end walls, construction is of wood frame.

Native materials were used as far as possible. The spiral stair was cast by a local foundry at a cost of approximately $130.

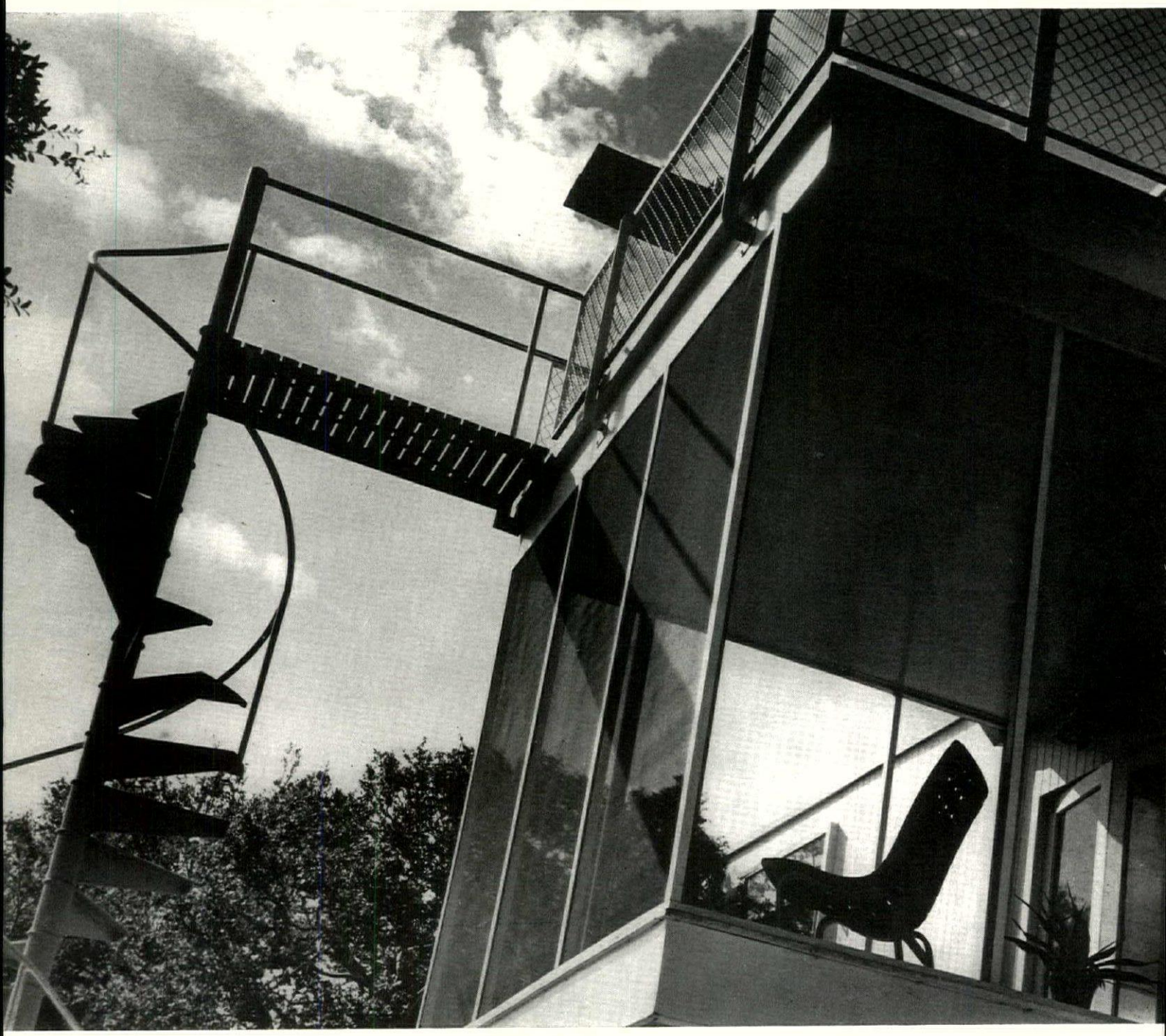
Note how close windows are to ceiling level, to prevent heated air from accumulating inside the house.

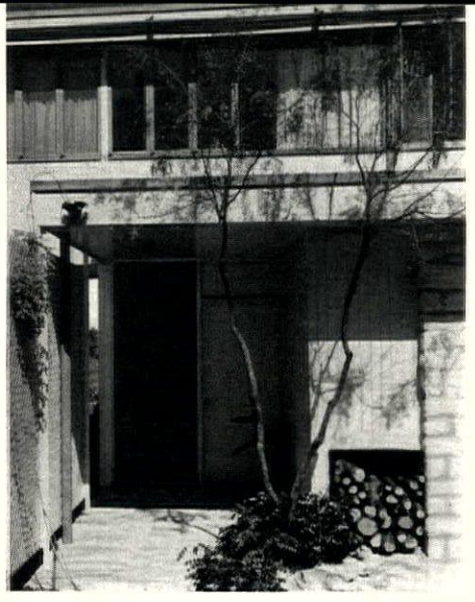


Nagel House, Austin, Texas

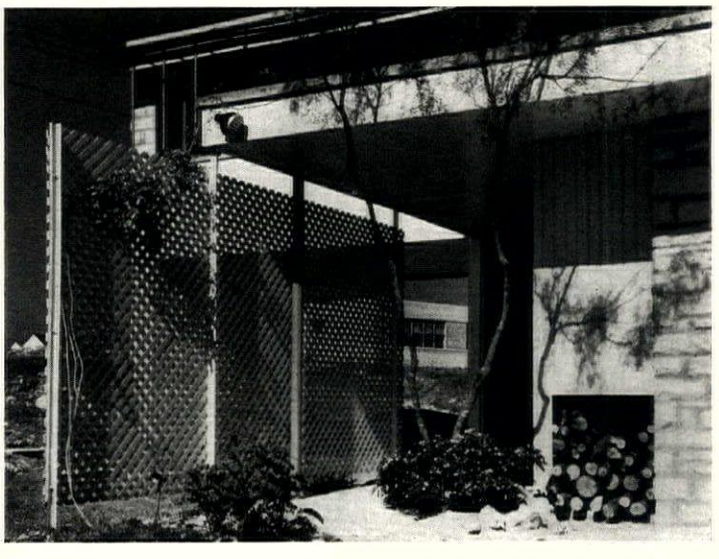
It may be seen (on page 25) that the chimney in the south wall of the living room is not attached to the second floor block. Location of the fireplace, in the south wall of the living room, permits a group in the living room to enjoy both the fireplace and the view. Why should we have to turn our backs to one in order to enjoy the other?

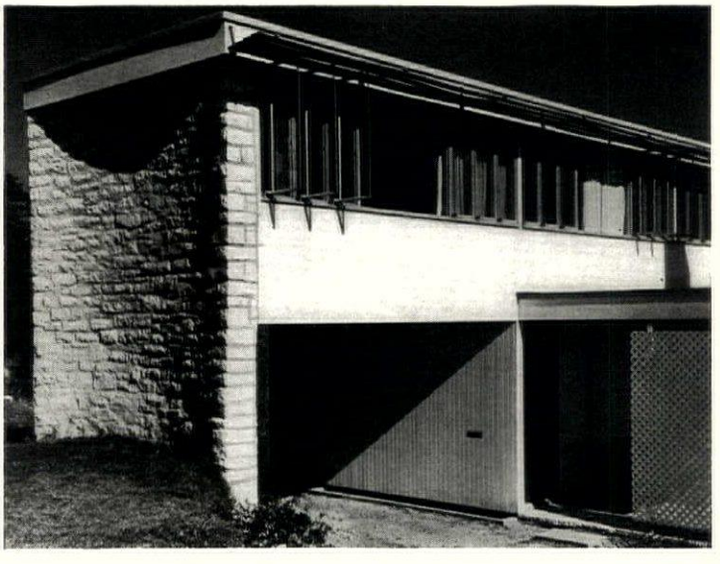
The general exterior color is white, with grey sash, columns, spiral stair, and porch and deck floors. Deck and stair rails are of aluminum. The "eyebrow" is natural yellow pine.



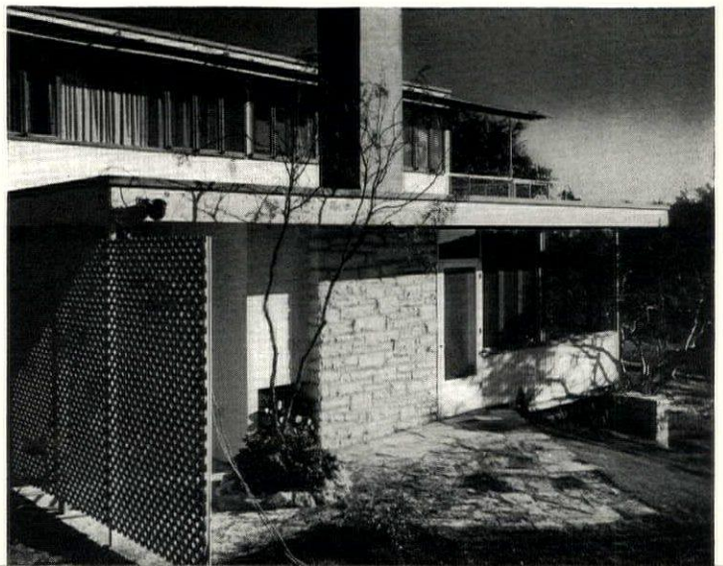


Above and at right, rear entry and terrace, protected from the road by the simplest of lattices. The wood bin is open to the weather.



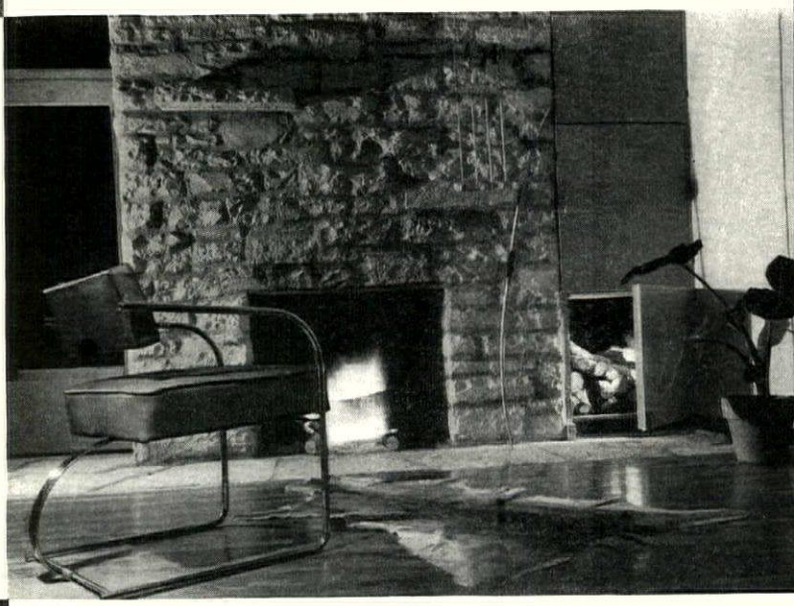


Above is the car port, and at right, the terrace, whose edge follows natural contours. Terrace paving is carried into the house to form a hearth.

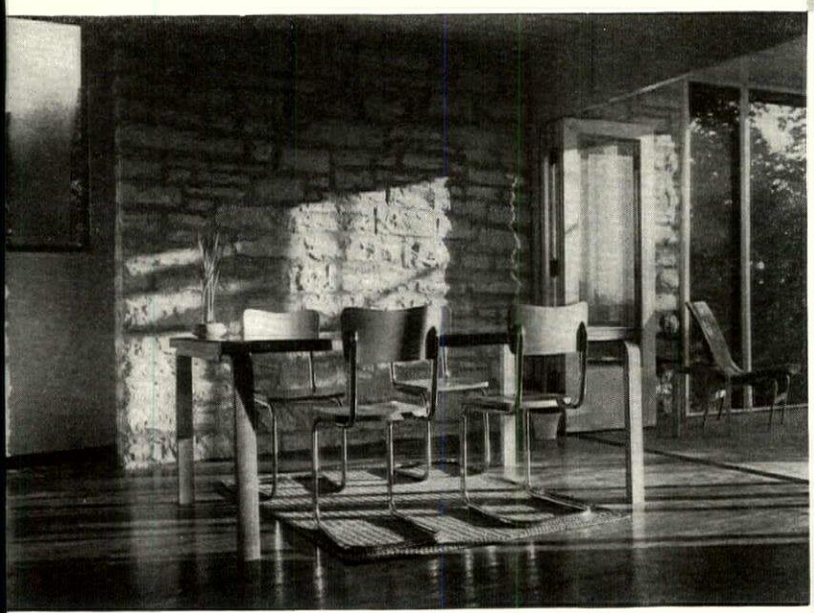


Nagel House, Austin, Texas

The First Floor



Above and at right are two views of the south wall of the living room. The combination of local stone, plywood wall surfacing painted cream and gray, and light hardwood floor is extremely simple and eminently livable.



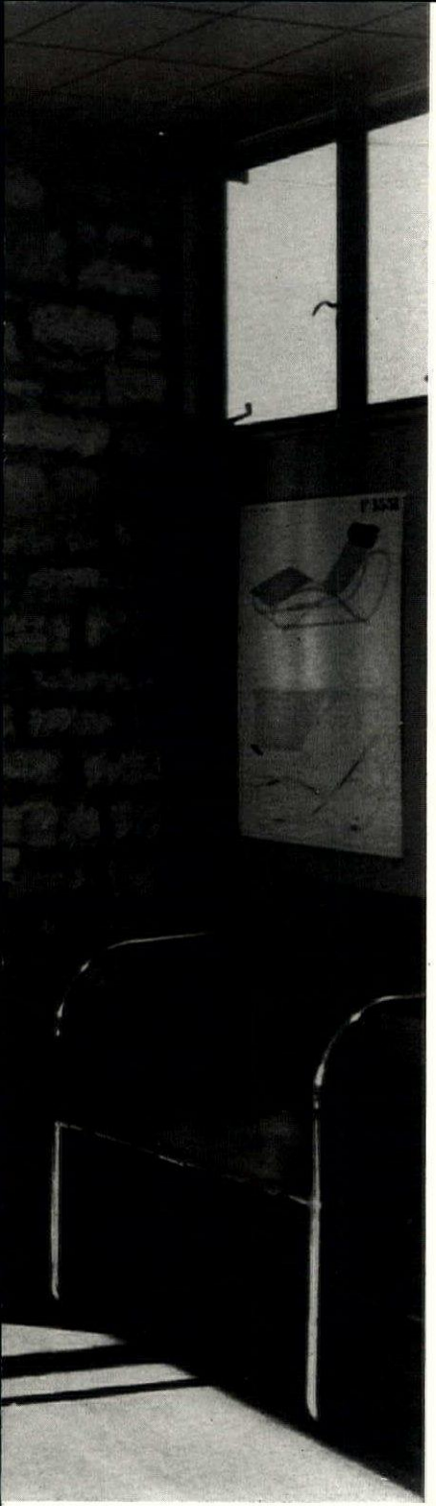
Above is the dining end of the living room from which accordion doors open out into the porch. At right is a view from the narrow-corridor kitchen.

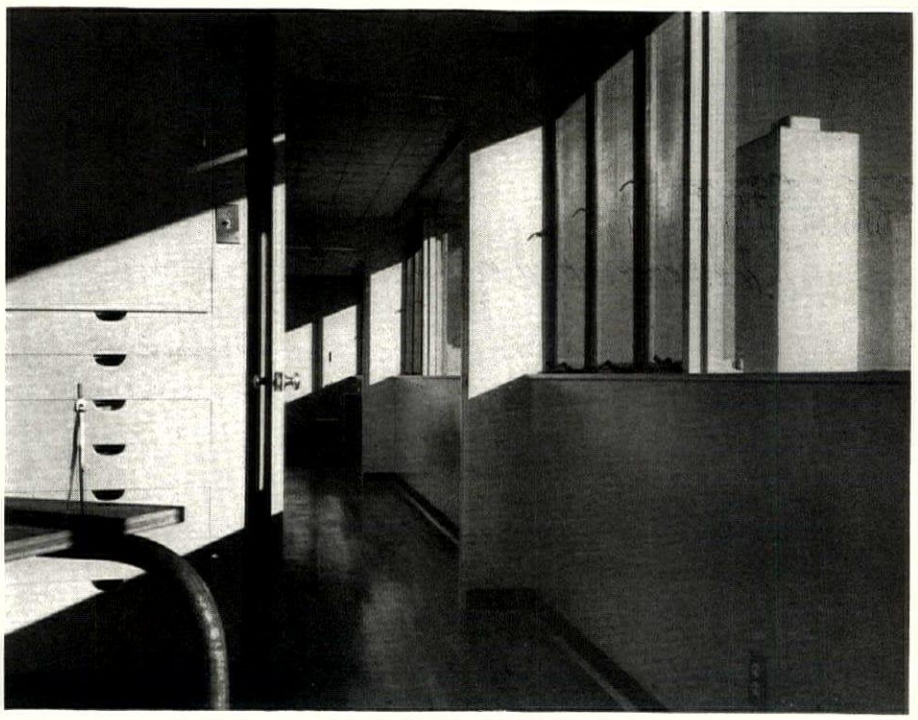
The basic interior color is cream, which is always used on the two opposite walls which receive the least light. Other walls are pearl or buff gray. Ceilings are of fiber tile, factory-finished in cream color. Fabrics on furniture are in lively colors.

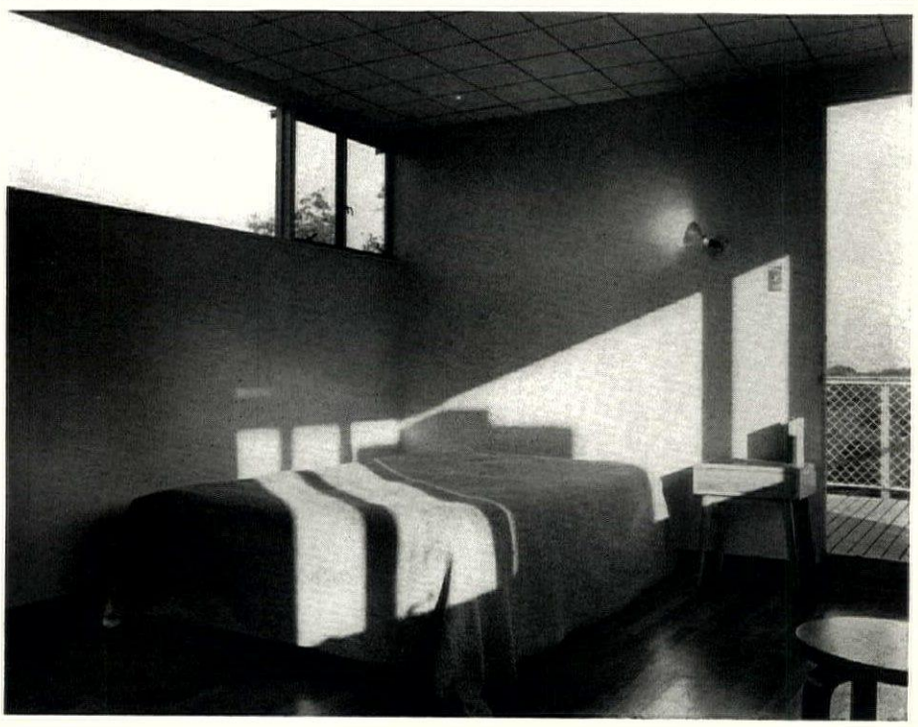
Nagel House,
Austin, Texas

The Second Floor

Perhaps no photograph illustrates more directly the simplicity and genuineness of the house than the one above. Though indicated on the plans as a bedroom this is used as a study and workroom. The furniture here is direct and comfortable. Even the cowhide on the floor is no affectation; it is a local product, extremely inexpensive. Photographs on the facing page show, from top to bottom, the stairwell, second floor corridor looking from the workroom to the bedroom, and the bedroom itself. Here again the walls are of plywood and the ceilings of insulating board tile. The small high windows have a purpose beyond that of increasing the air flow previously described; they also provide complete privacy from the road, without the necessity for curtains.

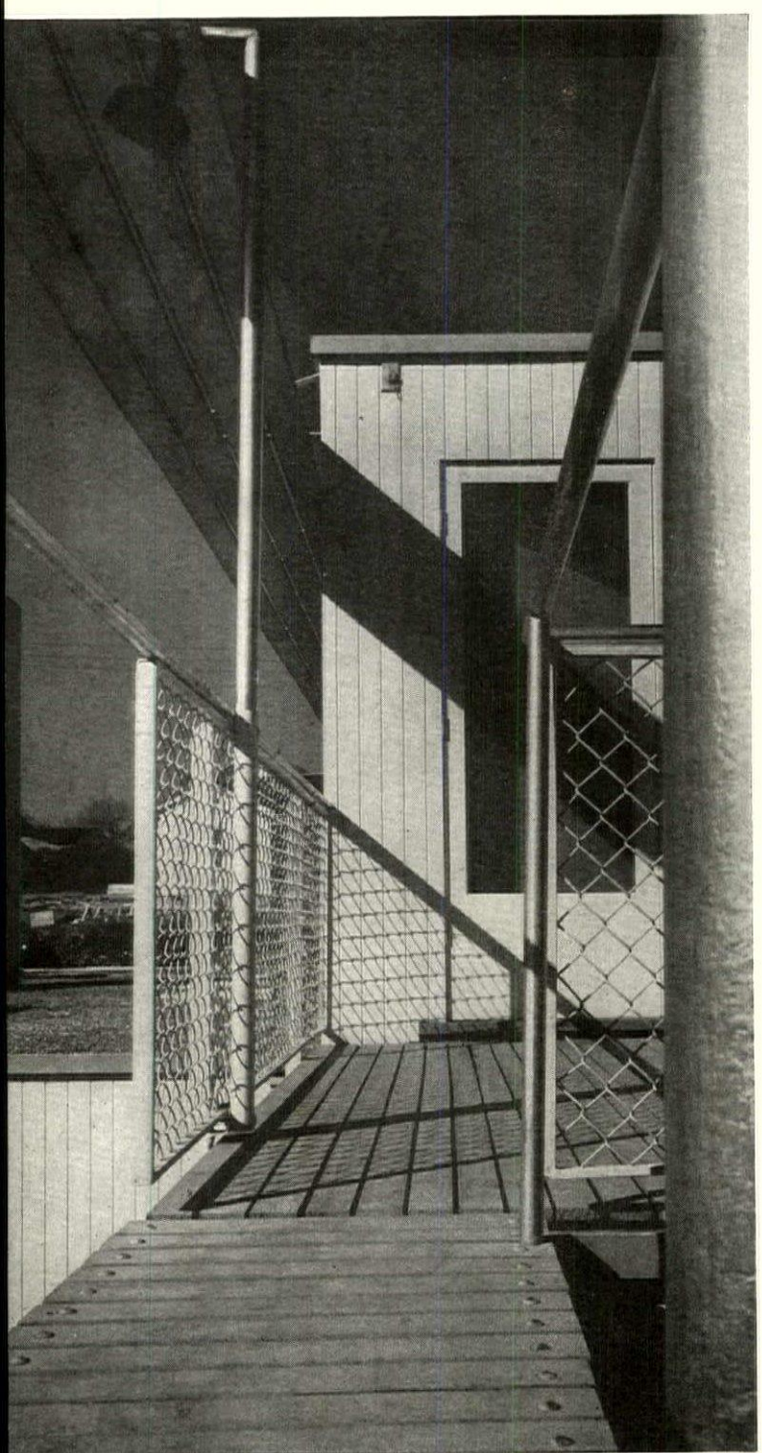






Nagel House, Austin, Texas

View below shows the bedroom door from spiral stairway. Notice that under the wood-slat "eye-brow" are spotlights, which can be focused on the trees at night. Across the page is shown the view from the living porch.



LIST OF MATERIALS AND EQUIPMENT

FOUNDATIONS:	Reinforced concrete, spot and continuous.
FRAME:	2x4 studs 16″ O.C. Pipe cols 3″ I.D. Floor joists 16″ O.C.
SIDING:	1x4 tongued and grooved V-jointed vertical siding over 15 lb. felt, diagonal sheathing.
ROOF:	20-year built-up type.
SASH:	Steel casements.
FLOORS:	Bath—tile. Kitchen—linoleum. Balance—Oak, natural finish.
CEILINGS: (interior)	12″x12″ fiber ceiling tile.
CEILINGS: (exterior	¼″ resin-bonded plywood.
STONE:	Native cream to buff limestone.
WALLS: (interior)	¼″ thick plywood panels, open joint.
KITCHEN EQUIPMENT:	Prefabricated units, custom-built combination double sink and work top.
LIGHTING:	Fluorescent, some incandescent.
HEATING:	Gas-fired, unit wall heaters. Provision for closet-type gas-fired forced hot air system to be installed later if necessary.
INSULATION:	1″ fiber board insulation under roof.
COST DATA:	Total cost, exclusive of architect's fee: $6,600.
CUBAGE:	18,000 cubic feet.
COMPLETION:	May 7, 1941.

Nagel House, Austin, Texas

Charles M. A. Stine, Ph. D.

Today we produce to destroy, but

Dr. Stine, one of the foremost research chemists in the country, is Vice-President and chief technical advisor of E. I. du Pont de Nemours and Company, Inc. Recipient of many awards for his achievements, Dr. Stine believes that science, if it is to be of greatest practical help, must be understood and encouraged by the public.

We will continue to invent and thus to multiply our possessions. Released by an American victory, the stream of production, compared with its volume in the past, will be as a great river is to one of its tributary creeks. We will have at our command ten, fifty, a hundred times what we had before, chiefly of new materials.

The new nation—and it was no less—that was built on this continent following 1918, largely as a result of a vision broadened by war, would have seemed fantastic in 1914.

Expenditures for industrial research in the United States rose from an inconsequential sum yearly in the pre-First-World-War period to an amount estimated at 300 millions of dollars yearly in the pre-Second-World-War period. The number of research laboratories grew to more than 2,000.

Huge sums were spent in expanding technical and scientific schools to meet the demands of our awakened youth. The number of doctorates granted in chemistry alone was multiplied by twenty or thirty times.

On the seventh day of December, 1941, when we Americans found ourselves again at war on a global scale, we were living on a level that bore but little resemblance to the pre-war period of a quarter century earlier. Our clothes, our foods, our homes were different. The character of our work was changed. Our environment and thinking were those of a new age.

Now, with the full strength and vigor of its young manhood, industry is fighting again for an American victory and an American peace. To this task it has dedicated itself wholly.

And we hear questions: Is the fight worth while? Will a victorious peace be worth the price that all too evidently we will need to pay for it? After victory—what?

My answer is that now, today, even as I speak, the pressures of this war are compressing into the space of months developments that might have taken us a half century to realize if necessity had not forced the pace.

One does not need to venture into prophecy to sketch the bold lines of what that progress can be. They have already been traced. Already our world of 1940, in which we took such pardonable if mistaken pride, is so distant in the past that it has become an antiquity, as seen through scientific eyes. The inconceivables of two years ago are today's realities.

By the end of 1943, our national productive capacity of aluminum will be 2,100,000,000 pounds annually, 63 per cent more than the aluminum production of the whole world in 1938! And we will be producing approximately 100 times the amount of magnesium that was produced in 1939, when the magnesium industry in America was 24 years old.

