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CONCERNING NORTH GERMAN BRICK ARCHITECTURE

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TIME was, and not so long ago, when brick building, that is, construction of brickwork without a dressing or veneer of plaster was considered menial. The cause of this disparaging opinion may be found in the rapid rise of industrial plants whose choice of brick for factories, workers' homes and the like, was prompted more by low initial and maintenance cost than by a sense for sightliness. Such buildings, with flat and felt covered roofs, thrust themselves in villages and towns among the dignified old farm buildings and burgerhomes. This discord was responsible for rejection of brick exteriors generally, though that material was not responsible for the ragged Stadtbild. Criticism prompted the addition of features from earlier buildings without essential improvement. The sense of interdependence between purpose, problem, construction and form was not grasped. Conception remained strictly historical. So post offices, barracks, schools were built following brick architecture precedent religiously, un-

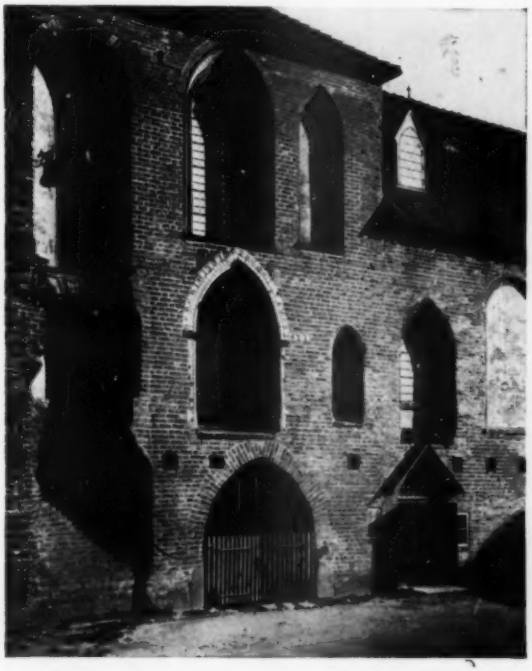


FIGURE 1. CASTLE LOCHSTEDT OF THE ORDER OF TEUTONIC KNIGHTS, NEAR KOENIGSBERG, IN EAST PRUSSIA

FIGURE 3. WEST VIEW, MONASTIC CHURCH CHORIN, NEAR BERLIN. XIII CENTURY. AN EXAMPLE OF DEVELOPED GERMAN BRICK ARCHITECTURE

related to the plan within. This contributed further resentment to the use of brick for architectural expression.

Only in the last quarter century, since the opinion again prevailed that the architect's function was not the perpetuation of ancient forms, a movement having set in delving for a deeper sense of architectural expression, have brick buildings arisen commanding general attention. I refer to business buildings in Hamburg, Duesseldorf Exposition Buildings and many housing problems in the German coast towns. Everywhere in Germany, particularly in North Germany, may be seen today a revived interest in brick architecture. Let us follow briefly the story of brick building in these northern reaches.

From earliest times bricks were made where no building stone was found; in great planes, at the Tigris and Euphrates, in Egypt, North Italy, Southern France, England, Holland, in the level stretches of North Germany. The mode of use varied. The Orient developed more decorative facings, colored glazes. Western Europe began by using brick as a substitute for quarried stone, dressed it with plaster or other material and seldom resorted to simple brick decoration. A few gravemarkers on the Via Appia at Rome show early attempts at simple cornices. No progress appears during the early Christian era. In the Early Middle Age a practice began in North Italy that may be designated as the first appearance of a real architecture in brick. Here in the Po plane cities had grown to power and wealth in that age. Great building problems arose for whose execution stone was not forthcoming. Transportation from afar in those troublous times was difficult and expensive. Hence the adoption of the brick at hand, developing architectural moulds following as closely as possible stone forms. A real brick architecture, an art in brickwork was not achieved.

At this time—it is about 1100—there began in North Germany a mighty spiritual movement which led to the reconquest, colonization and christianization of the eastern German states that had been lost to the heathen Wends. The need for churches, convents and castles in the reconquered

FIGURE 4. TOWN HALL, STRALSUND

TYPICAL OF THE DISPOSITION OF PARTS IN MEDIEVAL TOWN HALLS ALONG THE BALTIC COAST

FIGURE 2. VAULTING SPRING IN THE REFECTORY OF ORDENSSCHLOSS REHDEN, NEAR GAUDENZ. THE BUILDING IS ONE OF THE BEWITCHING MONUMENTS OF THE XIII CENTURY

lands was met. Cities were founded which grew rapidly and well ordered buildings of permanent materials arose. Leaders in this movement were the Cistercian and Premonstratensian Orders of monks; in the East, the Order of Teutonic Knights, and finally companies of burgers gathered in southern and western Germany. It was natural that experiences gathered in Northern Italy building with brick should find application in this northern country where nature had provided no stone. North Italy was then—it is the day of the Hohenstaufen emperors—united with Germany. For long periods these German emperors resided in Italy. The Grandmaster of the Order of Teutonic Knights had his seat in Venice. So it is not strange that forms of building found in the flat land of the Po should be echoed in village churches of the Mark Brandenburg in Prussia.

This, then, is the beginning of North German brick architecture. To understand this art, an art that in its later development gives birth to works which for grandeur and beauty belong with the greatest achievements in the art of building, it is necessary to grasp its rise, its flowering, its passing and its renascence as it exists in modern times.

The early period belongs in its essentials in the twelfth and thirteenth centuries. Buildings of this period possess a charming naiveté in a first and uncertain striving for a fitting treatment of the material. How to build with stone the builder knew. Brickwork, however, he had only used for interiors with plain surfaces. Now he must organize his members and create art forms in this material. How natural that he conceive his burnt clay blocks as a substitute whose forms must be fashioned after cut stone! The method of producing simple bricks for plain walling was known. It was natural to make brick of one size and shape in wood forms. Difficulties arose in crown moulds, portals, window frames, capitals, piers and columns,—members whose fashioning came from the hand of the stone cutter. For the moment, matters rested with the accustomed method. So the early work is still the art of the stone cutter. The clay biscuit was pressed into a block of sufficient thickness to stand the burning. Then it was dried slowly in the air. A serviceable substitute was produced, worked in the customary manner with mallet and chisel and then

