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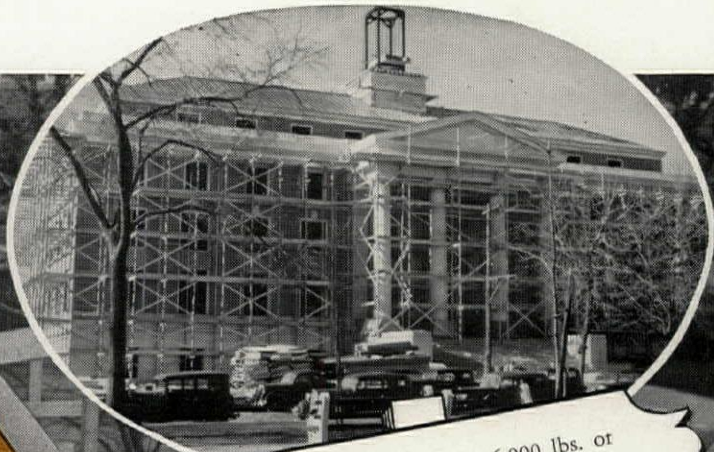

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LET US BE PREPARED

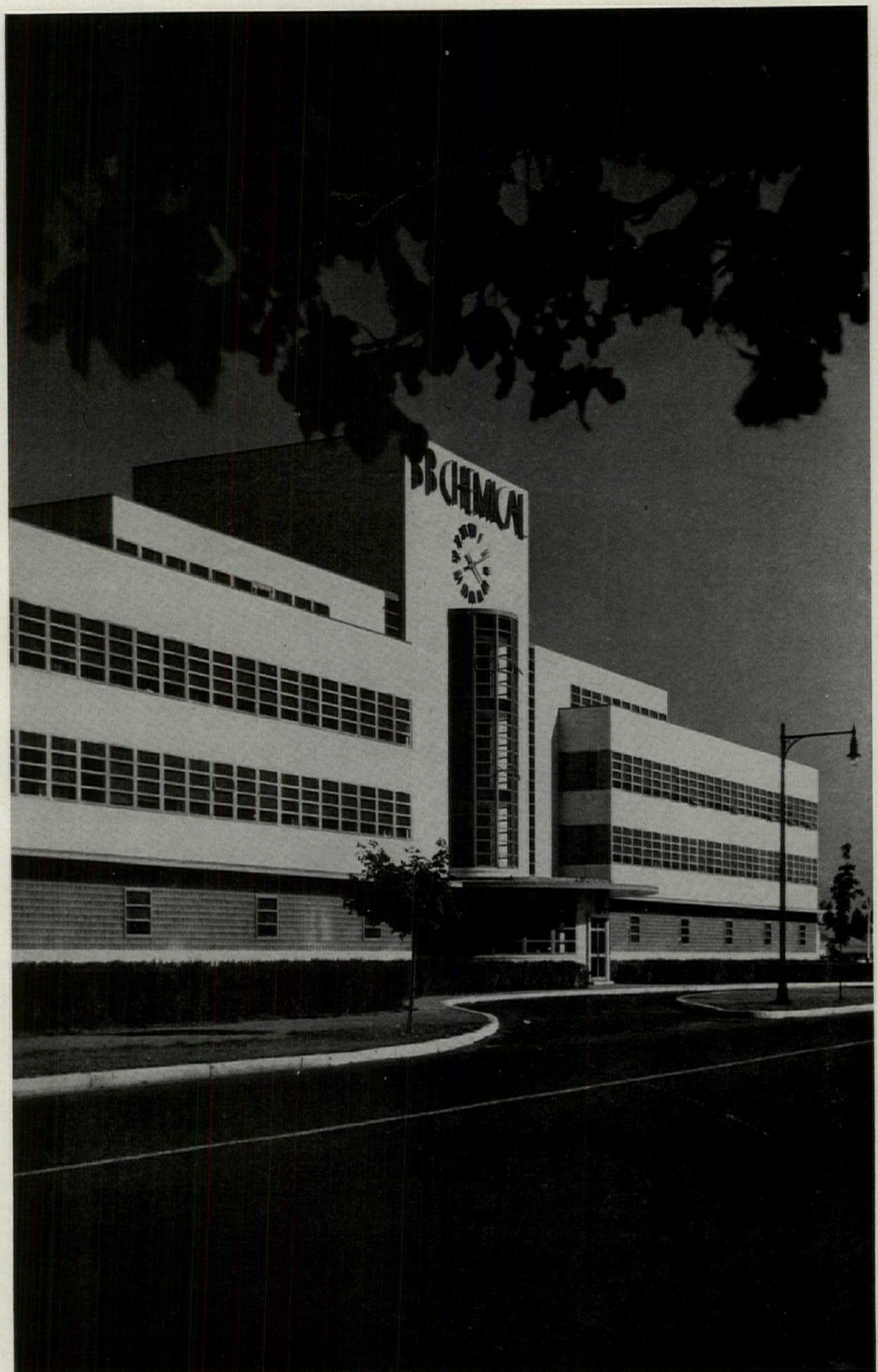
Viewed from the top of a mountain in New England, where we happen to be sitting at the moment of this writing, the world appears completely at peace. War, or even the prospect of war seems remote. So, too, must it seem from most of the places from which our countrymen look out upon peaceful surroundings as they concern themselves with their everyday business. Therein lies our chief danger.

Because it is easier and pleasanter to sit back and tell ourselves that probably no attack will be made against us, we may fail to prepare *in time* against an attack that *may* come. It happened in France; it happened in England: it could happen here. The moral is plain. Better to spend our energies and resources freely and generously to prepare against a threat that does not materialize than to be niggardly and slow and risk the loss of our freedom. Wars today, of either offense or defense are won by the side that is most completely equipped.

Just now, it seems to be agreed, the most vital immediate need of our country is an expanded industrial plant. Existing facilities must be enlarged and new ones built so that adequate production of modern weapons and military equipment may be established and maintained. It is here that architects are playing their first active part in the general preparedness program—not all architects, to be sure, but those few who have specialized more or less on factory design and who have evolved over a period of years increasingly efficient, economical, and rapid methods of factory construction. Of the efforts of these men we have taken some note in this issue. Soon there will develop a demand for industrial housing to take care of the workers who will man the new industrial plants. The experience gained in the emergency housing of the last war, plus all that has been learned in the field of housing and community planning since that time, makes the architectural profession preeminently able to serve in providing for this special need. We fully expect architects to be called on to control the direction this effort will take, as well as the details of carrying it out, for it is important that human values be considered in this kind of housing too. For this reason we expect to devote considerable space to the subject of housing in our September issue, with particular reference to the emergency program.

Beyond the industrial needs there will be other needs that architects can help to fill. Airport facilities will be required to extend the scope and utility of our growing air defense. Part of this work will, of course, be done under the direction of the military authorities but part of it will be primarily civil in purpose and carried out under civil organization. With this in view we are planning to include some pertinent and up-to-date design data on airports and their appurtenances in our October issue.

And so, as the months pass, we will be of as much service as we can, in providing information to serve the needs of the times. For we are convinced that the emergency that confronts us is a real one, which will demand the full effort of every architectural man before it is over.



B. B. CHEMICAL COMPANY PLANT IN CAMBRIDGE, MASSACHUSETTS, DESIGNED BY COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, ARCHITECTS, OF BOSTON. THE PHOTOGRAPH WAS MADE BY J. STEDMAN ADAMS

FACTORIES AS ARCHITECTURE

BY TALBOT F. HAMLIN

If architecture consists of all the things man builds in the effort to make his environment orderly, decent, and beautiful, surely factories must be architecture; and if they *are* architecture they *may be* good architecture. Mankind has a right not to have his eyesight insulted by the place where he works. Nature, generally, does not insult the sense of sight; only man reserves for himself that privilege. And nowhere is the task of architecture to correct this more necessary than in the design of industrial buildings.

Nor is factory design architecturally impossible. Is it some strange leftover from puritan thinking that makes us feel that work places must necessarily be ugly? Of course a thousand examples exist here and there over the world to disprove this popular superstititon. As modern architecture becomes more and more socialized in its ideals, it must perforce devote more time to the industrial building field.

And there is in the systematic functioning of industrial processes an inherent sense of form which should be an inspiration to form-loving architects. Raw materials arrive, pass through inevitable processes in which power is applied, reach assembly or finishing units, are perhaps stored and then shipped away as manufactured goods. The greater the rationalization of industry, the more definite the efficiency, the more closely does the process in any factory achieve definite form. It is but natural that the buildings to surround and shelter this industrial process, if not tortured or warped by the desire to impose preordained shapes, will also achieve a definite form which will have meaning and may be made a source of architectural power — and architectural beauty too, for what is beauty but definiteness of form pleasantly related, colored, and studied for harmonious expression?

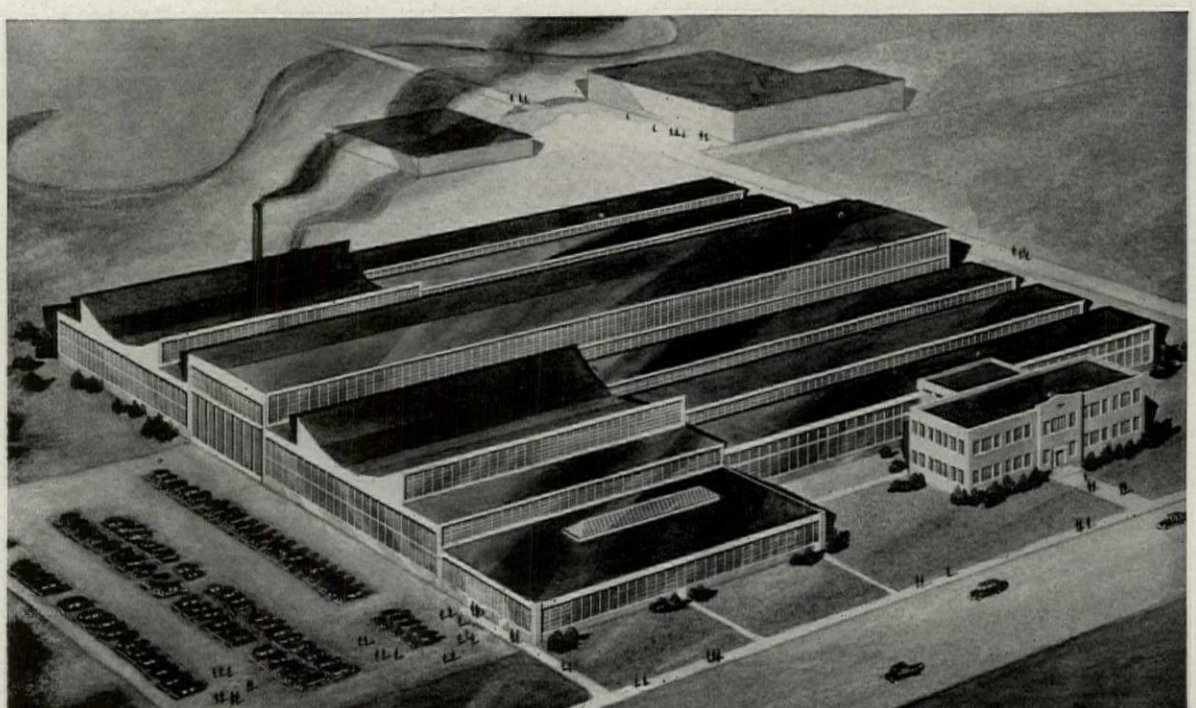
Here one must discriminate carefully between architectural beauty which results from planned form, and picturesque beauty which is the result of chance or of confusing unrelated categories. For instance, when the smoke from western factories is smeared, a purple bank, across the sunset, and the sky above and beneath is dyed orange and gold, there is undeniable beauty which would not have existed had the factories not been there. Or, when one sees the flaring of volcanic reds pouring from the slag heaps beside a blast furnace by night, with the strange flames above the blasts lighting up the underside of smoke and steam, there is magnificent and thrilling beauty. Yet in neither case can beauty like this be accepted as architectural, or even as socially desirable. The smoke which turns the sunset into gorgeousness seeps in the window cracks of every home; black soot descends on clothes and floors and food; and, when the wind is different and clouds hang low, the smoke becomes a stifling and a darkening pall.

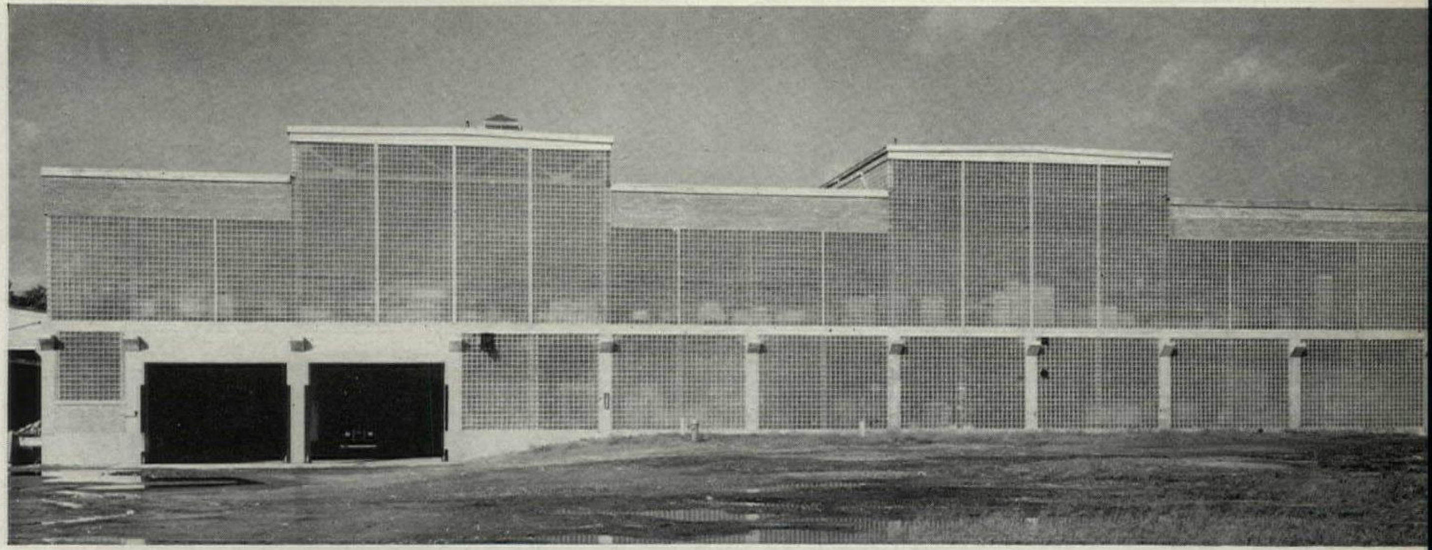
Architectural beauty is almost the reverse of all this; for architectural beauty, being dependent on planned form, endures, and whatever the weather, whatever the time of day, whatever the surrounding conditions, brings harmony and peace and pleasantness wherever it can be seen. True architectural

IN THE PLANT OF THE GERITY-ADRIAN MANUFACTURING COMPANY, AT ADRIAN, MICHIGAN, ALBERT KAHN HAS ACHIEVED UNUSUAL DIGNITY BY SIMPLICITY OF TREATMENT—REGULARITY OF PANE DIVISIONS AND AN UNBROKEN CLERESTORY EXTENDING FOR THE ENTIRE WIDTH OF THE BUILDING. THE VAST PLANT DESIGNED BY THE SAME ARCHITECT FOR SIKORSKY, AT STRATFORD, CONNECTICUT, REPRESENTS AN INGENIOUS COMBINATION OF THE FORMS REQUIRED TO SERVE THE VARIOUS PARTS OF THE FACTORY. VIVID AND EFFECTIVE AS THE RESULT IS, IT IS ALSO NOTABLE AS AN EXAMPLE OF THE FLEXIBILITY INHERENT IN THE BEST INDUSTRIAL DESIGN. THE REGULAR DIVISIONS OF GLASS AREAS LEND UNITY. RENDERINGS OF KAHN'S WORK ARE BY JOHN T. CRONIN

beauty might depend even on eliminating the accidental, as far as nature would permit, and on conditioning smoke and gas and flame outlets to mitigate their discharge, direct the flames where they could furnish necessary heat, and eliminate the smoke as much as possible. The truly architectural factory would thus become, not a blight upon its neighborhood, but the reverse.

There are in large plants so many visually exciting forms, such a wealth of material to work with, that it is difficult to see why they have been for so long used in a merely helter-skelter confusion. The tall domed cylinders of blast furnaces, the smoke and discharge stacks, the varied forms of ven-





tilators and smoke combustion chambers, the shapes of condensers, the dynamic lines of material conveyors (horizontal or inclined), the strong cylinders of grain elevators or coal or cement storage bins, the delicate framework of cranes, or the lines of busy fuel hoists—these all form an alphabet with which any artist should be delighted to work; and when they are all related systematically and purposefully in accordance with a well integrated plan, as for example in parts of Albert Kahn's River Rouge Ford plant, the result is true architectural as well as picturesque beauty (Page 481).