Our aviation industry is establishing facilities for the manufacture in one year of almost double the number of planes it produced throughout the 37 years of its history, beginning with the Wright brothers at Kitty Hawk and culminating in the Defense Program. Meanwhile, largely as a result of chemical advances in fuels, plastics, and light metals, aircraft engineers are designing trans-oceanic planes capable of flying to Europe and back non-stop, carrying payloads of 20 tons. The projected planes are quadruple the size of the famous "Clipper" planes that pioneered in inaugurating trans-Atlantic commercial air service.

The nation will emerge from this war with capacities for making plastics, synthetic fibers, nitrates, hydrocarbons, high octane gasolines, and literally scores of chemical and other raw materials on a scale that only two years ago was beyond comprehension.

Few of us, even among scientists, grasp the technical implications of these enormous projects which are becoming facts with emergency speed. The aluminum-producing capacity being created will furnish in one year metal enough to build thrice the number of passenger cars now operating on all American railroads. To produce this aluminum will require more electricity annually than was consumed in 1940 in 27 of our 48 states. Despite wartime tax schedules and wages, aluminum ingots now cost 25 percent less than in 1940, and further economies are forecast through savings in fabricating costs. Aluminum has become a major metal.

Magnesium is about 60 percent the weight of aluminum and about one-fifth the weight of steel. It sold, in 1915, for $5.00 per pound and until a few years ago was a structural curiosity. Today, measured by cubic feet, magnesium at 22½ cents a pound is cheaper than aluminum selling at 15 cents a pound. After the war, the nation's capacity for producing this lightest of all structural metals will be more than double the aluminum output of 1939.

Equally significant is the source of most of the magnesium now employed industrially. For the first time in the history of the world a structural metal is being obtained from the sea by a chemical process. Huge pumps force 300,000,000 gallons of sea water daily through intricate apparatus. At present, magnesium and bromine are the only products precipitated, but potentially the water contains traces of every element found on land. Are we opening a new field of chemistry, far more bizarre than any of the imaginings of fictionists? Nobody knows as yet.

In turn, steel is challenging the light metals. Low alloy steels and new modifications of the higher alloy steels, fresh from the laboratory, are bidding for expanding uses in aviation and wherever lightness and strength are requisites. In the steel industry today, technicians speak confidently of monster air-

tomorrow we will produce to build

craft that will be largely steel. These new alloys are three times the weight of aluminum and almost five times the weight of magnesium, but their tensile strength approximates 190,000 pounds to the square inch. This advantage permits weight to be shed by reducing bulk and eliminating needless supports.

Plastics were of sensational promise before Pearl Harbor. The newest and most versatile of plastics will be available after this war on a scale beyond all previous conceptions. The high-pressure synthesis of ammonia, one of the major chemical exploits of the country, will have taken on an industrial status that, in terms of new producing capacity, may be comparable to the discovery of a sixth continent. The amount of fertilizer chemicals that this new capacity will be able to supply farmers will be so large that the basic trends of agriculture might be changed. And these comprise but one group of a hundred or more products stemming from this high-pressure synthesis which utilizes air, water, and coal as its building blocks.

We will have glass that is unbreakable and glass that will float, wood that won't burn, and laminations of plastics and wood that will compete with the structural metals. Hosiery derived from air, water, and coal, a wonder of pre-war days, is but the forerunner of many innovations from the same source, ranging from shoes that contain no leather and window screens that contain no wire, to metal-less machinery bearings.

Fuels and metals and plastics are now ready to complete the revolution in transportation begun early in the century. The automobile manufacturer's slate has been wiped clean for a fresh start, which should result in new cars that will be of incredible efficiency as judged by present standards. Since motor car production stopped, the shiny new models that are now gathering dust in dealers' storerooms have aged, technically, at least two decades. We are now in the 1960's of motor cars, as measured by the old pace of development.

Sealed cooling systems, proved on a large scale by aviation, may end in the post-Victory car the nuisance of adding water to radiators. Weights may be half what they are, saving from 1,500 to 2,000 pounds of useless load. The power output per cubic inch of piston displacement may double, treble, and even quadruple. Fuels may yield 50 miles to the gallon, or better.

The upsurge of automobile technology will be paralleled in aviation. Designers are thinking in terms of hemisphere-spanning freighters and of passenger air-carriers in fleets numbering hundreds of planes. Trans-continental, non-stop air trains of gliders, which would drop off or pick up "coaches" over the principal cities enroute, are no longer figments of an imaginative airman's dreams. They are probabilities. Leaders of the industry say that technical considerations no longer limit the size of airplanes that can be built.

Now present are most of the elements essential to the wide, popular ownership of planes. Small, highly-efficient, almost foolproof craft can be produced at low cost. An enormous plant capacity will be awaiting utilization, tens of thousands will have have been trained in flying, and the post-Victory land will be dotted with air fields. Only within very large cities will we be deficient in field facilities, and there too the signs of impending change are clear.

As never before we are conscious of the need for more economical and better housing. Crowded city slums stand as an ugly reproach to our lack of initiative and vision in home building. The slums should be emptied after the war by the combination of forces that is being arrayed against them. Once empty, airports might well take over those bleak blocks.

Lower cost motor cars, which will draw still more thousands of city dwellers to suburbs and country, represent one of the forces that is going to help empty the slum. Public opinion, shaped by a more enlightened conception of the basic needs of healthful living, is another. The third will be the better housing that so long has been awaited. It is coming.

Better housing is coming because in no better way will we be able to put into worthwhile service the abundance of materials suitable for building all kinds of things.

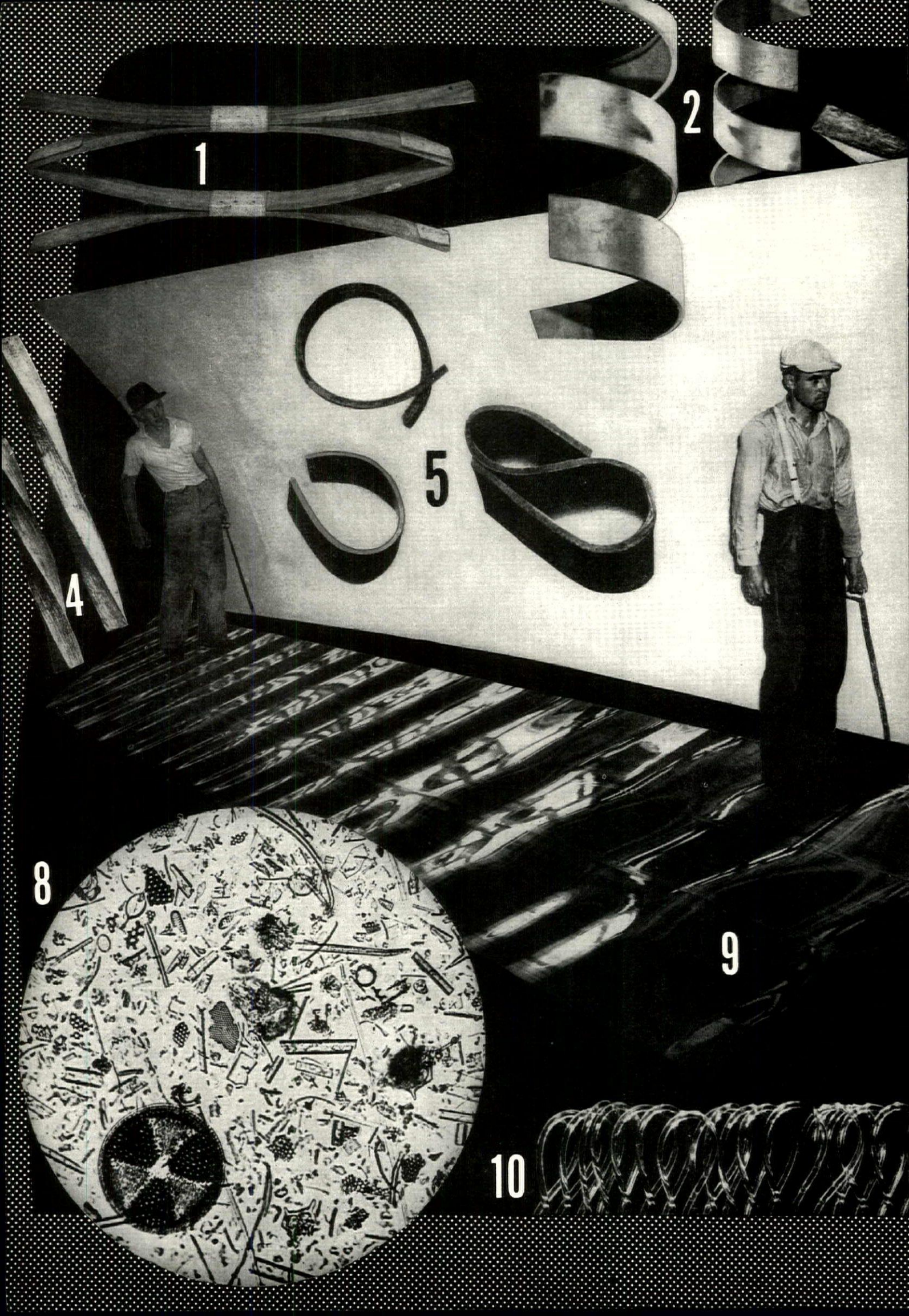
Thus far, only general objectives have taken form. They are for homes costing in the order of $500 to $800 per room. Prefabricated sections, which can be easily handled by two men, will permit flexibility in architectural designs. New insulating materials, making possible light walls that will be several times as efficient as heavy masonry ones, will allow the use of revolutionary structural principles.

Plywood, plastics, rustless steels, non-ferrous alloys, various types of composition board, fire-resisting woods, ceramics, and synthetic finishes of lasting durability will be employed in profusion. For example, stainless steel is indicated as a common roofing material of the future. It will last as long as the house and requires no maintenance. Lighting will be automatic, governed by electric "eyes" sensitive to outside variations in the daylight. Air-conditioning units will filter out the pollens of hay fever and asthma.

Perhaps the most important of all the signs pointing to better days is that the emergency of war has dissipated innumerable inertias, each an interruptant of progress. Normally, the new is received with suspicion. People cling to the old and tried, are loath to experiment, slow to change.

With peace, however, the usual slow developmental process will have been reversed. War shortages of conventional materials will have resulted in eager trials of every new material science and industry could offer. And countless of the "substitues" will have proved their superiority. Thus, an experience with, and an acceptance of, the new will have been gained that ordinarily might have taken many years to achieve.

Let our swords be mighty, and mighty indeed will be our plowshares.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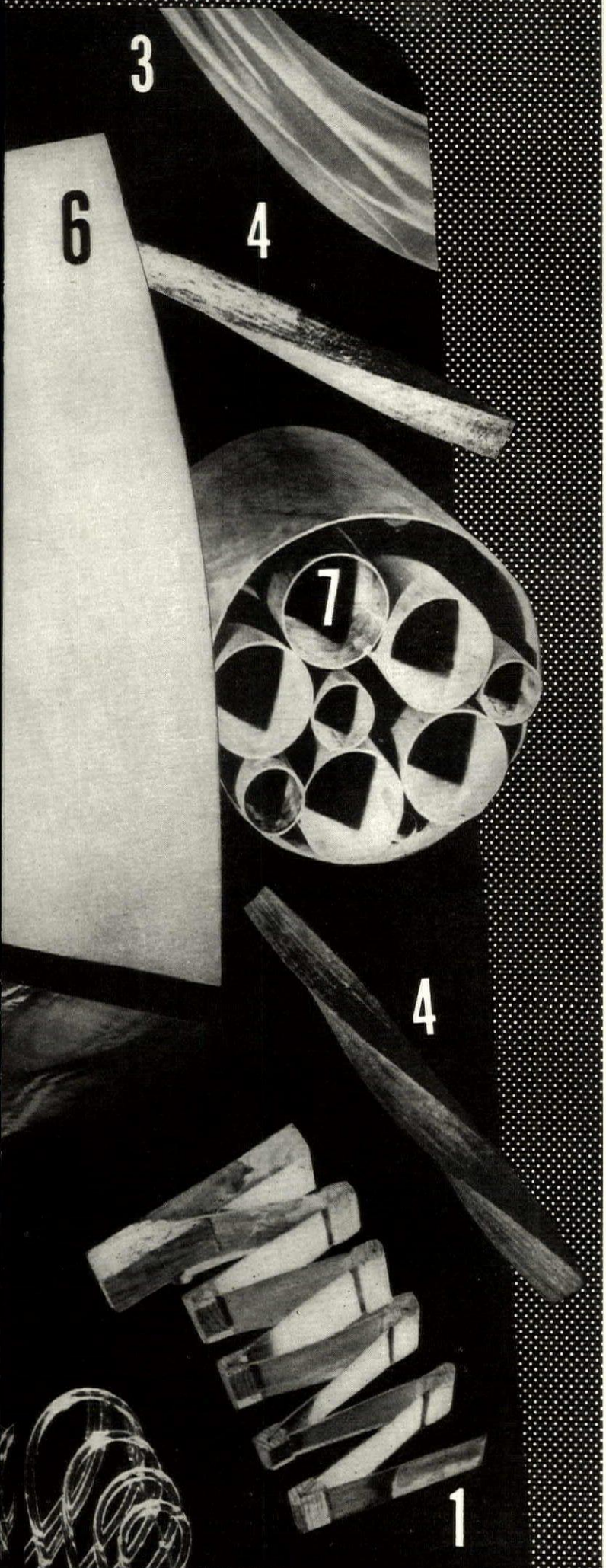


"We Produce to Build"

1, 2. Wood springs perfected by the Chicago School of Design under L. Moholy-Nagy and by the Beachley Reichard Furniture Co., Inc. Though serving as a substitute for metal these are the results of several years of experimentation and indicate ways in which new materials can be made practicable.

3. Fluorescent fabrics, white in ordinary light and blue or green under "black" light, are affected by neither washing nor dry cleaning. Photo, Continental Lithograph Corporation.

4, 5. Plasticized wood results from treating timber with urea-aldehyde. Treated wood can be bent like rubber, twisted, or compressed, and is thermo-setting. Subsequent heating does not affect it. It has excellent resistance to water; its qualities of insect- and decay-resistance are being investigated.

6. Jumbo wallboard, 8′ high and as long as you wish. Photo, Roger Dudley, courtesy I. F. Laucks.

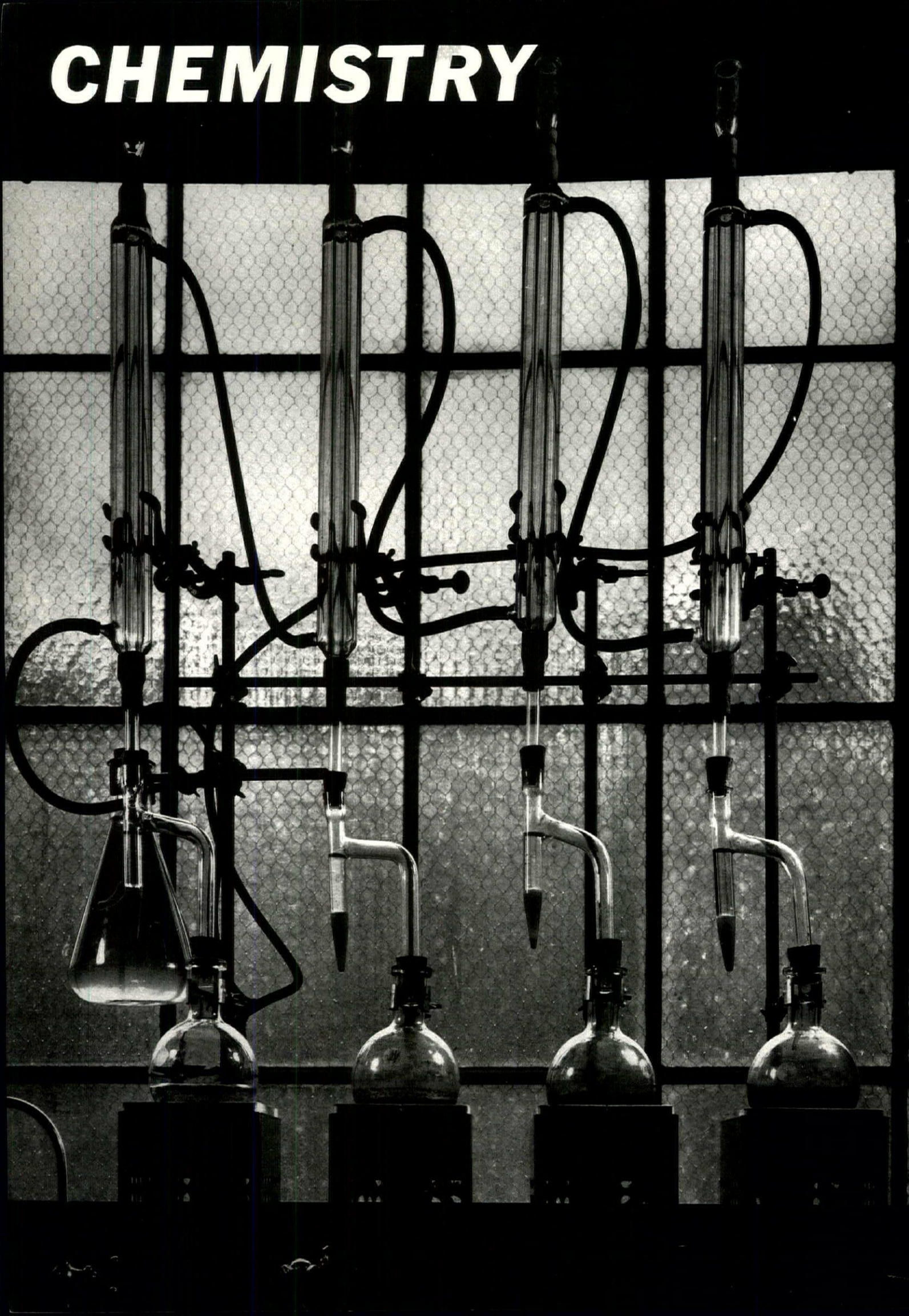
7. Plywood cylinders, from 2 to 78 inches in diameter, formed of plywood—plain or impregnated. Photo, courtesy U. S. Plywood.

8. Part of a photo-micrograph (250X) of Celite, a specially prepared diatomaceous earth used as an inert filler in molded plastics to provide special characteristics. It is also used as an ultra-fine aggregate in Portland cement concrete. It consists of the skeletons of myriads of tiny sea plants, called "diatoms". Photo, courtesy Johns-Manville.

9. Inside the world's largest aluminum plant this strip of aircraft aluminum sheet, several blocks long, is rolled. Photo, Aluminum Company of America.

10. Plastic edgings for draperies—the brilliance of glass blocks, the wearing qualities of iron. Photo from Randt, courtesy Paul MacAlister.

CHEMISTRY



by F. J. Van Antwerpen

Associate Editor, "Industrial and Engineering Chemistry"

In the business world of today approximately one-fourth of present production is concerned with the manufacture of products unknown 50 years ago—and most of these are chemical in nature. In the post-Victory world the chemical industry will be trying, experimenting, building plants, creating changes.

Power Limits Decentralization. Decentralization will become the order of the day because of the airplane. Speculation on the ultimate source of energy is necessary, however, because of our aeronautical experts. They solemnly assure us of a post-Victory civilization in which every one will fly a plane. With the decentralization trend there will be the necessity of making the home a self-contained unit. If that comes true then *the source of power will become the limiting factor.* Electrical transmission lines cannot be run into every isolated section; neither can coal, oil, sewage lines, water pipes, etc.

Electricity. We see in decentralization the reason for emphasis on electrical sources. An easy, cheap, individual system must be developed. It doesn't matter whether the electrical energy comes from sun motors, atoms, radioactive sources, or batteries. The development of an independent electrical source will necessitate a change in building design. Instead of a furnace room, there will be an electric room, with master controls.

Tomorrow the radio mechanisms will be in the electric room; the speakers built in the walls of the house with an individual speaker and control for each member of the family. In the main room of the house will be the television panel.

Cooking. Consider cooking. The electric range of tomorrow will require special alloy utensils and they will be heated by induction. Only the pot will get hot—and in turn the food will be cooked. Special thermocouples and time controllers will regulate heat and cooking time.

Heating. Homes will be heated by electricity even though the cost may seem prohibitive today. It is very possible that the ancient system of heating air and then bathing our bodies in that mass of air will be outmoded by then. The new walls, floors, and ceilings will also be heated by induction currents to the same temperature as the body—hence there will then be no exchange of heat from the bodies of the room's occupants to the colder room surfaces.

What will those new materials of construction be? Perhaps that can best be answered by examining trends of today.

Construction In Metals, Plastics. The production capacity for the light metals, magnesium and aluminum, now being built in the United States is staggering. Large sheets of aluminum could be used for walls. Or if you don't like metal, how about plastic walls of a thermosetting resin?

In the construction of such a wall suitable metal frames are made, the granulated resin poured in and the current turned on. The plastic, under heat, melts and forms a solid monolithic wall. What is more important, that wall could be made to have any physical property desired.

Glass. The record of the glass industry is extremely bright. During the first war, there was a sudden and imperative demand for laboratory glassware which would not fracture when heated. The former supply had come from Germany, and American glassware manufacturers had never been able to compete with the German product or even approach it in properties. It was necessary that our expanding chemical industry have proper glassware and out of that demand came Pyrex—in every way a superior product to the glass formerly imported. In this war the glass industry is doing research that is every bit as important.

Water Supply. What about water supply? There will certainly be the ever-present problem of contamination. Water from a deep-driven well may be as hard as a rock—but that doesn't matter because soap will be a thing of the past too. Synthetic detergents which would suds easily in salt water make washing no particular problem. But perhaps our family of the future uses a water softening outfit. They are lucky, for in passing the water through the zeolite they sterilize it at the same time. In regeneration (which is all automatic) a new aliphatic chemical is added which is absorbed by the zeolite and kills any organisms that might be present in the water passing through. If our family weren't doing it that way, they could always sterilize their water electrically.

Paint. The paint on the wall of the future building may be a new, quick-drying, organic pigment of remarkable covering, in an odorless, non-toxic solvent. The fabrics that cover the floors and furniture are dyed with colors so sunfast that the architect has been able to use vast expanses of transparent construction without fear of fading textiles. These same coverings are chemically treated for moth and beetle repellency, and outdoor canopies are no longer attacked by mildew or rot.

There are many, many more tools that science has to offer and that the planner must use.

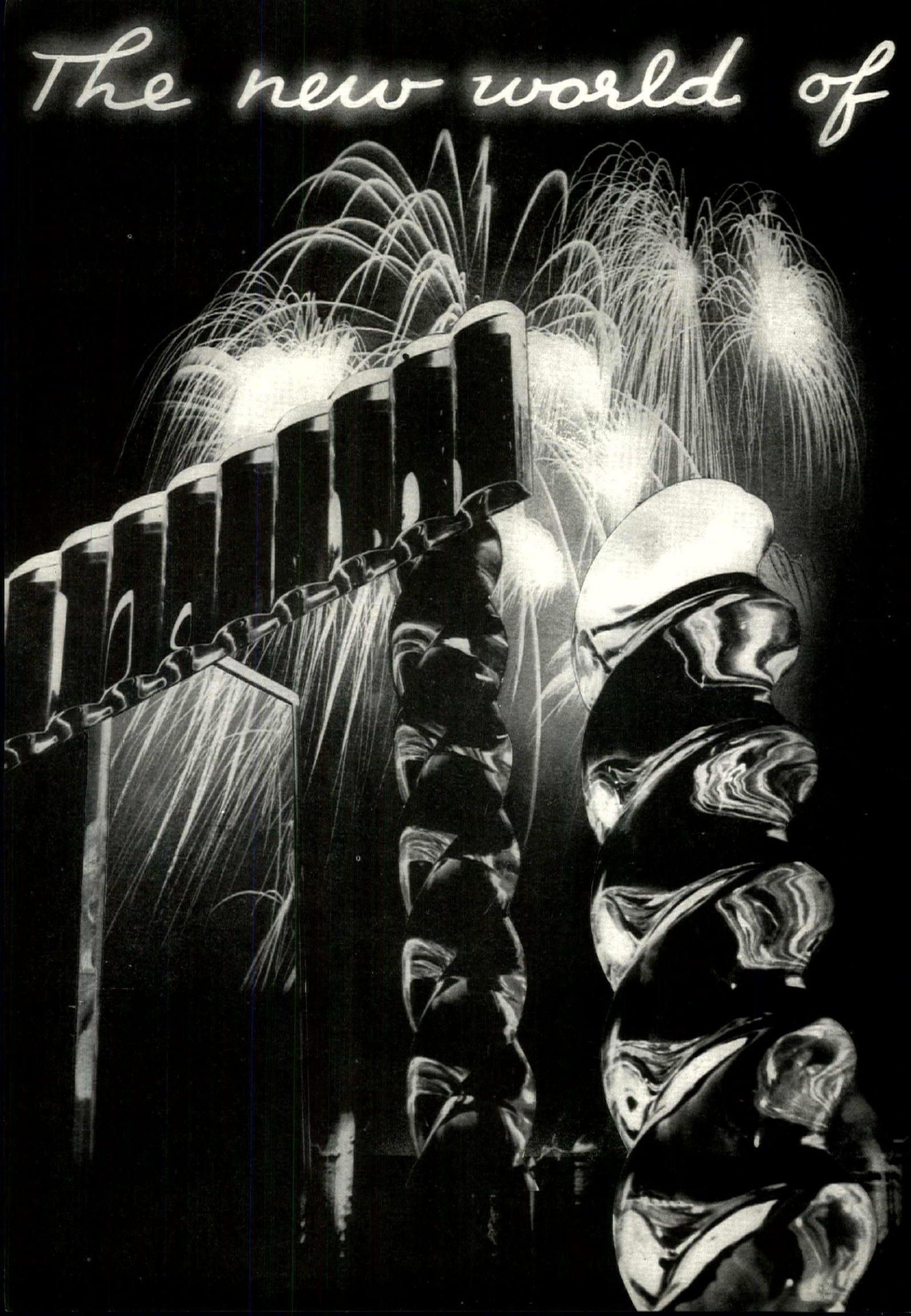
New synthetic rubbers will be made, having properties that will practically make them last forever under any weathering.

Lighting. Fluorescent chemicals, now commonly used in lamps, could be incorporated in wall paints for activation by ultraviolet light. The methyl methacrylate plastic could conduct light from a central room to desired sources—probably our nearest solution to cold light. (Any tubing coated with gold on the inside will do the same thing.—Editor's note.)

Even Insect Repellents. New repellent chemicals, odorless to humans but one hundred percent effective to insects, may make outdoor sleeping and living a distinct possibility—and what *that* would do to architectural design, with all needs of insect protection removed!

The future lies adventurously before us. What it will bring depends on the use of our spinal columns—heads we win, tails we lose. There will be reasons for faint-heartedness, possibly, in that future, but rest assured—the chemical industry will spend millions to remove the reasons.