FIGURE 13. ST. MARY'S CHURCH, DANZIG

TYPICAL OF NORTH GERMAN CHURCHES TOWARD THE CLOSE OF THE MIDDLE AGE

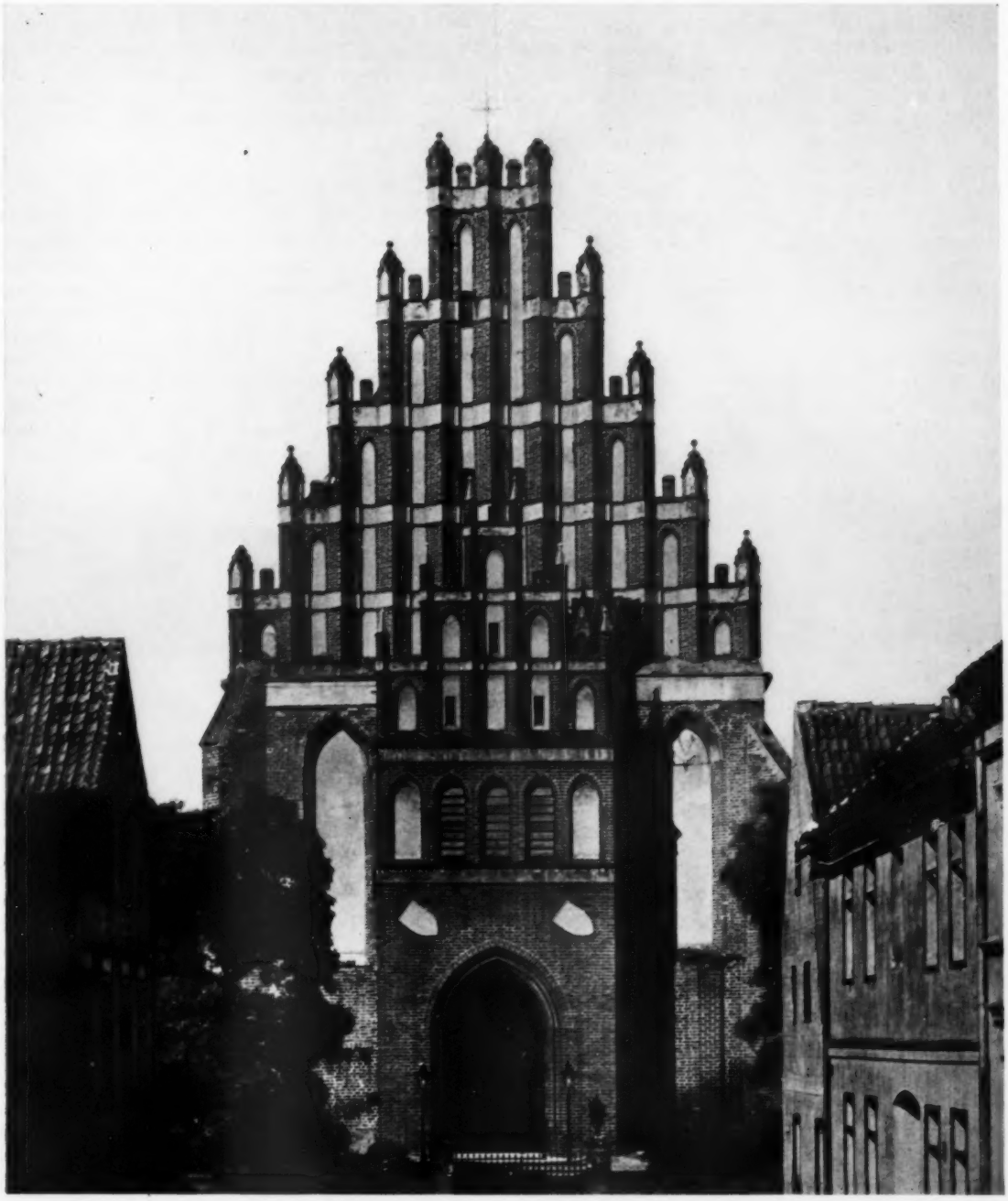


FIGURE 6. DOMINICAN CHURCH, CULM

TYPICAL OF THE WORK OF THE ORDER OF TEUTONIC KNIGHTS

burnt. On the oldest sections of the church at Ratzeburg near Luebeck are brick surfaces having fine pattern cutting done with a chisel. The aim to imitate the contemporaneous work of the stone cutter is evident. Interesting, indeed, are such first attempts in a new material.

So it was about 1100, at brick architecture's awakening, that in this time the joint use of limestone and limeplaster appears. The seashore produced limestone in modest quantities. Hence its appearance, sparingly, in the coast towns. The plasterer's art, on the other hand, had long been practiced in Germany. Witness the lovely figurative sculpture in the church of St. Michael at Hildesheim whose virtuosity proves great skill in this material. Its date is about 1100. Yet stucco was of use only decoratively. Bearing members, such as corbels or starters of vault ribs made of stucco, concealed even in that early day, iron to take the thrust. The beautiful corbels of the vaulting in the Kapitelsaal in the Convent at Oliva near Danzig resort to this method. In the territory of the Order of Teutonic Knights the use of glazed tiles and other ceramic devices is conspicuous, reminiscent of the Orient and of the days of the founding of the Order and its crusades, in the course of which the Order rose to power and distinction.

Notes on the Illustrations

Figure I shows details of the Teutonic Knights Castle Lochstedt near Koenigsberg in East Prussia. The window encasement is worked as described above with burnt clay blocks handled in the manner of the stone cutter. The top is framed with a glazed band carrying well drawn lettering. Figure 2 shows a vault corbel or starter from the refectory of the Ordensschloss Rehden near Gaudenz, a detail of one of the most charming monuments of its time, though now in a state of decay. These two examples will suffice to characterize their early period.

FIGURE 17. TOWN HALL, THORN

AMONG THE FINEST SECULAR MONUMENTS OF THE MIDDLE AGE

Gradually the method of the craft changes, recognizing the inherent characteristics of brick. The stone mason is replaced by the bricklayer. This epoch ends in the middle of the fourteenth century when the guilds appear in the towns and enact trade regulations. However, in the thirteenth century the bricklayer is found working beside the stone mason. The builder of the time recognizes that cornice projections and elaborate profiles have limitations in brick. The character of the material makes for accentuation of surface and produces forms that appeal today. Surface ornament replaces projecting members. Characteristic contour of crowning members, fantastic gable organization, contrasting telling detail spots with large surfaces and masses expressing the material's distinction find favor, and finally huge wall masses appear crowned with roofs ending in turrets with fanciful finials against the sky. The climax is reached in St. Mary's Church at Danzig.

To this first period of the art belongs the West front of the Cistercian convent Chorin near Berlin (Figure 3). The new conception, recognition of material, becomes apparent here. Decorative bands confine the surface, a typical crowning suggests horizontality though a steep roof lies behind. An artistic conception is born that recurs in the Stralsund Townhall (Figure 4) and at Luebeck showing a mastery of the material. A marked versatility appears. Each geographical division brings forth new and individual forms. The Order of Teutonic Knights produces effects by contrasting red brick with plaster surfaces in the eastern provinces. St. Jacob's Church in Thorn (Figure 5) is a good ex-