The greater number of factory buildings, however, are deprived of these exciting op-

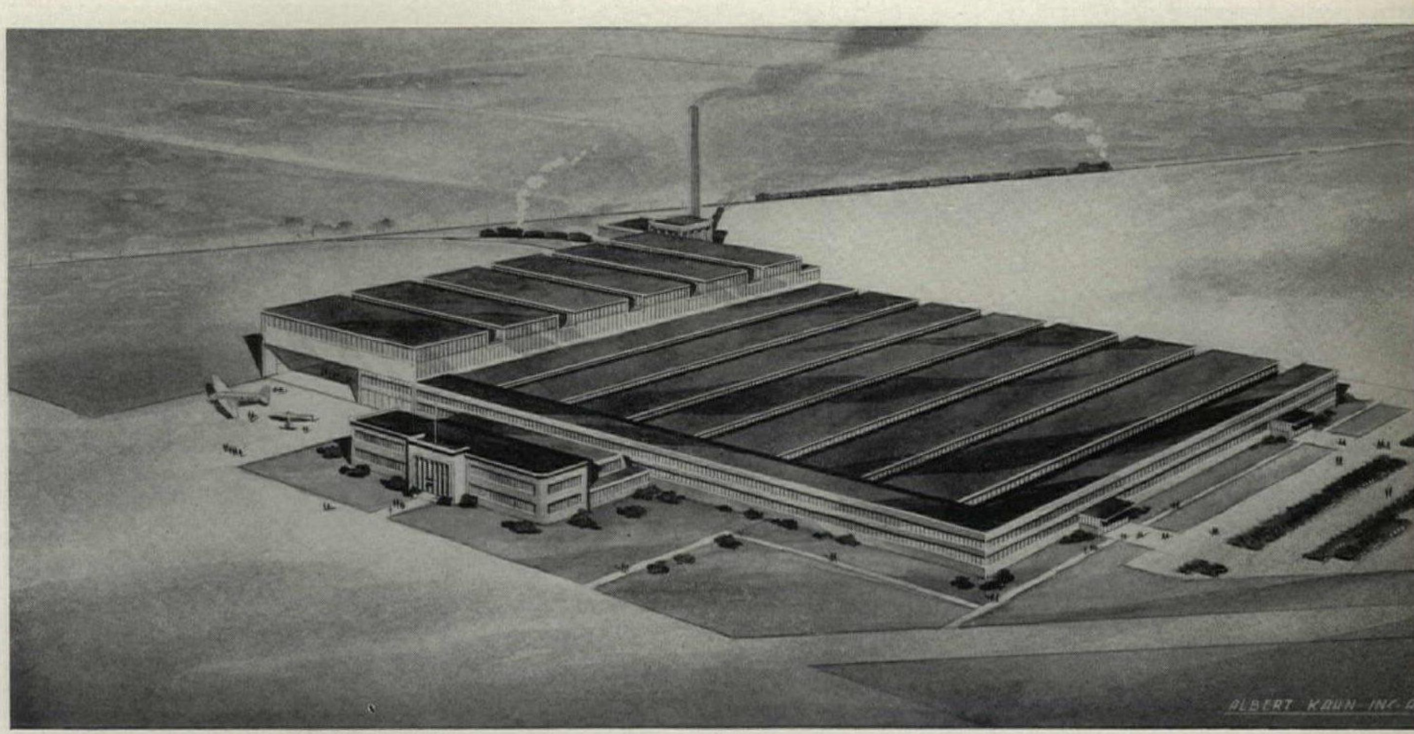
EDWIN J. KRAUS, ARCHITECT, OF MILWAUKEE, WISCONSIN, DESIGNED THE TWO BUILDINGS SHOWN ON THIS PAGE FOR THE WESTERN PRINTING COMPANY. HIS ABLE HANDLING OF GLASS BLOCK, WHEN USED FOR ENTIRE WALLS, IS EVIDENT IN THE PRESS BUILDING, ABOVE, AT POUGHKEEPSIE, NEW YORK; WHILE IN THE BUILDING BELOW, AT RACINE, WISCONSIN, THE GLASS BLOCK AREAS ARE SMALLER AND MAKE A PATTERN WITH THE CONCRETE STRUCTURAL ELEMENTS. KRAUS STATES THAT THESE BUILDINGS SOLVE DIFFICULTIES WHICH HAVE BESET THE PRINTING INDUSTRY FOR YEARS. USE OF CORK AS AN INSULATING MATERIAL, TOGETHER WITH THE GLASS BLOCK, MAKES IT POSSIBLE TO MAINTAIN REQUIRED HUMIDITY WITHOUT DAMAGE OR EXCESSIVE COST

THE RIVERSIDE ADMINISTRATION BUILDING OF THE B. B. CHEMICAL COMPANY IN CAMBRIDGE, MASSACHUSETTS, THE AUTHOR FINDS "EXTREMELY EFFECTIVE." A CLOSER VIEW OF THE CENTRAL UNIT IS SHOWN ON PAGE 468. COOLIDGE, SHEPLEY, BULFINCH & ABBOTT, OF BOSTON, WERE THE ARCHITECTS. THE PLANT OF THE STANLEY WORKS IN NEW BRITAIN, CONNECTICUT, SHOWN BELOW, IS NOTABLE FOR ITS INTERESTING PATTERN OF GLASS BLOCK AND WINDOWS IN THE NEW OFFICE ADDITION DESIGNED BY MAXWELL MOORE & CHARLES SALSBURY, OF WEST HARTFORD. GLASS BLOCK DIFFUSES LIGHT AROUND THE COLUMNS

portunities. More and more, as electric distribution of power becomes general, the smoke stack yields its importance and the flexibility given by individual power machines allows the development of simpler enclosing halls. Even great size or tremendous scale is required in but relatively few plants. Most of the things we manufacture are small. The locomotive plant, the great machine shop, the large airplane factory will, it is true, require enormous assembly chambers; but for the most part today's manufacture is done in comparatively small units, on comparatively small machines which can be freely spaced.

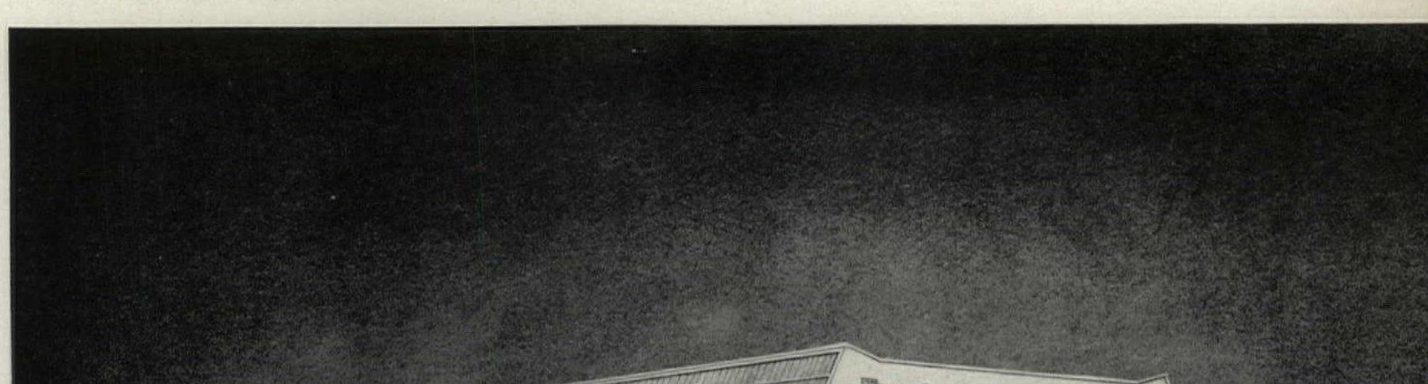
Another element adds to the difficulty of the industrial problem—the necessity for flexibility. In many cases the differentiation between factory and loft building is hard to draw. What are universally needed, however, are regularity, relatively wide spans to allow flexibility in machine placing, floods of light, and ventilation.

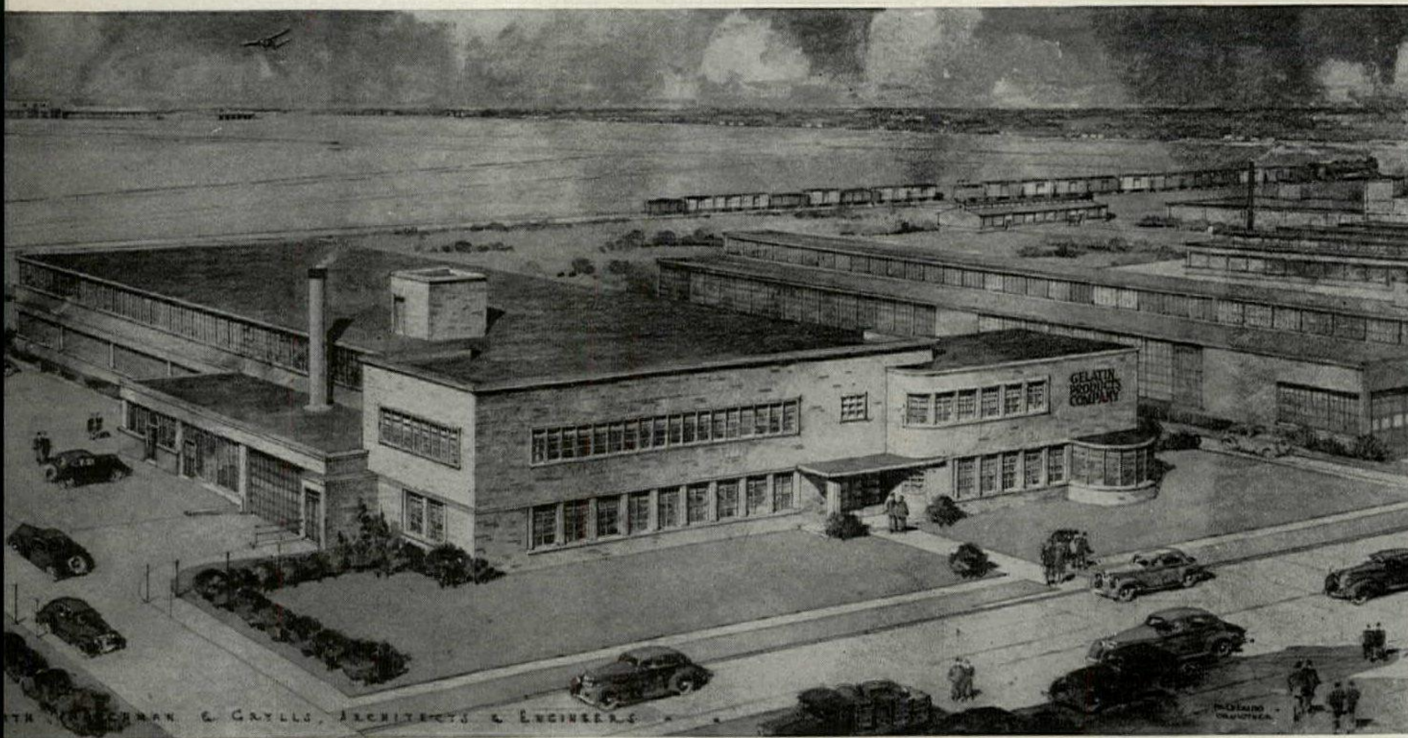
The natural result has been the development of all sorts of methods of roofing over large areas of ground in such a way that light may penetrate the entire building, and the consequent development of sawtooth, monitor, and clerestory roofs of various kinds. In buildings for heavy industry, such dominant forms as the high monitor roof or the butterfly truss roof often confer striking inter-



est; or else the simple great scale of walls all of glass gives a surprising dignity. There is, for instance, a magnificent classical regularity about such a simple glass-walled shed as that of the stamping building of the Westinghouse Company at Mansfield, Ohio (Page 481), or the simple clerestory building of the Gerity-Adrian Manufacturing Corp., Adrian, Michigan (Page 470), the half reflecting and half transparent character of the walls revealing something of the structure within, the regularity of pane size and frame division giving strong rhythm. These forms

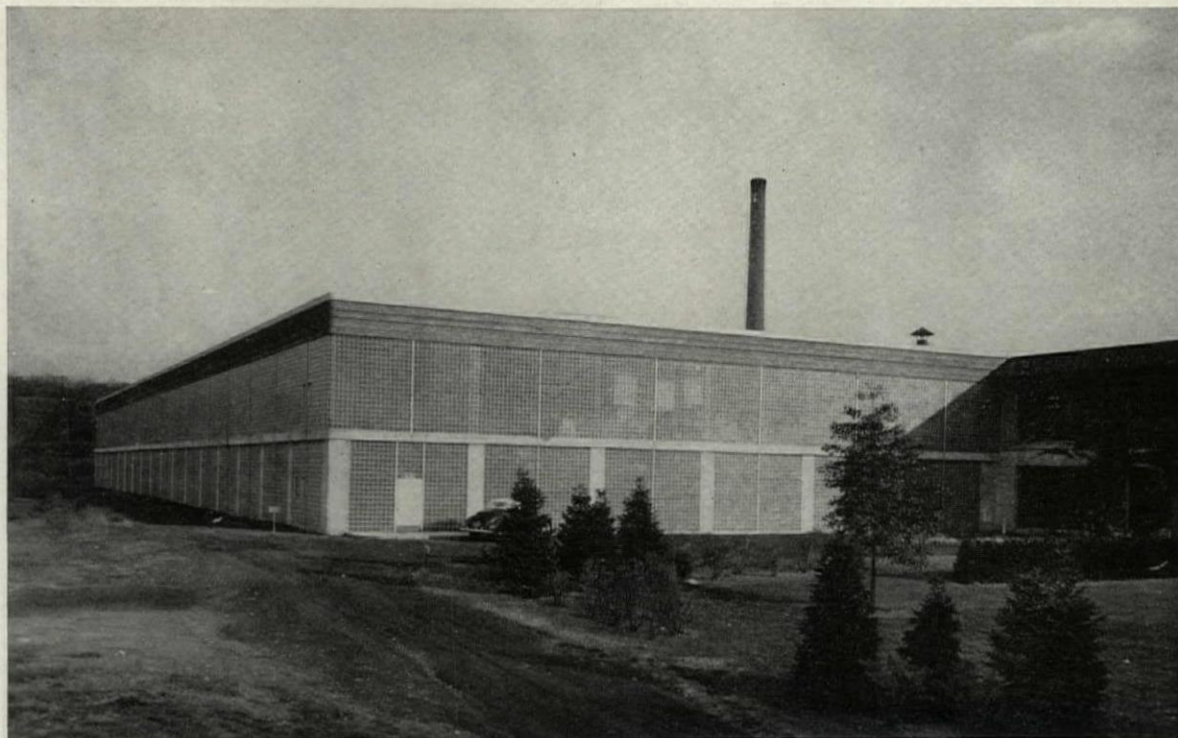
IN THE PROPOSED AIRPLANE PLANT, ABOVE, AND IN THE BUILDING OF THE OHIO STEEL FOUNDRY COMPANY, BELOW, ALBERT KAHN HAS BOLDLY SPOKEN THE NEW LANGUAGE OF THE INDUSTRIAL DESIGNER. THE CAREFULLY ORGANIZED WORK SPACE, THE CONTINUOUS BANDS OF WINDOWS, EVEN THE LOFTY, REPEATED ASSEMBLY HALLS ARE THE ELEMENTS OF A STRAIGHTFORWARD SOLUTION—IN WHICH THE STYLIZED FACADE OF THE ADMINISTRATION WING IS PERHAPS A JARRING NOTE. OF COURSE THE BUILDING BELOW IS STRIKING IN COMPOSITION AND FORM YET THE ARCHITECTURAL TREATMENT IS SIMPLE



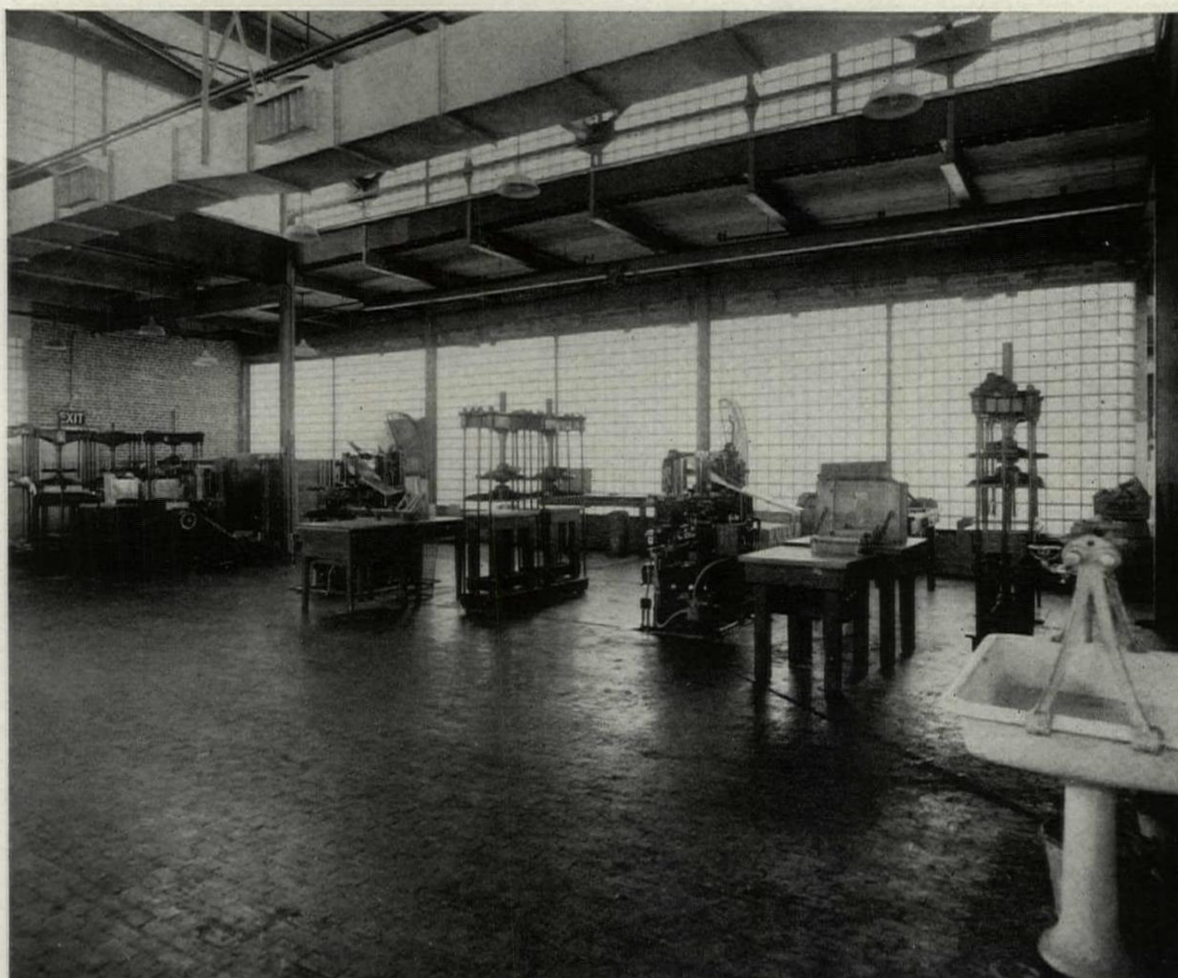


ALL OF THE ARCHITECTURAL FORMS AND MASSES OF THE GELATIN PRODUCTS COMPANY OF DETROIT, DESIGNED BY SMITH, HINCHMAN & GRYLLS, ARCHITECTS AND ENGINEERS, HAVE VERY EVIDENTLY BEEN COMBINED IN AN ATTEMPT AT REAL INTEGRATION OF THE ENTIRE PLANT—AND THE DESIGN HAS THEREBY GAINED IN INTEREST. IN THIS RENDERING BY FREDERICK CROWTHER THE HANDLING OF THE STREET FRONT OF THE PLANT IS CLEARLY EXPLAINED, AND ITS RELATION TO THE FACTORY BEYOND