The new world of



by Raymond R. Dickey, Editor, "Modern Plastics"

The future of plastics is exciting because of two things—availability and physical properties. They are made from everything. Wood waste, coal tar chemicals, petroleum gases, brine, limestone, air, cotton, natural gas, skim milk, fat products and wastes, and plant oils. They will be cheap in the world of tomorrow. They will have unusual and wonderful properties. Bright, water repellent, hard to break, warm, color-fast, glossy—all these properties are possible. In plastics, industry has magic things which can be altered to any need that the builders of the future may require. They can be transparent for windows that pass the ultraviolet light of the sun, or opaque, as you choose. They can be gaudy or somber, sound deadening or brassy loud, strong or fragile, smooth or rough, rigid or flexible—if you don't see what you want, ask. The only thing we haven't got is what hasn't been thought of yet.

Plastics, to any one outside the industry, present a somewhat bewildering array of chemical names and engineering properties. There are cellulose plastics, casein plastics, vinyls, phenolics, ureas, on through such tongue twisters as phenol-furfural, methyl methacrylate, and phenol-formaldehyde.

Plastics must be considered in the same light as metals. We have many metals for many jobs and the properties and engineering characteristics of each are well known to architects, designers, and engineers.

The new techniques in plastic-bonded plywood offer a type of home to the middle- and low-income groups that could have only come about with the use of synthetics derived through extensive chemical research. One interesting type of plywood is made from 4x8 foot panels bonded together by a special type of joint into a composite wallboard 8 feet wide and up to 20 feet long. These may be used as exterior panels in the finished home.

Photos of plastics courtesy Klise Mfg. Co.

For interior purposes an unbleached muslin is bonded under heat with synthetic resin to the plywood, thus providing a permanently check-free surface for decoration which takes the place of one coat of paint. Only about 5 percent by weight of the finished product is synthetic resin, but without such plastic glass prefabrication of this type of home would be impossible.

Mahlon G. Milliken has said in a recent address, "Already the British are experimenting with plastic housing which they ex-

pect to use in rebuilding bombed-out areas after the war. Plastics for housing appeared so promising to them that in spite of the extreme shortage of men and materials in England, they decided to construct an experimental, all-plastic test house which will provide the experience and data for postwar construction. Certainly the British would not have allocated men and materials for even one plastic house had they not considered this development very promising. And so it is with . . . the automobile, the plane, and the prefabricated house. Current reports are so encouraging that . . . plastics after the war will be lifted out of the gadget stage."

In the kitchen of the future, laminated plastic work surfaces will be available—corrosion, acid, and alkaline resistant as well as stainless—in many colors to satisfy any decorative scheme of the post-Victory designer. You will be able to choose between refrigerators of plastic-bonded plywood with a plastic coating, or sectional-molded phenolic or urea types. They will have larger interior capacity for their exterior dimensions because of improvements in insulation and wall construction. Ice cube freezers and trays already are available in plastics. Kitchen knives, choppers, graters, and tools will have colored plastic handles and in many cases plastic working parts. Kitchen cabinets will probably be made of some form of plastic or plastic bonded and surfaced material. Even flooring, easy to keep clean, bright in color, and slip-proof, may be available after the war. The plastic kitchen of the future will have no joints to collect dirt, no equipment up on legs, and will, of course, be packaged so that installation will be simply a matter of placing the complete unit and connecting the utilities. The kitchen of the future can truly be a plastic kitchen—a delight to the functionalists and to the housewives.

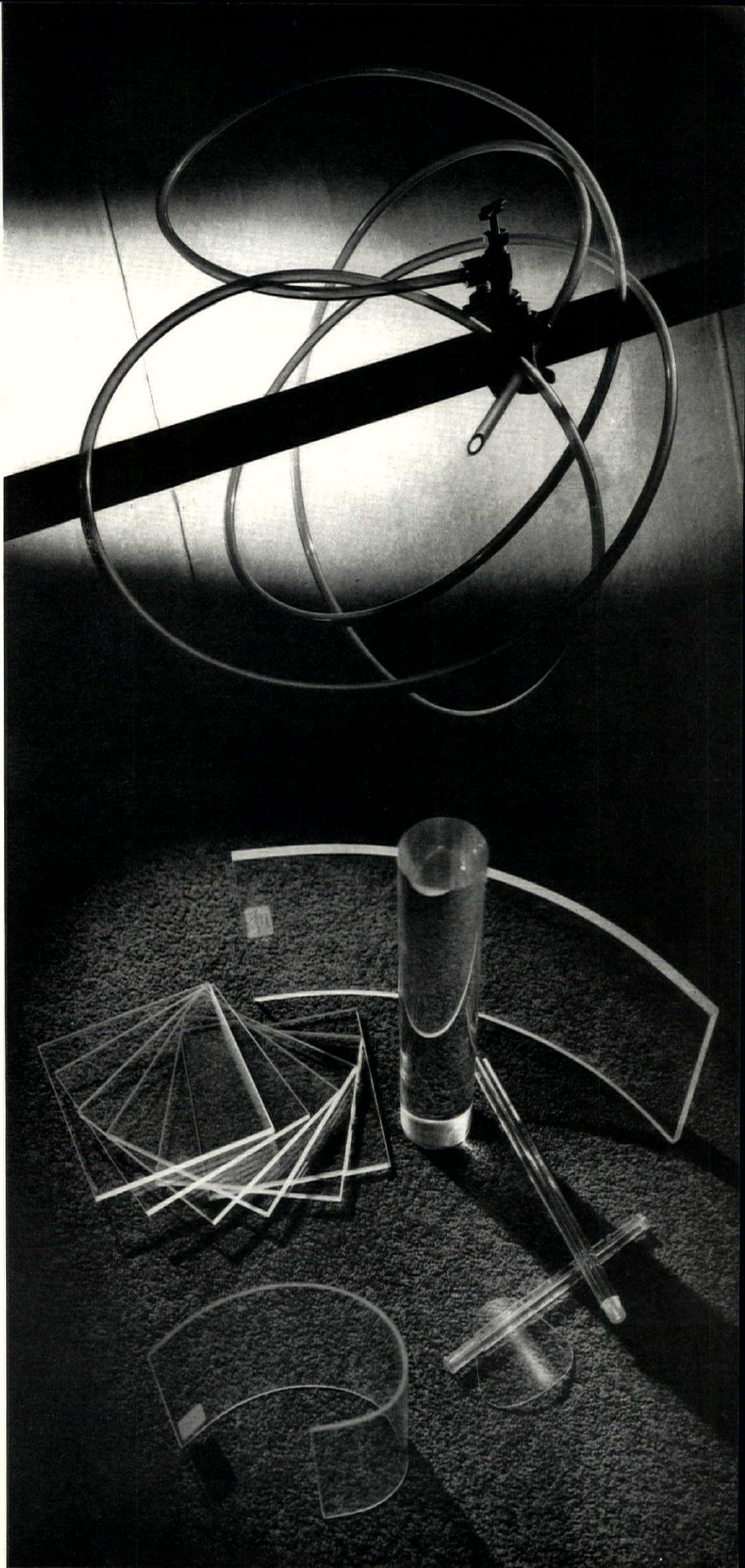
The bathroom will be no less modern than the kitchen. The remarkable mechanical improvements in bathroom facilities will utilize plastics. Walls, floors, fixtures, and toilet articles of plastics will be available to the architect for the creation of bathrooms whose convenience, beauty, and sanitation have never before been approached.

It is not only in all the rooms of the home of the future that plastics will appear. Although all the properties are important wherever plastics are used, color will lead to their use in shops and stores; sanitation commends them for hospitals and food handling activities; durability makes them useful in schools and office buildings; versatility in decoration will lead to wide use of them in theaters and social buildings; adaptability to manufacturing processes will bring a flood of plastic accessories to every phase of human activity.

In the building field, plastic accessories will take the form of electrical devices, furniture, plumbing pipe and fittings, fabrics, piped lighting, hardware, and countless other items. Even structural beams and columns, where heretofore it has been thought only wood or steel would serve, can now be made of plastics!

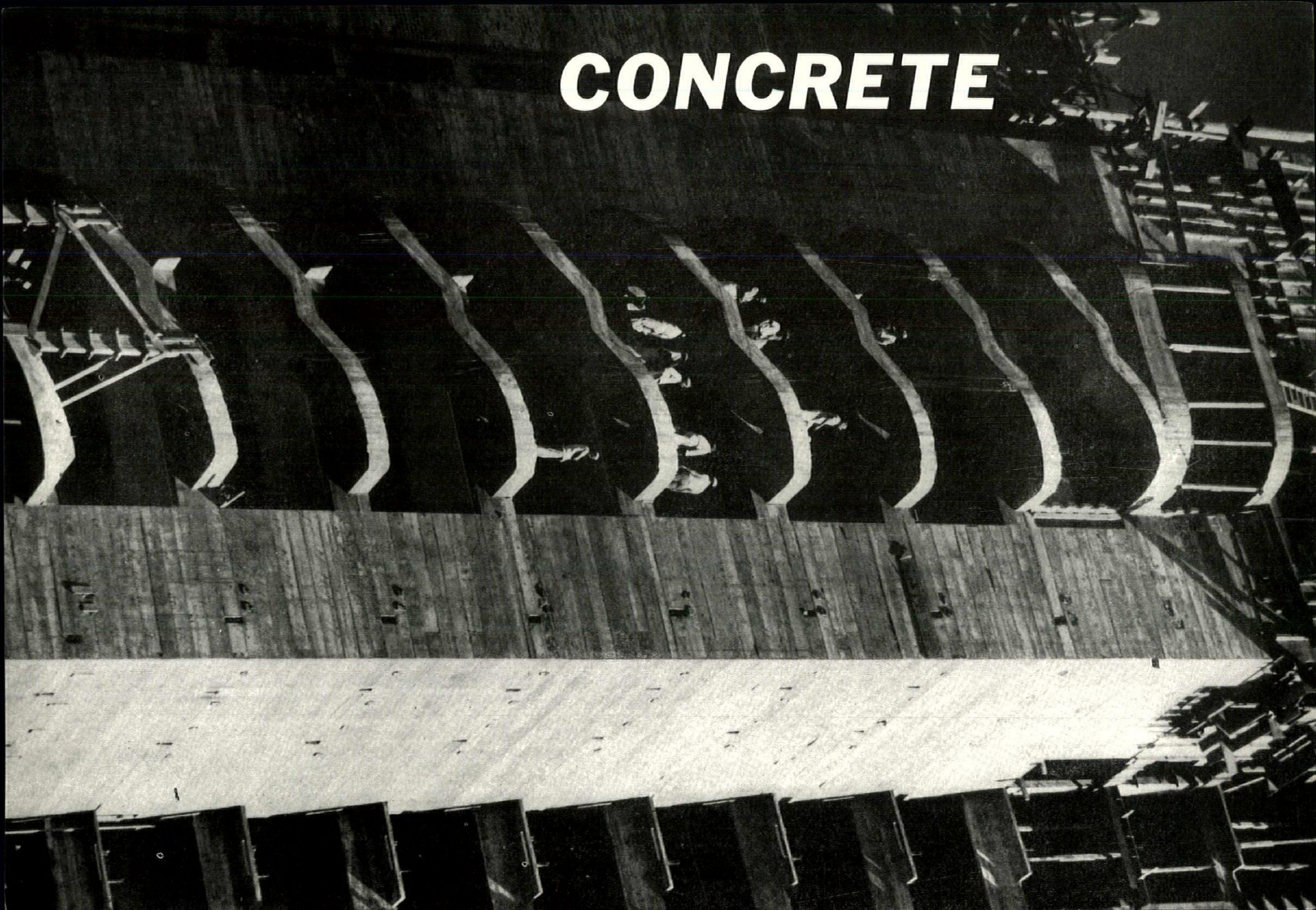
Truly, the world of tomorrow will be one in which plastics will play an all-important role. The capacity of the industry is being built daily. The plastic age is not coming—it has come. Its full impact will be felt by the average citizen in the post-Victory world. None of these things are dreams but are all logical adaptations of things which are now being done by the plastics industry.

On facing page: Top, seamless tubing, an extruded plastic product, is already being used in manufacturing and dispensing beer. Obstructions are easily located through the transparent tube; cleanliness can be readily maintained. Center, fluorescent lamps wound with thin strands of plastic in various combinations of clear and translucent colors. Bottom, extruded setting moldings for glass showcases, and for trimming wall board, plywood, or laminated plastic sheets, will be obtainable in clear and colored plastics. Photos courtesy Tennessee Eastman Corp.



On this page: Top, freeze-proof plastic piping uses standard fittings. Can be put into position without kinking, does not scale, and is chemically resistant. Photo — Dow Chemical. Bottom, CR39, a new plastic not yet commercially available, has high abrasion resistance. In liquid form it can be used to impregnate layers of paper and fabrics, which can be cured under low pressure to form sheets or shaped objects. Photo—Pittsburgh Plate Glass.

CONCRETE



by Carl F. Zeigler, Editor, "Architectural Concrete"

It should be both a comfort and a challenge to designers to know that one material which will be available to them in cheap quantity anywhere in the post-Victory world is thoroughly capable of doing the new job ahead.

That material is reinforced concrete. During the past two decades it has emerged from the menial obscurity of a material used for ditch linings, backwalls and firestops to wide acceptance in architecture. And, although among the thousands of structures built with it thus far there are comparatively few examples of new and original uses, these few serve notice that concrete should and will have a characteristic architecture of its own.

Up to now the chief reasons for using concrete have had little to do with preference for it as a design medium. Concrete has been low in cost, widely available and easy to mold by a minimum of skilled labor during a period when workers were a dime a dozen and money was tight. It provided permanent construction for public works projects that might otherwise have been flimsy boondoggling. It has produced schools, courthouses, hospitals, waterworks and sewage plants that have raised the level of decent living throughout this nation. It has done this job as well as any other material could have done it.

But there has been a singular unawareness of the possibilities of concrete as a plastic material capable of new structural and architectural forms.

Most of the fine concrete buildings erected to date might as well have been executed in brick and stone —in which many of them were undoubtedly envisioned. For, with some few exceptions, they bear the familiar feature of façade architecture—details developed by the age-old necessity to pile brick on brick and stone on stone in a plumb vertical plane to prevent walls from toppling over onto the citizenry. They have lintels to prevent the non-existent masonry from sagging into openings, marked-out keystones in continuous arches, simulated quoins and course lines, cornices, lancet openings, and buttresses. This mummery has no place at all in concrete, whose inherent characteristic is structural continuity.

But even though the use of concrete in the image of other materials may be a sin of commission, continued failure to explore and exploit its ultimate possibilities will definitely be a sin of omission.

It will be wrong because architecture up to this time has been based upon a tireless exploitation of new building materials; because the ingenuity of architects has always been tested by their ability and imagination in using any material to its fullest structural advantage; because the greatest architectural styles of all time have been developed out of a full understanding of the structural limitations and possibilities of materials. Imitation and simulation have only produced refinements throughout the long time-gaps between discoveries of new materials.

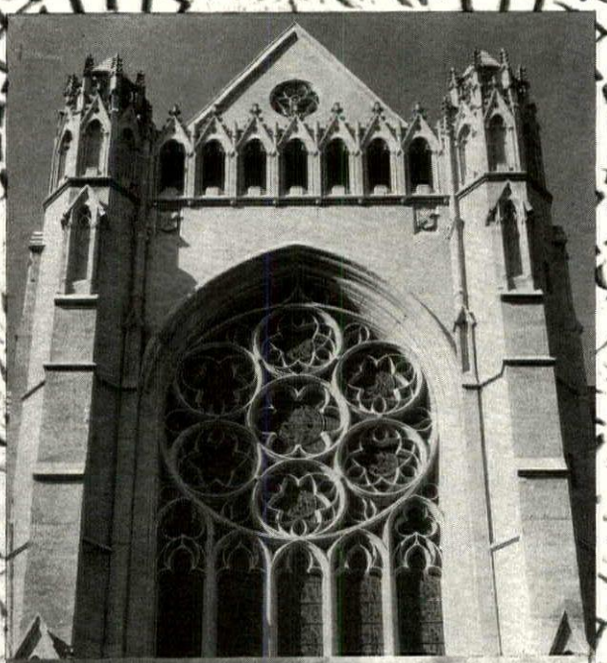
Although concrete in one form or another is at least as old as ancient Rome, it is a new material structurally and architecturally. We are just beginning to recognize the importance of its unique distinction—*continuity*. This continuity derives from the ability of concrete to assume any shape or form in its plastic state, and to maintain that shape when hardened. Not only are the framing members of a concrete structure continuous, but so also are the walls and floors which are integral with the frame and with each other. Skin and bones are the same material and so much a part of each other that if a continuous concrete building were alive, a swift kick in the dado would be resented strongly by the steeple. The interaction of fluidity-related parts produces sufficient strength throughout a structure to make unusual forms stable and sound.

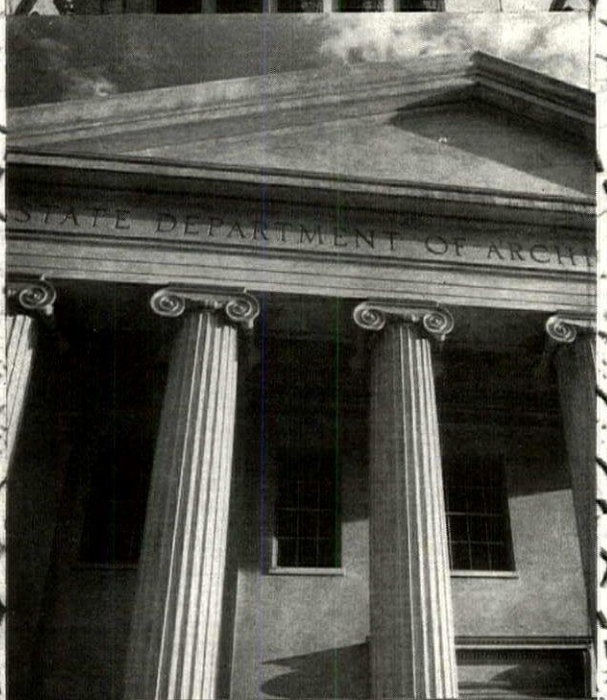
And it often requires less material and fewer structural members than for a building composed of units held together only by bonding materials, friction and gravity.

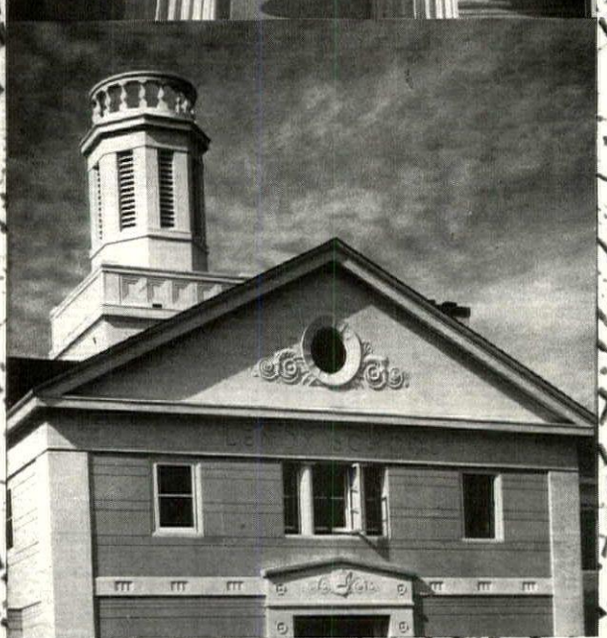
If this sounds too simple to be plausible, be assured that there are hundreds of pages of heavy going in which the identical thought is expressed in terms of pure science and backed up by formulae, both absolute and empirical, for arriving at safe structural analyses for concrete members.

New structural and architectural forms will emerge if the continuity of concrete is applied freely to the problem of enclosing space. These new forms may so revolutionize architectural design that masses of four plumb-walled units will no longer represent a building to any one. For when concrete is permitted to do what it can structurally, space will be enclosed by curved walls, shell domes and cones as well as plane surfaces, and buildings will be round, elliptical, polygon-shaped or compositions of any or all of these shapes necessary to enclose a functional area.

This suggests that some rather bizarre stuff is coming up, and there is no doubt of that for, after centuries







of repression in the use of new forms, designers can scarcely be blamed for kicking off their boots and running away in all directions. But there is no reason to believe that weird architecture will be general, for the only time architects have let themselves go in many years—for Chicago's Century of Progress and the New York World's Fair—it cannot be proved they produced anything positively revolting. In fact, many people who were first shocked by what they beheld returned home to complain at the dullness of their own towns and cities. What these architects created temporarily with paper, glue, and wire for expositional exteriors demonstrated some of the possibilities of achieving new forms in permanent construction.

It is certain that if this new freedom in design is to have any real importance in the development of architecture, designers must be not only daring and imaginative, but serious, interested, and responsible for the actual building of the future.

In Europe, Mexico, and South America, where the people have long been too poor to indulge in costly veneer for buildings, where copper and steel have been critical materials for years, and where there has not been enough plumbing, there has been considerably more done to develop an architecture based on the structural advantages of concrete. By applying the principles of continuity, the thin shell barrel to enclose huge clear areas with a minimum of material has been developed. Sweden, France, and Switzerland have long spanned their great rivers with concrete bridges which are as delicate as harpstrings.

In England, as long ago as 1935, an eight-story apartment was built with concrete walls and floors treated as integrally combined columns and beams, thus eliminating the forest of columns that produce awkward projections and limit the flexibility of interior arrangement. Walls and floors of this structure are so thin they would make our building code experts wince, but they are structurally sound and economical.

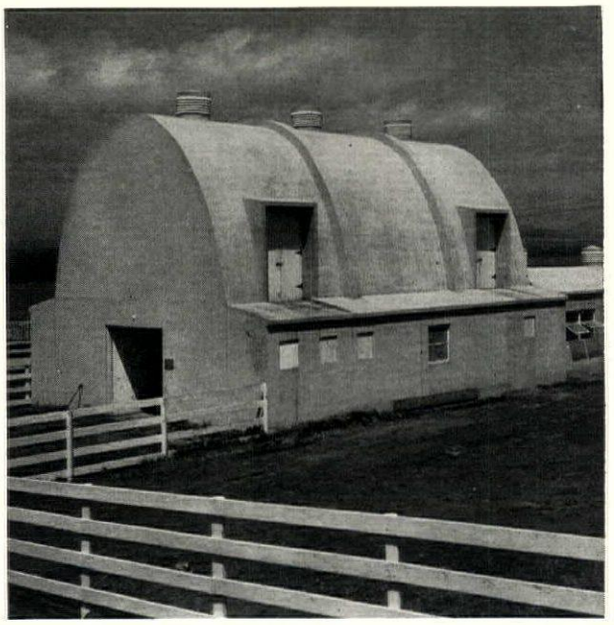
There were in France and Belgium churches with the Glory of God spread all around 18 sides instead of only along the front and one side as is common to our conventional four-walled scheme of building.

And the United States is not without examples of concrete's coming importance, although building code restrictions have not yet permitted wide departures from traditional shapes and masses. We have a series of reinforced concrete structures which are incomparably beautiful, because the material is permitted to function free and unencumbered. These are the huge power and navigation dams, some of which have attracted as many visitors as national parks.

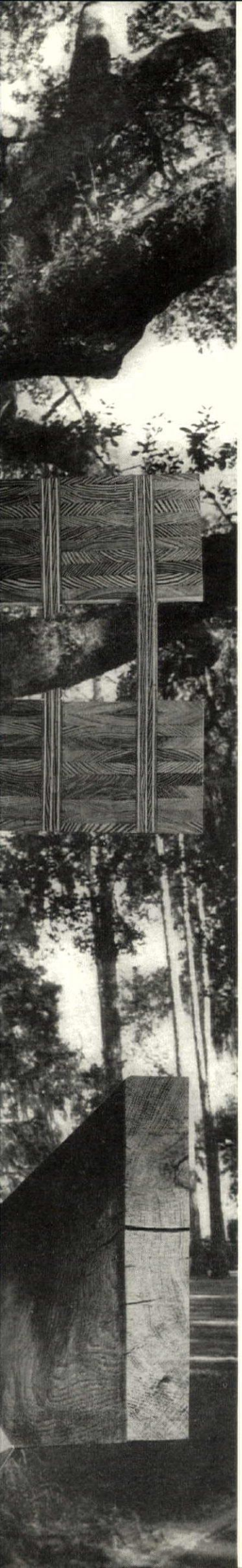
The time is not far distant when concrete will begin to move freely in space, instead of straight up and straight over; stairways will be replaced by gracefully spiraling ramps; and walls and roofs will follow the sweep of the sun and stars. There will be a new pattern for the face of tomorrow and millions of new ways to mold it.

Concrete can be used in ways in which no other existing material is entirely satisfactory. In these three photographs are shown examples some of which are, by now, historic. The barn in Lawton, Oklahoma, (top)—Paul Harris, Chickasha, Okla., Architect—and the famous Rheims Market Hall (center)—Maigrot, Architect—are similar in that both are comparatively thin-shelled concrete vaults. Both provide a free and open floor space. The barn is supported by intermediate reinforced arch ribs. The bridge below, a highway structure across the Angérman River at Biskopseler, Sweden, is an excellent example of the airiness which can be achieved when concrete is combined with metal tension members. Christiani & Nielsen, Stockholm, Architects.

On the facing page, top to bottom: Grace Cathedral, San Francisco, Louis P. Hobart, Architect, Cram & Ferguson, Consulting Architects; State Department of Archives and History, Montgomery, Alabama, a WPA structure; Lenox School, Lenox, Massachusetts, McKim, Mead & White, Architects.




WOOD



Montage—top row, left to right: wood container cap; trainer plane fuselage of wood veneers bonded with synthetic resins, light as a feather; collapsible chair with plywood frame, designed by Coggeshall. Center row: built-up girder with plywood web; hinges of plastic-bonded plywood with hidden metal bearings; typical turned wood product; section through double-web truss built up of plywood and used for arched member. Bottom row: (left end) lumber impregnated with preservative, and (right end) untreated; remainder, left to right: covered and uncovered views of a plywood column; product molded from waste lignin; plywood fluorescent lighting trough. Background photo, Rodney McKay Morgan.

After the War . . . . Wood

by Roderic Olzendam

Tomorrow, timber will be a crop just as it always has been, but apparently it is going to be a crop exhibiting itself in a greater variety of harvests than ever before. The preview of the harvests of tomorrow's timber crop is worthy of Aladdin himself. The only trouble is these modern magicians in our laboratories are so chary and wary about revealing what lies hidden in their test tubes, that we can only sketch the vision of wooden things to come.

Ever since early man roamed the woods in leopard skins and bare feet, he has been using wood in the structural sense. He has fashioned boats for the sea, shaped bows and arrows, built huts of notched logs, and squared up joists and beams with the adze.

In the past two centuries he has built up a remarkably efficient, high speed, line-production saw-milling industry. Within the past three decades he has so refined the machinery of the sawmill and the planing mill that he can produce lumber with marvelous rapidity, accuracy, and economy. But still he has left the natural wood unchanged. He has merely cut his logs into smaller pieces, sawed them, and smoothed them. Through pure mechanics he has vastly extended the range of uses of wood as lumber. These structural uses of wood will still continue in heavy volume.

Then along came the plywood industry. The art of veneering —and that is basically what plywood manufacture is—is very old. Until the chemist came forth with new types of glue—synthetic resins that were quick setting, insoluble in water, and impervious to many things—plywood had to wait. Today chemists still stir the glue pot and evolve new wonders.

Already the plywood industry, using wood in new ways, has brought important changes to the construction industries. Promoted aggressively, plywood has left its imprint on the budding technique of building homes and other small structures by methods of prefabrication. Spurred by the necessities of war, driven by the exigencies of time to experiment boldly, we are now evolving radically new methods of building—better, more quickly, more economically. These new methods will survive the war.