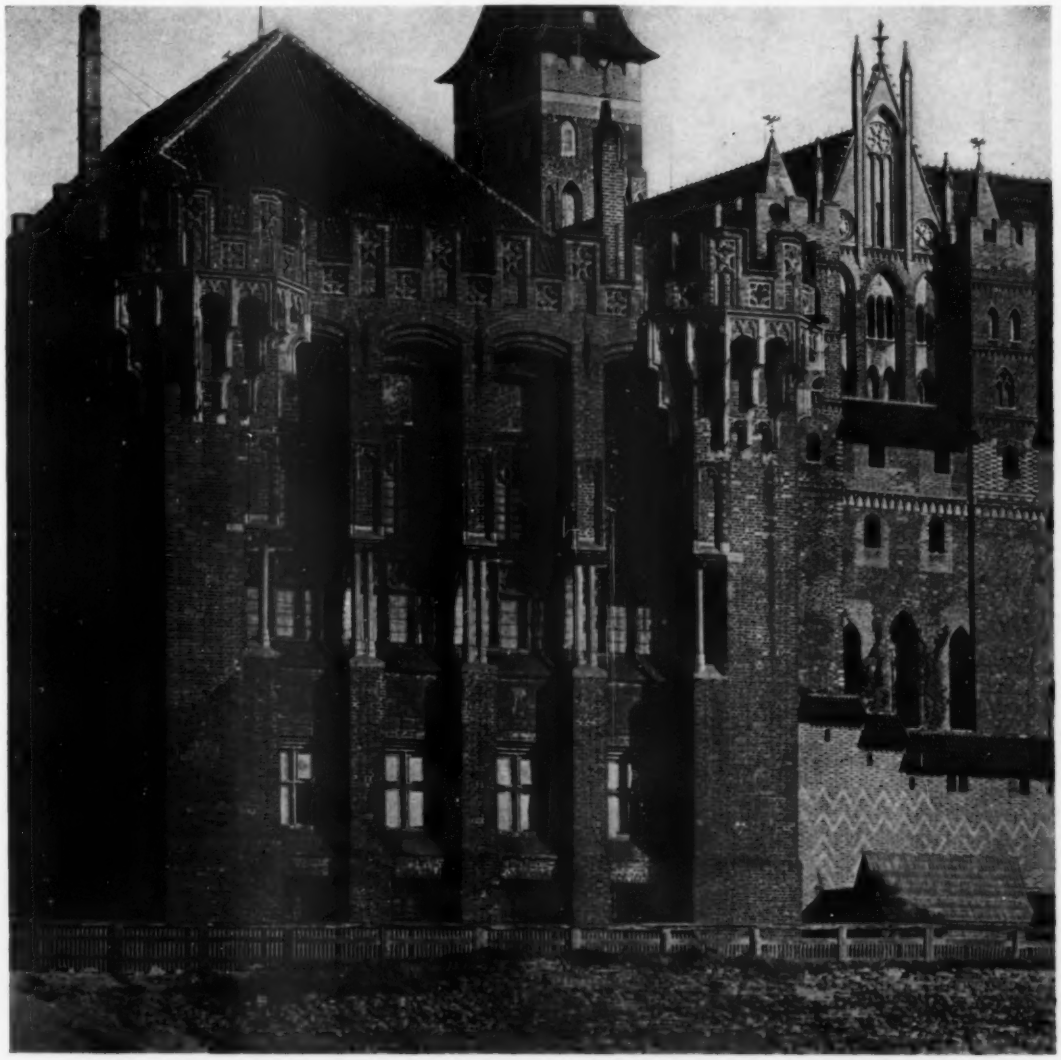


FIGURE 8. MITTELSCHLOSS IN MARIENBURG

ample. Hundreds of churches in towns and villages in the East introduce this idea in great variety. Witness the evangelical church, once dominican, at Culm (Figure 6). Here horizontal plaster bands bind the broken gable surface. Comparison of Figures 5 and 6 makes evident the development toward expression of material.

To what heights this architecture soared may be seen in Marienburg, the residence of the Grandmaster of the Order of Teutonic Knights. Of the complete establishment the Hochschloss and the Mittelschloss are preserved. The extensive Vorburg with walls, towers, foundry for arms, storehouses and arsenals is distinguishable in the ruins (Figure 7). Undoubtedly it was an architectural creation of the highest order. Its full effect is driven home when the dark red brick masses are seen reflected in the yellowish gray waters of the Nogat.

(Figure 8), the Mittelschloss, quarters of the Grandmaster, was built in the fourteenth century. Well lighted baronial living and reception rooms were wanted. Slender granite columns flanking the windows cut back heavy buttresses and light and air passed unimpeded through the splendid hall in whose middle stands one slender granite column carrying the fanvaulting ribs. Visitors of state were received here. The vaulting developed is distinctive of the Order. It would be profitable for the modern architect to study the construction of this vaulting. The ribs function structurally yet form the only relief decoration of the vault. Construction and form are a unity. In the great remter (Figure 9) the effect of columns and vaulting is clearly shown.

With the close of the epoch marking the Order's militancy, as of the mastery of the nobles and the clergy, the power of the cities and the burger increases. And now the burger becomes the dominant builder. Within encircling city walls pretentious buildings rise, each to house one family with its appendages. Rectangular in outline, crowned with a hip roof with gable end at street, these houses stand ranged one next the other along the streets. The ground plan varies only in detail, though the exteriors are rich in variety. To visualize the effect of the ensemble one must banish the dissonance produced by intruding buildings of a later period. The town planning of the time is a problem by itself, rich in lessons for our day on functional expression.

Figure 10 shows a burger house of the Middle Age at Wismar. Figure 11 presents a gable view of simpler burger houses of the time found in a side

FIGURE 9. THE GREAT VAULTED REMTER OF MARIENBURG: A BANQUETING HALL

FIGURE 11

FIGURE 12

AT LEFT: IN MEDIEVAL DANZIG. A GABLE VIEW OF SMALLER BURGER HOUSES. AT RIGHT: ST. MARY'S CHURCH, LUEBECK. LUEBECK IS THE FORERUNNER OF THE HANSEATIC LEAGUE. THIS CHURCH SERVED AS MODEL FOR ALL OTHER CHURCHES IN THE GERMAN COAST TOWNS

FIGURE 7. MARIENBURG, WEST PRUSSIA

RESIDENCE OF THE GRAND MASTER OF THE ORDER. IT IS ONE OF THE GREAT CASTLES OF THE MIDDLE AGE

street in Danzig and preserved today. Many similar examples may be found in other old coast towns. Dominating the mass of burger houses rise the churches culminating in towers and turrets, huge structures, begun in such numbers to forbid their completion. This church building occurs at the zenith of the art of brick building. The lacework reminiscent of South and West German churches has fled. Severe and strong are the massive unmistakable church walls whose tower roofs are copper crowned. The elevation of wood roof construction often exceeds the height of the masonry below.

St. Mary's Church, Luebeck (Figure 12), with its majestic twin towers, became the prototype for many churches along the Baltic coast. Wismar, today a small port wrapped in dreams, soon followed by erecting three mammoth churches on a like plan. Troublous times stopped their progress and the great construction died in adolescence. Though the mass follows Luebeck, the detail is distinctive yet true to the material. Ceramic decoration fills the gable tympanum with perfect rhythm in its repeats. A cross section of these churches shows the old basilica form with aisles and lofty nave preserved.

In the fifteenth century new ideas demand expression. The now self-conscious body of burgers, even before the Reformation, demanded a larger voice in churchly affairs. The churches must no longer be great halls for the clergy, they must become great halls for the mass of the people. Man, as an individual, demands his place in his church. Such demands result in wide halls where nave and aisles are vaulted at corresponding elevations. Older churches are remodeled and produce solutions as shown in Figure 13, a view of St. Mary's, Danzig. This building in its grandiose proportions, crowned high above with playfully slender turrets, its somber tower with emergency roof, presents, perhaps, the last and highest achievement of North German brick architecture. Within and without there is a finished, a sober beauty.