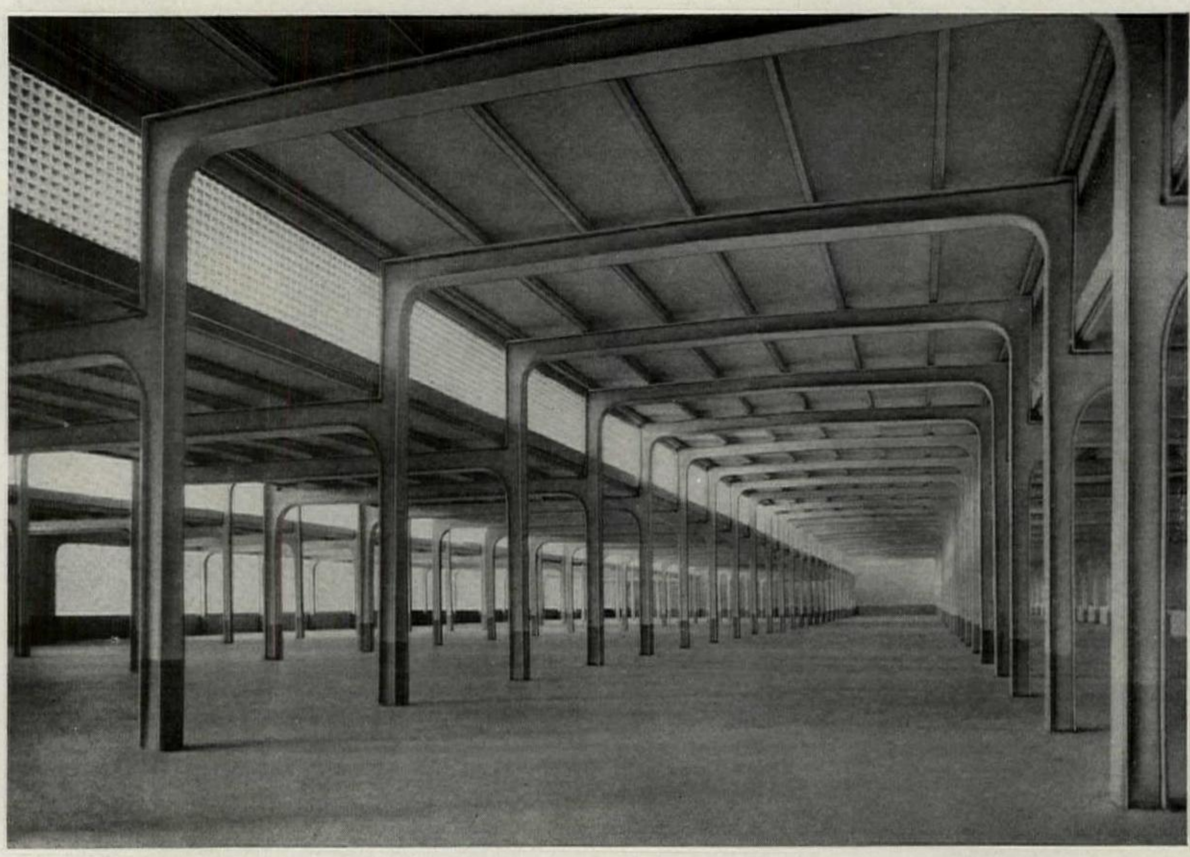
always seem best when most simply treated, as for example in Kahn's great butterfly-roofed building for Ohio Steel Foundry Co. (Page 473). Here one has a striking sense of space purposefully composed and adequately surrounded; even the off-center railroad track door somehow seems inevitable. Combinations of these forms, as in the Sikorsky plant, Stratford, Conn. (Page 470), or the proposed Olds Foundry at Lansing, Michigan (Page 480), are also vivid and effective.
In the simpler buildings which more nearly approach the loft building in type, the exterior problem is harder. Here, reliance must be placed on the direct handling of the materials and the most careful study of proportion in bay spacing and window arrangement. Nowhere else has the horizontal strip window proved itself such a practical and yet such a beautiful feature as in factory building design, and again and again long horizontals with a pleasant variation of brick spandrel, wall, and glass window have given harmony and quiet amenity to factory façades that once would have been barren and depressing. This is not a matter of applied architecture. For instance, the wing of the Stanley Works at New Britain (Page 472), by Maxwell Moore & Charles Salsbury, seems to make the cornice and pseudo-classical details of the little building in the foreground appear artificial and affected. In the windows of the new part the variation of glass block at the sides and clear glass at the center not only gives diversity and interest of rhythm, but also serves to diffuse the light around the columns.
But most manufacturing plants offer more opportunities than the design of a single shed or even the single administration building to serve as a frontispiece, like the extremely effective riverside administration building of the B.B. Chemical Company in Cambridge, Mass. (Page 472), by Coolidge, Shepley, Bulfinch and Abbott. They offer as well an exciting occasion for the combination of many units, for many purposes, into one integrated whole. In this group composition there is one American besetting sin, the result of an old-time habit. In many cases in the past, manufacturers, having built the requisite acres of characterless sheds, have



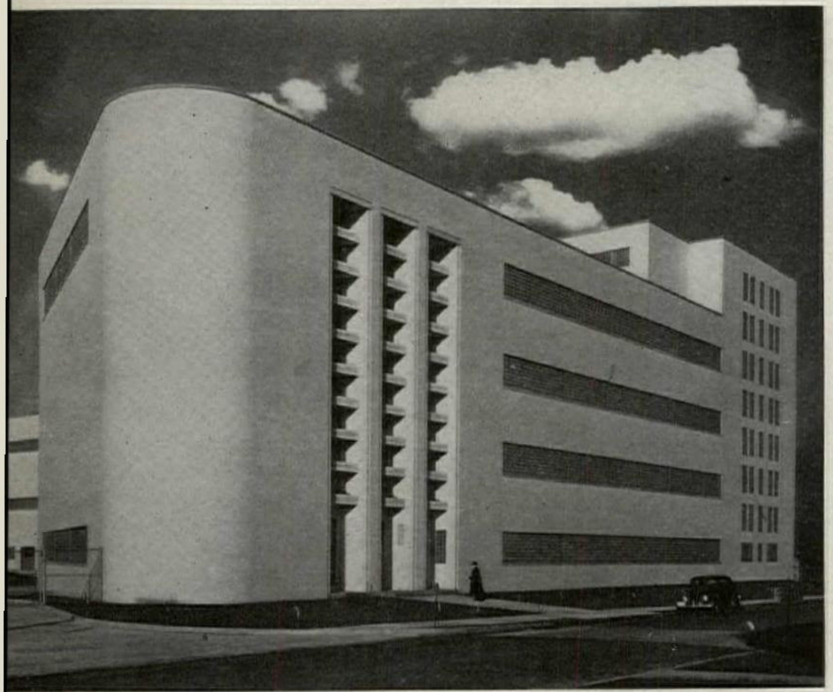
WHEN THE PRESS BUILDING AT POUGHKEEPSIE, NEW YORK, WAS DESIGNED BY EDWIN J. KRAUS FOR THE WESTERN PRINTING COMPANY, GLASS BLOCK WAS USED GENEROUSLY, TO ADMIT THE FLOODS OF LIGHT NEEDED FOR THE PRINTERS. IT HAS PROVED A GOOD INVESTMENT, AS WELL, SINCE IT IS POSSIBLE TO PROTECT PAPERS BY MAINTAINING PROPER TEMPERATURE AND HUMIDITY WITHOUT THE USUAL LOSS THROUGH WINDOW OPENINGS IN OLD TYPE STRUCTURES. THE CORK INSULATION ALSO CUTS LOSS



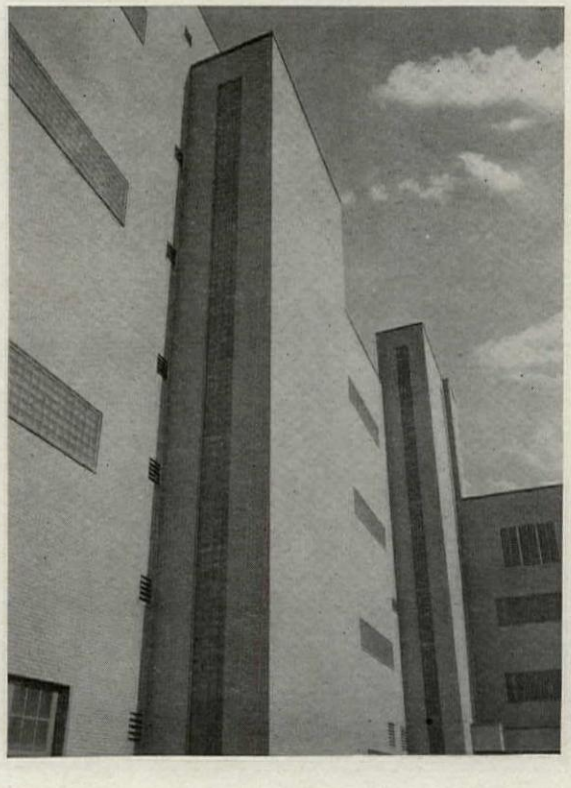
THE 240-FOOT "CATHEDRAL" BAY, ABOVE, WITH 80-FOOT CLEAR SPAN, WAS CONSTRUCTED ENTIRELY OF SECTIONS PREFABRICATED BY ARC WELDING IN THE SHOPS OF THE AUSTIN COMPANY, ENGINEERS AND BUILDERS, OF CLEVELAND AND NEW YORK. IT WAS COMPLETED IN RECORD TIME FOR THE LINCOLN ELECTRIC COMPANY OF CLEVELAND. THE WELDED CROSS-SECTION SHOWN BELOW WAS DESIGNED BY THE AUSTIN COMPANY FOR PLANTS REQUIRING MONITOR ILLUMINATION, SUCH AS THE CONTINUOUS BAND OF GLASS BLOCK, AND APPLIES THE TREE-FORM PRINCIPLE WHERE BEAMS AND COLUMNS ARE JOINED



THE SIMPLICITY ACHIEVED THROUGH UNAFFECTED DESIGNING OF FACTORY INTERIORS IS EVIDENT IN THESE EXAMPLES OF THE WORK OF THE AUSTIN COMPANY. RIGID, TRUSSLESS SAWTOOTH CONSTRUCTION, PROVIDING 80,000 FEET OF WORKING AREA IN FOUR 40-FOOT AISLES OF THE LINCOLN ELECTRIC COMPANY'S NEW ALL-WELDED FACTORY ADDITION AT CLEVELAND, IS SHOWN ABOVE. THE VIEW BELOW SHOWS THE "WHALEBACK" CROSS-SECTION DEVELOPED BY AUSTIN ENGINEERS, HERE COMBINED WITH THE TREE-FORM COLUMNS USED IN WELDED, RIGID-FRAME SAWTOOTH BUILDINGS. PHOTOS BY THE AUSTIN COMPANY



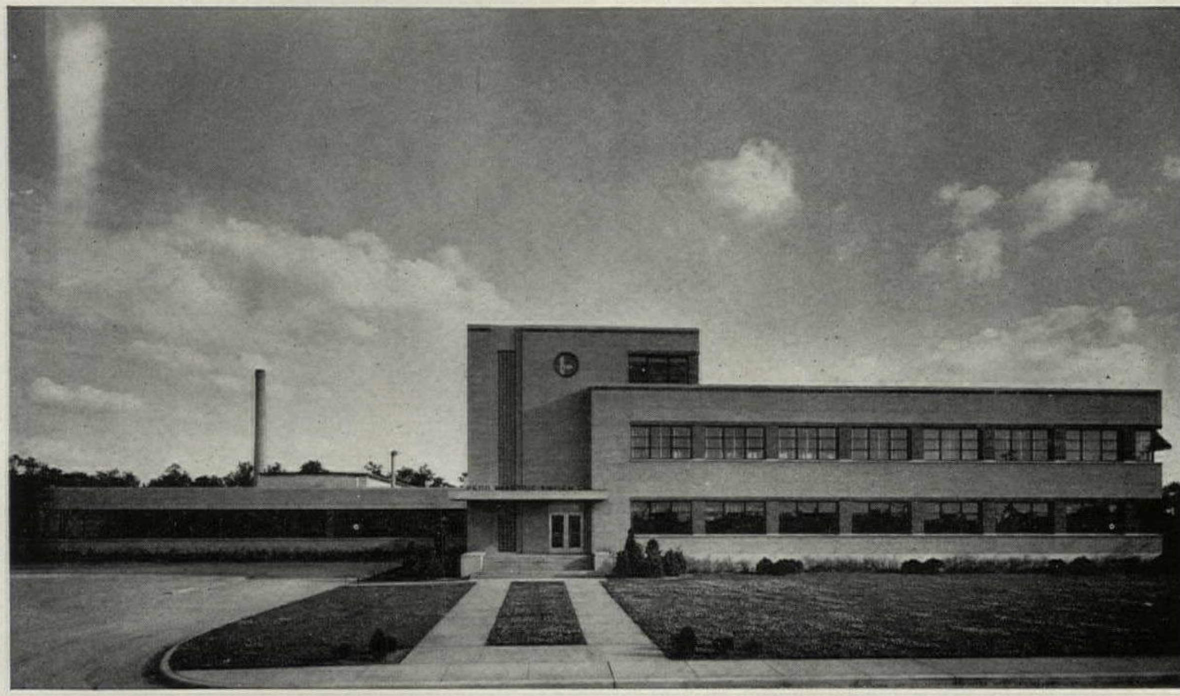
THE EXPRESSIVENESS OF VARIATION IN THE SIZES AND SHAPES OF OPENINGS IS STRIKINGLY ILLUSTRATED BY THESE VIEWS OF THE $2,500,000 CHURCH AND DWIGHT PLANT, DESIGNED BY THE AUSTIN COMPANY OF CLEVELAND AND NEW YORK, ENGINEERS AND BUILDERS. THE GREAT CURVED CORNER OF THE BRICK WALL, THE EFFECTIVE TREATMENT OF THE ENTRANCE, AND THE HORIZONTAL BANDS OF GLASS BLOCK ALL REFLECT DIFFERENT FUNCTIONS WITHIN THE AIR-CONDITIONED BUILDING — WITHOUT DISTURBING THE UNITY OF THE STEEL AND BRICK STRUCTURE



suddenly bethought themselves that they must make a good impression on the public, and have forthwith engaged an architect to do a little office or administration building on the main street façade. This could be "gayed" up in the fashionable style of the period, prettily planted with evergreens from the local nursery, and then pointed to with pride as industrial architecture. The hope was that somehow its 50- or 100-foot frontage would hide the 400-foot squalor behind. But usually, because the two elements were considered so separately, the "architected" administration building served only to make the factory behind the more gloomy, and the great scale of the factory only made the administration building seem more patently an intrusion. The bad habit thus set is deeply ingrained, even when the factory and the administration center have been conceived as one thing and designed by one firm. Nowhere is façade architecture more utterly repugnant than in factory design, or more disastrously common.

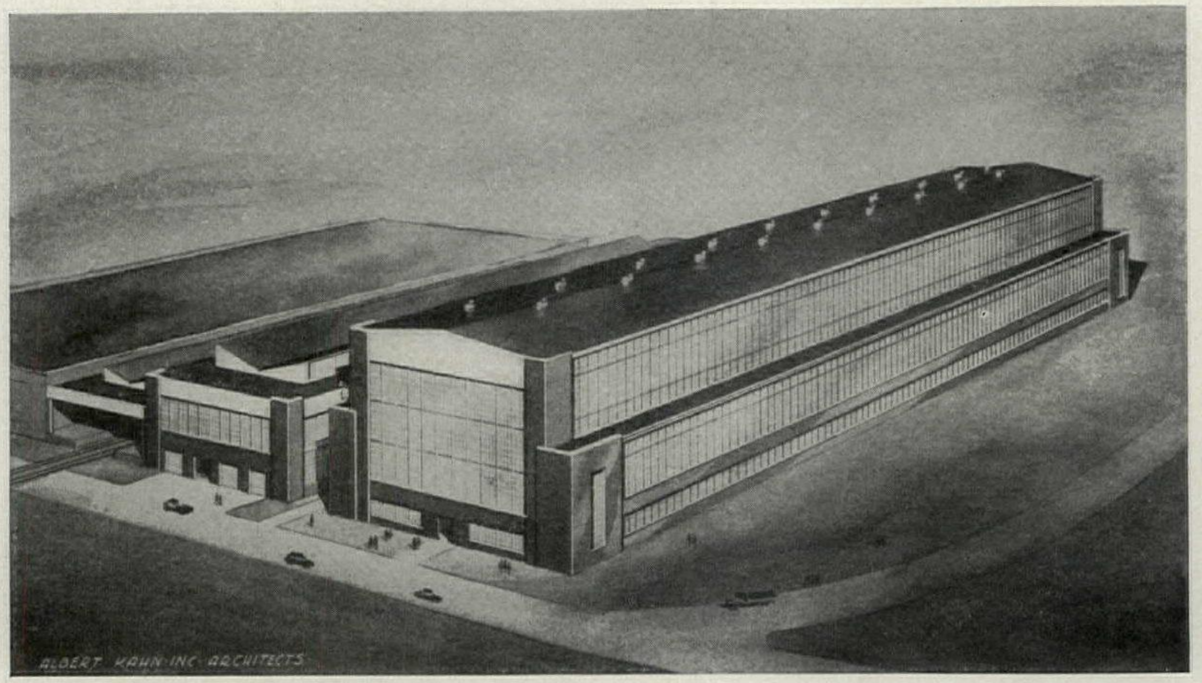
It is therefore all the greater pleasure to come across those examples in which an attempt at real integration has been made. In the Gelatin Products Company (Page 474), for example, by Smith, Hinchman and Grylls, all the masses have been combined with an evident effort to make them one, and the planes have thereby gained the greater interest. The same quality is to be seen in the Progressive Welder Company building, Detroit, across-page, by the Austin Company, though here perhaps the connection between the monitor roof behind and the curved façade of the front might have been slightly more unified; yet the impression is definitely of one thing, not of an applied superficial motif. The same quality is even more obvious in the group for the Penn Electric Switch Company at Goshen, Indiana, also across-page, where administration, laboratory, and work rooms have been integrated into one definite unit all characterized by the same feeling and developed with a marked skill in geometrical composition.