But the marriage of wood and glue has not been confined to plywood. We are now making 40-inch clear pine boards out of 16-inch logs. We are now making excellent quality, 8-foot

long 2x4s out of 30-inch pieces of scrap. We are now building marvelously-strong, intricately-curved beams, 50 and 100 feet long, and as thick as the length of your arm, by gluing up 1-inch boards.

We have learned to engineer in lumber, to apply to the design of large structures the same mathematical calculation that is applied to steel, and, through the use of simple little devices of steel (about the size of a napkin ring) called "timber connectors", we have learned how to build huge trusses to span, without intermediate support, a 200-foot airplane hangar.

Even the plain forms of lumber will be better tomorrow. Without altering the material of the window sash or the joist we are extending the life expectancy of wood by exploring and applying various preservatives. We are now chemically dipping lumber for war uses in the humid climates of Alaska, the tropics, and the Canal Zone. We are learning about chemical treatment that will minimize absorption and provide still better painting surfaces.

Roughly speaking, wood is divided about fifty-fifty between fiber and lignin, plus other constituents. When wood is cooked with chemical solutions the lignin and other constituents are dissolved and the fibers are set free. In America we are still discarding millions of gallons of dissolved lignin simply because we have not been able to develop commercial markets for the products we know exist in that waste, pulp mill liquor.

Along the newer path of fiber use we are interested in fiber as a semi-raw material. Here, with the fiber as a starting point, we dissolve it with assorted chemicals into a uniform mass that no longer has any resemblance either to wood or fiber. Then we take these solutions and extrude them through dies and bring forth entirely new products—although still made from lumber.

Another aspect of our after-the-war tree is in the field of materials of plastic flow. Research men have already done many astounding things by combining wood with other ingredients, and while still preserving the basic structure have turned out items that no piece of lumber could ever hope to attain, in shape or form.

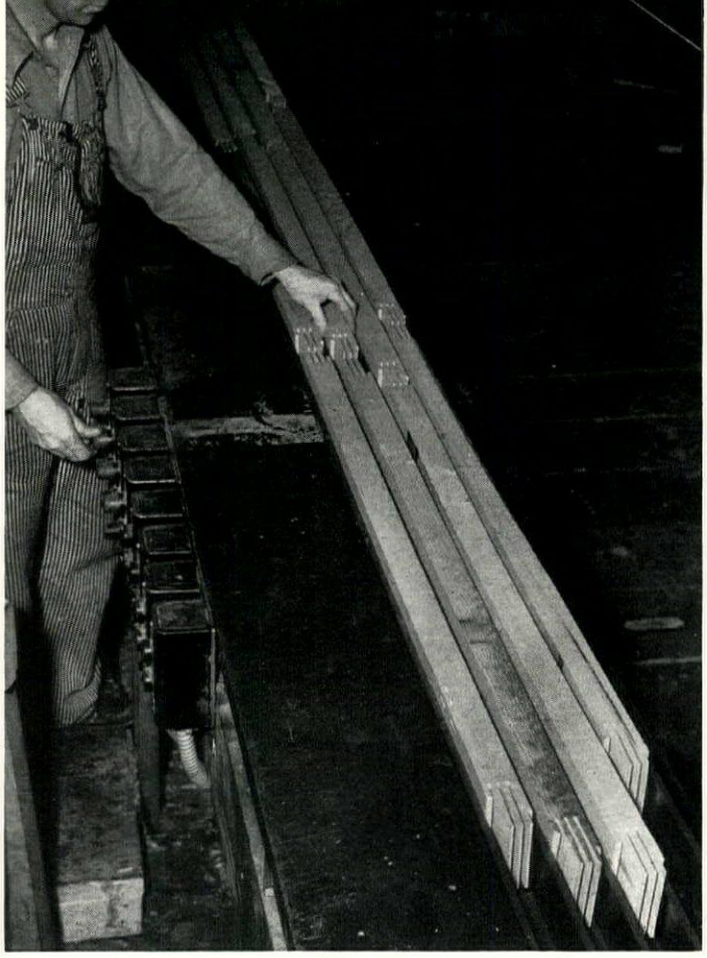
We will do something to wood in the natural—stiff, rigid—and temporarily soften it so that we may bend and twist and mold it into may desired shapes that we may bring out commercially.

Will there—can there—possibly be enough wood grown to continue to do all these things we have done before, and add a whole lot more? Won't we run out of wood?

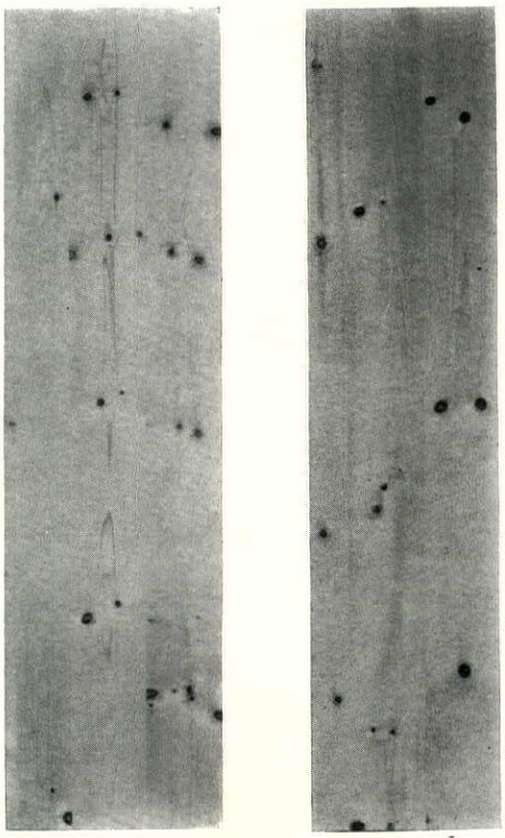
The progress of the men of the forest industries in following better forest practices, in actually growing more trees during the past twenty-five years is impressive. But again, this is only the beginning.

Timber is a crop. Tomorrow's harvest will be a thousand new, useful things to weave into the life of the common man. Many of them are still just a twinkle in the eye of a chemist, an engineer, or a superintendent. But that twinkle will be transformed into articles that will enrich the life of mankind everywhere.

Yes, Timber is a crop, and the harvest is limitless—after the war there will be wood!

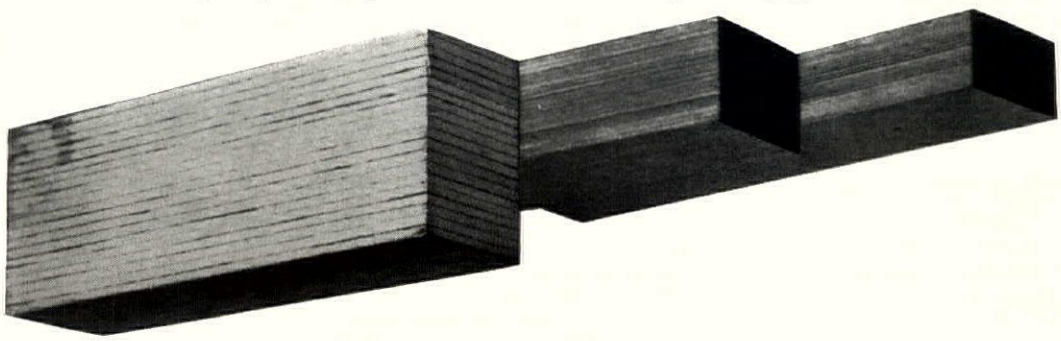


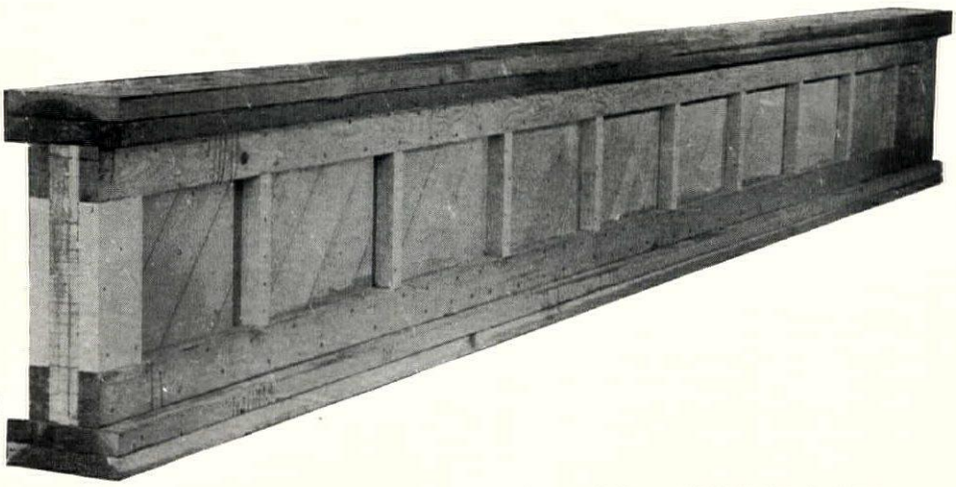
Photographs on this page might be titled: "Making big ones out of little ones." Both show practical methods of reducing waste of wood, which has, at times, consumed 76% of our timber production. Above are endless studs made of short lengths of two-by-four joined by finger cuts glued with waterproof synthetic resins. The result is not only strong, but also straighter than the natural product and remarkably free of defects. Below, wide boards similarly built up from narrow ones. Photo above, courtesy Weyerhaeuser.



Engineering in timber is greatly facilitated by methods of assembling pieces of lumber into a unified construction material. Above, at left, laminated timber arches, with a clear 54-foot span and 66-foot rise, are made up of southern pine boards secured with casein glue. The building is a testing laboratory for delicate instruments; construction metal had to be reduced to a minimum. Shipping the sections took two railroad cars separated by an idler car. At right is an experimental hangar framed in wood. Webs of the arched trusses are plywood, as are the intercostals. Entire assembly is united with synthetic resin glue (patent pending). Such developments, entirely possible today, point to more unusual possibilities tomorrow. Photos, courtesy Unit Structures, Inc. and Marine-Air Research Corp.

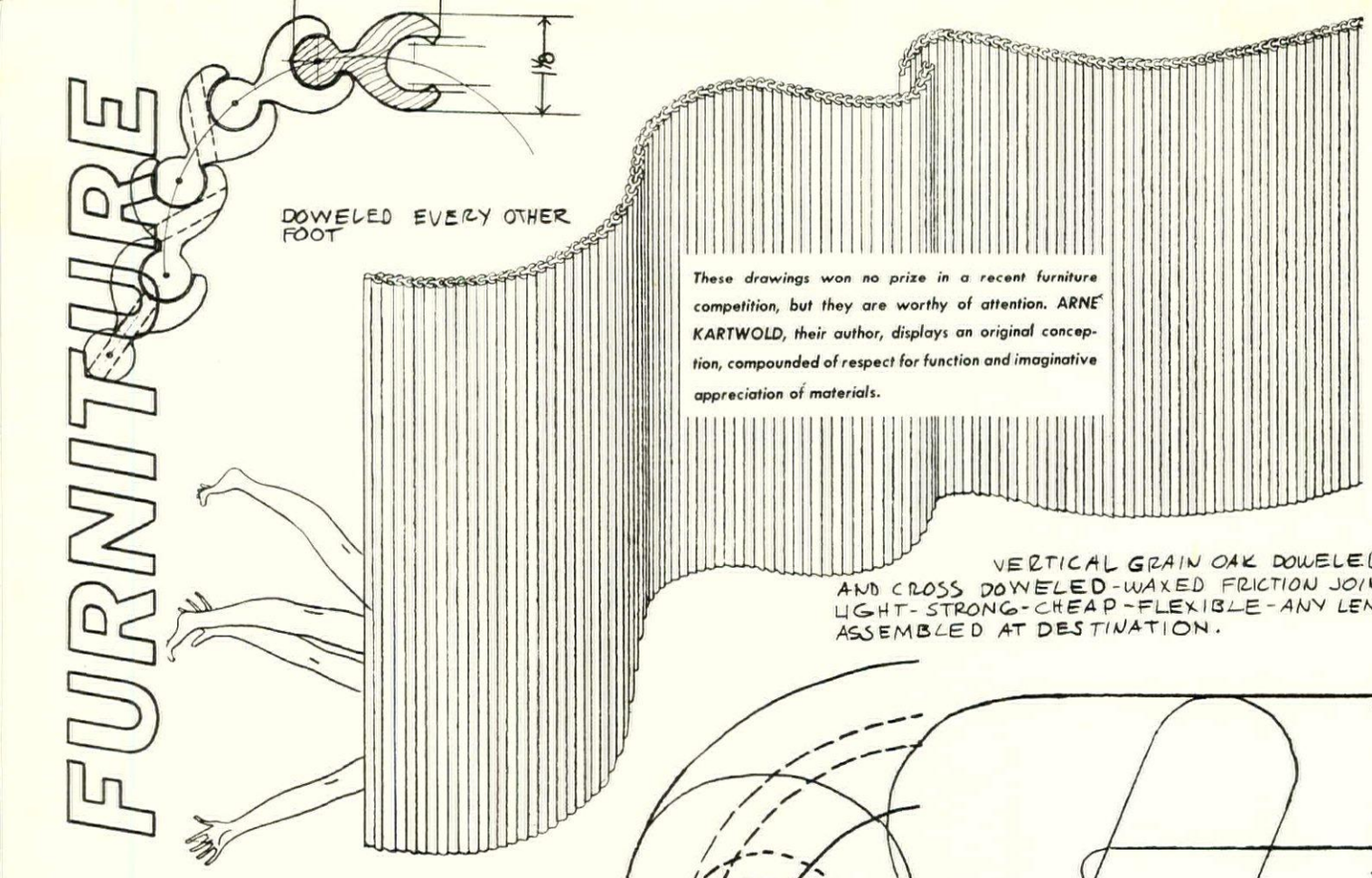
Numerous methods have been evolved for making wood into an almost entirely new material. Directly below is "Compreg," which consists of layers of wood impregnated with a plastic compound and compressed into less than half the original thickness. Other methods include the urea treatment, under which wood loses, temporarily, its rigidity and can be tied in knots; and developments in use of lignin, formerly a waste product, which can be molded into almost any shape. Examples of these are shown on previous pages.





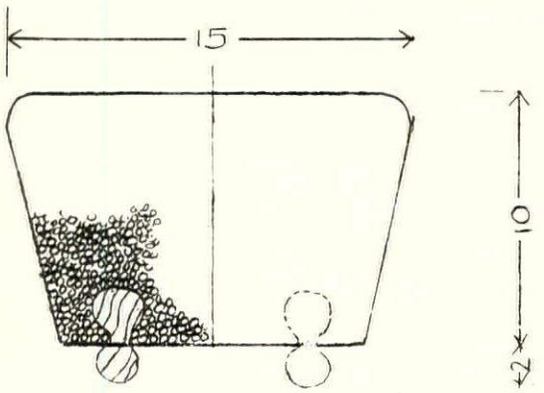
A built-up girder made of standard lumber shapes has been satisfactorily tested.

FURNITURE

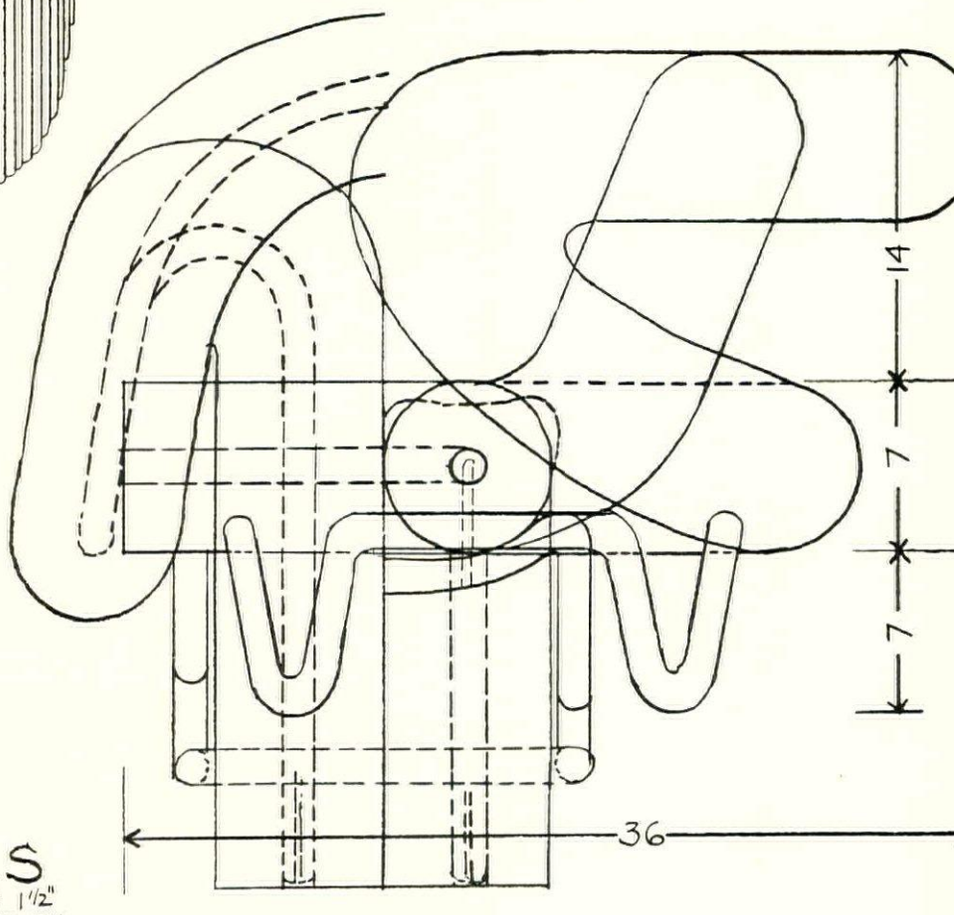


These drawings won no prize in a recent furniture competition, but they are worthy of attention. ARNE KARTWOLD, their author, displays an original conception, compounded of respect for function and imaginative appreciation of materials.

VERTICAL GRAIN OAK DOWELED AND CROSS DOWELED - WAXED FRICTION JOINTS - LIGHT - STRONG - CHEAP - FLEXIBLE - ANY LENGTH - ASSEMBLED AT DESTINATION.

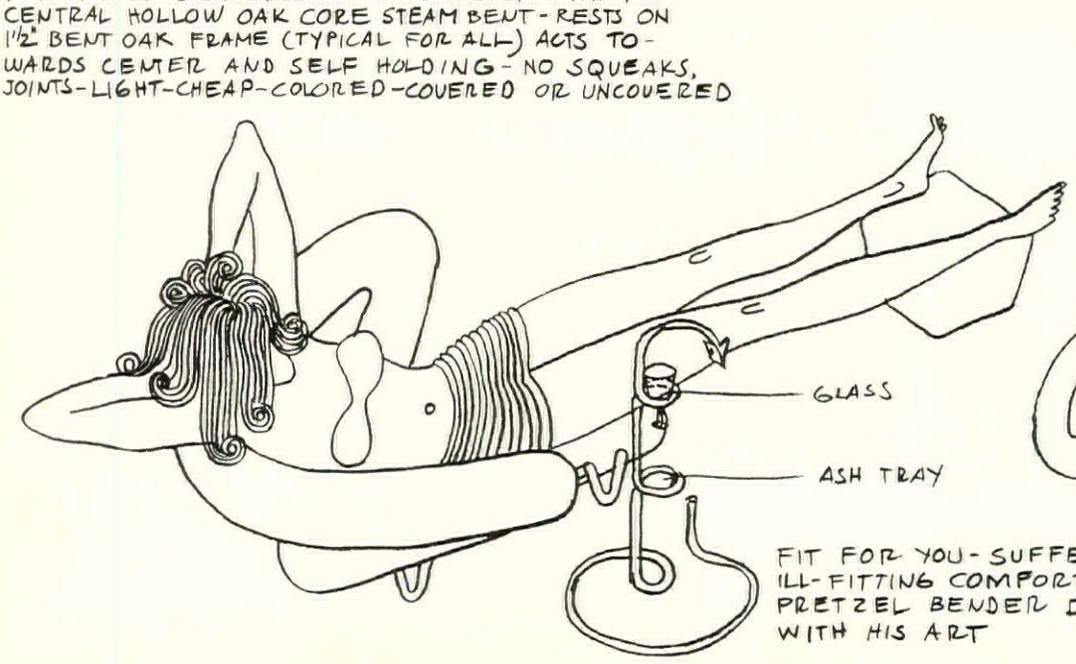


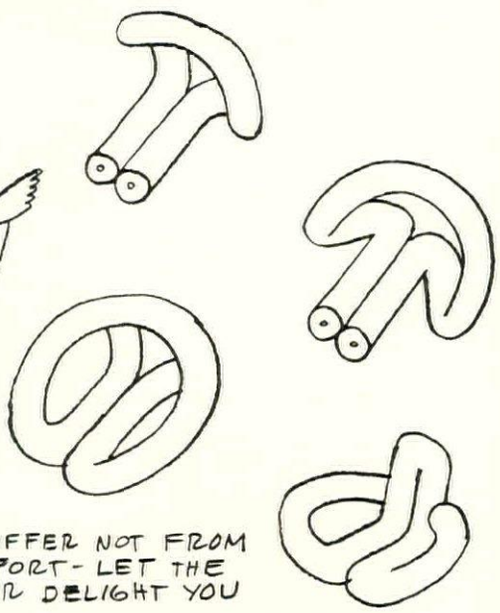
A CUBE OF LATEX AND A COUPLE OF HARDWOOD PEGS



EASY - EASY - CHAIRS

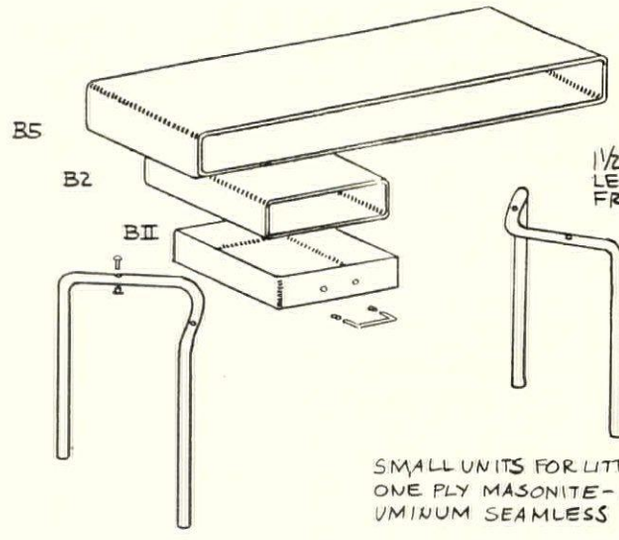
LIQUID LATEX - U.S. RUBBER CO - 7½" DIAMETER WITH 1½" CENTRAL HOLLOW OAK CORE STEAM BENT - RESTS ON 1½" BENT OAK FRAME (TYPICAL FOR ALL) ACTS TOWARDS CENTER AND SELF HOLDING - NO SQUEAKS, JOINTS - LIGHT - CHEAP - COLORED - COVERED OR UNCOVERED



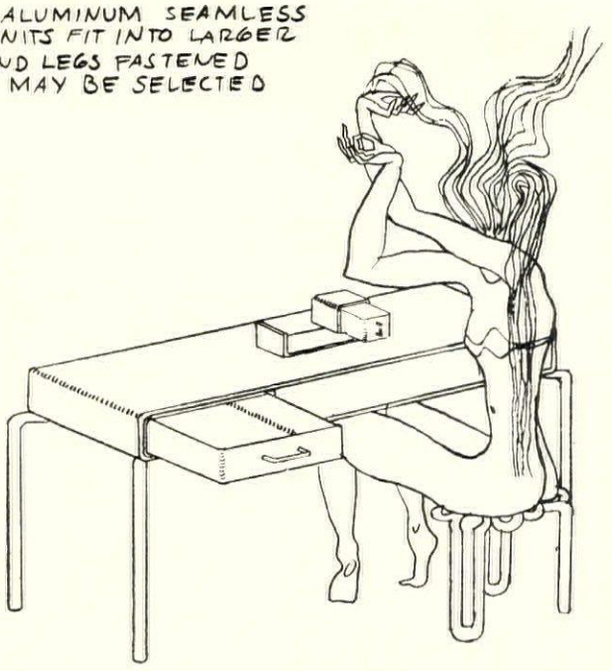


FIT FOR YOU - SUFFER NOT FROM ILL-FITTING COMPORT - LET THE PRETZEL BENDER DELIGHT YOU WITH HIS ART

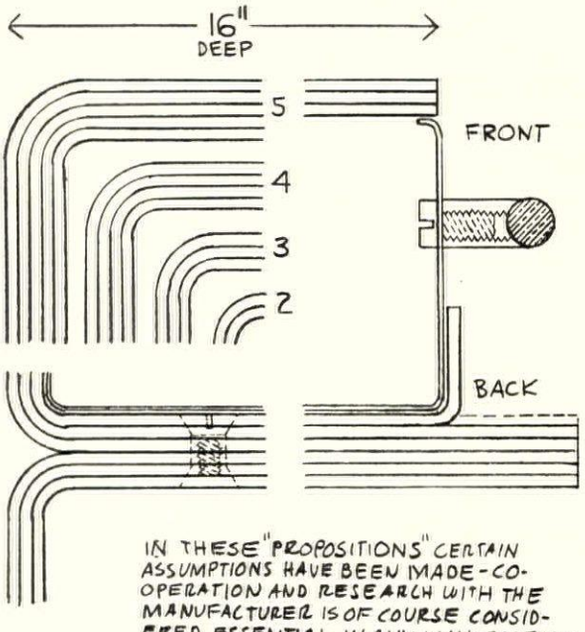
MACHINE BENT AND GLUED MASONITE - ANY COLOR - NO BACKS - ALUMINUM SEAMLESS DRAWERS - SMALL DRAWERS ALSO OPEN AT TOP. SMALL TWO PLY UNITS FIT INTO LARGER THREE PLYS - UNIT NUMBERS INDICATE PLY THICKNESS - UNITS AND LEGS FASTENED TOGETHER WITH COUNTERSUNK BOLTS - PERSONAL COMBINATIONS MAY BE SELECTED AND ASSEMBLED AT DESTINATION - SEE A FEW BELOW



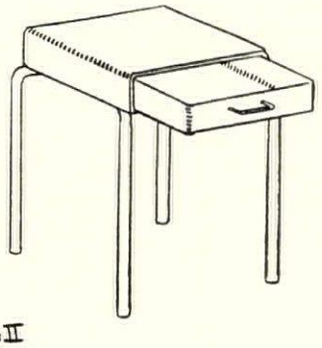
1½" ROUND BENT OAK LEGS - SCREWED TO FRAME



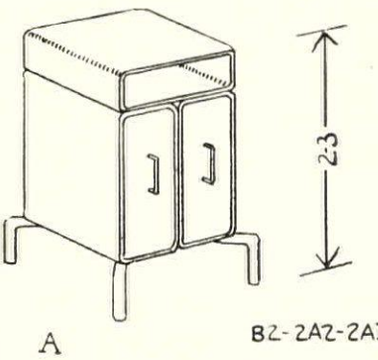
SMALL UNITS FOR LITTLE THINGS - ONE PLY MASONITE - LIGHT ALUMINUM SEAMLESS DRAWERS