A peculiarity of these late churches is the tripartite steep roofs, each part covering a nave or aisle and running longitudinally with the subdivisions below. Contrast between the mass of the walls and the highly articulated crown is thereby intensified,

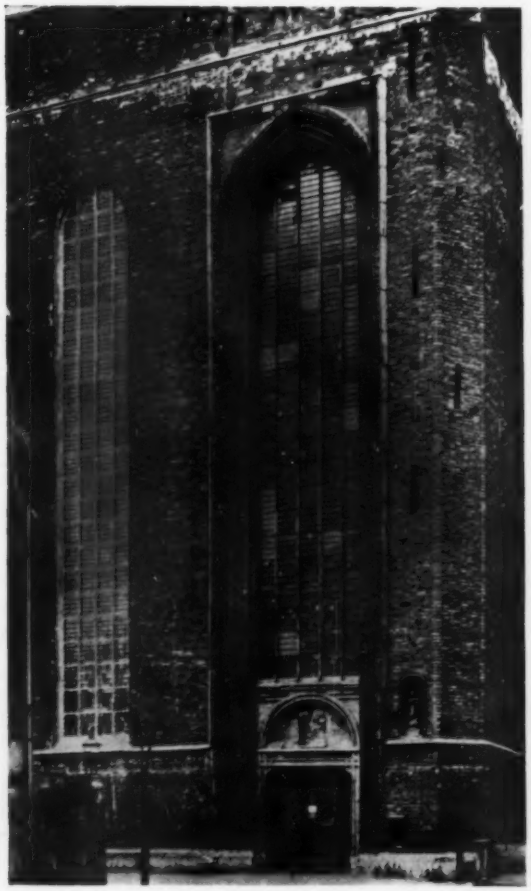


FIGURE 14. WALL DETAIL OF ST. MARY'S, DANZIG

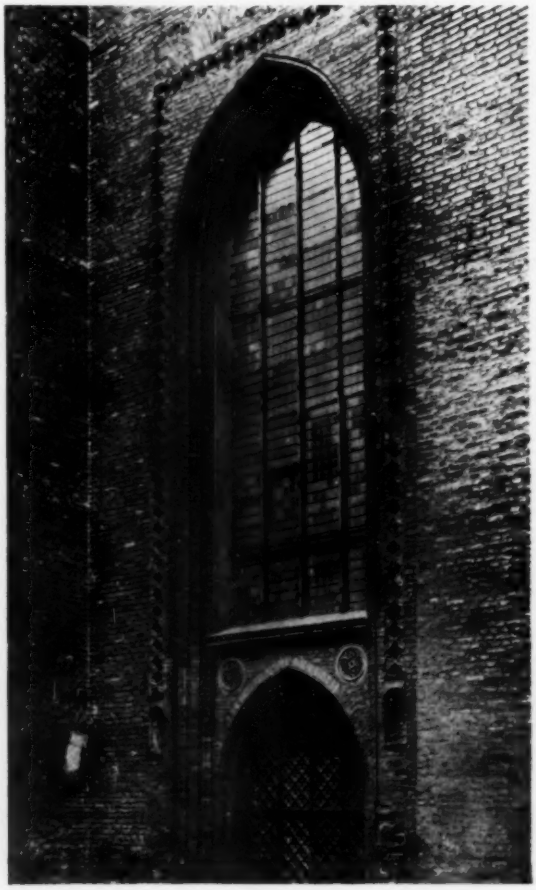


FIGURE 15. WALL DETAIL OF ST. MARY'S, DANZIG

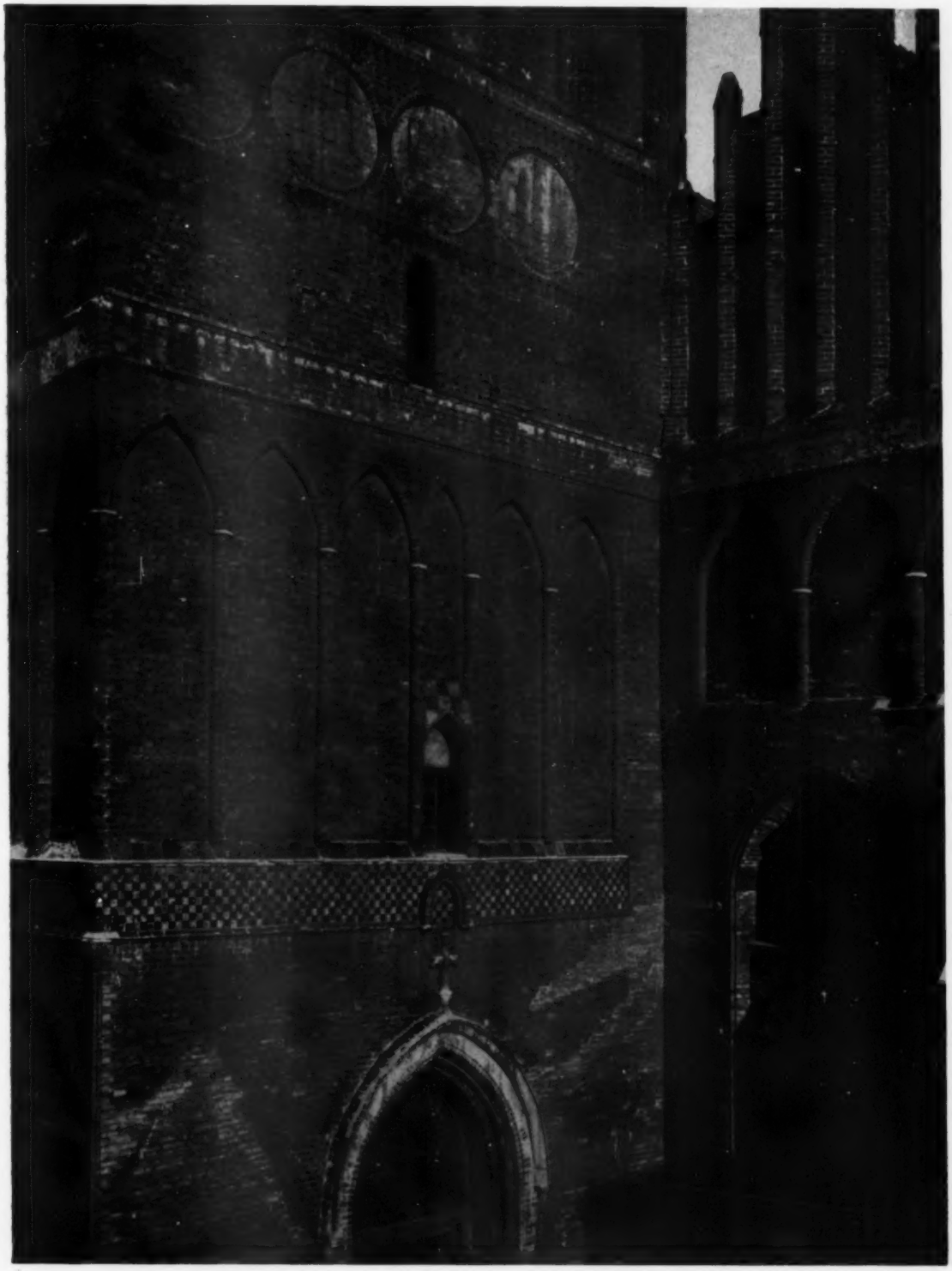


FIGURE 16. SECTION OF WALL, ST. JOHN'S CHURCH, DANZIG
THE FRIEZE OF GLAZED COLORED TILE IS TYPICAL FOR EASTERN GERMANY

resulting in a characterization peculiar to these edifices. The treatment of brick surface, development of windows are shown in Figures 14 and 15. Figure 16 shows the tower brickwork of St. John's, Danzig. Note the yellow and green glazed tile frieze.