In the Church and Dwight Plant at Syracuse (left), the Austin Company has created



a plant which is completely one. The building has enormous character; its great curved corner, its sharp contrasts of vertical and horizontal openings, its projecting bays, all express in a simple way the variety of functions within the building, without disturbing the essential unity of the whole. It is along such lines of emphasizing the unity that the future of any constructive industrial architecture must lie. We have passed the age when there seemed some inherent dignity in "business" which did not exist in

VIEWS OF THE PENN ELECTRIC SWITCH COMPANY, IN GOSHEN, INDIANA, AND THE PROGRESSIVE WELDER COMPANY, IN DETROIT, FURTHER ILLUSTRATE THE SKILL DISPLAYED BY DESIGNERS OF THE AUSTIN COMPANY IN THE INTEGRATION OF OFFICE OR ADMINISTRATIVE PORTIONS OF THE INDUSTRIAL PLANTS WITH THE WORK OR LABORATORY AREAS. THIS IS DESIGN WELL-ADVANCED FROM THE OLD SPRAWLING FACTORY BLOCKS WHICH BOASTED AS THEIR SINGLE REDEEMING FEATURE A STYLIZED ADMINISTRATION UNIT, EXPECTED TO OFFSET ALL UGLINESS BEHIND



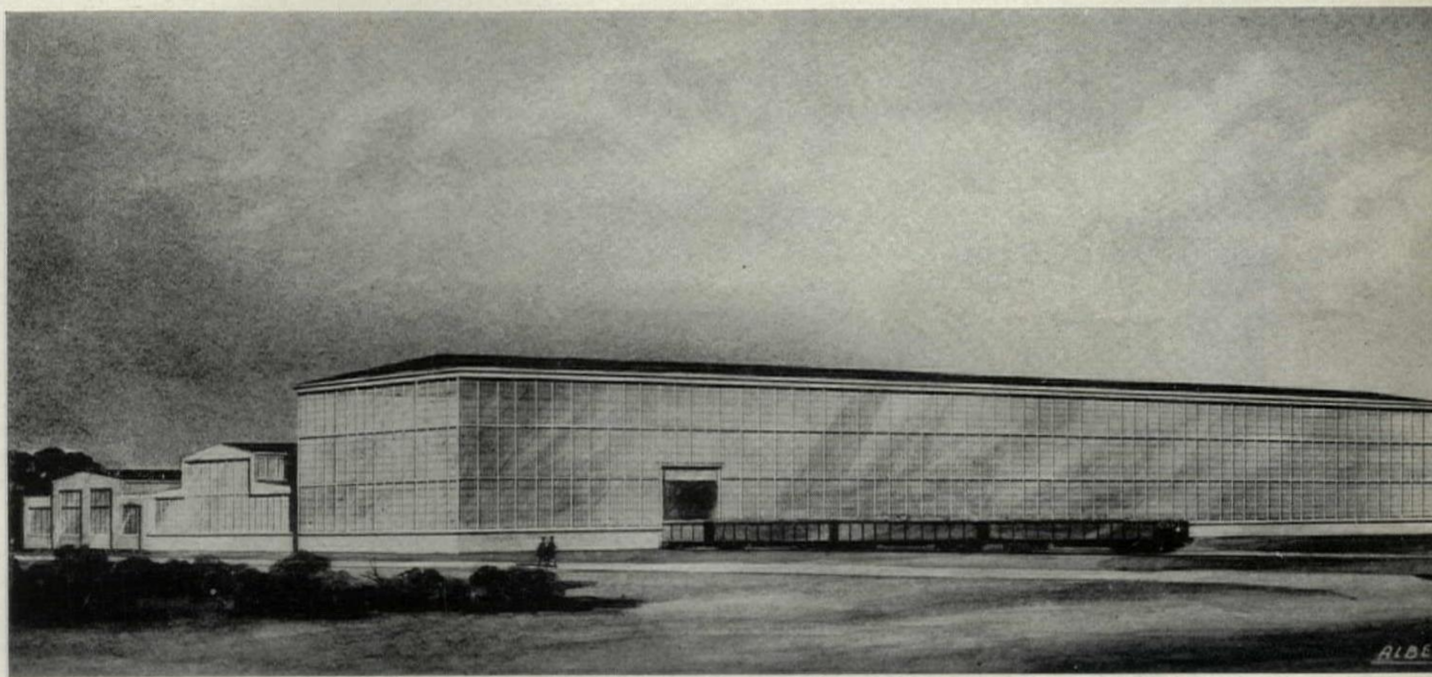
ALSO WELL-INTEGRATED AND EFFECTIVE IN ITS IMAGINATIVE COMBINATION OF FORMS IS THIS DESIGN BY ALBERT KAHN FOR A PROPOSED OLDS FOUNDRY IN LANSING, MICHIGAN. THE SCALE OF THE STRUCTURE IS OVERPOWERING — THE VAST GLASS AREAS REPRESENTING A PROVISION FOR FLOODS OF LIGHT. RENDERING BY JOHN CRONIN

manufacturing. Architecturally, the whole type of factory design based upon the contrast between the sweaty workman in dirty overalls and the clean clerk in white collar and derby hat is fundamentally false and out-of-date; it can lead only to confusion and ugliness.

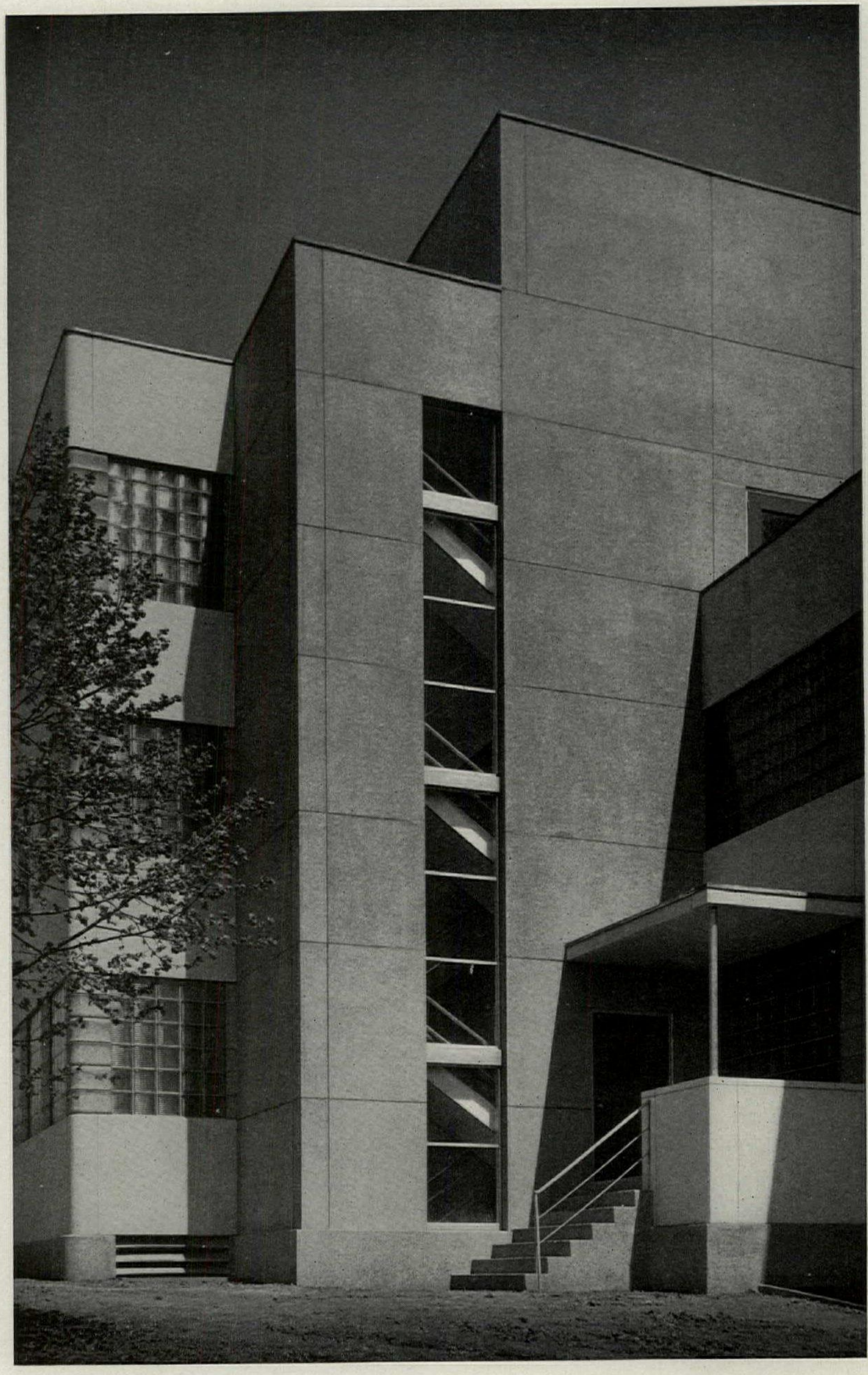
The regular ranks of monitored work space, the banded windows along the outer walls, and the high assembly hall of Albert Kahn's proposed airplane plant all speak the new language, but somehow the applied façade with its monumental porch given to the administration wing seems to look backward to the past (Page 473).

But the architect's work in factory design must be as clearly a cleaning up, a simplifying, a systematizing of the interior structure, as it is a matter of sufficient light and air. Factory interiors are complicated enough at best when the machinery is installed; from the mere viewpoint of efficiency it is necessary to have the cleanest, simplest surfaces, to avoid visual exhaustion and diffusion of interest. In this effort, the welded frames developed for factory construction by the Austin Company are significant and important. The old complicated sawtooth roofs are far different things in effect from such a clean, quiet interior as that given by the 40-foot aisles of the Lincoln Electric Company in Cleveland. Even pleasanter, and as light, is the new type of whaleback roof, with its agreeable structural symmetry; and, when this same quality is applied to the great central high naves which are frequently required, the result is almost monumental (Pages 476-477).

More and more the architect must enter the industrial field. More and more the industrial manufacturers must take advantage of the architect's training and the architect's imagination. In this respect America is far behind many countries in Europe. It has yet to show a plant as beautiful as the Van Nelle plant in Rotterdam or the Austrian Tobacco plant at Linz, or any one of several of the great factories of Sweden or England; but the pioneering work already accomplished has shown the way, and the best of the American work is probably in advance of the European in its efficiency. With the tremendous amounts of factory building necessitated in the near future, the development of American industrial architecture is bound to come of age.



STRUCTURAL WORK WAS STARTED LAST MONTH ON THE NEW METAL STAMPING BUILDING, ABOVE, DESIGNED BY ALBERT KAHN AS THE PRINCIPAL PROJECT OF A HALF-MILLION DOLLAR EXPANSION PROGRAM OF THE WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, AT MANSFIELD, OHIO. THE SIMPLICITY AND REGULARITY OF THE GLASS-WALLED STRUCTURE GIVE IT UNUSUAL DIGNITY. TYPICAL OF THE INDUSTRIAL SCENES OF TODAY, IN WHICH TRUE ARCHITECTURAL BEAUTY IS FOUND, IS THIS DRAMATIC PHOTOGRAPH OF BLAST FURNACES IN THE RIVER ROUGE FORD PLANT, REPRODUCED FROM GEORGE NELSON'S BOOK REVIEWING KAHN'S EARLIER WORK, "INDUSTRIAL ARCHITECTURE OF ALBERT KAHN"



A BUILDING FOR MEDICAL RESEARCH — BY SHERLEY W. MORGAN

A BUILDING FOR MEDICAL RESEARCH

BY DON GRAF

The more proficient a man gets at golf, the easier his game appears to the bystander. To watch a good golfer is to be convinced that any one should be able to drive a ball two hundred yards. On the other hand, a dub will make the pastime look like one of the most difficult and complicated sports ever invented.

So it is with design. Such a labored and unsatisfactory building as the New York Public Library, or the plan of the World's Fair, would lead one to believe that the *programs* were of vast complexity. Conversely, a clear-cut and well-organized solution makes it seem that the design problem was an exceedingly simple one.

To provide proper spaces for thousands of test animals, laboratories for scientists, and dependencies, all under accurately controlled conditions, is not a simple architectural commission. In the Squibb Institute for Medical Research at New Brunswick, N. J., we find a building that is particularly satisfying in its expression of function, in its flexibility of plan, and in its simplicity of structural arrangement. The solution of the architect, Sherley W. Morgan of Princeton, N. J., is so simple and direct that it makes it appear to have been an easy problem.

An analysis of the requirements in plan revealed that various multiples of a 7′-0″ module could be made to provide rooms for any present or future requirement. Accordingly, the structural system is based upon 21′-0″ bays having three elements of fenestration in the facade. By simple rearrangement of partitions, it is possible to create rooms of 7 feet, 14 feet, 21 feet, and so on. The construction of the building, although of permanent, quality materials, is economical. The economy results from the simplicity of the structural framing and the details of floors, walls and roofs. The foundation is of poured concrete, and that portion of the wall which is above the ground contains an exposed granite aggregate.

The superstructure walls are faced with 2″ architectural concrete slabs. These slabs are in large sections with joints every 7 feet horizontally. The sills of the glass block "windows" are cast integrally with the slabs, making erection of the facing material extremely simple. The mullions are 2″ architectural concrete slabs with molded faces and in a contrasting color. These large slabs are held to the building by anchors engaging the structural spandrel. The anchors are cast integrally with the slab. The manufacturer of the architectural concrete slabs first cast the largest pieces required by the building. By reducing the size of the mold, the next largest size of slabs was produced. This process continued down to the smallest pieces, resulting in the utmost economy of forms at the factory. The entrance is in a darker color and is the only place on the building where a large number of repeated uses of forms was not possible.

Two air spaces provide an exterior wall of low thermal conductivity, since air conditioning of the building is vital to the laboratory processes. There are no movable sash windows in the building, natural lighting being supplied by glass block panels. This

THE SIMPLE DIGNITY OF THE ENTRANCE IS EXPRESSIVE OF THE FUNCTION OF THE BUILDING

THE SYMMETRICAL FACADE IS THE CLOSING ELEMENT OF THE PLOT PLAN, BEING LOCATED AT THE END OF THE PLAN AXIS. THE RESTRAINED POLYCHROMY OF THE EXTERIOR ADDS TO THE INTEREST OF THE DESIGN WITHOUT DETRACTING FROM ITS DIGNITY. THE STRUCTURE WAS PLANNED ON A 7'-0" MODULE. PHOTOGRAPHS OF THE LABORATORY BUILDING ARE BY SIGURD FISCHER, UNLESS OTHERWISE NOTED

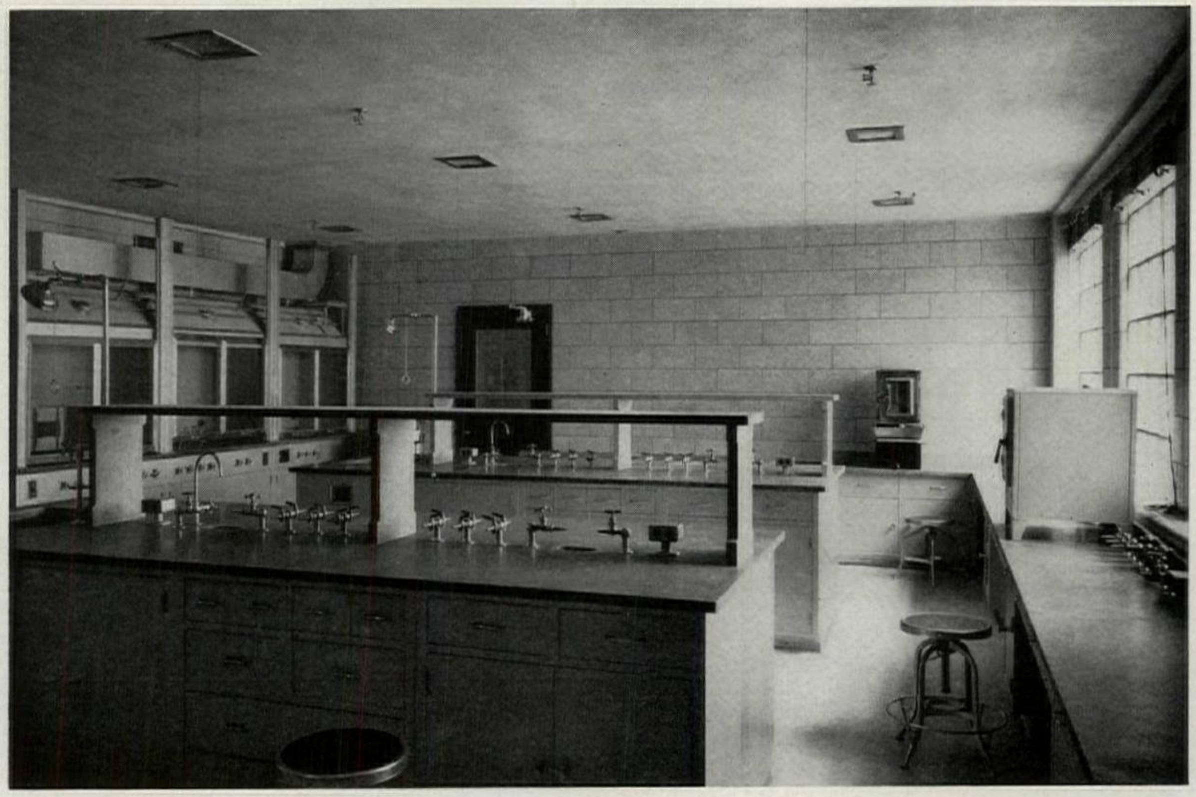
handling of fenestration further reduces the heat gain or heat loss to facilitate controlled conditions within the building.

The interior faces of walls and the partitions were required to be sanitary and easily maintained so machine-made terra cotta ashlar was selected.

The floors are of keystone steel beam construction with a topping of concrete. The floor finish in some cases is of granolithic. In the corridors the finish is industrial plank. This material has sufficient resilience to make it very quiet and is at the same time easily maintained.

Ceilings are of conventional plaster on metal furring. Lighting units have been mounted flush with the ceiling surface and are individually controlled. Prismatic lenses provide an even distribution of artificial light on the working plane. The sprinkler piping is concealed so that only the sprinkler heads appear on the finished ceiling.

The provision of ventilation, water, air, gas, and electricity to the rooms, together with facilities for servicing this bewildering and complicated piping, was solved by using a furred space in the corridors with removable Transite panels for access. These panels are metal-edged and provide a very pleasing ceiling for the corridors—at the same time allow immediate inspection of the service lines. A rearrangement of rooms may require a new set of outlets at any time. The removable corridor ceiling panels permit the easy installation of new connections wherever and whenever they may be needed.

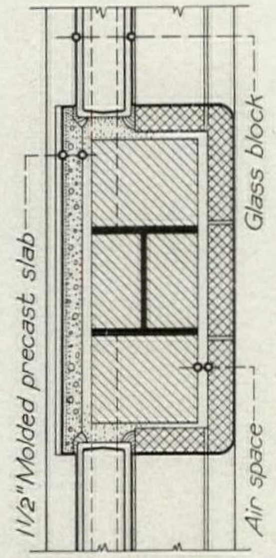


THE TOP ILLUSTRATION SHOWS A TYPICAL LABORATORY. NOTE THE FLUSH LIGHTING FIXTURES AND THE SURFACE TYPE SPRINKLER HEADS. THE LOWER PHOTOGRAPH SHOWS A TYPICAL CAGE ROOM IN WHICH TEST ANIMALS ARE HOUSED. TERRA COTTA WALL FACING AND CONCRETE FLOORS WITH FLOOR DRAINS PROVIDE FOR THE EASY MAINTENANCE OF SANITATION. THE ENTIRE BUILDING IS AIR CONDITIONED

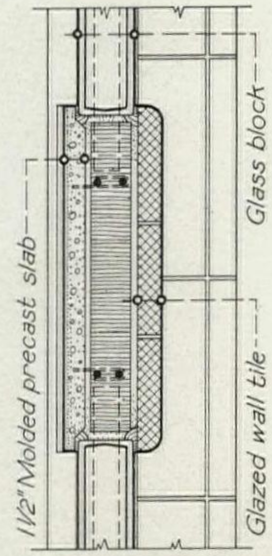

Joseph W. Molitor

THIS VIEW SHOWS THE REMOVABLE TRANSITE CEILING PANELS WHICH ALLOW ACCESS TO THE MECHANICAL LINES. THE FLOOR IS INDUSTRIAL PLANK AND THE WALLS ARE OF TERRA COTTA ASHLAR. CEILING OUTLETS FOR AIR CONDITIONING ALTERNATE WITH SPRINKLER HEADS AND LIGHTING FIXTURES. THE GLASS BLOCK PANEL AT THE END OF THE CORRIDOR SUPPLIES A PLEASANTLY DIFFUSED LIGHT