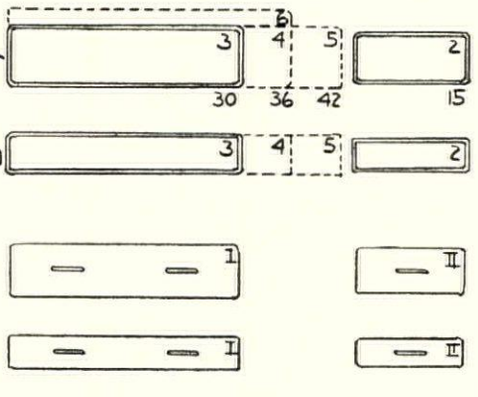
IN THESE "PROPOSITIONS" CERTAIN ASSUMPTIONS HAVE BEEN MADE - CO-OPERATION AND RESEARCH WITH THE MANUFACTURER IS OF COURSE CONSIDERED ESSENTIAL IN ANY MANUFACTURE



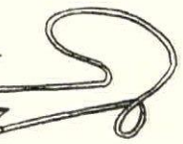
A2 - AII

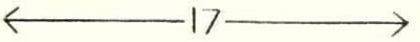


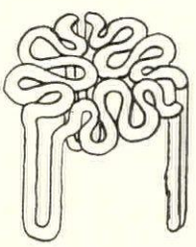
B2 - 2A2 - 2AII

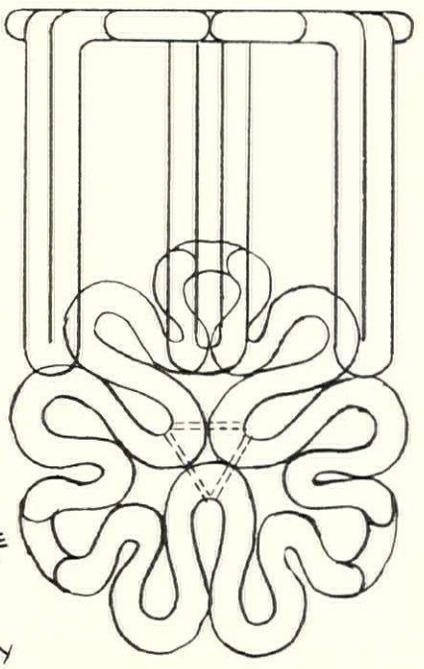


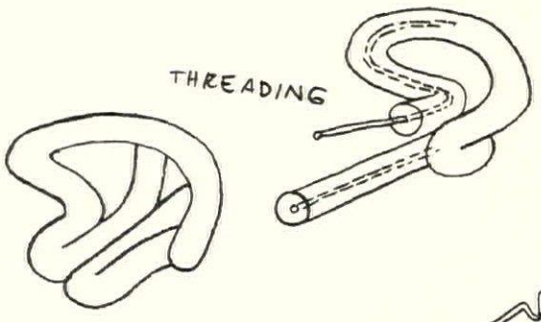
1½" ROUND BENT OAK LEGS - SCREWED TO FRAME

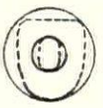


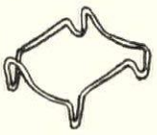




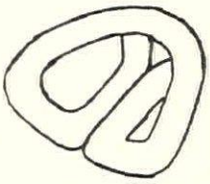








BENT BASE - SPLICED WITH DOWEL



"PERSONALIZED EASYS"

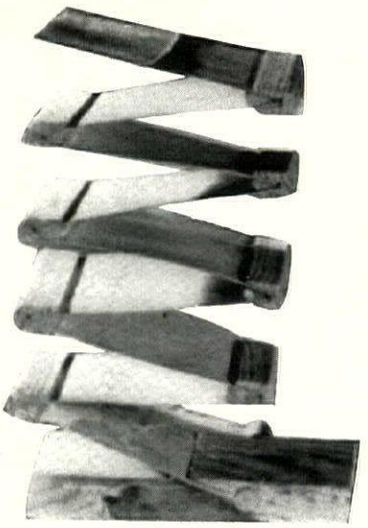
ONE OR TWO DOWELS - A COUPLE OF SPAGHETTI STRANDS - SINEWY - LIGHT - STRONG - 1½" HOLLOW OAK CORE (FOR SHARP BENDS AND LIGHTNESS) STEAM BENT - DOWEL FASTENED - SEAT FINISHED TO NEARLY FLAT SURFACE.

Conversion in Action

HOW WOOD SPRINGS WERE INVENTED

Students at School of Design in Chicago Experimented for Years in New Wood Uses; How Woodworker, Designer, Engineer Co-operated

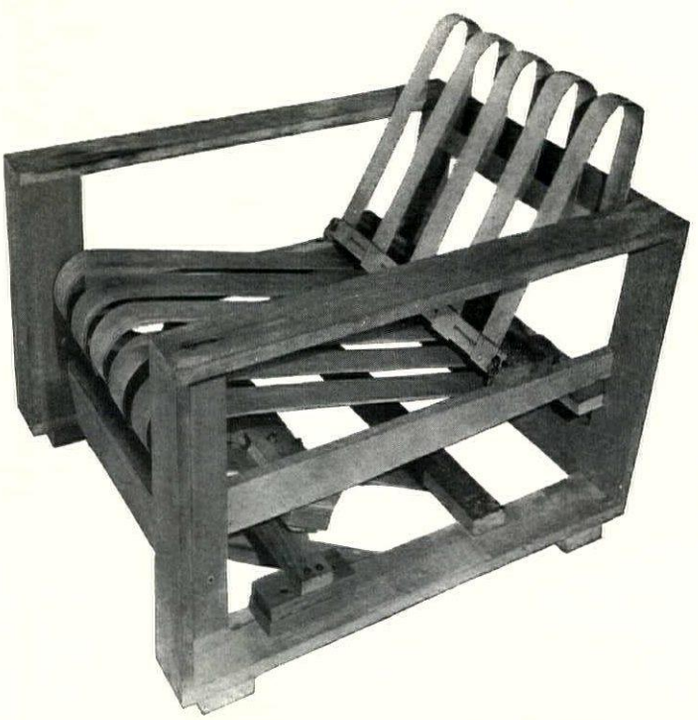
How does one go about it to design, in wood, a product which now is in metal, and which most people assume can be made only in metal? That is the difficult problem fac- many woodworkers who want to -duction pro- possible lines of approach, an dozen of these were put int gible shape, in wood. W played at the Renaiss of the University months ago the sensation, but considered t impracti

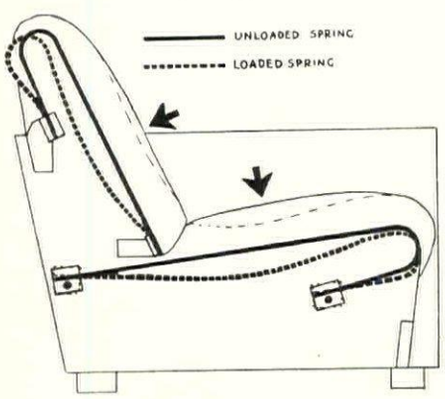


As the clipping above indicates, the Chicago School of Design, L. Moholy-Nagy, Director, has been active for some time in developing "substitute" materials. Many furniture manufacturers have likewise developed wood springs; notably the Strand Ski Co., Wellswood Spring Co., Wood Spring Corp., Beachley Reichard Furniture Co., Inc., Nachman Spring-Filled Corp., Seng Co., and others. Examples at right: top, Chicago School of Design; right, Strand Ski Co.

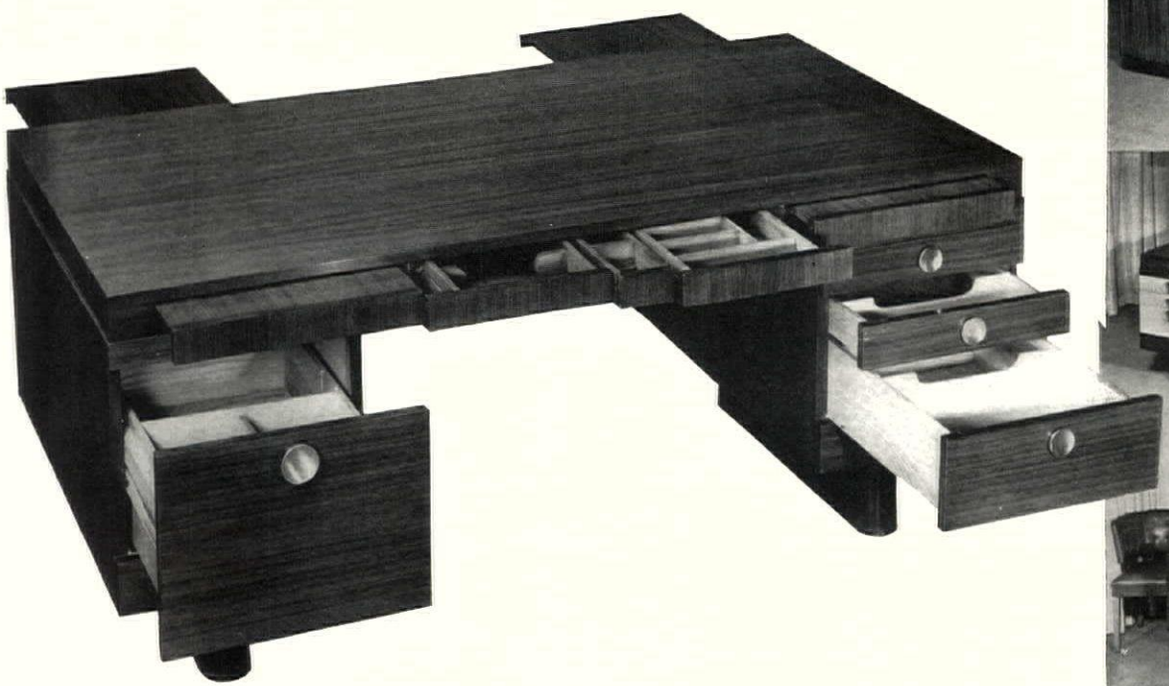
Left, wood slat springs held apart by spacer blocks; Wellswood Spring Co.

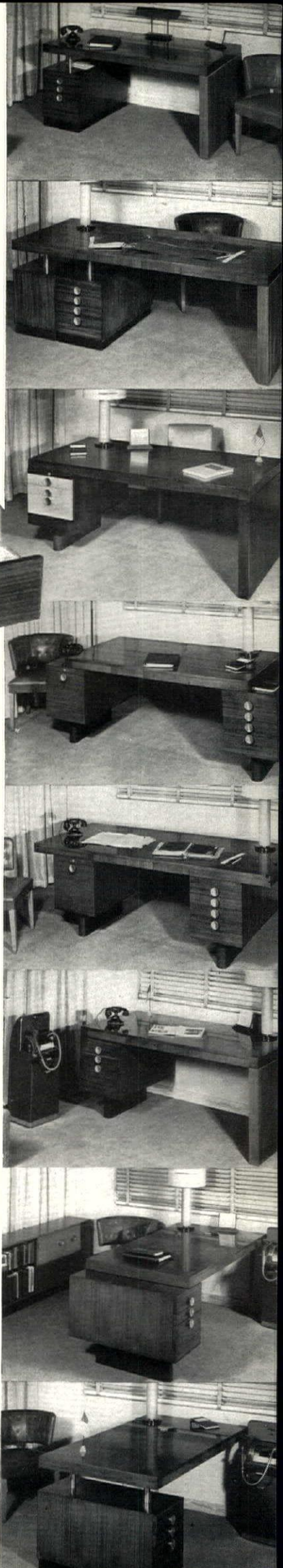
Below and at right, wood springs for upholstered furniture, designed by Gilbert Rohde.



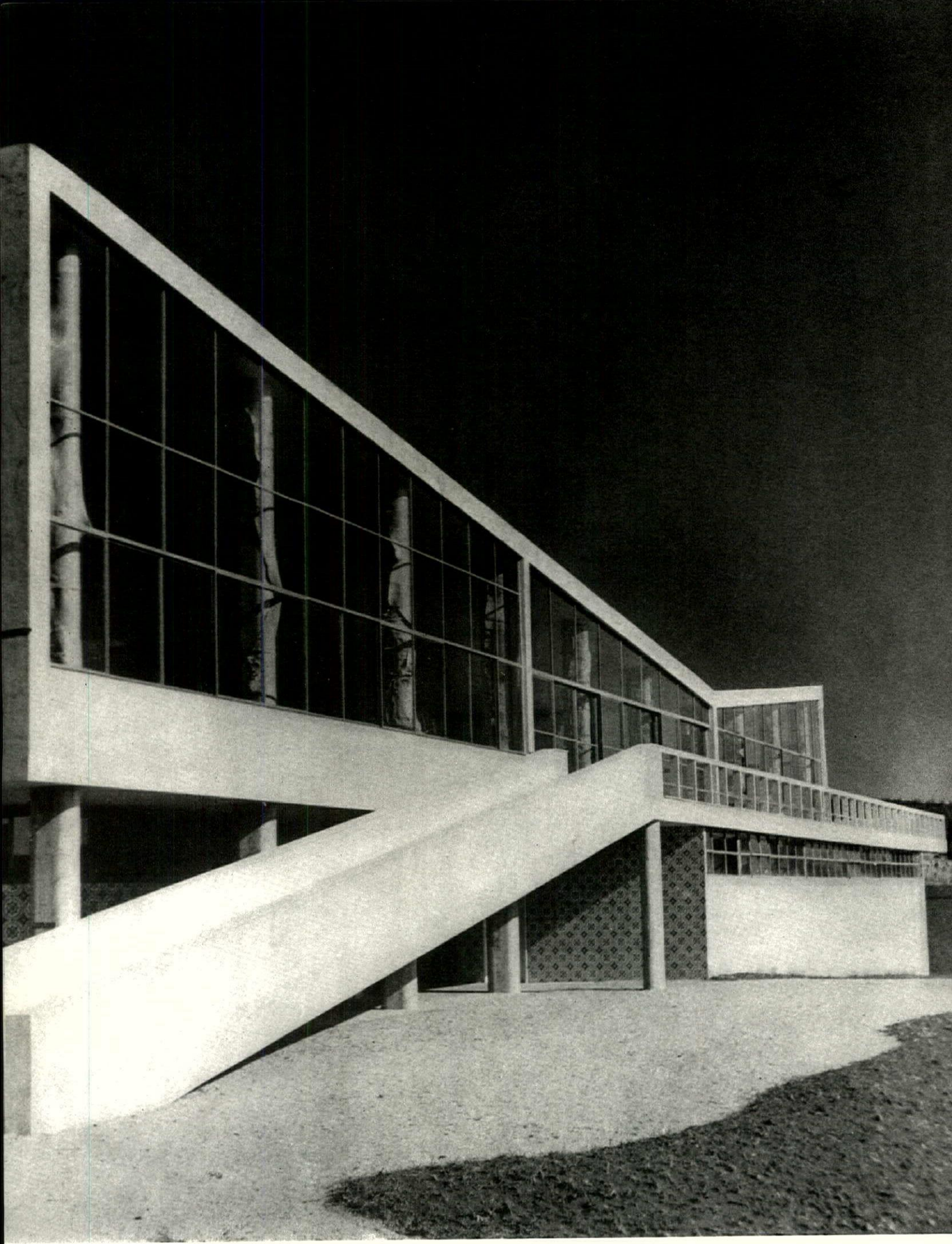


Below and at right, the desk of a-thousand-and-one possibilities, designed by Gilbert Rohde. In the example directly below, small supply utility drawers have been added—one for scratch paper, one for smoke materials, one for pen, clips, pencils. At the right are some of the possible combinations.





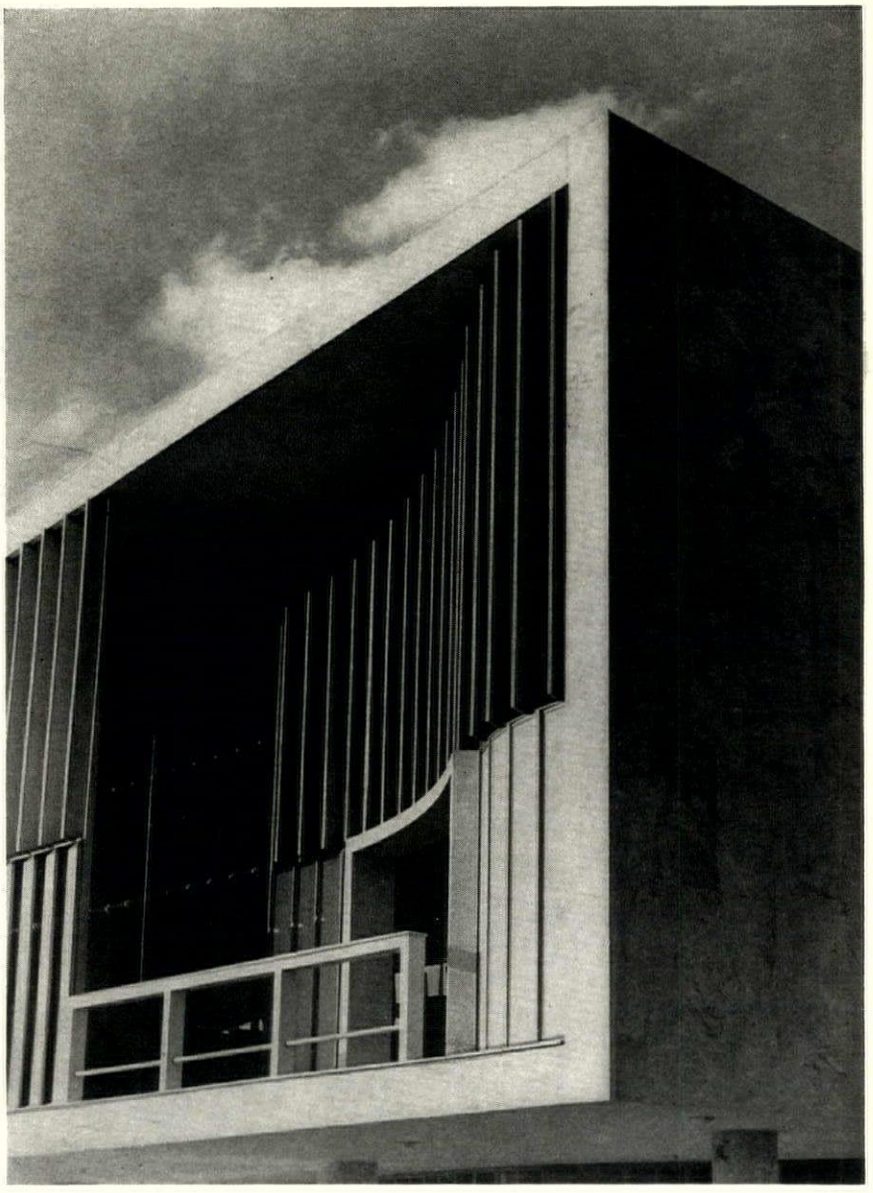
Designed and executed by The Paul Bry Shop, this glorified indoor barbecue was developed especially for the small urban apartment. The top contains a cutting board, a rack for knives, forks, spoons, and other utensils, and electric grills, upon which almost any desired meal may be prepared. At the right are a shelf and a drawer for condiments. The metal-lined interior is for cooking utensils. Being on wheels, the unit can be rolled into the typical apartment living-dining room, and the hostess can prepare dinner without deserting her guests. We understand recipes come with it. Photo, Louis Werner.



To Brazilians, and those familiar with Brazilian customs, a structure such as this is not an exotic anomaly; it is a simple building in which they eat, drink, dance, or take treatments; from which they go boating or swimming in the lake or pool. (Photos of the Yacht Club from Marcel Gautherot.)

Brazilian Architecture: Living and Building Below the Equator

Yacht Club, Pampulha, Belo Horizonte
Oscar Niemeyer, Architect



Brazilian architecture cannot be assessed in terms of our own; we must comprehend something of that country, its climate, its people, and its customs.

However, attempt a slightly different comparison. For Belo Horizonte, capital of the State of Minas Gerais, imagine a super-Pittsburgh, smokeless, with its vast, rich mineral deposits almost untapped, lying north of Rio de Janeiro, close to the Equator, but at an elevation above sea level about that of Denver's, so that the sun is somewhat tempered.

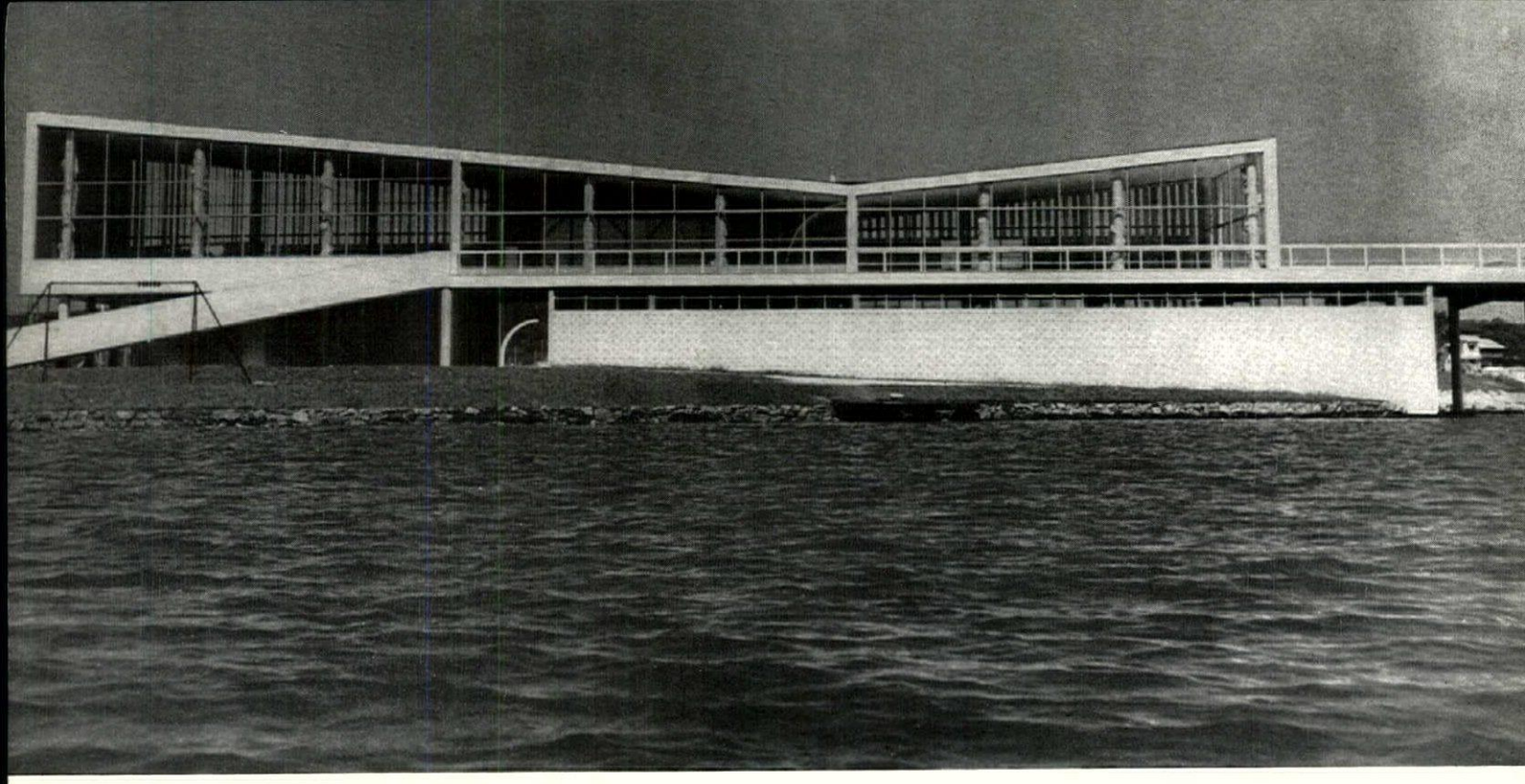
Belo Horizonte, almost a boom town, but planned, possesses on the shore of an artificial lake several establishments which we might call "clubs" or "recreation centers." But Brazilian clubs are maintained by many, many groups with common or distinctive interests. Dues may be the equivalent of a dollar a year. Joining is a simple matter.

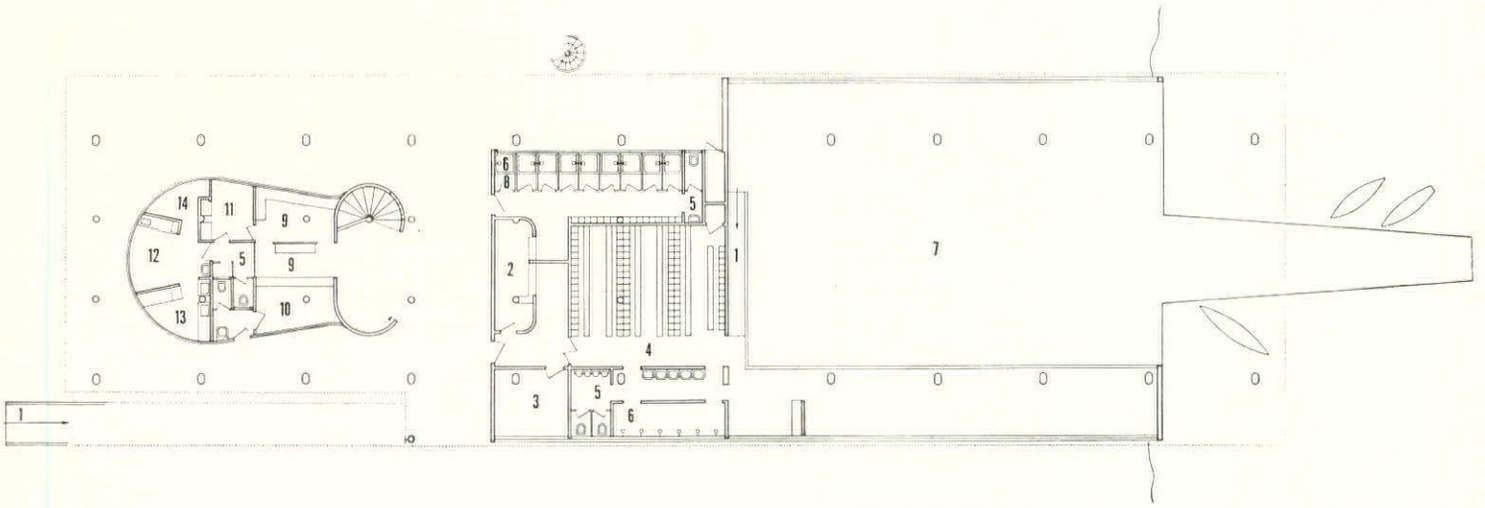
For knowledge of works of such wide interest, the NEW PENCIL POINTS and all architects are indebted to Philip L. Goodwin, FAIA and G. E. Kidder Smith, AIA. Their recent journey to Brazil, sponsored by the Museum of Modern Art and the American Institute of Architects, should facilitate understanding of our great neighbor to the South.