Next to the churches the building of large assembly rooms in town halls occupies the attention and effort of the time. The town hall at Thorn (Figure 17) though a building of the Middle Age seems strangely impregnated with modernity. These are the forms that eastern Germany about 1500 brings forth. In westerly North Germany, particularly in the Mark Brandenburg, the art of the potter lays claim on architecture. Delicate ceramic lacework fills gables and surfaces over portals and windows. The town hall at Tangermuende (Figure 18) will serve to make clear this tendency.

Contrasting these buildings of the late Middle Age in general with the earlier product, a new creative sense is seen. Movements appear differing widely from established architectural forms. The new growth is interrupted by the penetration of the Renaissance. For a time only colored glazes are added, an enrichment, and minor detail of classic form. The gable at Rostock (Figure 19) preserves the medieval ribwork; only the decoration changes. Then (Figure 20, house front in Luebeck) the large form changes following the leading strings of the Italian Renaissance. The formal, little concerned with the construction that permits its being, gains adherents from all sides. The exterior dress is what counts now. Evidence of architectural organization of parts disappears. As something foreign, something new, such evidence may appear as applied ornament. The medieval conception of art dies. The man of the Renaissance with a mind of scientific bent replaces the soulfully urged creative medieval master.

The curtain rises on that fateful Thirty Years War. Germany is left a desert waste by foreign armies crossing, recrossing, battling and consuming everything in their path. With peace after years of untold suffering the burger's spirit is broken and the tender sprouts of a new German art are faded and gone. The nobles, now in absolute power, retain foreign architects. Brick is no longer respected. Its walls that remain are covered with plaster. Only in the coast towns, away from the beaten path leading to the estates of the nobles, do the burgers retain their independence. Here among the burgers, brick architecture lives on, modestly, fitting a simple garment to the changed requirements of the time. The pictures offer glimpses of these unpretentious buildings.

The movement leading brick architecture in the

FIGURE 5. ST. JACOB'S CHURCH, THORN. RED BRICK CONTRASTED WITH WHITE LIME SURFACES

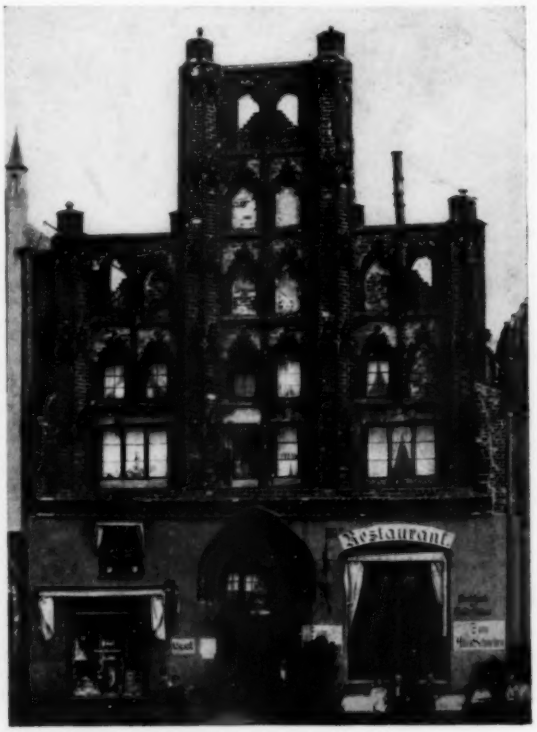


FIGURE 10. BURGER HOUSE IN WISMAR. A ONE FAMILY HOUSE

FIGURE 20. HOUSE FRONT, LUEBECK

TYPICAL RENAISSANCE ARCHITECTURE IN THE APPLICATION OF CERAMICS

FIGURE 19. GABLE OF THE OLD TOWN HOUSE, ROSTOCK. POLYCHROME AND GLAZED CERAMICS: RENAISSANCE ART IS ABOUT TO TAKE THE STAGE

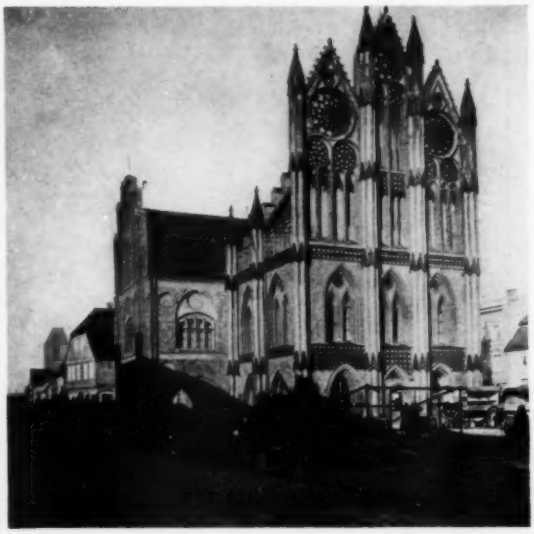


FIGURE 18. TOWN HALL, TANGERMUENDE. A LATE MIDDLE AGE EXAMPLE INTRODUCING THE TECHNIC OF THE POTTER'S ART

Middle Ages to the pinnacle above described has ebbed. And yet this hardiest and most German of all German architecture did not die completely. In spirit, though not in form, it lives today, since the offspring of the early masters (who builded so wonderfully in the Middle Age) are, in the last analysis, possessed of the same impulses as their forefathers. A new day is dawning mindful of its great inheritance. The ideal aiming toward unity of purpose, material, construction and form is making headway. Sham must wither before an honestly expressed conception of the fitness of things.

The author acknowledges his obligation to Dr. Edmund Schueler, Berlin, and Professor Fischer, Hanover, for material in the preparation of this essay.

INDIAN HOUSES STILL THE MOST PRIMITIVE OF DWELLINGS

BECAUSE the educated American Indian does not usually turn to the reservation and exert any architectural influence on the home of his ancestors, Indian houses of the most primitive kind are still to be seen, such as the Navaho hogan, the Havasupai hawa, and the Cahuilla kish.

The Yuma makes a strong framework of large poles, to which he ties smaller poles; the roof, also of poles closely laid together, is flat, and the house, when finished, is thickly plastered with mud, inside and out. There is rarely a window. The single doorway a very ambitious builder may sometimes close with a rude network of interwoven poles hung on cowhide hinges. Generally, however, the Indian contents himself with hanging a dingy blanket across this opening.