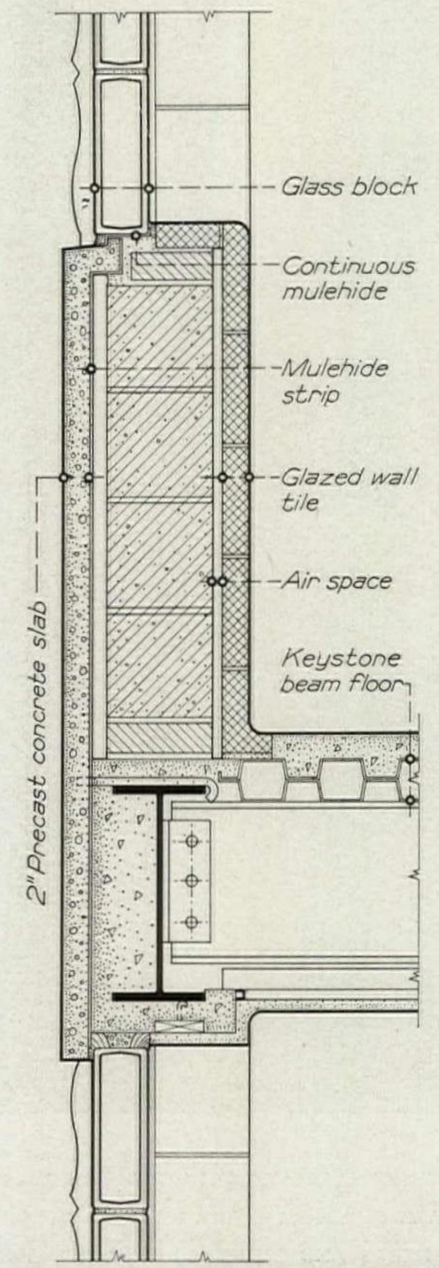
THESE SECTIONS ARE TYPICAL OF THE ENTIRE BUILDING AND SHOW THE SIMPLICITY OF THE WALL AND FLOOR CONSTRUCTION. DOUBLE AIR SPACES CUT DOWN HEAT TRANSFERENCE. MACHINE-MADE TERRA COTTA ASHLAR FORMS THE INTERIOR FINISH



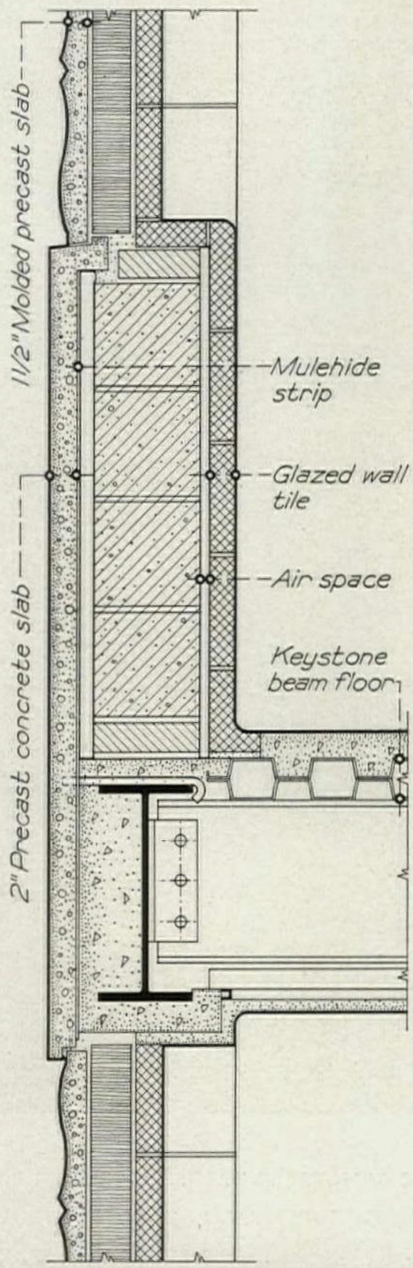
PLAN OF PIER



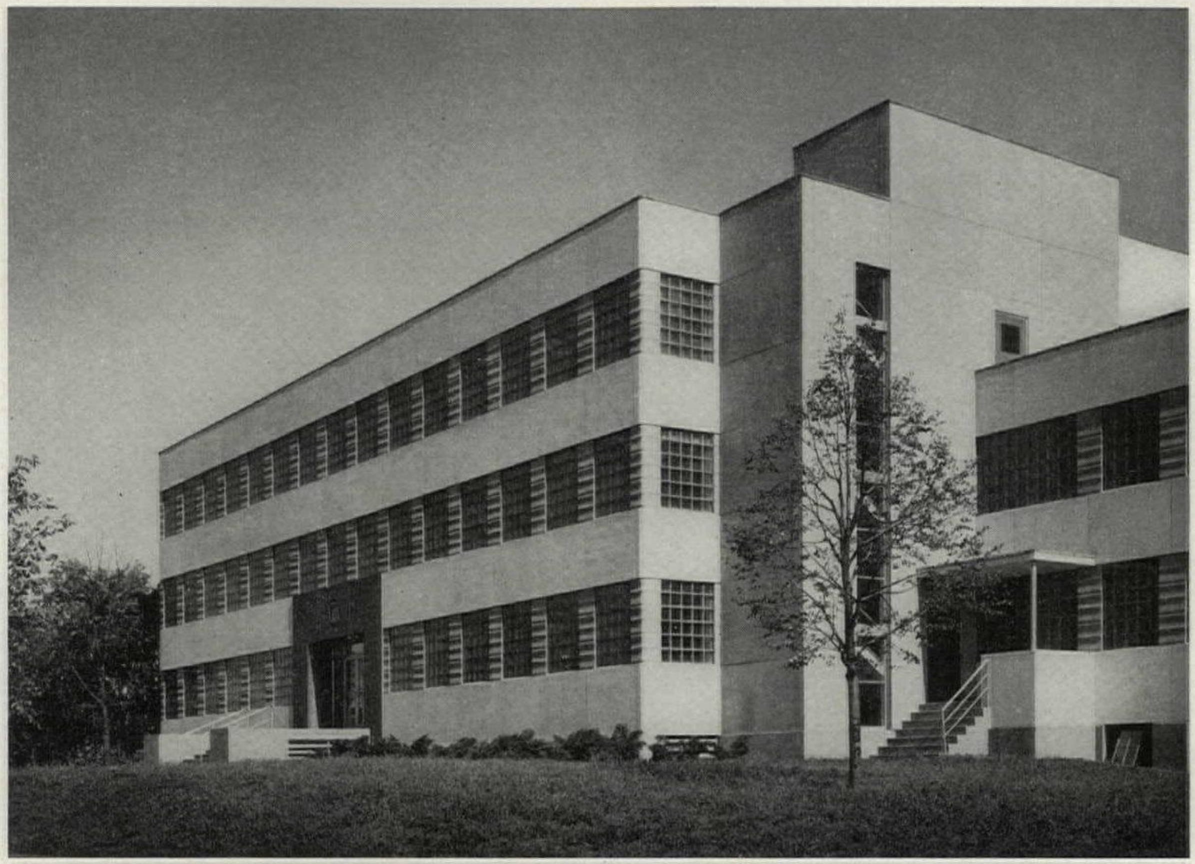
PLAN OF MULLION



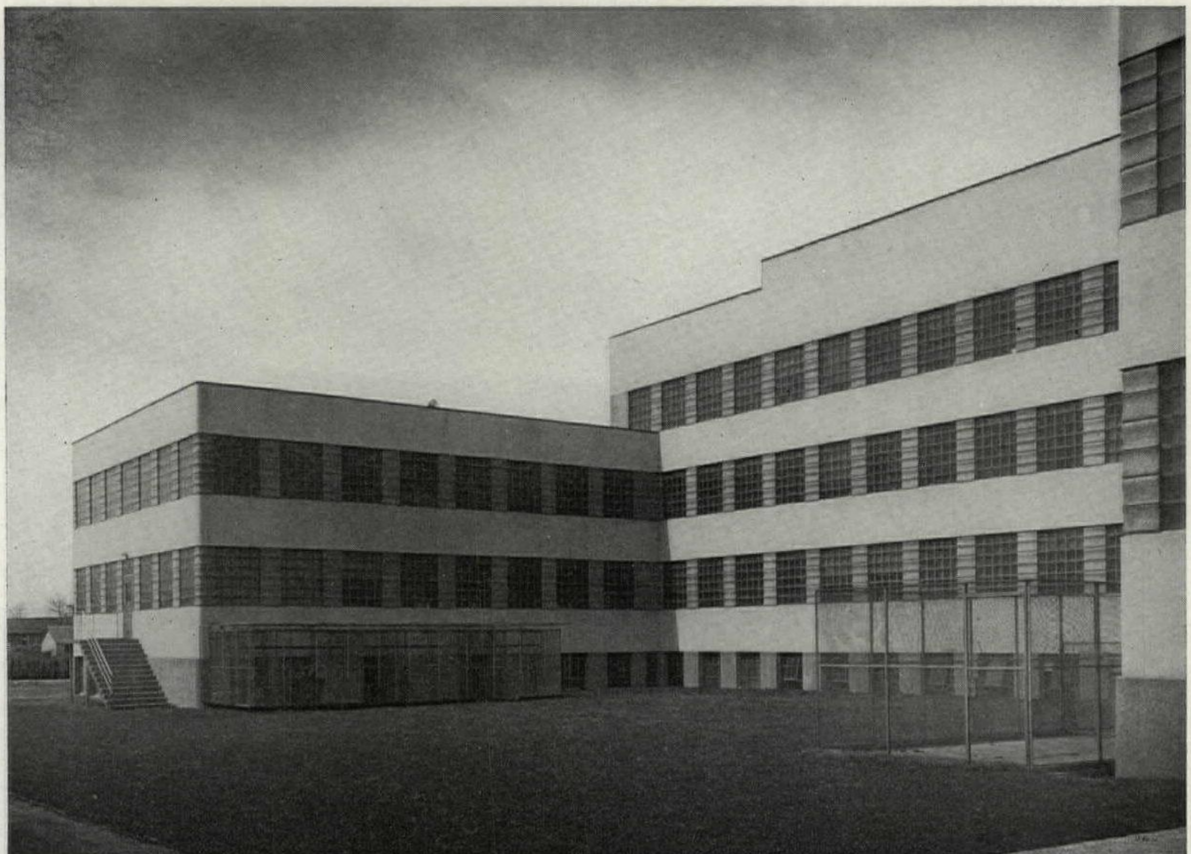
SECTION THRU GLASS BLOCKS

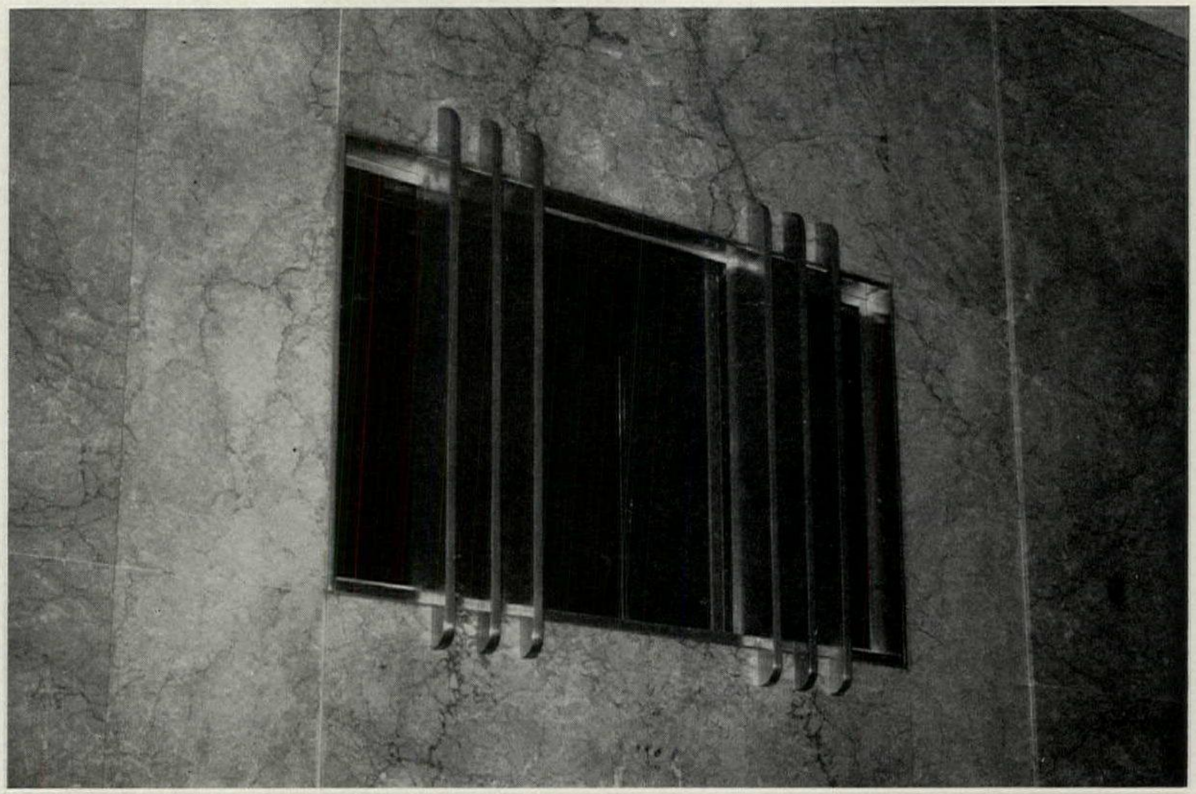


SECTION THRU MULLION

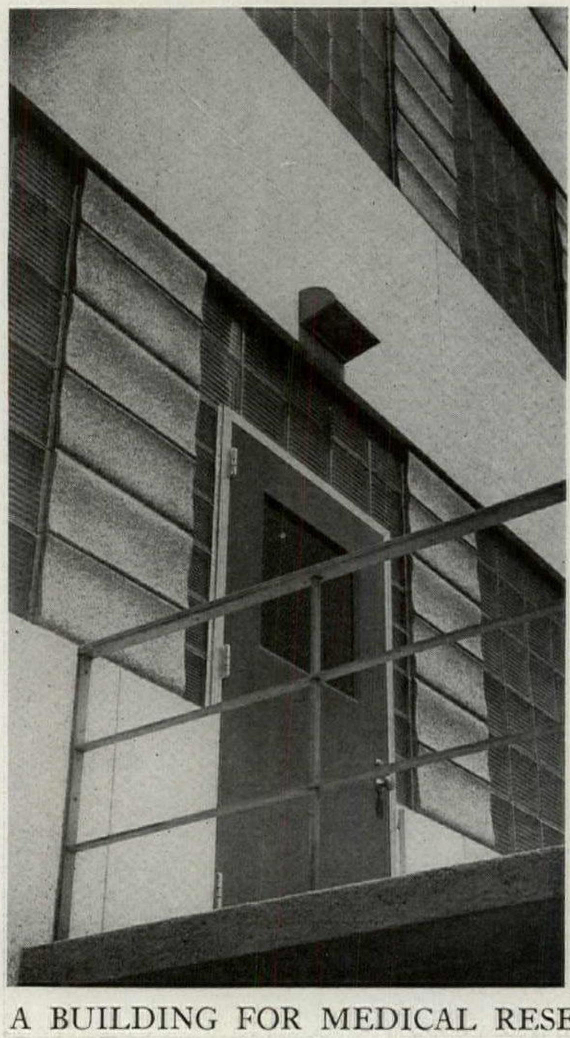


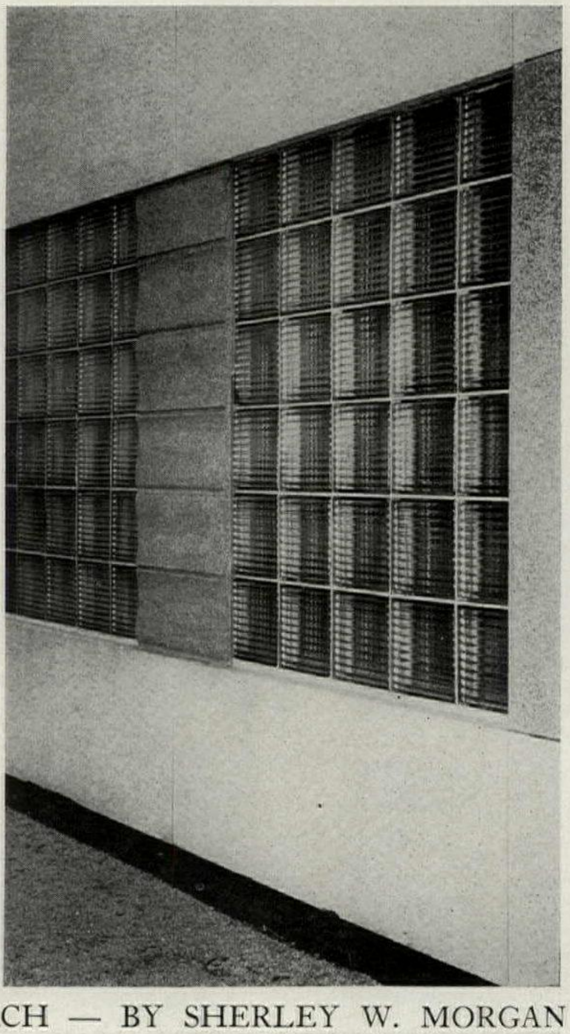
THE STRONG HORIZONTALITY OF THE DESIGN INDICATES THE FLUIDITY OF THE INTERIOR PARTITION ARRANGEMENT. THE VERTICAL CIRCULATION IS EXPRESSED ON THE EXTERIOR BY STOPPING THE HORIZONTAL MOVEMENT WITH MASONRY AND THE INTRODUCTION OF EFFECTIVE VERTICAL FENESTRATION



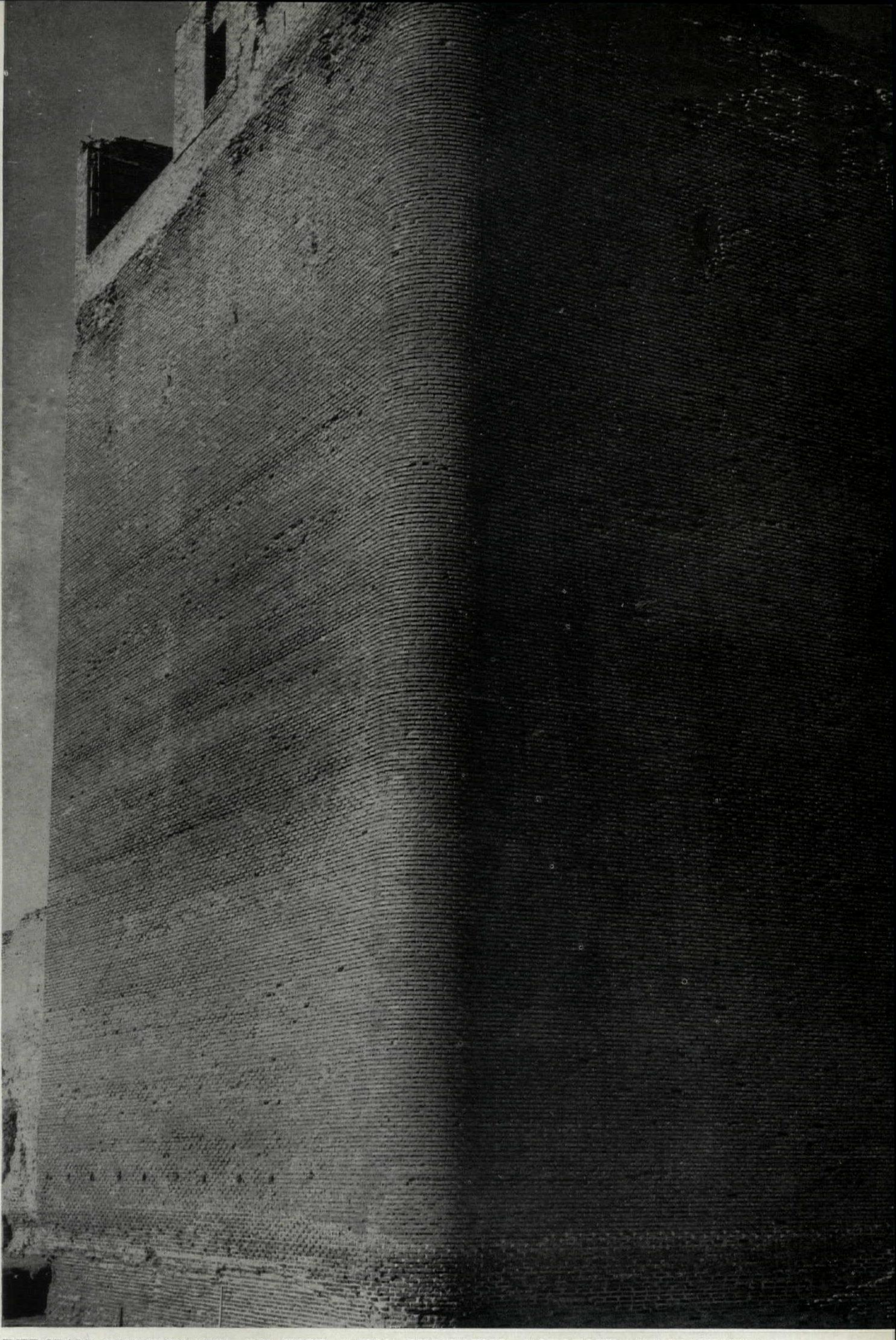


SATIN FINISH ALUMINUM HAS BEEN USED FOR THE INFORMATION WINDOW ABOVE AND FOR THE RAILINGS LOWER LEFT. IN THE PHOTOGRAPH AT THE LOWER RIGHT THE RELIEF OF THE MULLION CARRIES THROUGH THE HORIZONTAL JOINTS OF THE GLASS BLOCKS, ACCENTUATING THE UNITY OF THE DESIGN