This Yacht Club of Niemeyer's demonstrates that the Brazilian conception of good architecture, as something which transcends style or tradition, has spread well beyond Rio de Janeiro and Sao Paulo, where it has perhaps had its most enthusiastic reception. These two cities have received new faces in little over a decade. The impressive new buildings which house government and service departments, buildings such as the ABI (Brazilian Press Association) headquarters, schools, institutes, apartment houses, private dwellings—all contribute to this effect. The beginnings of the trend coincided with an economic and building boom, and the movement spread like wildfire. A busy "residential" architect in Sao Paulo, for instance, would not have five or six houses on the boards at once; he would have forty, fifty, or more, all abuilding simultaneously.

But the boom, and even the coincident existence of a body of architectural ability, would not have been enough alone. Similar conditions have at times existed in the United States and other countries, with results by no means as impressive. In Rio, the Minister of Health and Education, Snr. Gustavo Capanema, had the capability and the courage to insist upon marrying the two. One result was a Ministry building like no other governmental project in this Hemisphere. Perhaps more important than the building itself is the vitality which official encouragement has helped to infuse into Brazilian architecture.

Not that this is, in any sense, an "official" architecture, or even a national style. Deep interest in the works of Le Corbusier (who was closely identified with the Ministry's design) is evidenced in most modern Brazilian work; we can trace direct parallels for some projects. And the official attitude towards architecture recognizes individual architects, through competitions and direct awards. No "Federal" architect, no employed designer in a bureau of creation, can control the design of Brazilian buildings.

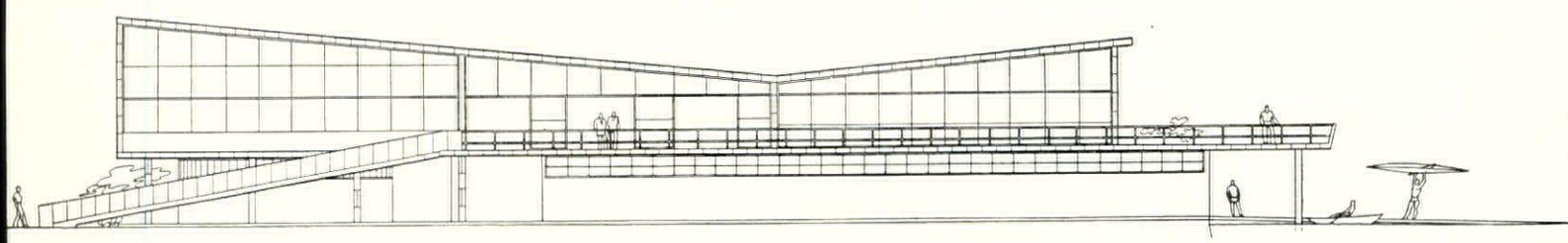


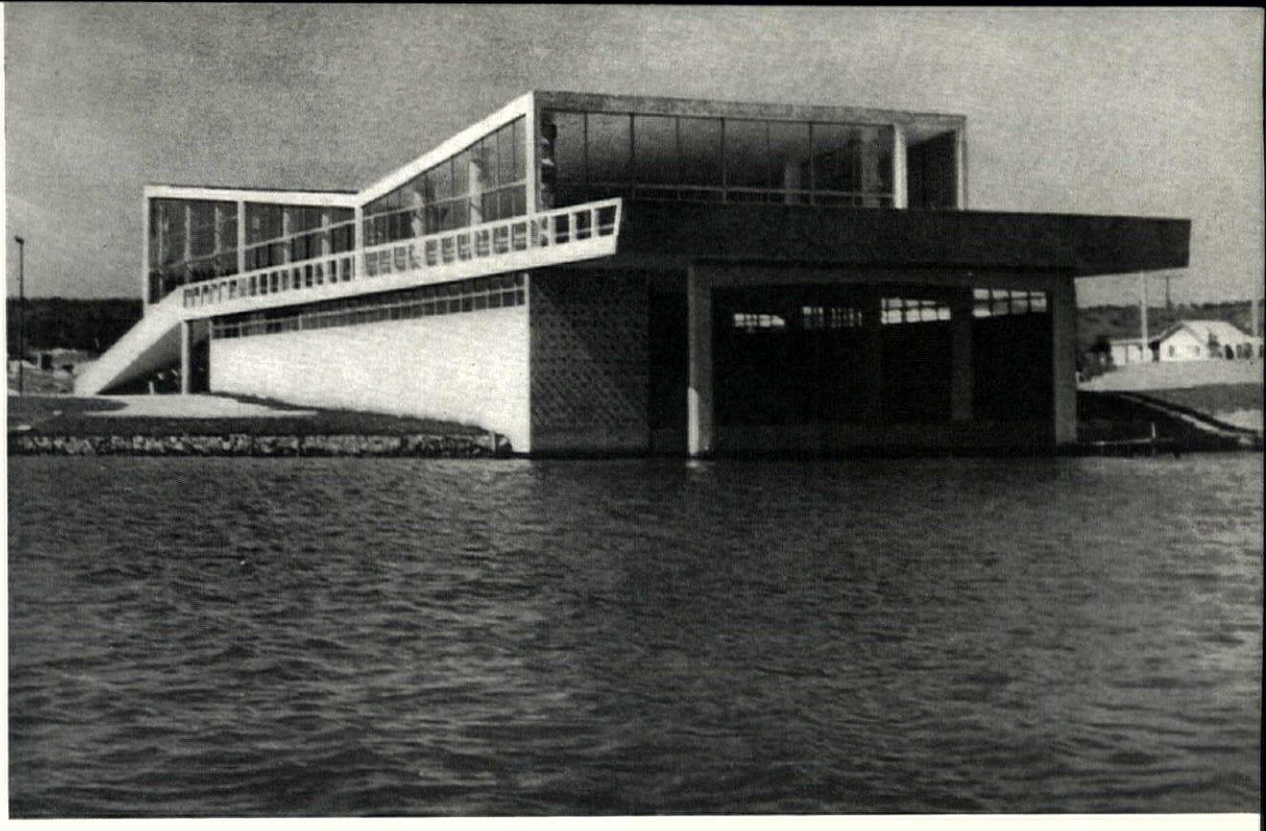


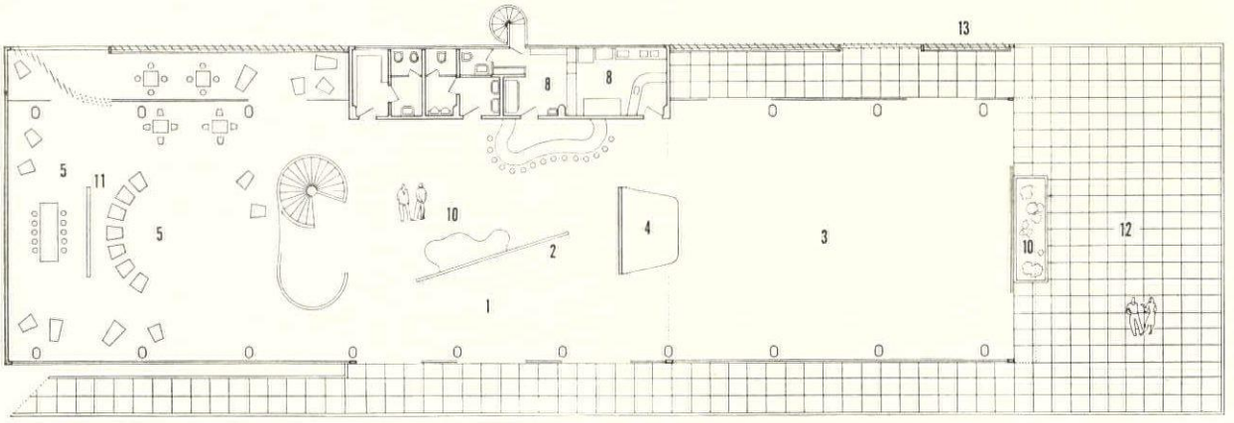
Views of the Yacht Club: Above, from the lake; across-page, the Boat House end. Walls of the lower story are faced with blue-white, specially-designed tiles, as may be seen particularly in the lower picture at far right, which shows the swimming pool. Upper story walls are of imported marble.

The ramp leads into a generous vestibule space, separated from the bar by a low wall on which is a mural by Burle-Marx. To the left is the lounge area, or living room; to the right, the dining room with its band shell and open terrace. The roof pitch gives height to each of these rooms where it is most needed. Through the glass walls are wide vistas, looking over the lake to the distant mountains.

The side which overlooks the swimming pool is protected from the afternoon sun by a double bank of vertical louvers—an adaptation of a fundamental idea which appears in many forms in modern Brazilian work. Several other methods are illustrated and discussed on the following pages.





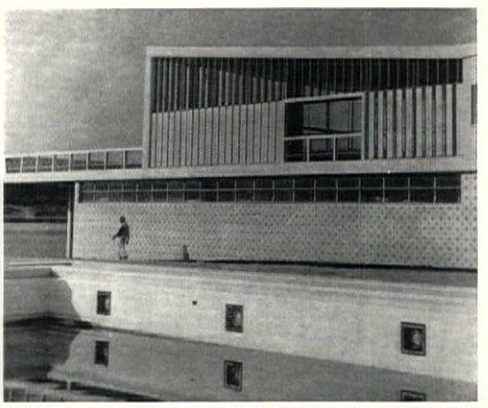


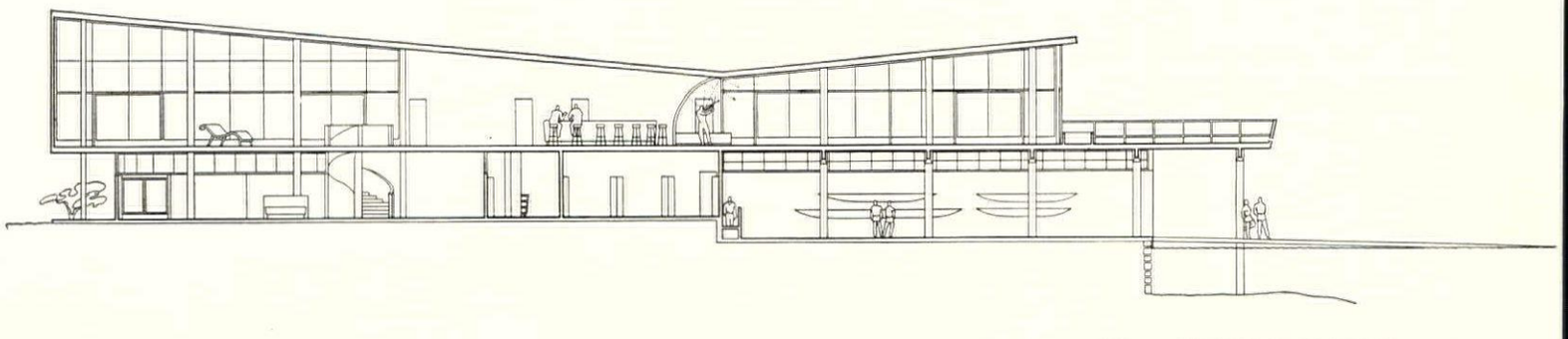
GROUND FLOOR

1. Ramp
2. Laundry
3. Barber
4. Dressing Rooms
5. Toilets
6. Showers
7. Boat House
8. Ladies' Lockers
9. Waiting Room
10. Secretary
11. Consultation
12. Examination
13. Diathermy
14. Toilet

UPPER FLOOR

1. Hall
2. Mural by Burle-Marx
3. Dining Room
4. Orchestra Shell
5. Living Room
6. Toilets
7. Toilets
8. Kitchen
9. Bar
10. Reflection Pools
11. Mural by Percy Deanne
12. Terrace
13. Louvers





In the Yacht Club, Niemeyer has used vertical, adjustable louvers to create a "sun break" or baffle, on the sides of the building which receive the most sun. Characteristic of the solution to problems introduced by the tropical climate, this and other theories of design are discussed in the following pages.

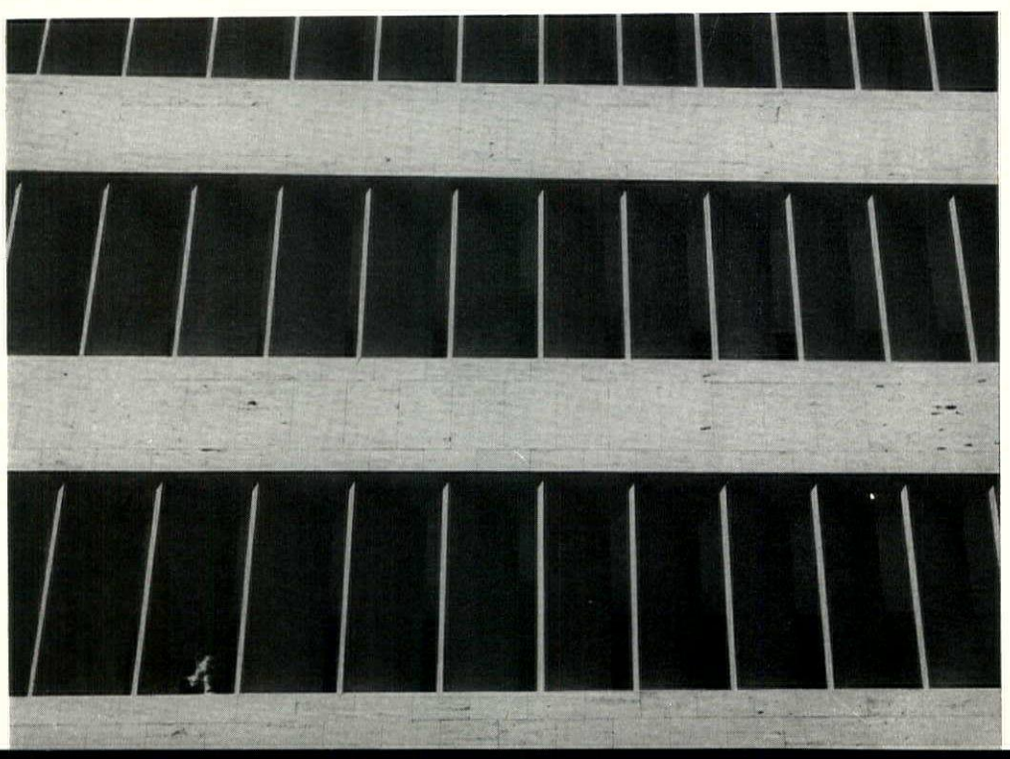
Most of the photographs of Brazilian architecture in this issue were taken in tropical latitudes. We must remember, however, that Brazil extends almost as far from north to south as does the United States from east to west. This tremendous range in latitude has an equally great effect upon climate, temperature, vegetation, life—and architecture. So what may seem here to be the genesis of a Brazilian style is really only a few pictures from one part of an extremely diverse nation; in it may develop, in time, several distinct styles—all Brazilian.

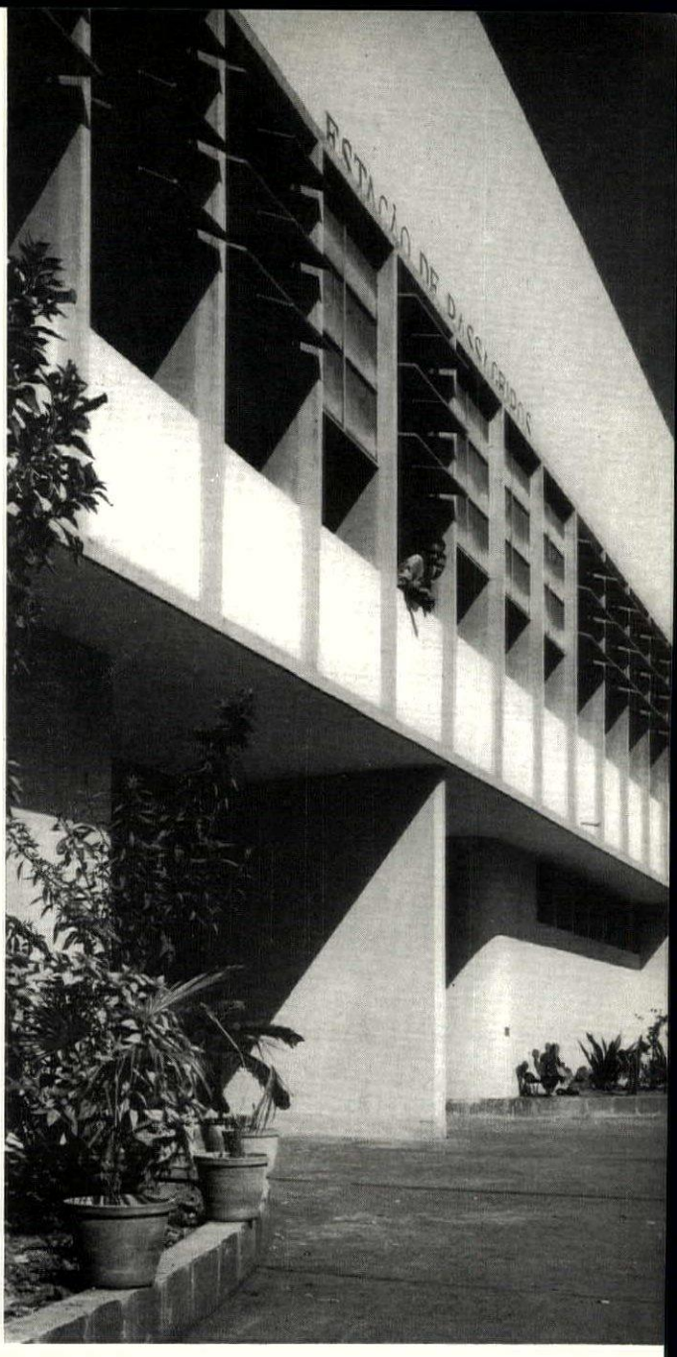
The photograph above, taken by G. E. Kidder Smith, AIA, shows in its wide overhanging eaves and the ventilating slats the effect of tropical sunlight on earlier, unstudied architecture in the vicinity of Rio de Janeiro. Compare this with Oscar Niemeyer's more scientific approach to the same problem—sun control—as exemplified in the Yacht Club.

For a more dramatic example, consider the new Ministry of Education and Health, shown below. At left is the south face, into whose design sunlight injected no problems—the sun shines from the north below the equator. This south wall presents an almost solid expanse of glass.

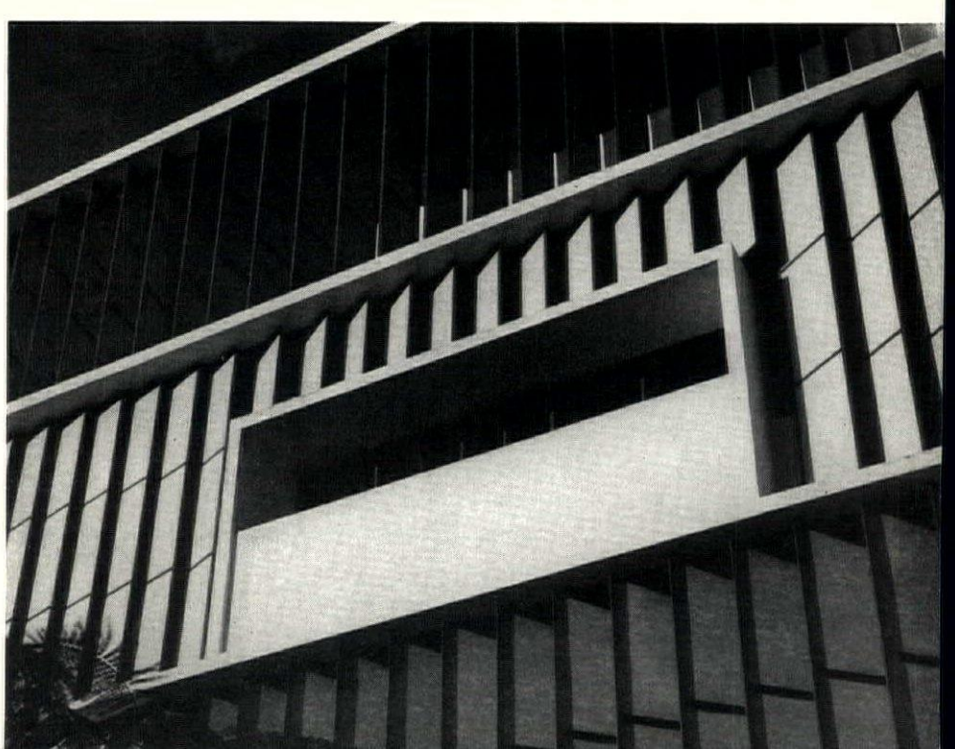
The north wall is an equally solid expanse of movable horizontal louvers, but behind these is the same glass wall that is visible on the south face. Architects for the Ministry of Education were Niemeyer, Vasconcellos, Reidy, Leão, Lucio Costa, and Moreira; Le Corbusier, Consultant.

The ABI (Brazilian Press Association) Building in Rio de Janeiro was designed by Marcelo and Milton Roberto, Architects. Louvers here are of concrete, fixed. At street level the lobby is completely open. Photos by G. E. Kidder-Smith, AIA. Details, indicating how the louver principle—called in Portuguese *quebra sol,* but more generally designated by the French term, *brise-soleil*—operates, are shown on pages 62 and 63.





Obra do Berço (Nursery) at left above and below, Oscar Niemeyer, Architect; Boat Passenger Station, right above, Corrêa Lima, Architect. In both buildings the louvers are movable, and are supported between horizontal or vertical concrete fins. Corrêa Lima's louvers in the Station are similar to those on the Ministry of Education and Health. The Obra do Berço louvers are approximately 6 feet high by 1 foot wide, crank-operated.

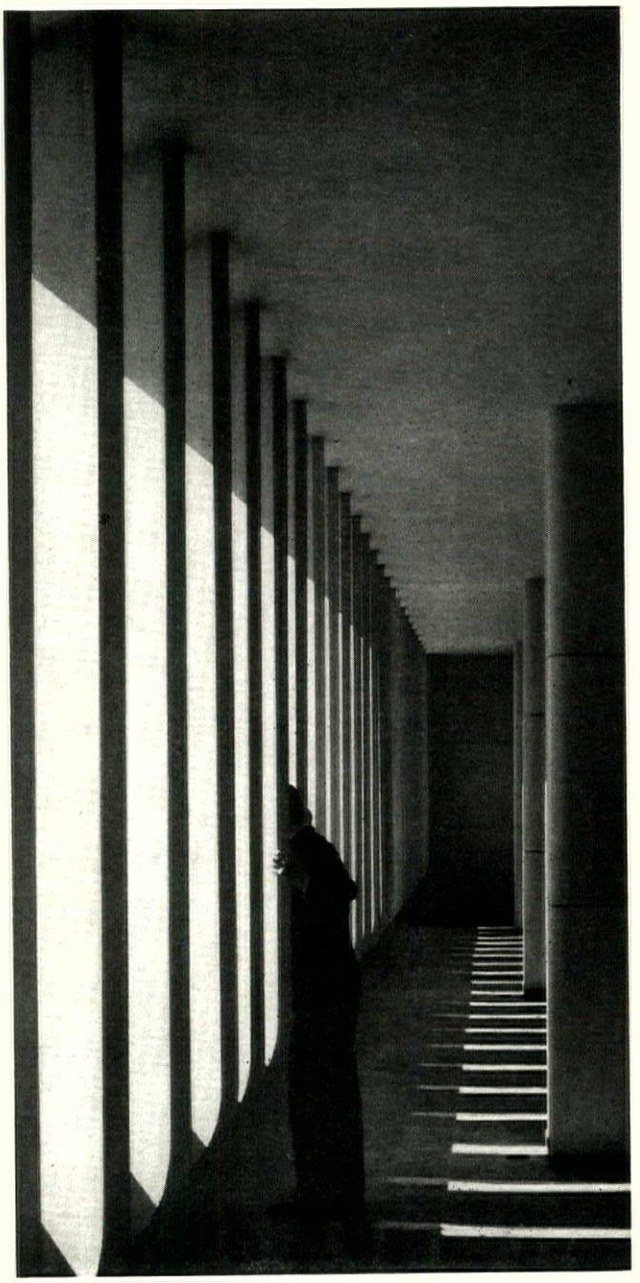


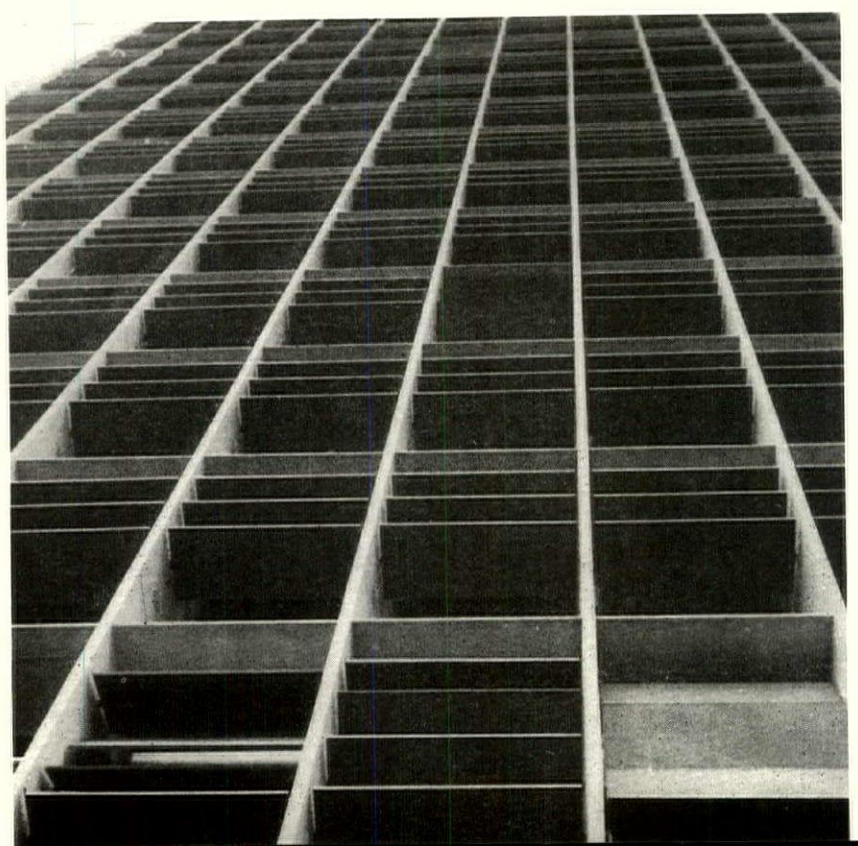
Le Corbusier has written of work in Algiers (see lower photo on opposite page): "(the) 'brise-soleil' certainly constitutes a primary, fundamental element of the regional architecture of North Africa." He also defined the "brise-soleil" as "a special provision for preventing direct rays of the sun from penetrating the room."

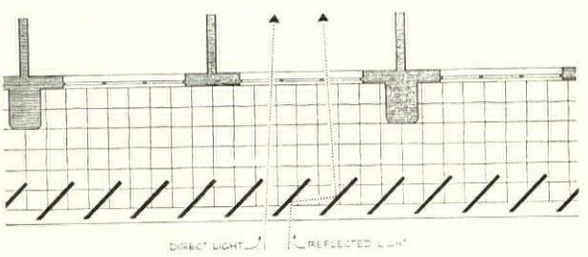
The Brazilian projects here shown are for the same latitudes, though far removed in longitude. What is more logical, then, than for Brazilian architects to adapt to their own uses suitable, logical devices developed by Le Corbusier? Or by another, for that matter.