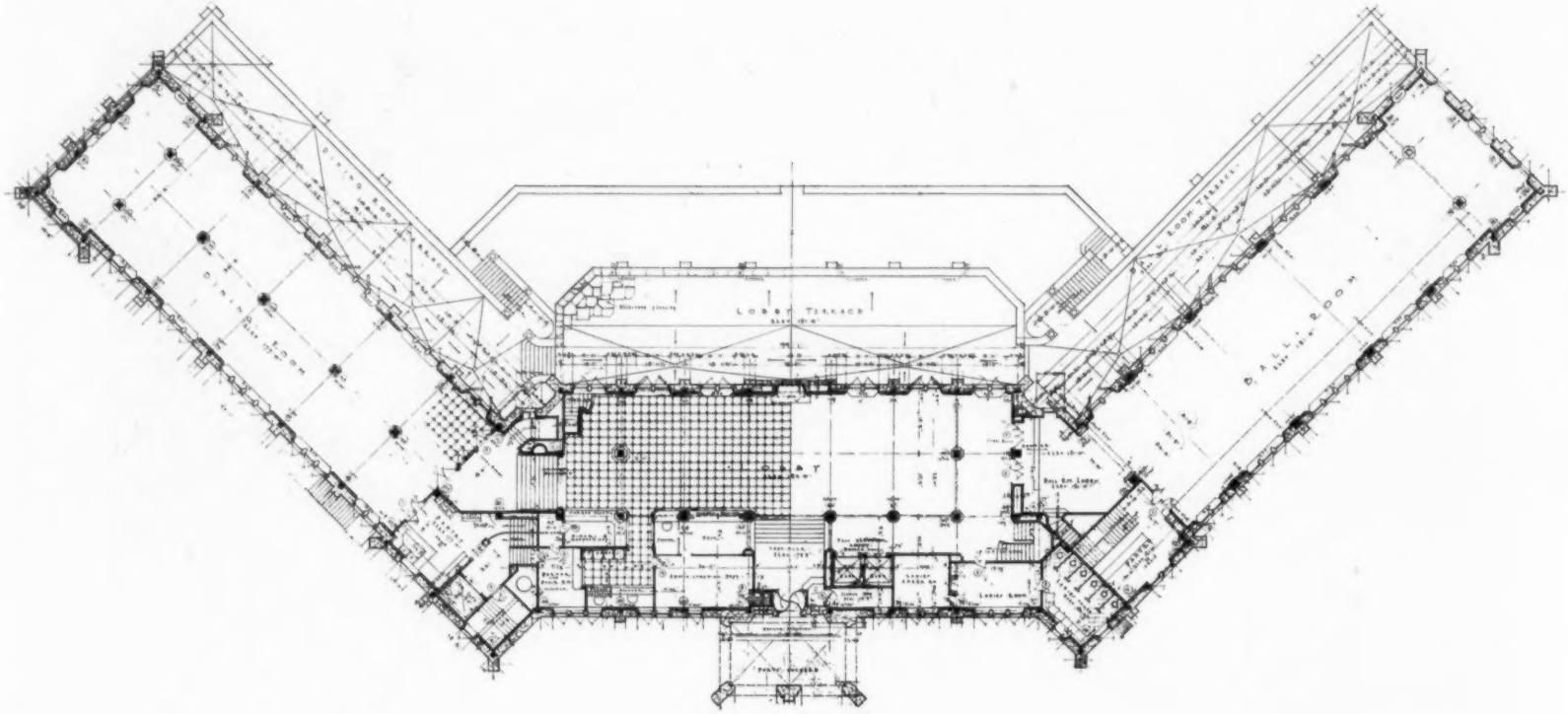
The Chemehueyi is even more primitive. His dwelling is made of willow branches. It is unplastered, but lined with willow leaves. The same long leaves are used in many thicknesses to cover the flat roof, on which is also erected the round granary holding the family store of dried corn or mesquite beans. He has a door, however, which he closes by means of a long stick and a large rock.

The Apache, being a nomad, considers a khan, a mere shelter of brush, to be sufficient. The Wallapui, more enterprising than his neighbors, makes his house entirely of railroad ties, with a tall piece of rusty stovepipe for a chimney. The Peina takes more pride in his home, making it as neat and substantial as his materials will allow. But many of the laziest of the Indians are satisfied with a grass-thatched roof supported at irregular intervals by poles.

THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

(See plan on back)



FIRST FLOOR PLAN

THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

THAYER HOTEL, WEST POINT, N. Y.

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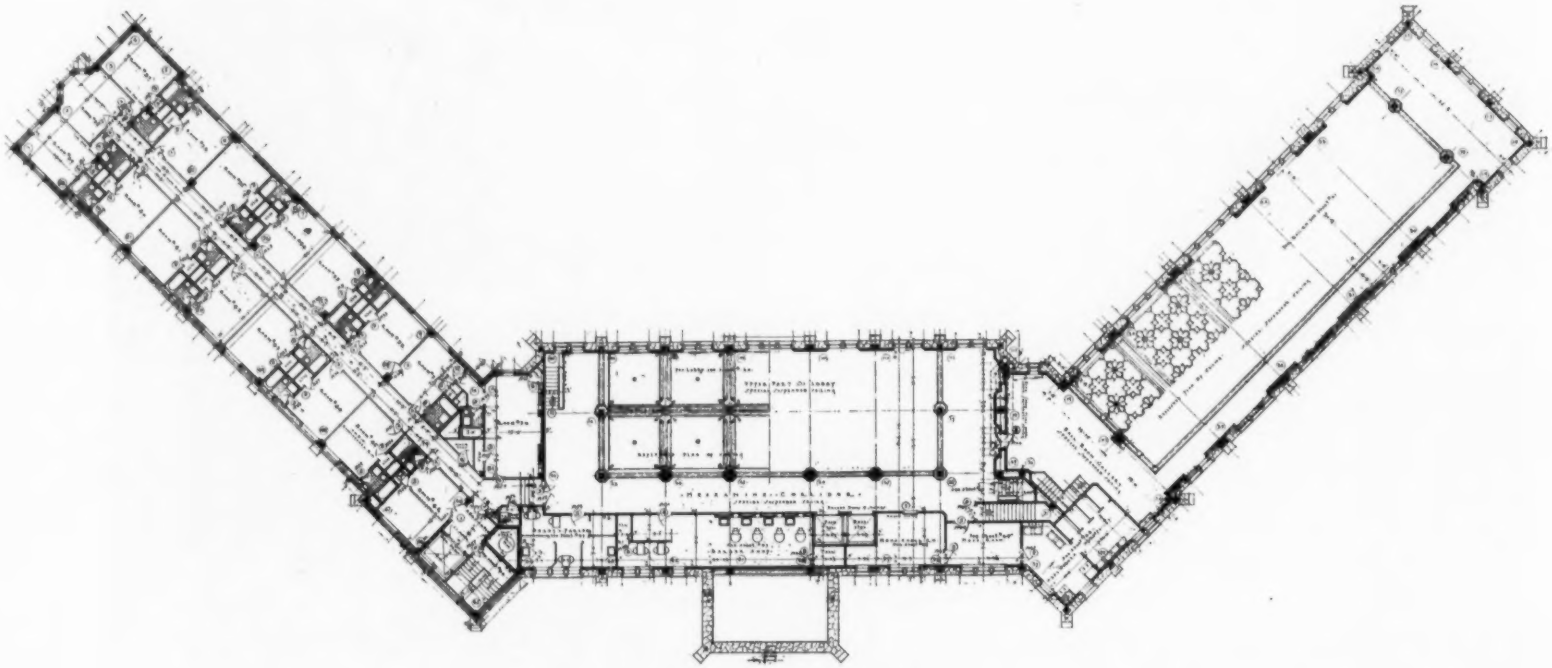
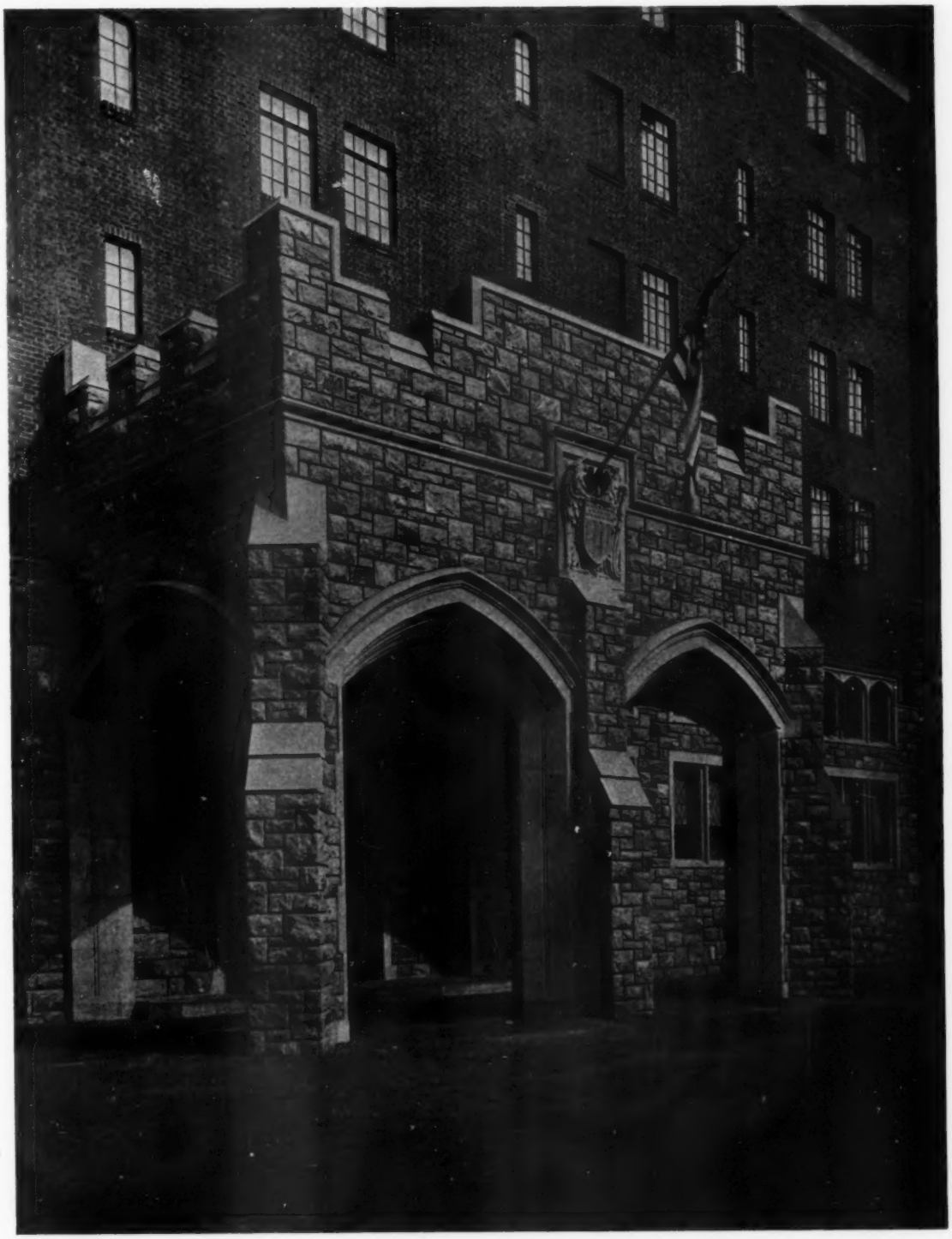