A BUILDING FOR MEDICAL RESEARCH — BY SHERLEY W. MORGAN



PERSIAN BRICKWORK OF THE 14TH CENTURY—MOSQUE AT TABRIZ

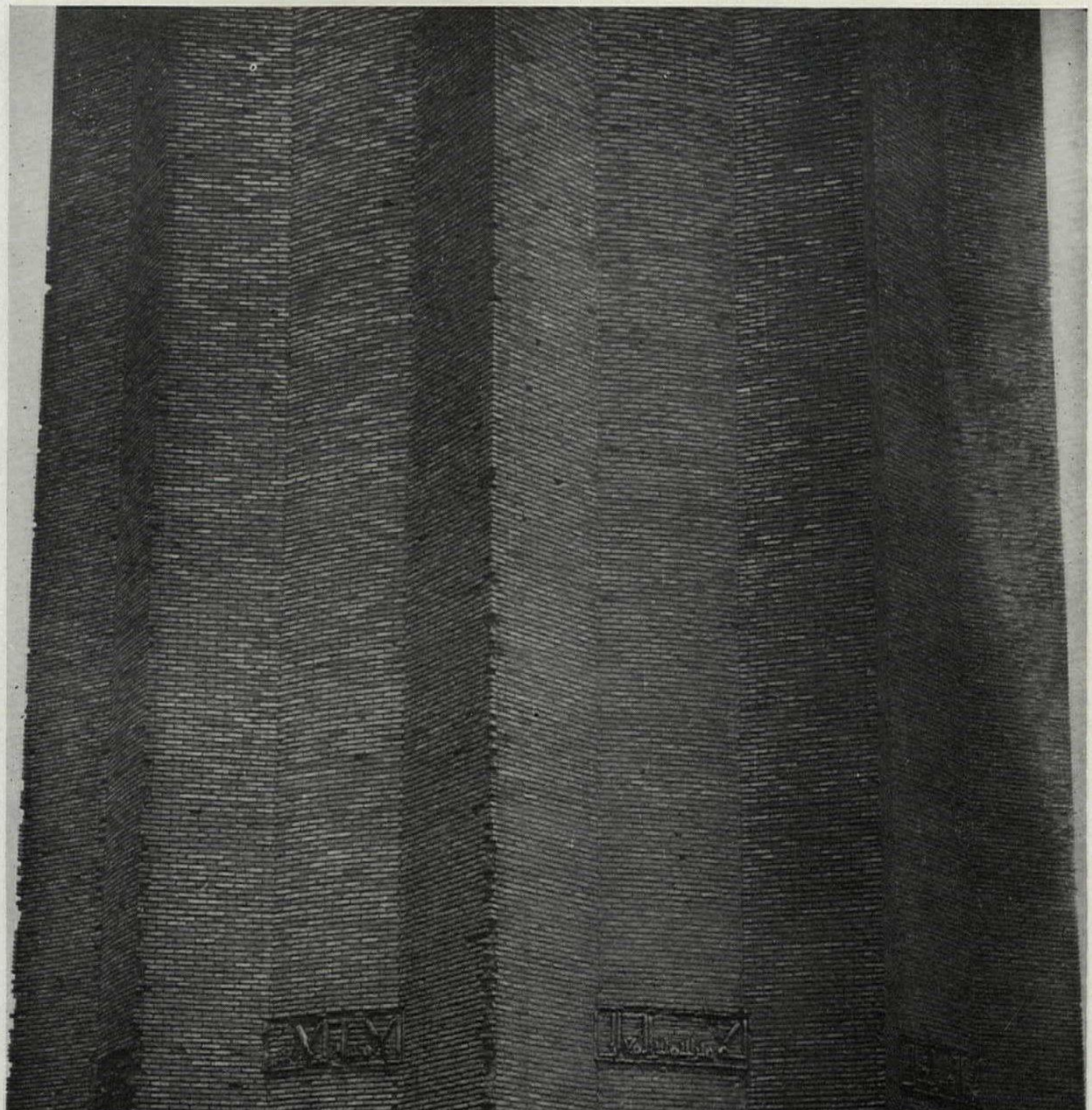
OLD PERSIAN BRICKWORK

BY DONALD N. WILBER

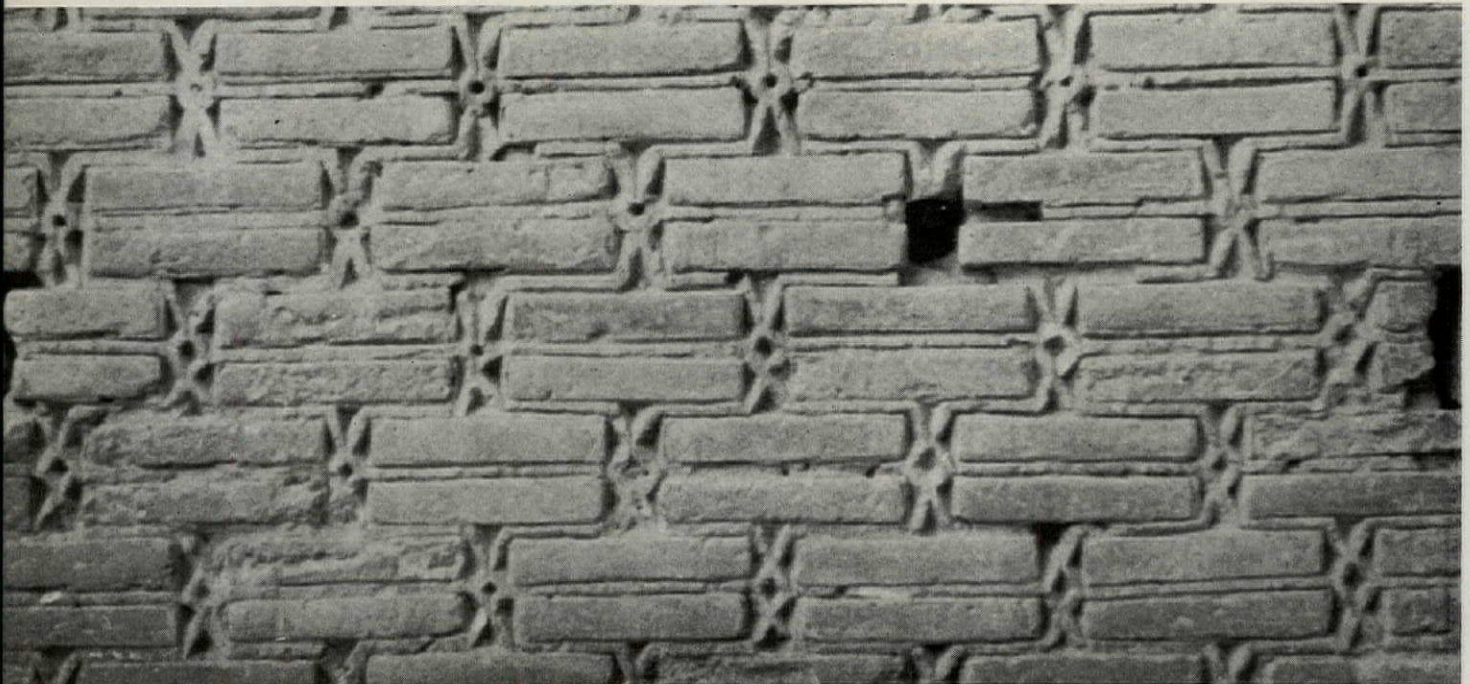
Fired brick has been the principal material used in the Islamic architecture of Persia since the Arab invasions in 640 A.D., and in no other region has there been such attention to the structural and decorative possibilities of the medium during the period from 950 A.D. until about 1300 A.D. Especially were there countless experiments in use of brick, which first emerged from the traditional plaster coating and then ran an entire cycle—from a primitive use of the material through a developed period and finally to a dazzling but decadent pattern of display.

The Persian brick unit is not the size and shape familiar to Western practice, but is a square ranging from eight to ten inches on a side and approximately two inches in thickness. Thus walls only one brick in width could be built, while in walls of a more permanent nature the fact that each brick penetrated so far into the wall made the problem of binding together bricks in each horizontal course less acute than it is with our own narrower bricks. Construction was always extremely simple. Some wall surfaces bear traces of scaffold holes, but the general practice in building a wall was, after a height of a few feet had been attained, for the mason to stand on top of the wall as he built it and place in position the bricks thrown up by his helper.

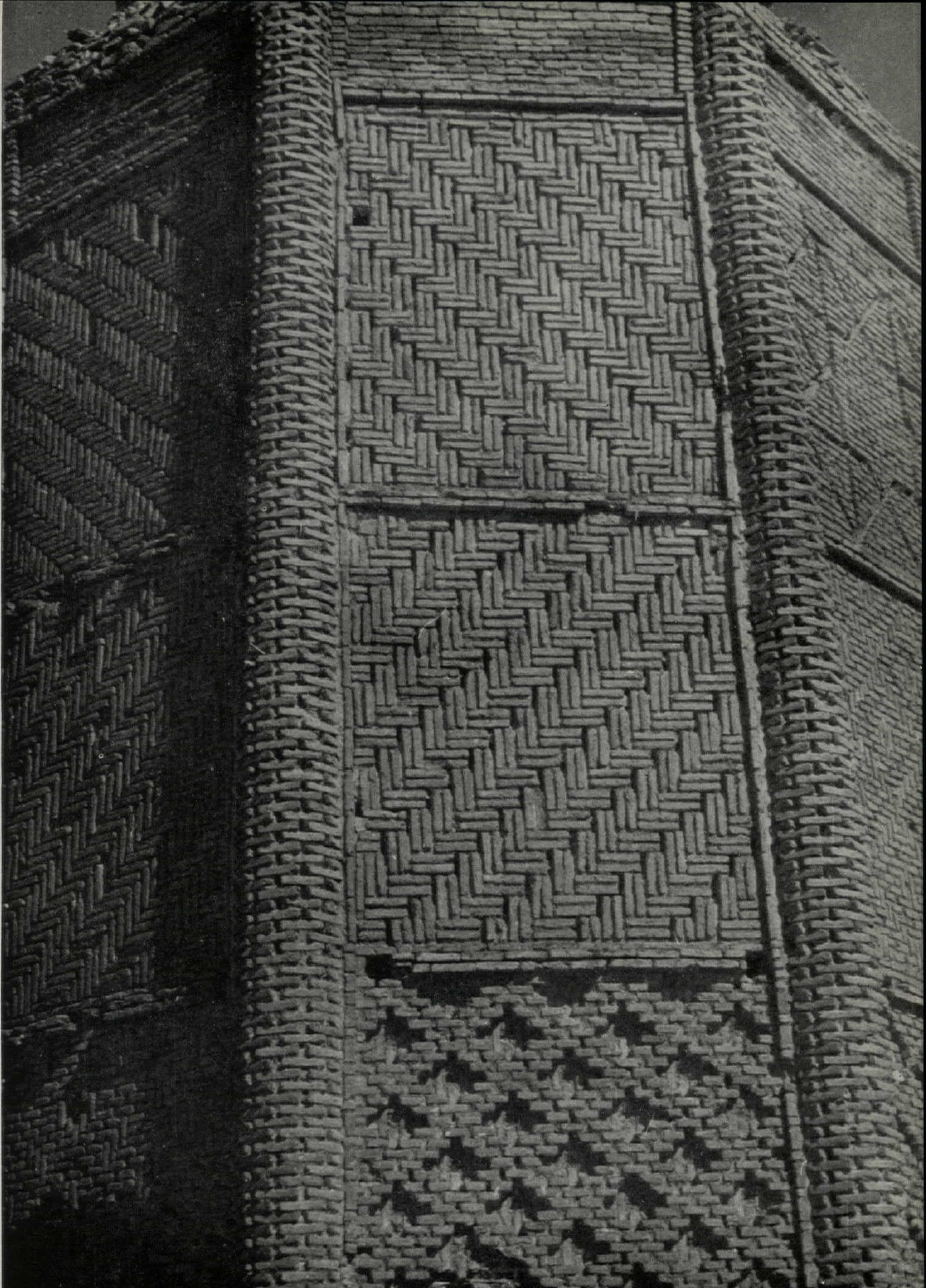
We can assume that the bonding was at first a simple running or common bond with broken joints. From a very early period the rising joints were made wider than the horizontal ones, usually about the thickness of a brick, while the horizontal ones were kept quite narrow. The rising joints were then raked while the horizontal ones were flush-pointed. Herringbone and diagonal square patterns appeared in the bonding along with much more complicated patterns. This increasing elaboration led to two fresh treatments: either the bonding maintained the flush surface plane of the wall or it was done in actual relief with certain bricks projecting beyond or recessed behind the uniform wall surface. The flat surface bonds had an extreme coherence and reflected a consistence in design from the core of the structure outwards, but the relief patterns became increasingly elaborate, with the result that each unit of the design had to be smaller in scale. At first the smallest units were still cut from standard bricks and were squares with each side the length of the thickness of a brick. The separation of facing and core, which started in the relief patterns, was adapted to the flush surface bonds so that all bonding patterns became a mere sheathing coat plastered against the constructional walls. Finally the rising joints were accentuated with plaster plugs, which were cut or stamped with floral or geometric designs or Arabic words, and glazed tiles appeared. These tendencies produced some striking patterns, but had within themselves the germs of a final technical decay.



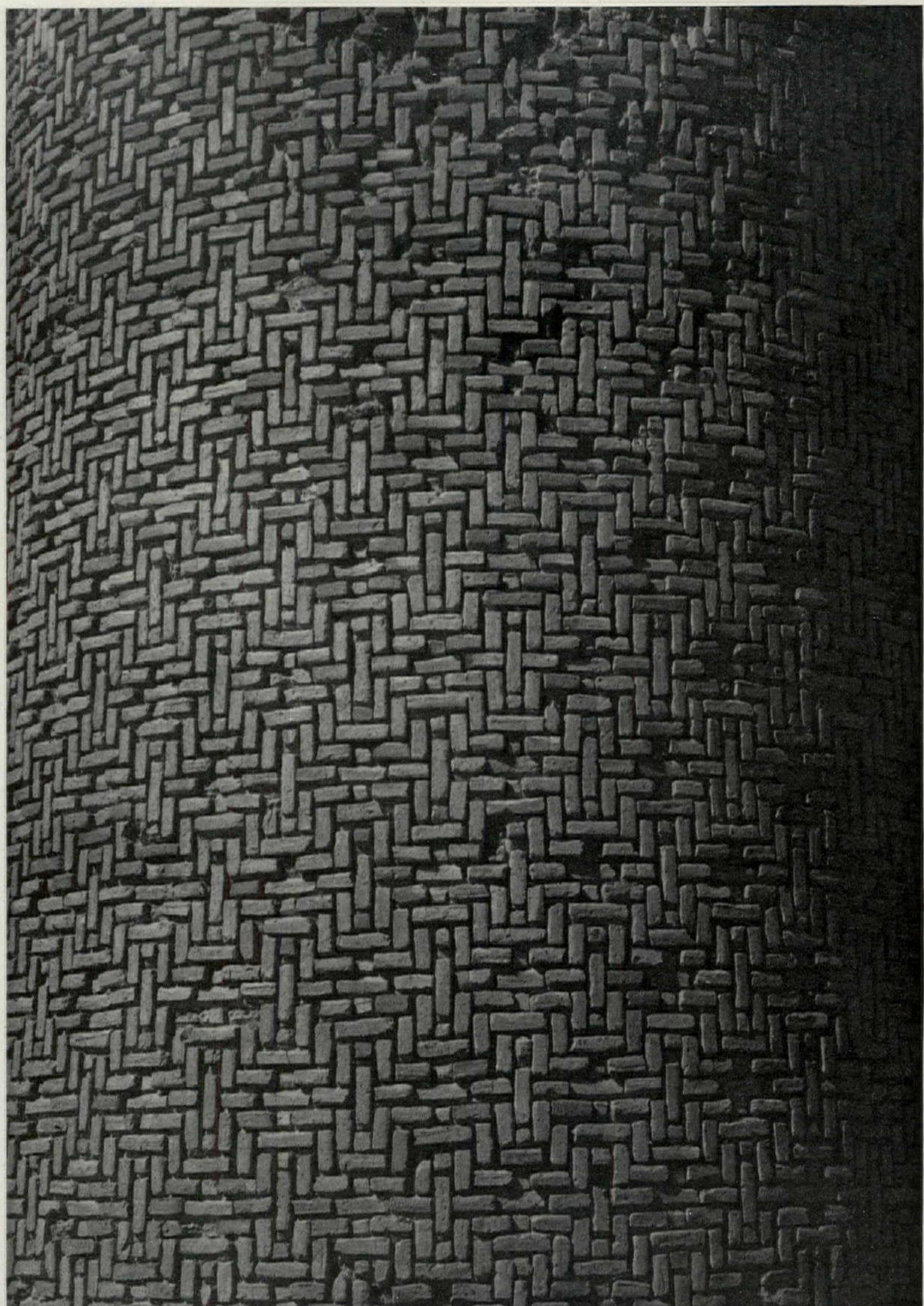
THE GREAT TOMB TOWER CALLED THE GUNBAD-I-QABUS, ON THE WESTERN SHORE OF THE CASPIAN SEA, WAS BUILT IN 1006 A.D. THE STAR-SHAPED PLAN STRENGTHENS THE BRICK WALL OF COMMON BOND