In this connection, it is noteworthy that Brazilian culture is more closely allied to French precedent than to that of the United States; travel, study, publications—and a strong conviction that the ugliness which American mass production has foisted on our own civilization had no place in Brazil, in fact, is already outdated—contribute to this end. The bathtub and the elevator are freely accepted; they are practical. However, we in the United States have contributed little in the way of theories of architectural design which the Brazilian could accept as compatible with his state of development.

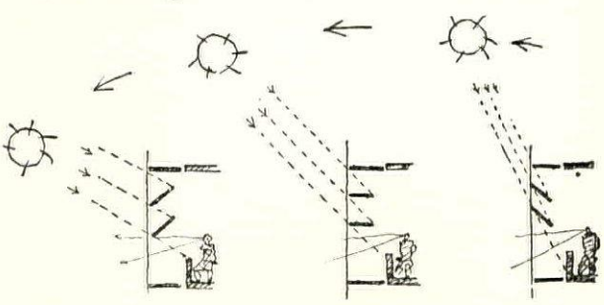
To the untutored among us who consider Brazil or any other nation to be backward because conditions are unfamiliar, this may come as a shock. Yet, in New York and other American cities the summer sun beats in the south and west windows of our office buildings, and in mid-August produces almost intolerable conditions. What do we do? Nothing, architecturally speaking. However, we engineer the most intricate, complicated mechanism we can think up, an air conditioning system, and try to rectify mechanically a condition which the architect could have prevented.

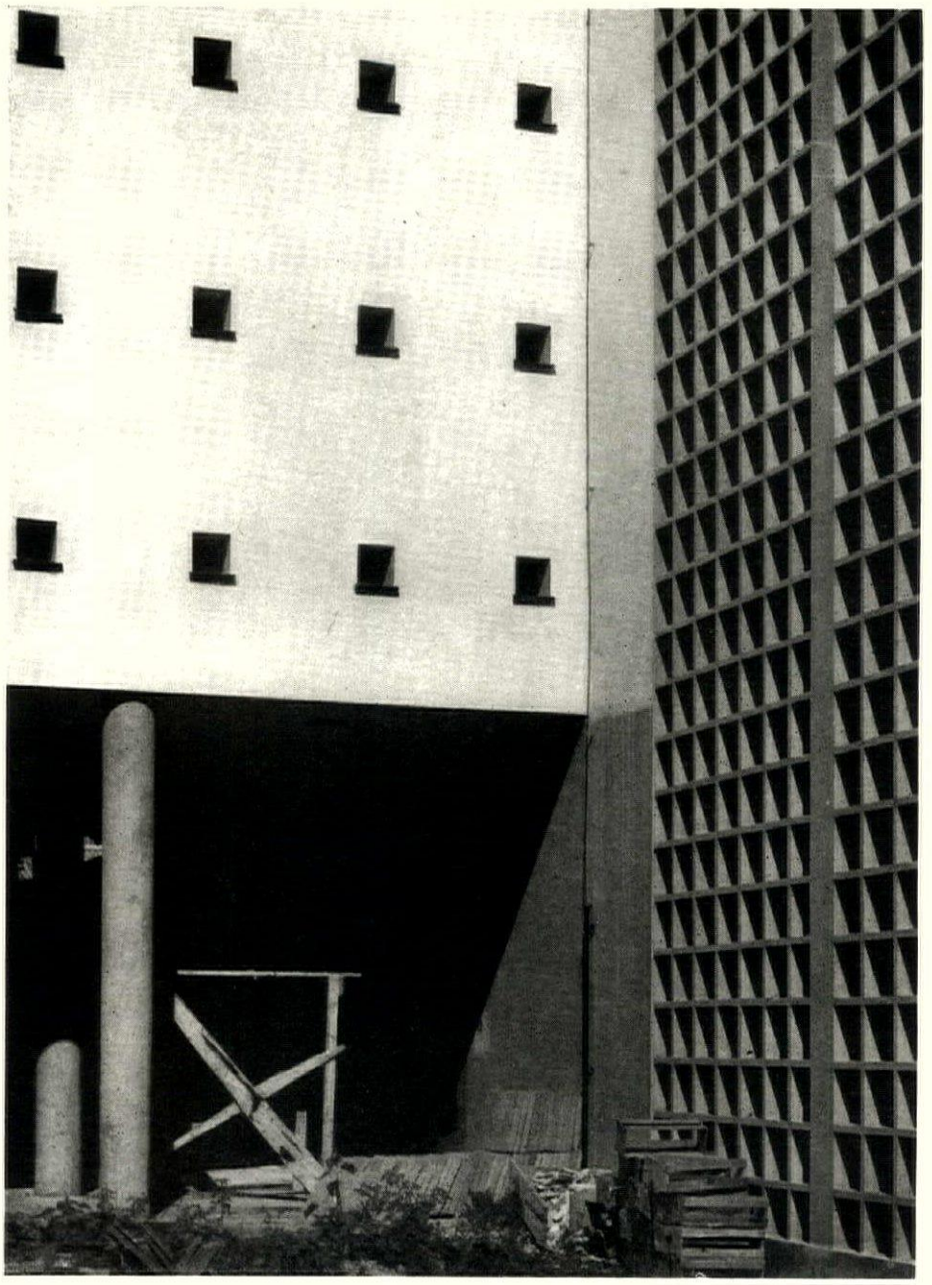




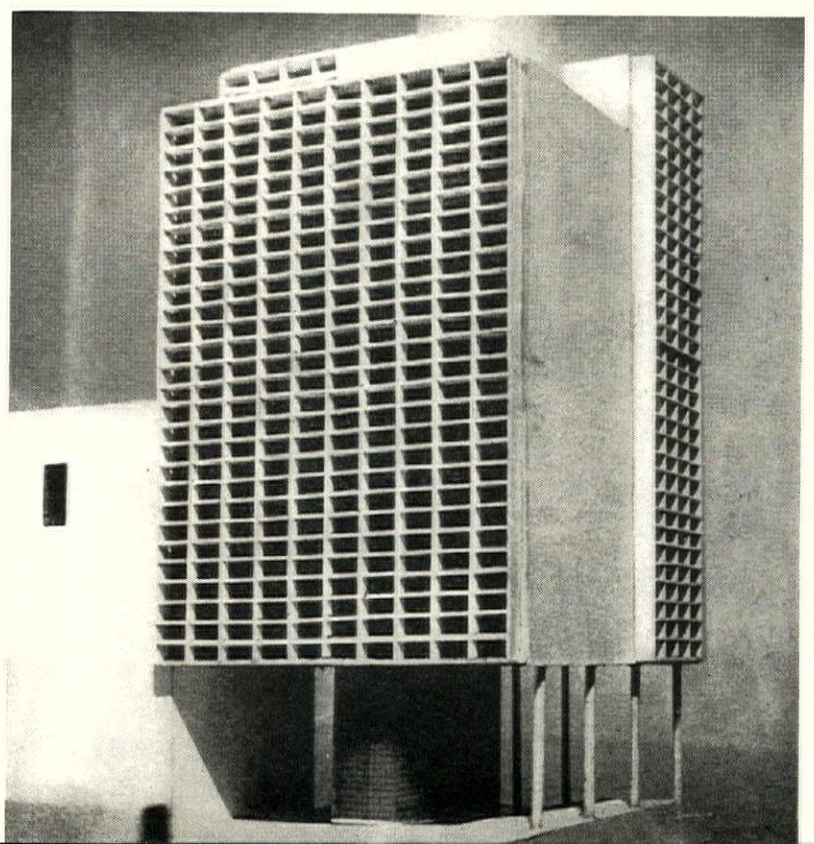


Above, plan and photograph showing interior of the corridor between the glazed wall and the fixed concrete louvers of the ABI Building. Below, Oscar Niemeyer's sketch illustrates the use of the movable louvers on the Ministry of Education Building in Rio de Janeiro. (Photo at left.)



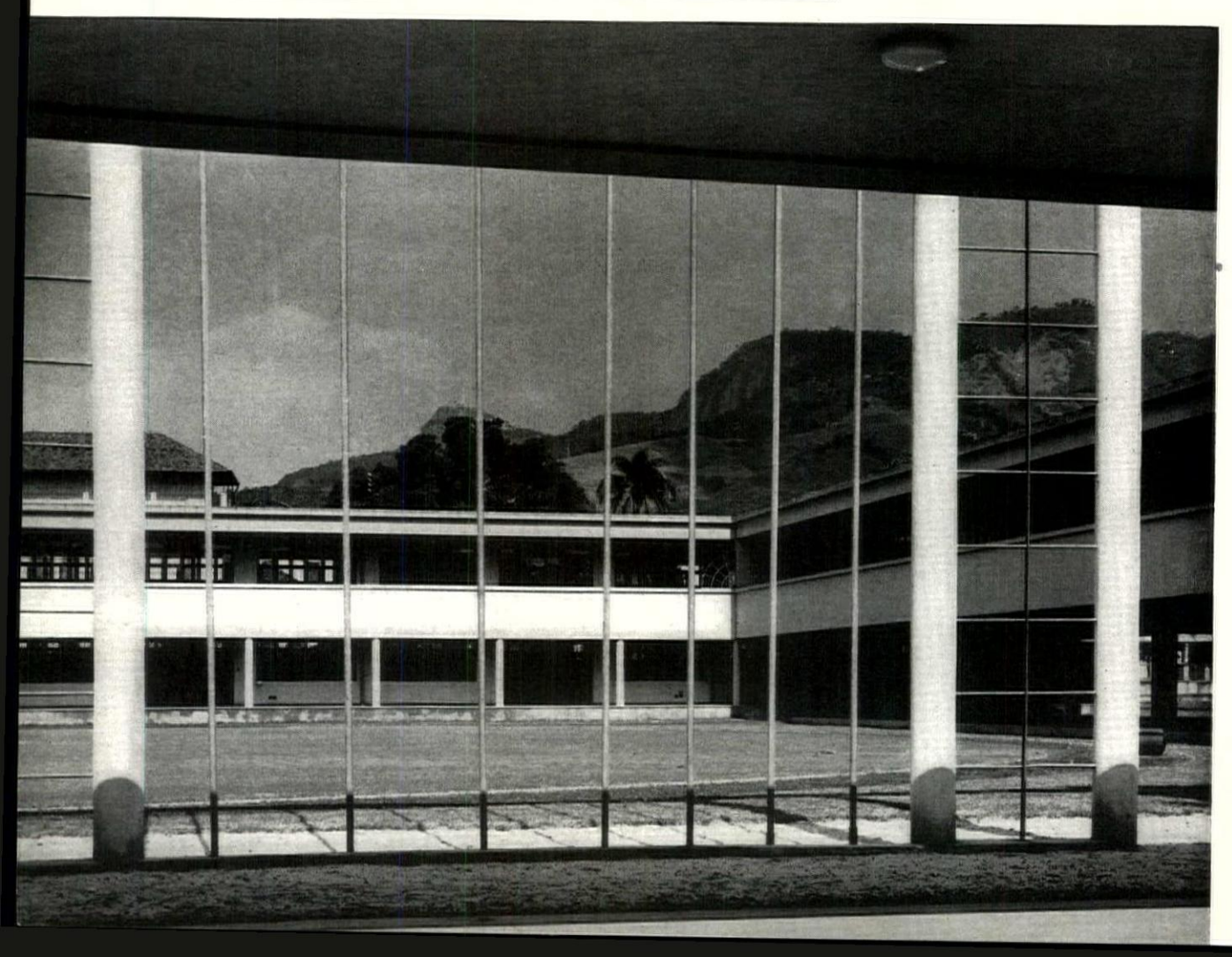


The Instituto Vital Brazil at Niteroi, near Rio (right) is a laboratory for the preparation of snake-bite serum; Alvaro Vital Brazil and Adhemar Marinho, architects. Small windows are in the north façade, which receives the direct sun, and light corridors within. The eggcrate louvers at the right function like other fixed types. Compare the design elements of the Instituto with those of Le Corbusier's apartment house in Algiers, below. (Le Corbusier had to raise the house, except for elevators and stair well, in order to preserve the view of the Mediterranean from the adjacent avenue.)



From inside Niemeyer's Obra do Berço one can see the beautiful harbor of Rio. Note how little the louvers interfere with vision. The climate has had a different effect upon the design of Rio's Industrial School, Carlos Porto, Architect. (Photo below.) Here wide balconies at first- and second-floor levels shade the rooms, and afford outside corridors. The open area under the second floor provides play space protected both from the sun and from the sudden, violent storms of the rainy season.

Many other sun-screening devices are used, principally in Rio. These range from a simple curtain to elaborate grills of reinforced concrete or wood; from the colonial "rotula" (lattice) to projecting blinds like awnings, and Venetian blinds of numerous types.

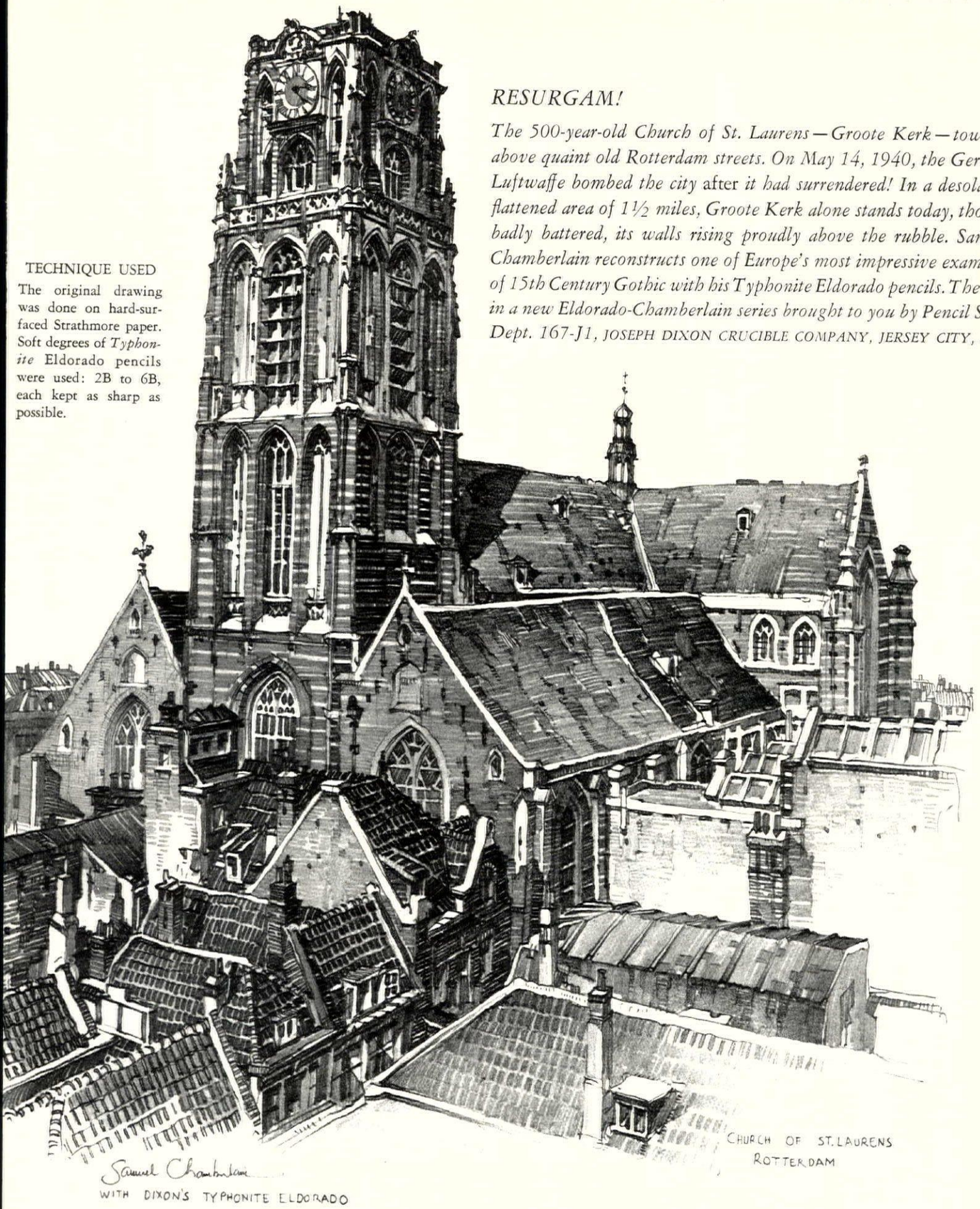


TECHNIQUE USED

The original drawing was done on hard-surfaced Strathmore paper. Soft degrees of *Typhonite* Eldorado pencils were used: 2B to 6B, each kept as sharp as possible.

RESURGAM!

The 500-year-old Church of St. Laurens—Groote Kerk—towered above quaint old Rotterdam streets. On May 14, 1940, the German Luftwaffe bombed the city after it had surrendered! In a desolately flattened area of 1½ miles, Groote Kerk alone stands today, though badly battered, its walls rising proudly above the rubble. Samuel Chamberlain reconstructs one of Europe's most impressive examples of 15th Century Gothic with his Typhonite Eldorado pencils. The first in a new Eldorado-Chamberlain series brought to you by Pencil Sales Dept. 167-J1, JOSEPH DIXON CRUCIBLE COMPANY, JERSEY CITY, N. J.



TYPHONITE
ELDORADO

Manufacturers' Literature

Publications mentioned here are all 8½" x 11" unless otherwise specified and will be sent free of charge, upon request. When writing for any of the literature noted here, please mention THE NEW PENCIL POINTS.

Flooring.
"Floors That Endure," 12-page catalog from The Tile-Tex Co., Chicago Heights, Ill., describes Tile-Tex resilient flooring. The complete range of plain and marbleized colors is shown in actual color, as are some of the Tile-Tex installations in homes and public buildings.

Vacuum Cleaning.
Bulletin Nos. 102-E and 125, both 8 pages, from Spencer Turbine Co., Hartford, Conn., discuss industrial vacuum cleaners available in both heavy duty portable and stationary types. Engineering data and specifications are given on cleaners ranging from ¾ to 7½ h.p., and from 1½-7½ cubic foot dirt capacity.

Shower Cabinets.
The Bathe-Rite shower cabinet, designed to meet the needs for low cost bathing facilities in wartime building projects, is illustrated and described in a 4-page folder available from Milwaukee Stamping Co., 851 S. 72nd St., Milwaukee, Wisc. Cabinet walls are made of treated fibre board.

Pencils.
Booklet No. 8, 3½ x 5½", from Koh-I-Noor Pencil Co., Inc., 373 Fourth Ave., New York, lists the various Koh-I-Noor drawing materials for architects, engineers, draftsmen.

Heat Diffusers.
Set of four 2-page specification sheets on various types of heat diffusing units for heating and ventilating large enclosures. Specifications, dimensioning data, and descriptions are contained for each unit. Carrier Corp., Syracuse, N. Y.

Linoleum.
Catalog No. 200 (A.I.A. File No. 23-J) from Congoleum-Nairn, Inc., Kearny, N. J., pictures in actual color the pattern reproductions of the various types of linoleum available from the firm. About 26 pages are devoted to showing Nairn linoleum in various types of installations. Included in the catalog are installation specifications and drawings showing method of installation for walls, floors, etc.

Ink.
The story of Electro-Polarized black waterproof drawing ink is described in a 4-page leaflet, 4½ x 5½", available from The Carter's Ink Co., Boston, Mass. The process is said to keep carbon particles constantly moving so they remain evenly distributed throughout the liquid, thus eliminating the need for shaking the bottle.

Unit Heater.
High test, cast iron, grid-type unit heaters are pictured and described in an 8-page catalog, A.I.A. File No. 30-D-11, issued by D. J. Murray Mfg. Co., Wausau, Wis. "Grid" unit heaters are designed to operate with steam or hot water systems, for pressures from 2-250 lbs. Catalog shows typical hook up diagrams, contains engineering and dimensioning data.

Cemesto Board.
Detail Sheets S-1, S-2, and S-3, covering the industrial application of Celotex Cemesto Board to steel mill buildings and, by nailing, to lightweight steel frame buildings. The Celotex Corp., 120 S. LaSalle St., Chicago, Ill.

Insulation.
28-page catalog on Fir-Tex insulating board which may be used as a building material, a structural sheathing, an insulating base for plaster, and as a decorative interior finish. Illustrations, in color, show typical installations in home, office, and industrial buildings. Fir-Tex Insulating Board Co., Portland, Ore.

Fences.
Data sheet (2 pages, Section III, File 3-D-10) on industrial fences presents information on two standard types, one constructed of random-width Redwood boards, the other of 12" boards with battens and fence cap. For each style, a complete materials list is presented for various heights. Sketches show construction details. California Redwood Association, 405 Montgomery St., San Francisco.

Pumps.
Catalog D2-1042, from Economy Pumps Inc., Hamilton, Ohio, describes in detail the firm's new Type SCV pump for clear liquid service. Construction details, dimensioning and engineering data are included.

Plywood.
16-page catalog, "Weldwood — The Modern Material of Infinite Application," from United States Plywood Corp., 616 W. 46th St., New York, discusses the versatility of this material. Included: thumbnail description of plywood manufacture. Scores of applications are described and illustrated, ranging from templates to aquaria, from boat hulls to dinettes.

Furnaces.
Literature available from Spencer Heater Division, Williamsport, Pa., includes Catalog No. 40-3, four pages, on heavy duty, cast iron tank heaters; 4-page catalog on the automatic magazine feed Spencer steel furnace; Catalog No. 40-1, eight pages, on steel tubular boilers for use in multiple-family structures, commercial and industrial buildings, schools, etc.; Catalog No. 42, eight pages, heaters for steam, vapor, or hot water heat and all-year domestic hot water; and a general catalog on steel furnaces for every type of fuel, for heat and hot water. All catalogs contain specifications, engineering data, dimensioning data.

Laboratory Equipment.
Bulletin 498, 12 pages, from United States Stoneware Co., 60 E. 42nd St., New York, on corrosion-resistant equipment for laboratories, including sinks, troughs, ventilating equipment, and acid-proof pipe fittings, traps, etc. Specifications and dimensioning data are included.

Wrought Iron.
Technical bulletin, 36 pages, "Wrought Iron for Underground Services," from A. M. Byers Co., Engineering Service Department, Pittsburgh, Pa., designed to be of service to water works engineers, heating men, plant maintenance men, others. The booklet discusses the factors effecting soil corrosion of underground piping, outlines installation histories of water wells, lawn sprinkler piping, oil and gas wells and lines, gasoline lines and tanks, and electrical cable conduit.

GOVERNMENT PUBLICATIONS

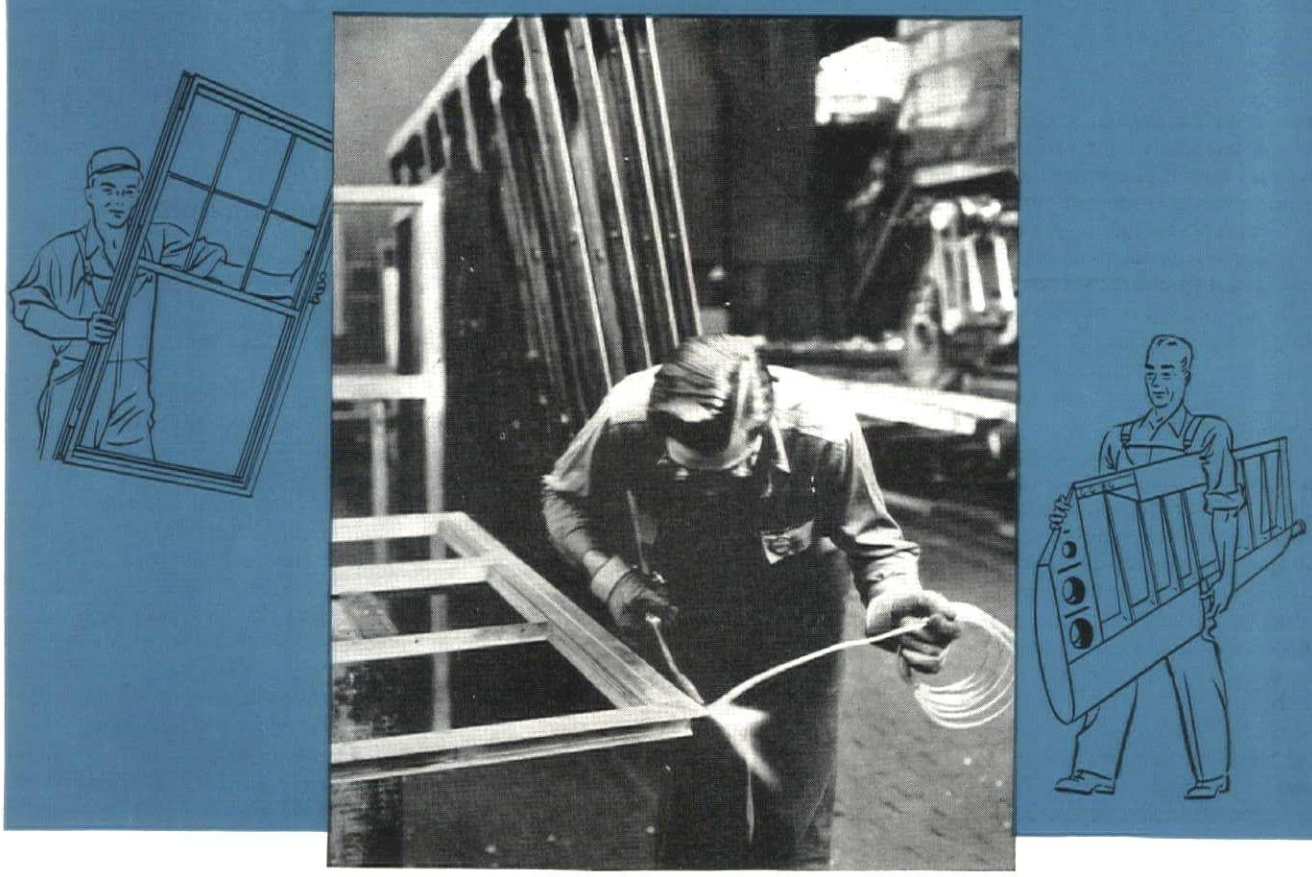
Wood.
Partial list of Government publications of interest to architects, builders, engineers, and retail lumbermen; June 1942. (1)+18 p. 4°. Processed. A 13.27/7: Ar 2/942. From Forest Products Laboratory, Madison, Wis., free.

Preservatives.
Wood preservatives (with list of references). Revised Feb. 1942. (1)+12 p. 4°. Processed. A 13.27/2:P 197/4. From Forest Products Laboratory, Madison, Wis., free.

Population.
Housing and population statistics for census tracts: Atlanta, Ga., and adjacent area. 1942. v+63 p. il. 4°. (16th census of United States, 1940.) (Prepared under supervision of Leon E. Truesdell, Chief statistician for population.) Paper. C. 3.940-38: G 29/5. Superintendent of Documents, Washington, 20c.

Sand and Gravel.
By Oliver Bowles and G. E. Tucker. 1942. (2)+19 p. il. Preprint from Minerals yearbook, 1941. Paper. I 28.37/a: Sa 56/941. From Superintendent of Documents, Washington, 5c.

IT GOT THEM READY FOR WAR; IT'S PREPARING THEM FOR PEACE



Manufacturers of Aluminum architectural products were readying themselves for this war, unknowingly of course, for years past. The fabricating methods they had developed, the skilled workers they had trained, enabled them to swing over quickly to war production.