PLAN OF FIRST FLOOR MEZZANINE

THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS



THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

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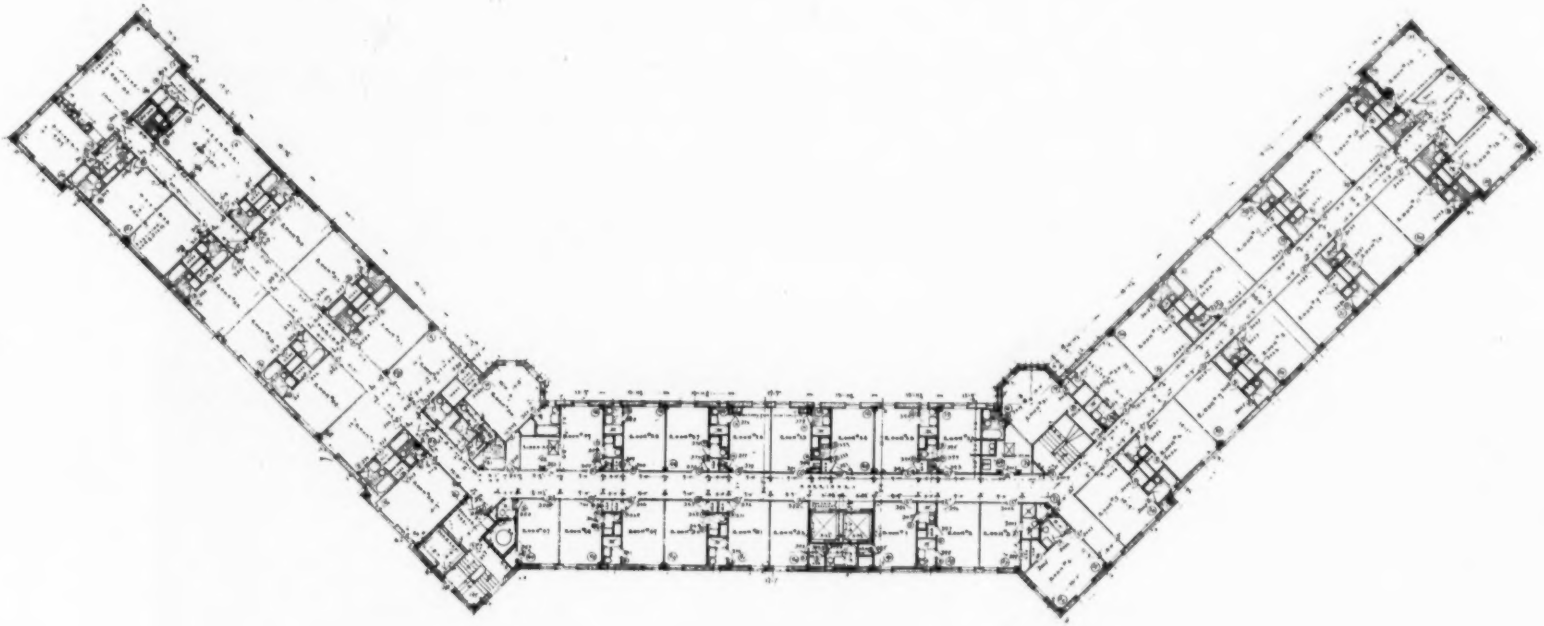
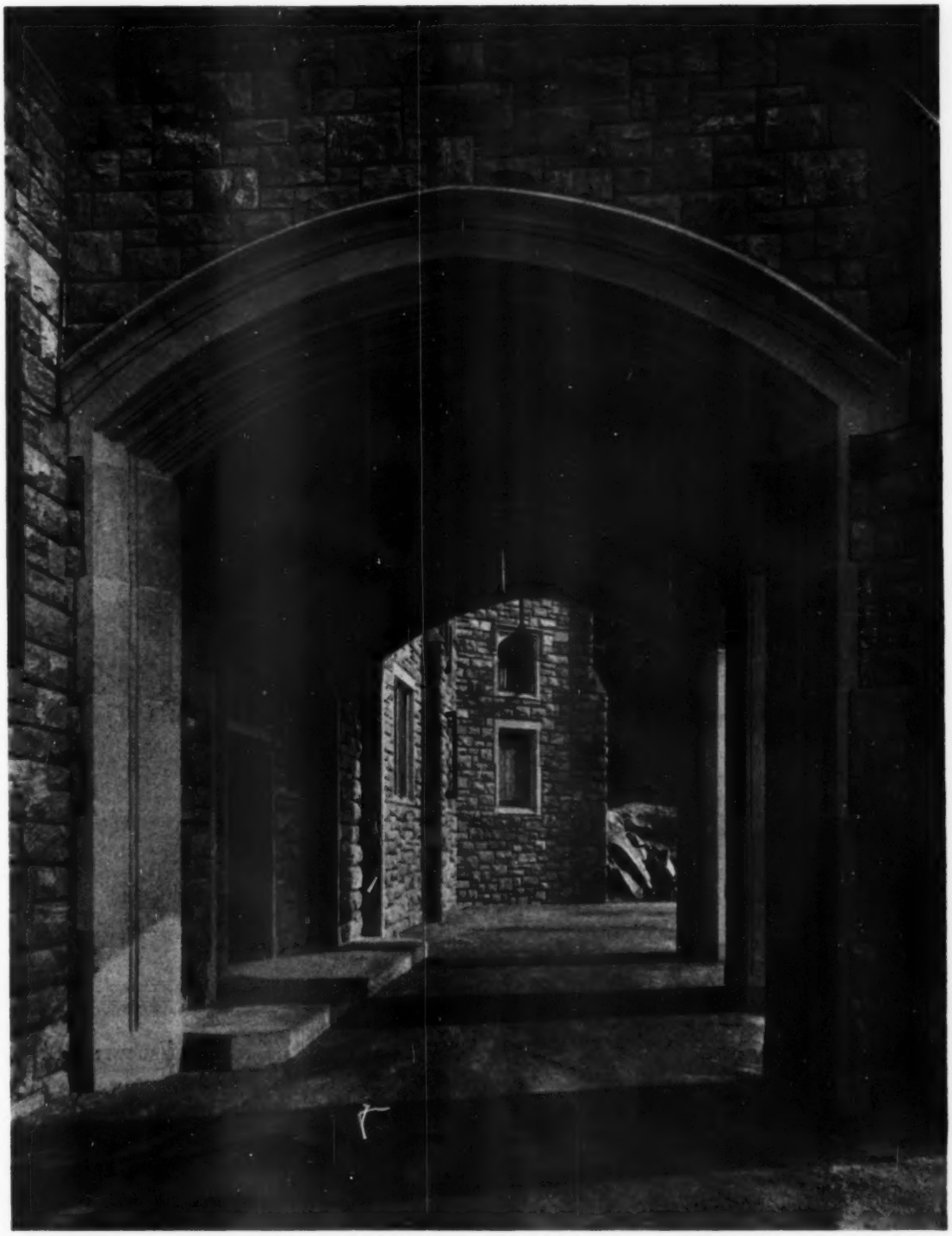