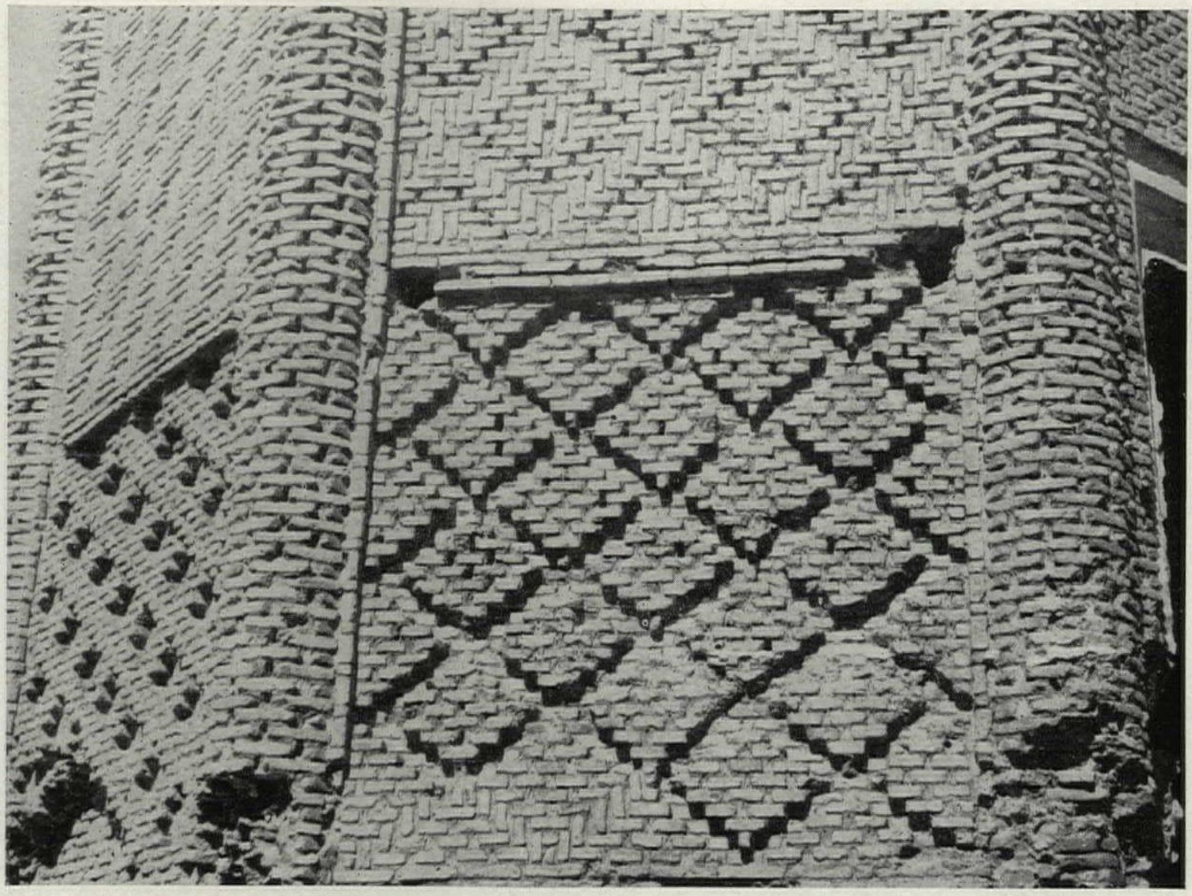
THREE EXAMPLES OF ANCIENT PERSIAN BRICKWORK—SHOWING WIDENED VERTICAL JOINTS (TOP), DOUBLE-BRICK, RAKED VERTICAL JOINTS (CENTER), AND STAMPED PATTERN IN THE VERTICAL JOINTS



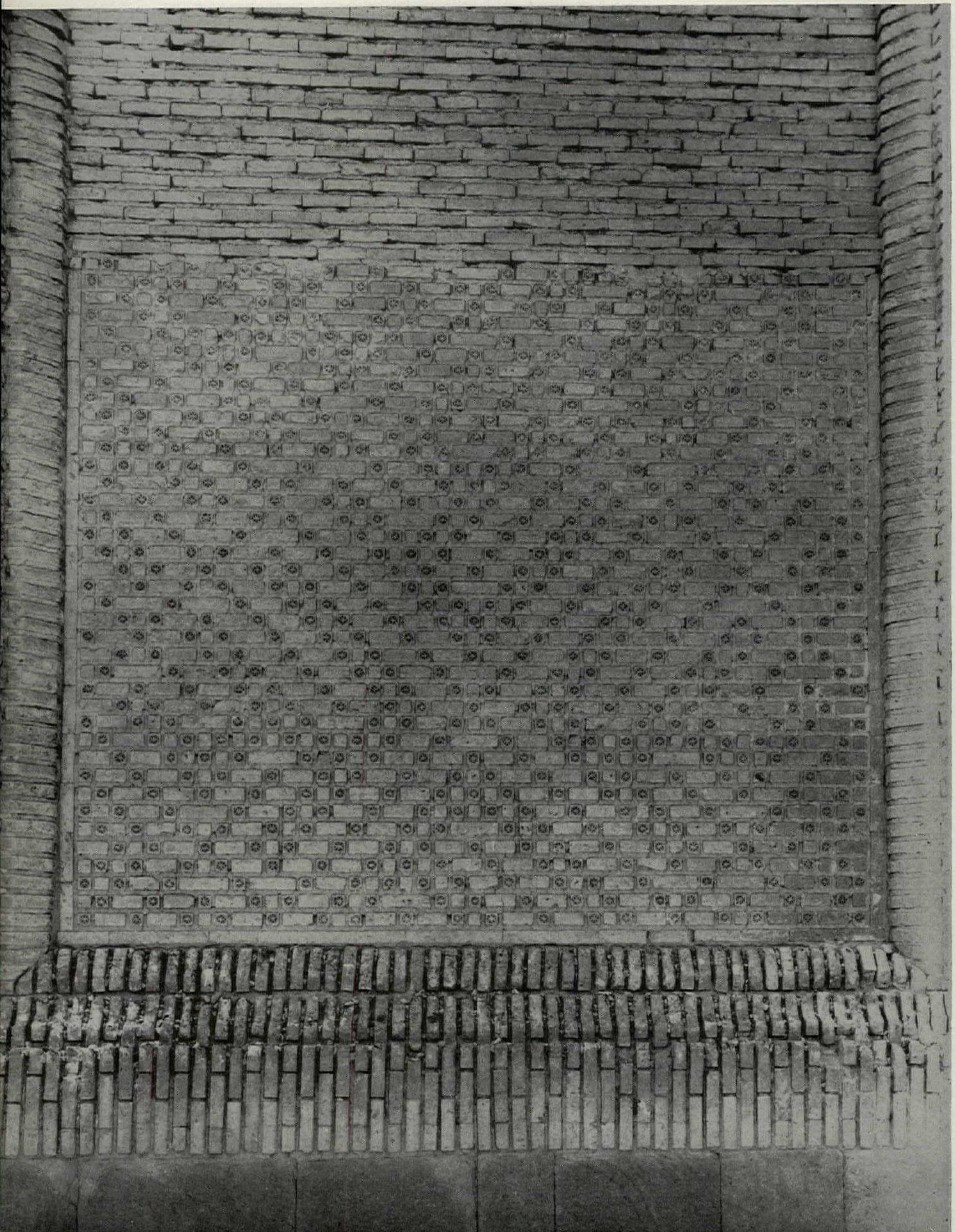
CHARACTERISTIC BRICK PATTERNS FOUND ON A TOMB TOWER AT DAMAVAND, PROBABLY DATING FROM THE 12TH CENTURY. THE ISLAMIC BUILDERS WERE ALSO INGENIOUS IN EVOLVING FORMS



THIS LOFTY MINARET AT GAZ IS CONSIDERED A REPRESENTATIVE EXAMPLE OF BRICKWORK OF THE 12TH CENTURY, WHEN ELABORATE AND BOLD PATTERNS ENRICHED THE MONUMENTAL STRUCTURES OF PERSIA

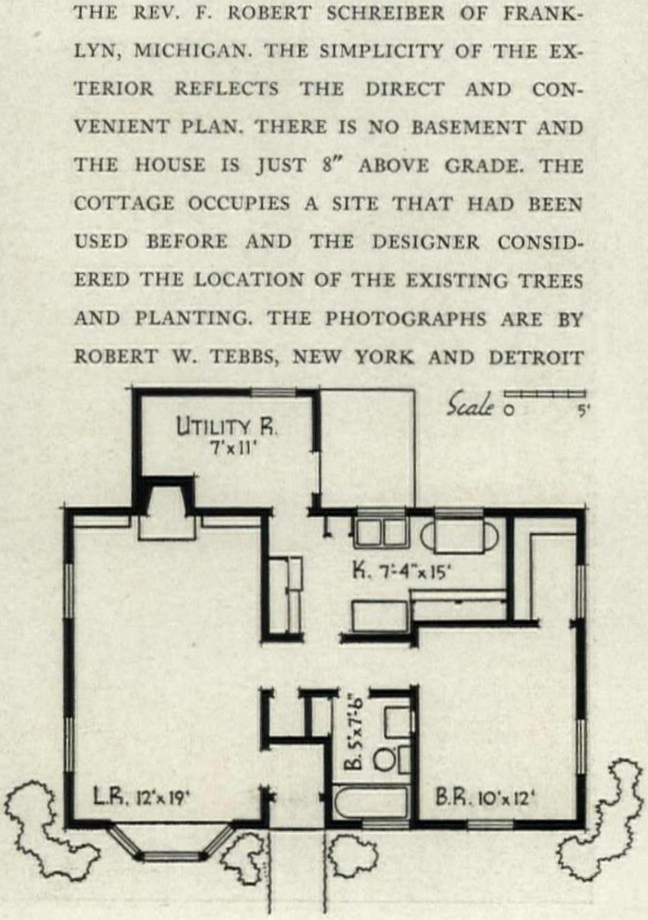


THE SIMPLICITY OF THE PERSIAN PATTERNS, WHICH APPEAR SO RICH WHEN EXTENSIVELY USED, IS APPARENT IN THESE DETAIL PHOTOGRAPHS OF TOMB TOWERS AT DAMAVAND (TOP) AND AT QUMM

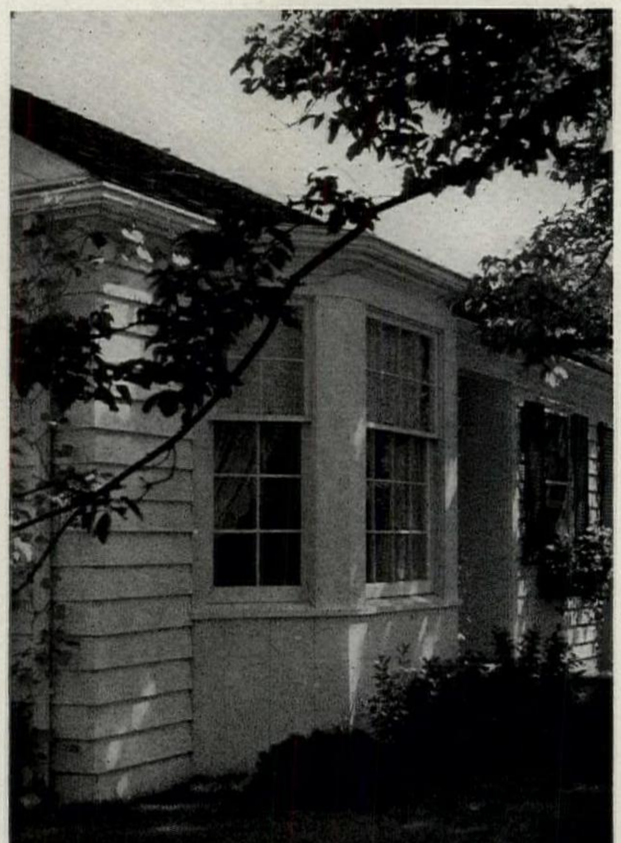


TERRA COTTA INSETS SPELLING A HOLY NAME — PERSIAN TOMB

DONALD WILLIAM HUNTER, ARCHITECT, OF GROSSE POINTE, DESIGNED THE PLEASING COTTAGE SHOWN HERE AND OVERPAGE FOR THE REV. F. ROBERT SCHREIBER OF FRANKLYN, MICHIGAN. THE SIMPLICITY OF THE EXTERIOR REFLECTS THE DIRECT AND CONVENIENT PLAN. THERE IS NO BASEMENT AND THE HOUSE IS JUST 8" ABOVE GRADE. THE COTTAGE OCCUPIES A SITE THAT HAD BEEN USED BEFORE AND THE DESIGNER CONSIDERED THE LOCATION OF THE EXISTING TREES AND PLANTING. THE PHOTOGRAPHS ARE BY ROBERT W. TEBBS, NEW YORK AND DETROIT



ANOTHER VIEW OF THE SCHREIBER COTTAGE DESIGNED BY DONALD WILLIAM HUNTER, ARCHITECT, OF GROSSE POINTE, MICHIGAN, SHOWS THE COMPACTNESS OF THE DWELLING. THE BOW WINDOW OF THE LIVING ROOM, BELOW, IS THE PRINCIPAL FEATURE AND IS EXECUTED WITH EXTREME SIMPLICITY



Courtesy of Hartford Courant

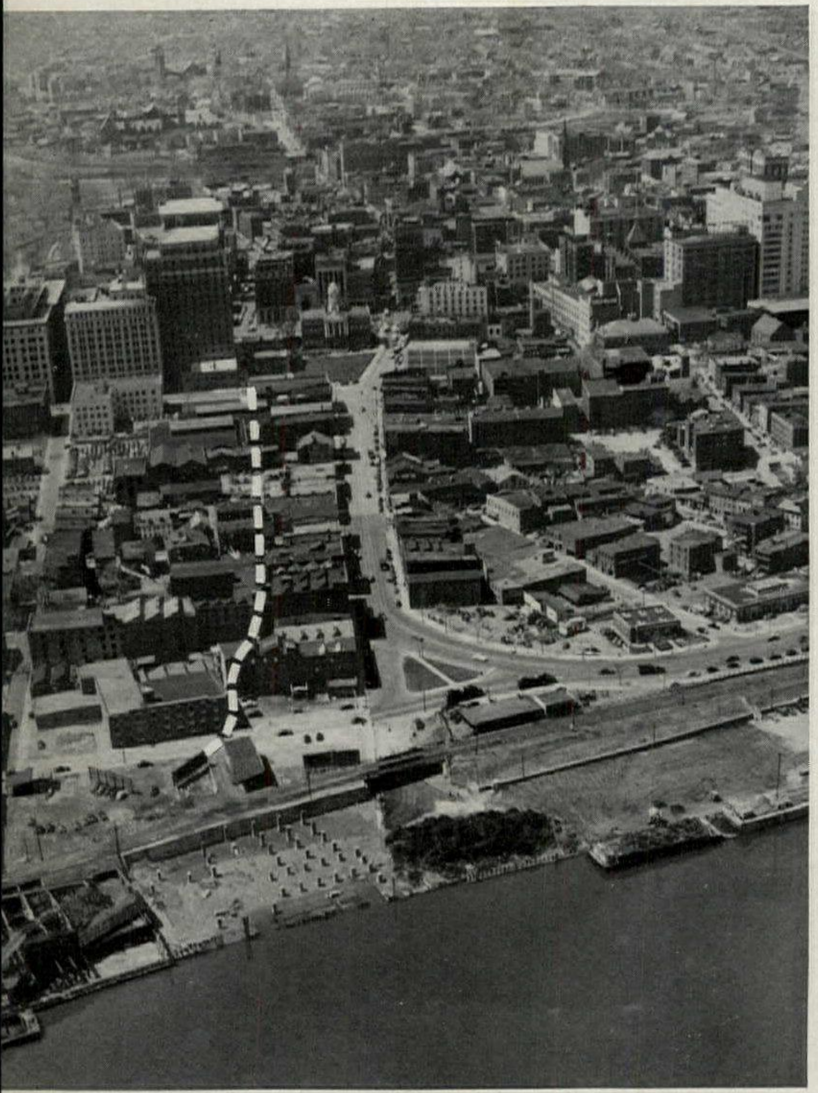
REPLANNING HARTFORD'S HISTORIC SQUARE

BY HERBERT GIBSON, A.I.A.

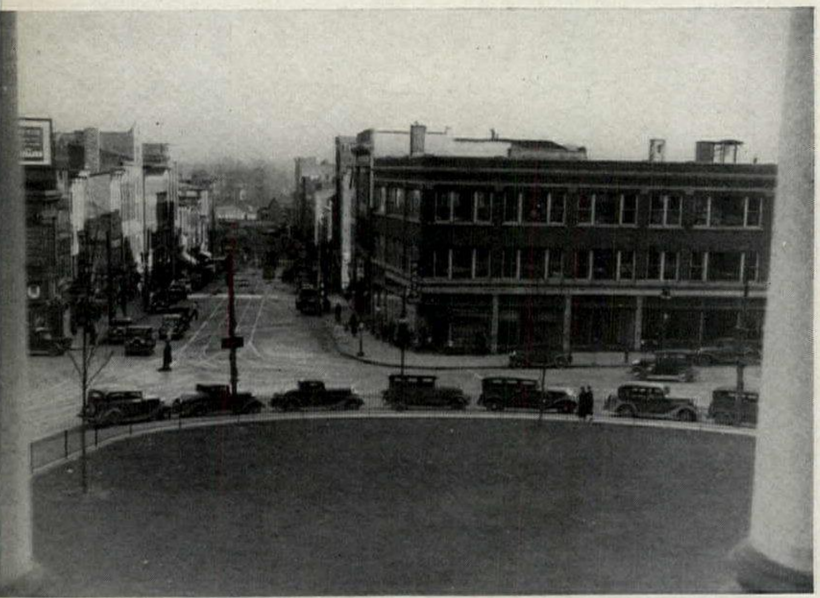
EDITOR'S NOTE—As Supervisor of the Hartford, Connecticut, City Plan Commission, Herbert Gibson, A.I.A., has devoted his efforts since 1934 to strengthening the authority and influence of the Commission in city affairs, and to preparing a comprehensive, long-term plan which can be effectively developed for Hartford. He has also served as Technical Director of the Hartford Slum Clearance Survey, and as Consultant to the Mayor's Housing Committee.

The Old State House in Hartford, designed in 1792 by Charles Bulfinch, is a commanding symbol of a growing Commonwealth and occupies a site which has been of historical significance since early Colonial days. It stands on a plot of ground included in the original purchase made by the English—a silent witness to the many changes in its surroundings and public customs.