Substitute some part of a combat plane for the Aluminum window frame that's under the welder's torch in the above before-the-war photograph. Now you have a scene today in any one of the plants that were formerly manufacturing Aluminum windows.

The war effort has caused development work to go on at a greatly accelerated pace. New problems are being encountered and solved. Methods of forming and assembling Aluminum parts are being simplified, speeded up, improved. Additional thousands of workers are being trained in these arts.

Vital to the war effort, this fact also has an important bearing on the products you will be offered in the future. The advantages of Aluminum Alloys gained in making materials of war will be the same for the new products at your command; light weight, high strength, fine appearance, resistance to corrosion.

Aluminum windows and sills, storefronts, skylights, coping will be better than ever, lower in cost, readily available from many sources. ALUMINUM COMPANY OF AMERICA, 2198 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA ALUMINUM

Reg. U. S. ALCOA ALUMINUM Pat. Off.

Books and Periodicals

Residential Chicago

Volume One of the Report of the Chicago Land Use Survey, directed by the Chicago Plan Commission, and conducted by the Works Projects Administration. 525 pages, including 164 pages of maps. Sponsored by the City of Chicago.

The spectacular growth of Chicago during the last century, especially in the Seventies and Eighties, and again during the great commercial expansion of the Nineteen-Twenties, the evolution of Chicago's residential pattern, and the general problems of decline and blight of residential sections are certainly similar to general trends in many American cities. The value of the new report of the Chicago Land Use Survey is, therefore, not limited only to planners, builders, and real estate men in Chicago.

It is a model report, and a very excellent one which may be used as an example for similar surveys in other cities. The report certainly proves, retrospectively, the importance of having such data collected and put to practical use, not only in big cities, but even in relatively small towns where boom-town activities, industrial relocation, or new routes of communication promise rapid expansion. The compilation and tabulation of such a report is, in itself, an astounding accomplishment, but it is only a first step in a gigantic effort to bring the mushroom-like expansion of a century under control, and to initiate an organized and well-planned rehabilitation.

The Standard Real Property form of tabulation was used to present data on residential land use, similar to that already available or in preparation for two hundred cities throughout the country, which carry out real property inventories under the federal "standard technique." A volume on Commercial Property and a third volume on Quantitative Characteristics of Land Use in Chicago are in preparation.

377,854 residential structures containing 985,528 dwelling units were investigated and mapped. The findings for each of the city's 75 community areas cover the physical, social, and economic characteristics of residential development. Here are a few outstanding facts:

The median rental of the 985,528 dwelling units was approximately $34.

Almost one-third of Chicago's structures were built before 1895, and are therefore more than 50 years old.

448,059 dwelling units were in need of minor repairs, and 72,615 in need of major repairs.

"When physical and occupancy conditions are taken into account, it is found that one out of every five dwelling units must be classified as 'sub-standard'."

Poor housing covered 20 square miles.

Statistics are dry for an unimaginative mind; but for the planner and the sociologist they reveal a wealth of tasks and duties. It is to be admitted, however, that such a penetrating and costly survey is not always a pre-requisite for new planning ideas. The trouble with such expanded statistics is that they are partly out of date by the time they reach their public. (This survey of Chicago was taken in 1939.)

To add a more human touch and a convincing interpretation of where and how the idea of a better Chicago could take shape, I should like to suggest a very necessary addition. This supplementary volume would contain a critical study of the architectural and city-planning aspects, with a detailed report on the entire city as a summary of houses, public buildings, streets, and public squares. Just as the present report depicts poor or better structural condition, so would the architectural report show poor or better architectural design. Such a report, mapping planning accomplishments as well as mistakes, would bring the inert mass of planning ideas into motion, and establish some critical standard for all future planning efforts.

Konrad F. Wittmann

Fundamentals of Perspective

By Theodore DePostels, A.I.A., edited by Don Graf. (9 x 11½, 20 plates in board cover, $2.50. Reinhold Publishing Corp., 330 W. 42nd St., New York.)

Any difficulty of drawing in perspective usually proceeds from uncertainty regarding the *sequence* of the operations involved. The widely-known author of *Fundamentals of Perspective* has evolved a simple and easily-understandable method of showing the order in which the lines of a perspective are drawn.

By numbering each line of the constructed perspective and signifying its direction with arrows, the procedure and reasons for it become quickly apparent. To further clarify the examples, four colors are used to show what is given, what are the essential elements, what lines are needed for the construction of perspective, and finally the perspective of the object itself.

The system of using colors, numbers, and arrows makes it possible to eliminate much of the text which, in the past, has been found necessary in books on perspective to explain the construction of the drawings.

Several of the plates contain practical helps to speed up the making of perspectives. These are simple to understand and convenient to use, yet are not generally known except to professional delineators.

Modern Camouflage

By Major Robert P. Breckenridge, Corps of Engineers. (280 pages, 132 photographs and diagrams, $3.50. Farrar & Rinehart, Inc., New York.)

The Corps of Engineers and the OCD have published at various times, manuals and pamphlets for general information, and for the correlation of efforts in a very new, but rapidly developing field. These publications digested valuable material obtained from English sources and from observation of installations in Europe. The present book by Major Breckenridge is based upon these findings and upon results of experimental and actual work done by the Army in recent times.

It was perhaps unfortunate for camouflage at the start of this war that it was considered too much as an art of pattern and paint. Abstract painters sensed their opportunity for large-scale abstractions, and every artist-apprentice considered himself predestined for a commission in the Camouflage Corps. The subtitle of Breckenridge's book—"The New Science of Protective Concealment"—is apt to discourage these would-be camoufleurs. The able camoufleur must be an expert constructor, working upon analysis and experimentation, and integrating in his design scientific facts of ballistics and explosives, of optical and visual phenomena, of chemistry and statics. His design, which is basically a three-dimensional conception, is subjected to very unusual tests of effectiveness, for the only criterion of its effeciency is how it looks at distances from 10,000 to 50,000 feet.

The book presents intelligently the purpose and types of concealment, and is therefore an authentic guide as to what the Army approves and what it expects from protective measures.

Several charts included in the book (e.g. on the effect of bombs, the shadow diagrams by S. McCandless, and a list of plant material prepared by the American Association of Nurserymen) illustrate the scientific approach.

Consideration of such facts should for a long time have guided the layout and the construction of new installations. It was already standard practice in Europe ten years ago, but American factories had little use for such theories. Therefore we now find most vital industries conspicuously lined up along main railroads and highways. The chapter on site planning is a very timely and valuable reminder. Our plight in camouflaging important targets would certainly be relieved if the sites of these factories had been selected with some idea of concealment in mind.

A chapter on model-making will be welcomed by many camouflage schools which want to establish their own workshops. **K.F.W.**

Historic Cambridge In Four Seasons

A camera impression by Samuel Chamberlain. Photographs and descriptive text. (76 pages, $1.25. Hastings House 67 W. 44th St., New York.)

When it comes to presenting photographs of America, Samuel Chamberlain never lets the reader down. In this latest series of camera impressions he catches the essence of one of America's unique landmarks. The map of Cambridge is studded with many notable edifices—Christ Church, Longfellow House, the buildings of Harvard and Radcliffe.

Since the story of Cambridge has been told many times, this little volume confines itself to the photogenic and historic sections of Cambridge centering around Harvard Square and extending along Brattle Street and Memorial Drive. **A.E.G.**

Bombs, Buildings, and Shelters—A.R.P. for the Home

By William H. Hayes, Associate Professor of Architecture. 83 pages, 60c, illustrated, 4½x7". Columbia University Press, New York.

"Bombs, Buildings, and Shelters" is No. 7 of a series of booklets called "Columbia Home Front Warbooks," for use by a wider public which looks for facts and authoritative advice. Professor Hayes tells about the effects of aerial bombardment upon residential buildings (roofs, walls, and foundations), and upon the people in them. Types of bombs, effects of explosions, types of shelters, classification of buildings, and other well-known facts are presented in a very readable manner. English experiences are used as well as recent data issued by OCD.

The wider dissemination of such facts may help to improve construction methods. **K.F.W.**

(Continued from page 12)

strengthen the profession's position. I suggest that if you see fit, you keep in touch with these men or others of the Institute who may be interested and can assure you of their cooperation and support.

RICHMOND H. SHREVE, President, AIA

October 1, 1942

Dear Professor Johnstone:

Mr. Shreve passed on to this office a copy of your letter . . . Your ideas have been tremendously helpful to the writer as the new incumbent of this office.

We have found everywhere that architects are thought of only as artistic designers, of rather impractical nature. This is probably the result of our own individual and of the Institute's efforts during the past many years. Now we are trying very hard to preach a gospel to everybody, particularly the Army and Navy, that architects are usually well-educated, have unusually broad experience in all aspects of the construction field, and also in a surprisingly wide range of business, due to their contacts with many different kinds of clients and their problems; that by virtue of this education and experience, the architect should be a more well-rounded, more adaptable, and more imaginative executive, coordinator, and expediter of many kinds of activities than the average engineer, lawyer, or business man; and that, therefore, the services of many of the thousands of architects, now prospectively out of work, could be used in a great variety of positions in the armed forces, in the agencies, or in industry with the minimum of re-education.

We have taken up your ideas with Dr. E. C. Elliott, Chief, WMC Professional and Technical Employment and Training Division, and with Dr. Leonard Carmichael, Director, National Roster of Scientific and Specialized Personnel. Dr. Elliott's assistant, Mr. McGarth . . . said he felt this was definitely a function of the War Manpower Commission; that the principal question was one of time . . . He sent us to Dr. Carmichael, who was equally excited and said that this was the first time he had heard architects talk sense; that heretofore architects had always given him the impression that they must only be used as artists and designers.

Both of these gentlemen offered every cooperation . . . Mr. McGarth suggested communicating with the Engineering Council for Professional Development, which we have done, asking if they will cooperate on an informal conference in Washington on this subject.

Mr. Shreve has asked the Institute's Committee on Education to take an interest in this subject.

We have also discussed the subject with Dr. W. V. Bingham, Chief Psychologist, Personnel Procedure Section, Adjutant General's Office. His assistant, Lt. Stutteford . . . suggested that we try to make up a schedule of suggested positions which architects could fill . . . Of course, this is a large order . . . but we will make an effort to do so.

D. K. ESTE FISHER, JR.
Washington Representative, AIA

In answering Mr. Fisher's letter of October 1, Professor Johnstone attached a list of positions in which there is a demand for men. After each title he sketched briefly what a training program might include to fit architects for such positions. All the fields which Professor Johnstone listed require a fundamental knowledge of sciences and blueprint reading or drafting.

Aircraft Engine Inspection.
Principles of heat power engines, mechanical features, electricity, engine design and construction practices, including valve operation mechanisms and timing, lubrication, fuel and ignition systems, power plant operation.

Aircraft Production.
Training in manufacturing processes met within field of metal aircraft pro-

(Continued on page 72)

(Continued from page 70)

duction with special emphasis on the specialized process met with in working thin section aluminum such as stack drilling, routing cutters, rubber and laminated wood dies, loft work, dimpling, riveting and welding.

Airplane Structural Design.
Elements of analytical and graphical solution of airplane frameworks, design of columns, beams, trusses and fittings; determination of applied loads.

Combustion Engineering.
The chemistry and physics of combustion, combustion calculations, furnace efficiency, distribution of heat losses, chemistry of coal, fuel oils, gaseous fuels, powdered fuels, furnace design and operation.

Die Design.
Fundamental principles of plain blanking dies, progressive dies, gang dies, forming and drawing dies, bending and swaging dies, punch press accessories.

Heat Treatment of Steels.
Microscopic inspection, binary constitution diagrams, iron carbon diagrams, mechanical and heat treatment of steel, principles of precipitation hardening and grain size, constitution and properties of alloy steels, metallography.

Machine Design.
Velocities and acceleration, link work, cams, gear tooth forms, gear trains, methods of designing clutches, shafts, gears and flywheels and introduction to hydrodynamic theory of bearing design.

Management Statistics.
Statistical methods, averages, rates, ratios, dispersion, correlation and making of index numbers, collection of data, tabulation, graphic presentation, statistical practices in the field of production, labor and management.

Production Control.
Industrial organization, plant layout and material handling, stores control, personnel and job standardization, routing, scheduling, dispatching, factory costs, manufacturing processes, graphic presentation of production control data, including Gantt Charts.

Radio Communication.
Batteries and generators; circuits, resistors, meters, coils and inductance, condensers and capacitance, resonance, bridges, vacuum tubes, rectifiers, amplifiers; cathode ray oscillographs, theory of sound waves, frequency modulation, radio propagation, radio frequency transmission.

Safety Engineering.
Safety work, hazards, accident causes and remedies, accident forms and records, classification and costs, safety codes, methods of inspection reporting accidents, workmen's compensation.

Ship Construction.
Principles of ship construction, nomenclature, fairing of lines, midship section, decks, bulkheads, structural members, classification societies construction rules.

Time and Motion Study.
Principles and practices of time analysis and microanalysis of work, standards of performance, motion analysis, process charts, time study methods.

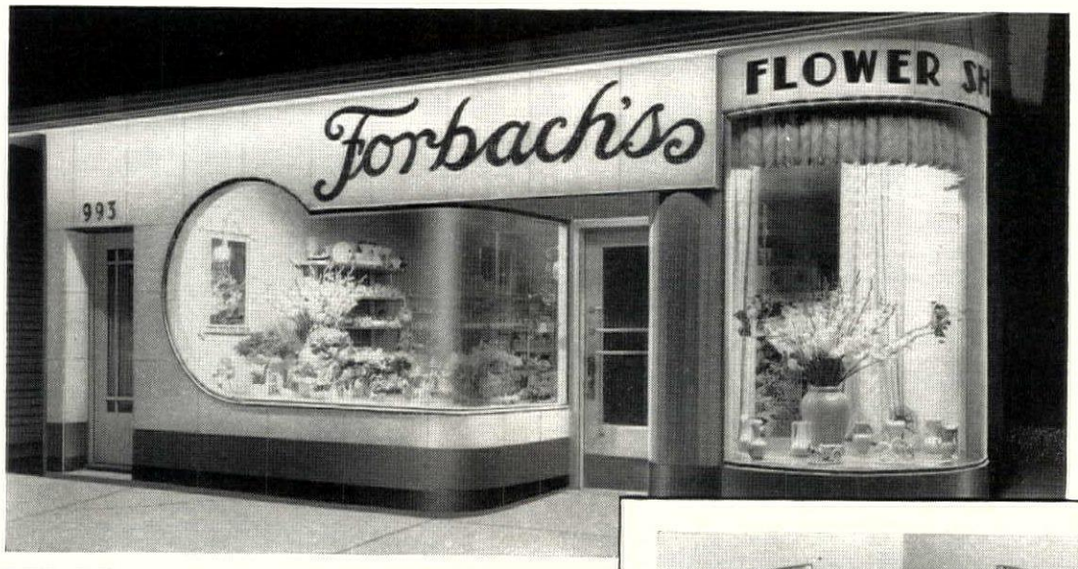
Tool Design.
Fundamental theory of design of jigs and special tools; milling fixtures, drill jigs, broaches, etc.

October 20, 1942

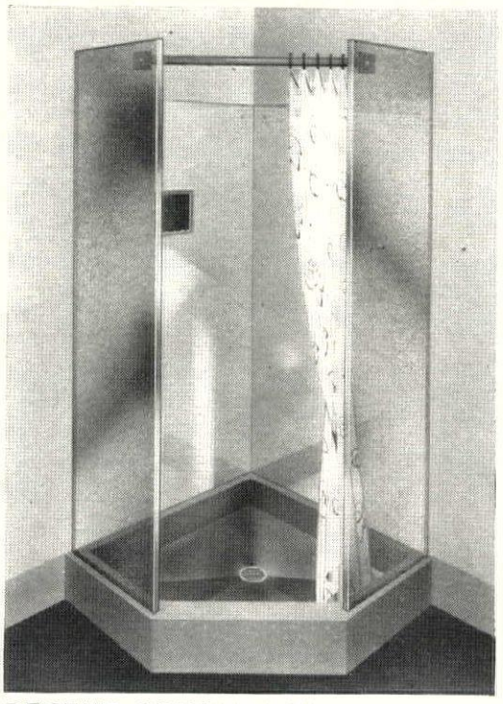
Dear Professor Johnstone:
Thank you every much for your letter of October 15 and the accompanying list, which will be very helpful. We are

(Continued on page 74)

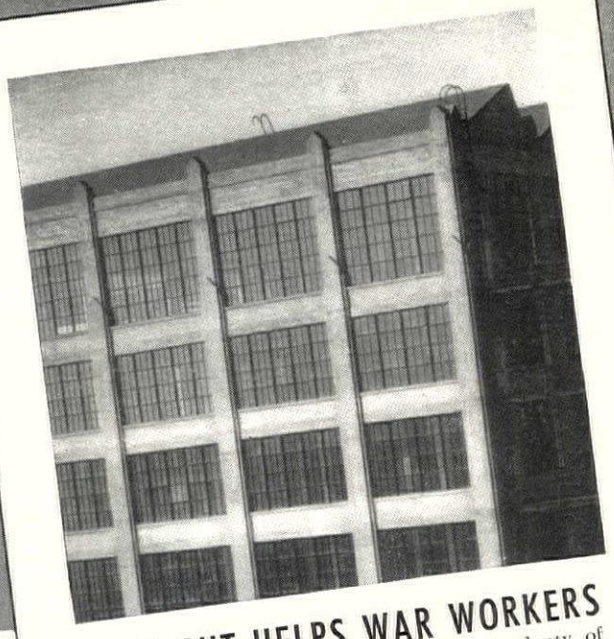
NEWS ABOUT GLASS from "Pittsburgh"



FOR YOUR STORE FRONT FILE. Beauty joins the sales force in this Buffalo florist shop. Note the combination of generous display space and attractive design. This is an idea worth saving in your own store front file, for use when building restrictions on this type of store improvement are lifted.



RECENT SENSATION among builders of "Victory Homes" is the prefabricated shower stall of Tempered Carrara Glass. No metal is involved in its installation. Shipped to the job ready for immediate assembly—it saves time. Several styles—eight colors. Gives small homes a smart appearance, yet its cost is well within proper limits for this type of home.



DAYLIGHT HELPS WAR WORKERS do their jobs quickly—accurately. There's plenty of daylight in plants such as this, where Pennvernon Window Glass floods huge working areas with natural daylight. And the clarity, good vision and surface brilliance of this quality glass make it ideal for glazing defense houses at reasonable cost.

PITTSBURGH PLATE GLASS COMPANY
Pittsburgh, Pa.
"PITTSBURGH"
stands for Quality Glass and Paint

(Continued from page 72)

working along rather slowly on this whole subject, as it takes considerable time to build up new interest.

We have had a pleasant chat with Dean Case of the ESMWT. From what you know of the performance of that Agency, would any of the courses sponsored by them be at all suitable for the kind of re-education that your original letter to Mr. Shreve contemplated?

D. K. Este Fisher, Jr.
Washington Representative, AIA

October 22, 1942

Dear Mr. Fisher:
My answer to the question in the second paragraph of your letter would be, "Yes." Some of these courses are already available throughout the country. More advanced, full-time courses might be set up at various schools easily accessible to groups of architects. I am thinking particularly, as an example, of the work a school like Carnegie Tech might offer to the many architects in and around Pittsburgh. The ESMWT program is set up to finance education of this nature where schools are unable to finance it themselves.

Yesterday I talked to Mr. T. L. Miller, of the Glenn L. Martin Company of Baltimore. They are particularly interested in finding men or women for airplane inspection and for production control such as routing, scheduling, time and motion study, etc. My conversation was relative to training college women for this work, but an architect would start many jumps ahead of a college woman. An opportunity for you to discuss this with Mr. Miller might prove profitable.

B. K. Johnstone

October 23, 1942

Dear Professor Johnstone:
The plan incorporated in your letter of August 31st to President Shreve has met with such favorable comment as to indicate the desirability of preparing ways and means to put it in operation.

Professor Young of Cornell suggests that you be drafted as a member of the Committee *pro tem*. This seems so obviously desirable that I hope you will consider yourself such, with full powers to advise, suggest, and criticize.

The job of getting the plan into efficient operation is a difficult one, and I should greatly appreciate any thoughts you may have on it. I believe that the operation of the plan must be handled by local groups, probably by the regional members of the Committee through the chapters and state associations. It would devolve upon the Committee to indicate and advise as to their method of procedure; what agencies to approach, where to get necessary information, how to provide for the required training, and so forth.

I am now preparing to canvass the profession to see how many are unemployed and are interested in training for specialized war work, as outlined in your plan.

It seems vitally important that the precise needs of industry be ascertained so that there be no wastage of time or effort. Just how this can best be accomplished I am not, as yet, very sure. I have tried to see a Mr. Smith, local head of the War Manpower Commission here in Boston, but he has been out of town for some time. I have asked his secretary to arrange an interview early next week. They may have made some survey as to the needs of industry throughout the country.

Howard T. Clinch, *Chairman*
AIA Committee on Education

October 30, 1942

Dear Mr. Clinch:
Thank you for your letter of October 23 and your invitation to serve temporarily on the AIA Committee on Education. You may be sure that I will do whatever is possible to be of service.

I agree with you that local groups would have to handle the operation of the plan. I would even go so far as to say that these local efforts need have no relationship one to the other, or pre-

(Continued on page 76)

(Continued from page 74)

ferably should not, for a solution suitable for one group may not fit another. It was my hope that both the training and the ultimate work might be such that no architect would have to move his place of residence.

An outline of procedure might be as follows, though the order could change:

1. Contact local U. S. Employment Service office for advice on local fields of work in which critical personnel shortages exist.

2. Ask the nearest technical school whether they could offer a training course to meet this need under the Office of Education ESMWT program.

3. Contact the personnel director of the company known to need men.

4. Assuming that the company or companies are interested, call a meeting of the local Chapter, tell them that their services are needed, that the training is available, that offers of employment may be expected from the X, Y, or Z Companies at a stipulated salary.

The remainder of the plan should be easy sailing, though I realize the proposed steps are not as simple as they sound. Fortunately, most all of the technical schools are already offering both full- and part-time courses under the ESMWT program, so a new proposal would not surprise them.

From recent conferences with personnel men from General Motors, Du Pont, and the Glenn L. Martin Company I know that they all are interested in men or women capable of work in "production control." The fundamentals of this are outlined in the attached pages *(See pages 70, 72.—Ed.)* which I prepared in response to a request from Mr. Fisher in Washington. These subjects are all suited to men with architectural training and experience, and are all fields wherein there is a demand for men, according to our own Extension Division surveys.

In proposing a plan of this nature to architects, I feel it is of utmost importance that it be presented as an opportunity, or even as an obligation, to use their skill and intelligence as a vital and valuable contribution to the war effort, but not as a solution to "unemployment."

B. K. JOHNSTONE
Head of the Department

As a first step in putting the plan into operation, the AIA Committee on Education is conducting a canvass of the architects all over the country to find out (1) how many architects are out of employment, (2) how many are interested in participating in the plan as outlined by Professor Johnstone, and (3) how many architects would be willing to take the courses without compensation during the training period.

* * *

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Draftsmen in all fields are sought by the Civil Service Commission for work in engineering drafting. Positions in Federal agencies pay from $1,440-$2,600. To qualify, persons must meet greatly simplified requirements.

No written test is required, and there are no age limits. Applications must be sent to the Commission's office in Washington, D. C. Announcement 283 for engineering draftsmen, and forms for applying, may be had at first- and second-class post offices, the Commission's regional offices, or the Commission in Washington, D. C.

Manpower Commission restrictions on Federal appointment of persons engaged in specified occupations in critical labor areas are given in Form 3989, posted in first- and second-class post offices.

(Continued from page 14)

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(Continued on page 80)

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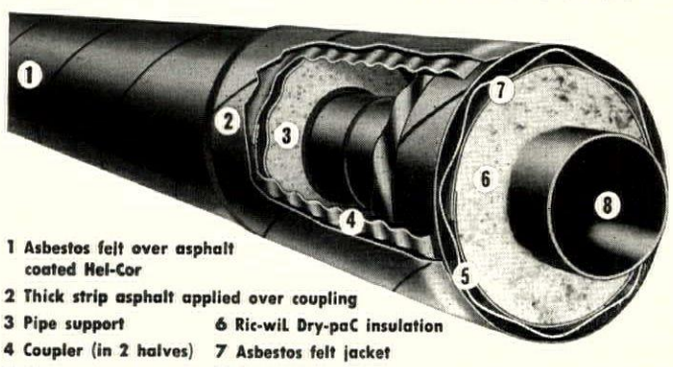

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* * *

Wins Friedsam Medal

Royal Bailey Farnum, chief executive of the Rhode Island School of Design, Providence, R. I., was recently awarded the Friedsam Medal by the Architectural League of New York. The award, established by the late Col. Michael Friedsam, president of B. Altman & Co., New York department store, is awarded annually to that person who has contributed conspicuously to the advancement of American art.

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"HOW'S THE WEATHER UP THERE?"

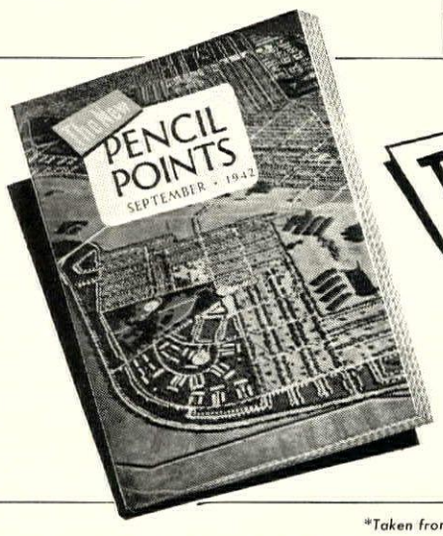
(A quick summary of the new circulation figures of the June 30, 1942, Architectural magazines)*

FIRST IN ARCHITECT CIRCULATION	
The New Pencil Points	**9,412**
Architectural Record	**9,046**
Architectural Forum	**8,169**

First in total building designers (architects, engineers and designers-draftsmen)	
The New Pencil Points	16,219
Architectural Forum	14,058
Architectural Record	13,009

First in subscription renewals	
The New Pencil Points	61.35%
Architectural Record	60.48%
Architectural Forum	53.07%

First in designer-draftsman circulation	
The New Pencil Points	4,930
Architectural Forum	1,992
Architectural Record	1,538



The New PENCIL POINTS

First in architect circulation

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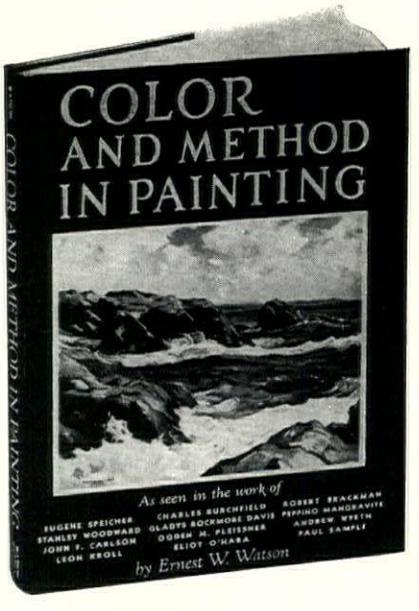
In addition to reproductions showing each artist's work in color, there are over 150 halftones of paintings and drawings. Printed on heavy plate paper; 150 pages, 9" x 12". Descriptive circular on request. Your money back if not satisfied. $5.00.



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