Thanks to the efforts of several patriotic organizations and an enlightened citizenry,



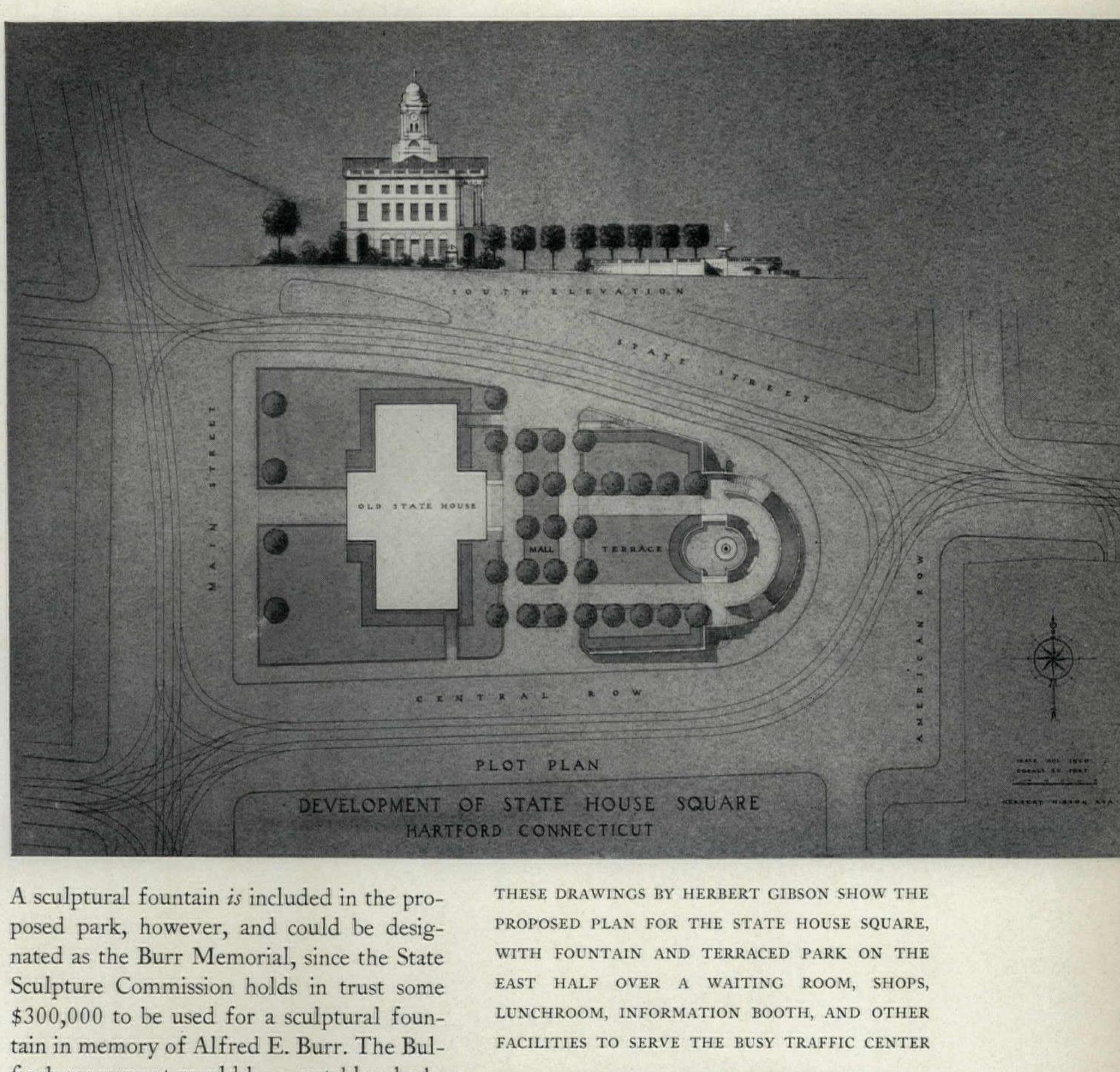
GENERAL VIEW OF THE HARTFORD BUSINESS SECTION LOOKING FROM THE RIVERFRONT UP STATE STREET TOWARD THE OLD STATE HOUSE DESIGNED BY BULFINCH. THE ROW OF BUILDINGS AT RIGHT OF DOTTED LINE WOULD BE REMOVED. VIEW BELOW IS FROM THE STATE HOUSE PORTICO



enough money has been set aside to preserve for all time this structure which is one of the oldest and finest public buildings in the United States. And now, with the removal of the old post office building from the Old State House Square and the reversion of the entire property to the City of Hartford, beautification of the site could and should be resumed. The problem of replanning this important business area must find a solution combining beauty with utility. It should offer an architectural, sculptural, and landscaping treatment in keeping with the dignity of the Bulfinch building—and at the same time provide practical usefulness and a financial return to the people of the city.

Such a plan is presented in the drawings across-page providing for a terraced park on the surface, answering the need for an open area and an appropriate setting for the Old State House, and a bus passengers' waiting room and shops under the east portion of the Square, to meet the needs of the crowded business center and logical traffic loop around the Square. Full advantage would be taken of the present eastward drop of the sidewalk grade. The waiting room suggests itself when we stop to consider that the Square has been the center of the city's traffic and business since 1640.

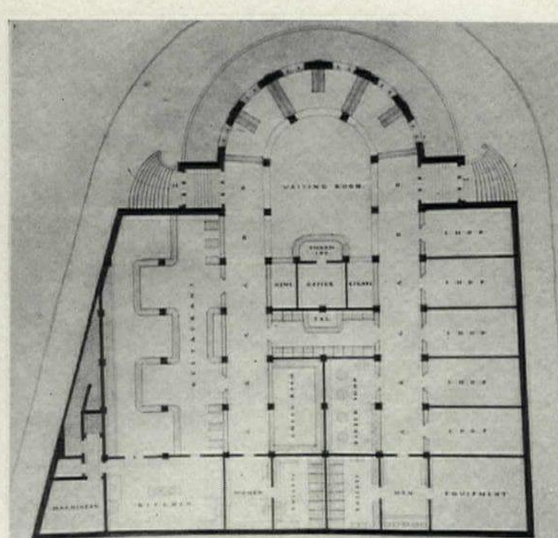
Shortly after the old post office was demolished on this side of the Square in 1933 a waiting room of this sort could have been conveniently (and profitably) provided at relatively small expenditure, since the granite from the old building could have been used for retaining walls, steps, etc., and the excavation had not then been filled in, planted in grass, and surrounded by an iron picket fence to exclude public use! In the design of a plot plan, the possibility of a strictly orthodox restoration of the Old State House Square was later studied, but abandoned for the plan presented here, when the usefulness and even logic of a faithful restoration of the old axial paths and fountain were questioned. This is a problem frequently met in older towns and cities. No argument, other than sentiment, could be advanced for a faithful restoration so a more practical plan was recommended.

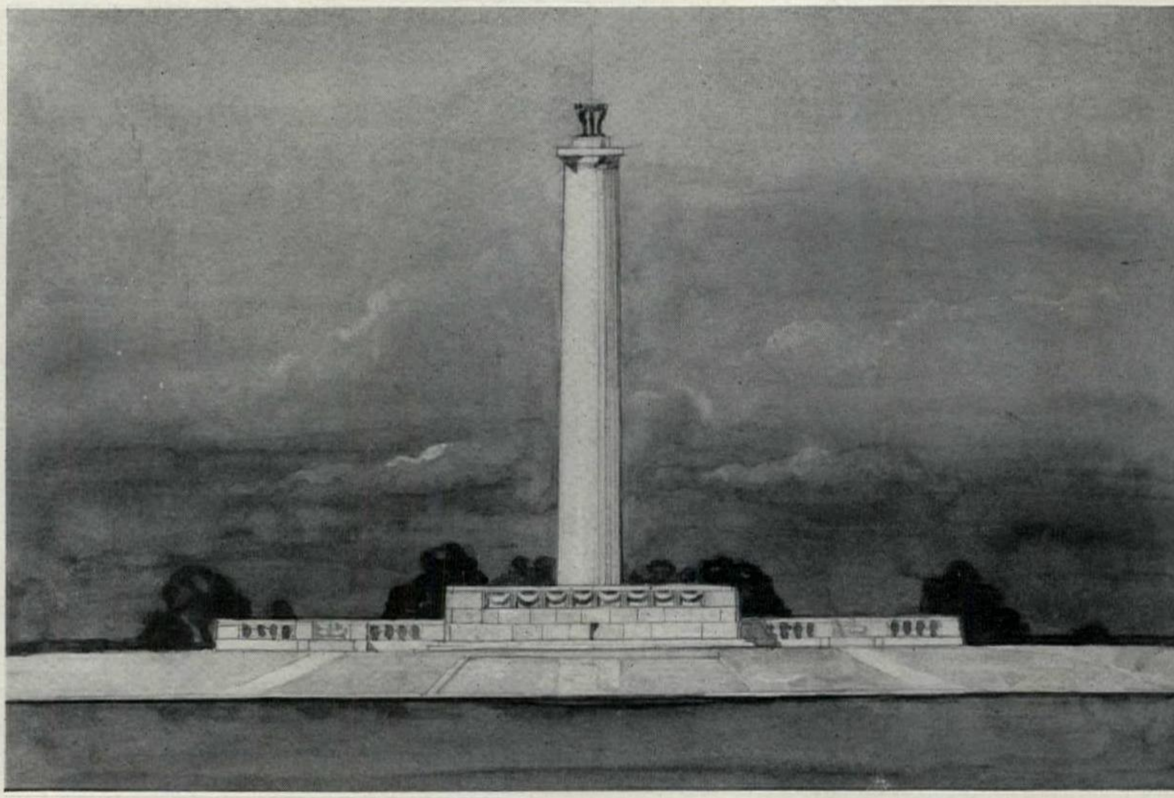


A sculptural fountain *is* included in the proposed park, however, and could be designated as the Burr Memorial, since the State Sculpture Commission holds in trust some $300,000 to be used for a sculptural fountain in memory of Alfred E. Burr. The Bulfinch monument would be a matchless background for this memorial!

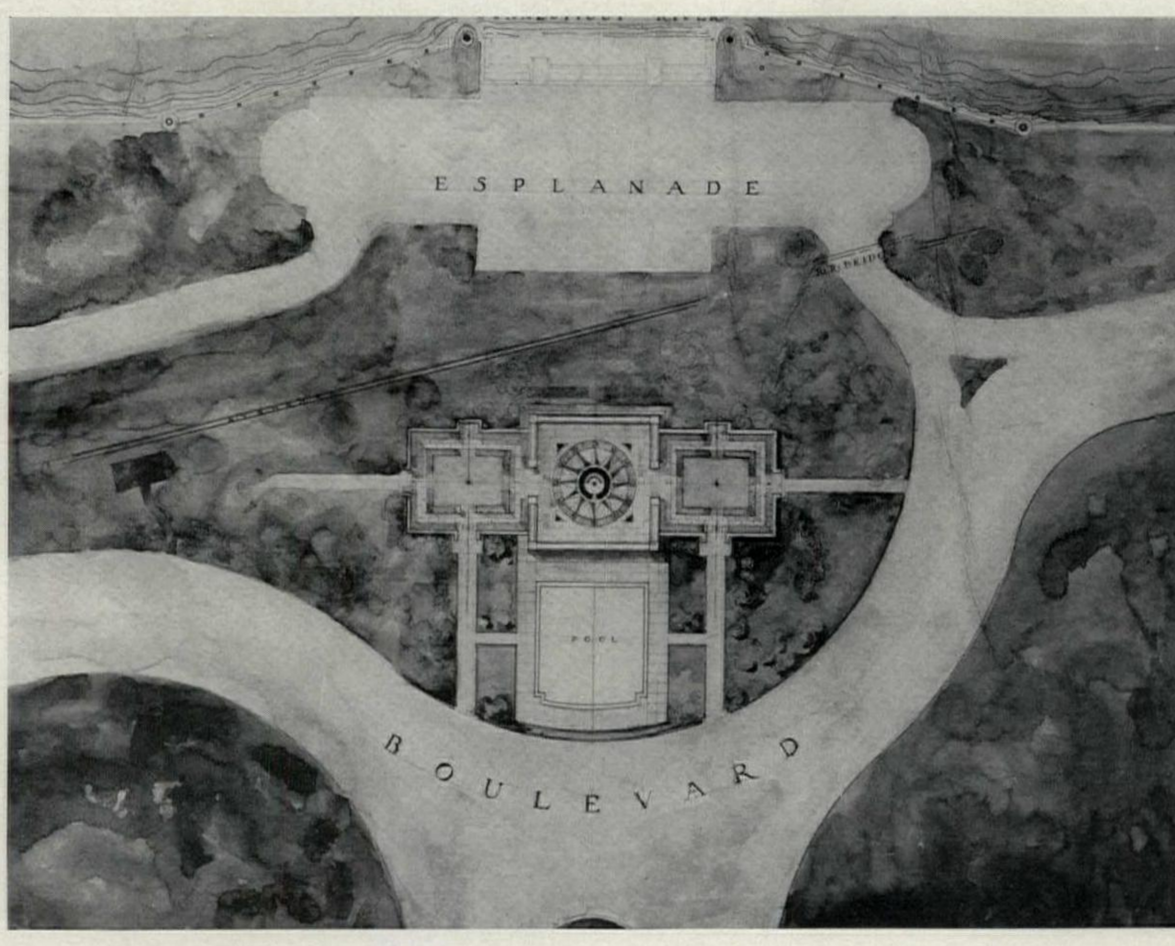
While the replanning of the Square is in itself an important project, it is but one of several features of a general beautification plan for the improvement of Hartford's East Side and Riverfront, which was proposed by the writer in 1935 and officially adopted then by the City Plan Commission. The restored park would be the western terminus of a widened State Street, really two 75-foot streets with a broad central planting strip, forming a vista to the proposed Founder's (Hooker) Memorial at the riverfront terminus of State Street. Drawings of this Memorial are shown overpage.

THESE DRAWINGS BY HERBERT GIBSON SHOW THE PROPOSED PLAN FOR THE STATE HOUSE SQUARE, WITH FOUNTAIN AND TERRACED PARK ON THE EAST HALF OVER A WAITING ROOM, SHOPS, LUNCHROOM, INFORMATION BOOTH, AND OTHER FACILITIES TO SERVE THE BUSY TRAFFIC CENTER

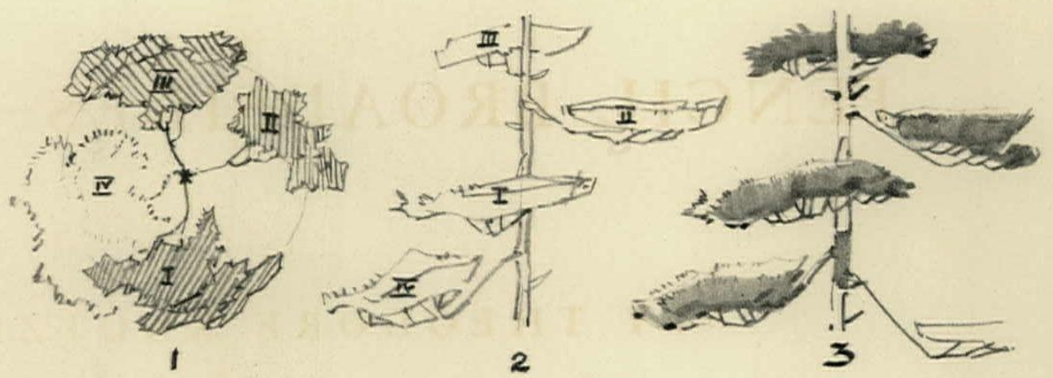




THESE DRAWINGS OF THE PROPOSED FOUNDER'S (THOMAS HOOKER) MEMORIAL, BY SMITH & BASSETTE, ARCHITECTS, OF HARTFORD, INDICATE THE PROPOSED DEVELOPMENT OF THE EAST TERMINUS OF STATE STREET, AFTER IT IS WIDENED TO A BOULEVARD PROVIDING A VISTA FROM THE OLD STATE HOUSE TO THE RIVERFRONT DEVELOPMENT OF DOWNTOWN HARTFORD. THE ESPLANADE BELOW THE COMMEMORATIVE COLUMN WOULD BE USED FOR LANDING FROM PLEASURE CRAFT ON THE CONNECTICUT RIVER



STREET SCENE AT LANNION, BRITTANY



LESSON 5—STRUCTURE AND FOLIAGE OF PINE TREES

PENCIL BROADSIDES—5

BY THEODORE KAUTZKY

For the next few lessons I am going to discuss the drawing of different types of trees. Many people who can make a satisfactory representation of an architectural subject seem satisfied if they can suggest its setting by means of nonedescript or stereotyped trees and shrubbery. I feel very strongly that it is worth while to learn to draw trees that really look like trees and that can be identified as oak or birch or pine or some other definite species.

The first essential is an understanding of the tree structure. You should, by observation of actual specimens, fix in your mind the characteristics of each kind of tree, the relation between its various parts, between trunk and branch, twig and leaf, and so on. Realize that it is a three-dimensional object which can be thought of in terms of plan as well as elevation. Light falling upon it will strike full against some of the foliage masses while others will be in shade or in shadow. Some of the branches extend towards the observer, some away, and some to either side of the trunk. These things seem elementary, but I have seen so many drawings which show a disregard for the simplest facts of tree structure that it is worth while to point them out. By keeping them in mind you will avoid drawing the hard formless silhouettes or feather-dustery monstrosities that so unnecessarily mar the work of many amateur sketchers.

At 1, 2, and 3 on the accompanying plate, I have diagrammatically shown a section of weather-beaten pine tree with four branches. In plan, the branches, each bearing an irregular mass of needles, radiate in four directions from the trunk, filling out a rough circle. In elevation, the four branches appear at different levels, extending out and down from the trunk and terminating in up-curving, finger-like twigs supporting the foliage. With light falling from the left and above and striking the tops of these foliage masses, the sides you are looking at would be about as shown, generally dark in value with a suggestion of sunlight along the top surfaces. Where the foliage is in back of the trunk, the trunk will appear light against the dark needles beyond. Where the branch comes out towards the light, its foliage casts a shadow on the trunk below. So much for this analysis, the application of which will become clear as you proceed with a finished sketch.

The lower portion of the plate is devoted to a representation of a few old pine trees raising their heads above the silhouette of a grove of younger pines beyond. You can copy this plate or you can compose groups of trees following your own fancy to make a composition. Whichever you do, the trees and foliage masses should be first sketched in lightly and you should have clearly in mind the disposition of darks and lights to create an interesting pattern in which there shall be rhythm and balance.

In young pines the branches start from the trunk at an upward angle. As the tree grows older and the foliage masses become heavier and extend farther out from the trunk, the branches are weighted down into a graceful, elongated S-curve. At first there are possibly six or more radiating branches at each level. In the tree's life, however, branches break off or are cut off until when it becomes old it is likely to be irregular and picturesque like the ones shown here. One can take liberties in arranging the foliage of this sort of trees to conform with the requirements of a picture, without much danger of departing from reality, provided the general rules of tree structure are not violated.

In rendering the foliage of these trees, I have used short broad strokes for the most part, with narrower radiating strokes, made with the narrower side of the broad-pointed pencil, around the edges of each mass. This treatment makes a clean, sharp silhouette against the sky, which is left white, and suggests, without being too literal, the needles which make up the foliage.

While the general tone of evergreen foliage is dark, you will note that I have made the portions receiving the light from the sky distinctly lighter than those portions in shade, away from the light, or in shadow. You will also observe, in some places, allowance for light reflected up from the ground into the shaded areas.

The branches and twigs either silhouette dark against the sky or light against dark foliage behind them. Since the bark is comparatively smooth, it may be rendered with broad strokes laid with a little texture. Where, for purposes of composition, a light area of foliage needs to be suggested, as in the branches vignetting at the upper right of our little picture, it is convincing enough to put in the radiating zig-zag strokes around the edges. The eye is satisfied because the more completely rendered masses of the other trees have told the story.

In the next lesson, another type of tree, the oak, will be the subject of discussion. In the meanwhile, practice making pine trees until you can do them freely and convincingly.