TYPICAL FLOOR PLAN

THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS



THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

THAYER HOTEL, WEST POINT, N. Y.

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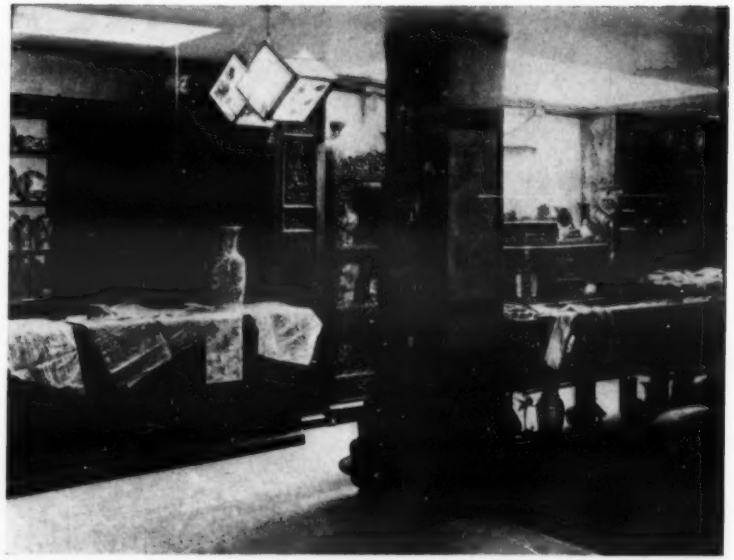


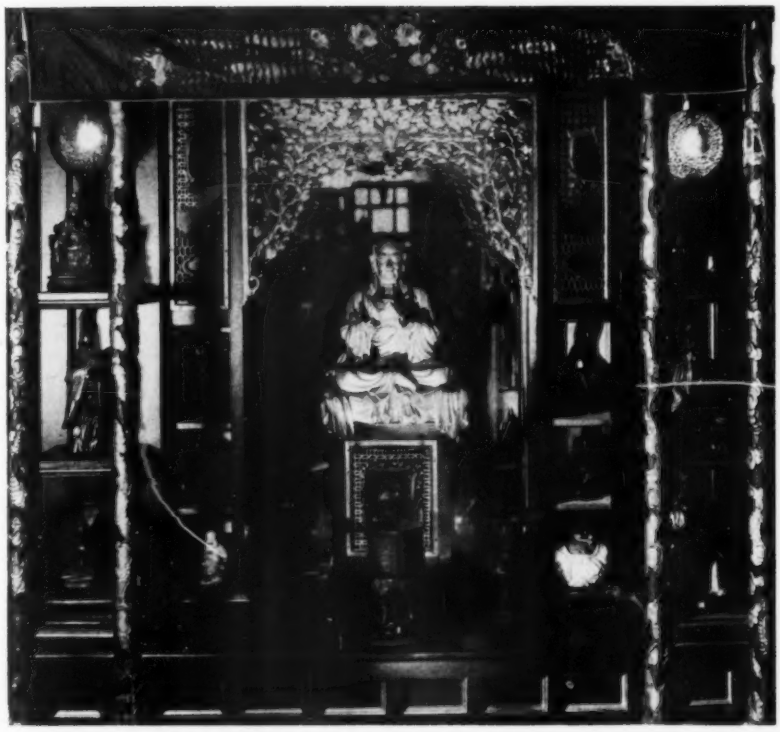
THE intent was to give this front, at a reasonable outlay, a Chinese character, with modifications to meet building regulations and climatic differences. The general color scheme of exterior is black with such accents as come from gold letters, chamfered edges and the gradual weathering of the roof tiles which are cast from Imperial tile. A modification of the design to meet Northern conditions was the insetting of little figures, usually found in China, along the cresting of the ridges. These are dragons, idols and Ming dogs from Chinese temples and guild houses. The horns of the roof are devised as a protection against devils. The two figures surmounting the front pair of horns are yellow tile dogs from the Imperial Palace at Pekin. The shrine, shown on the following plate, was secured from the estate of the late Admiral Robley D. Evans. It is one of the eighteen Lohans or Disciples of Buddha who have attained Nirvana.

A CHINESE SHOP IN WASHINGTON, D. C.—HORACE W. PEASLEE, ARCHITECT

A CHINESE SHOP IN WASHINGTON D. C.

HORACE W. PEASLEE, ARCHITECT

AT RIGHT: THE SHRINE IN THE SUB - MEZZANINE, DESCRIBED ON PRECEDING PLATE. THE SHELVES ON EITHER SIDE ARE FOR DISPLAY PURPOSES



THE SHRINE

INTERIOR OF STORE AT MAIN LEVEL WITH MEZZANINE AND SUB-MEZZANINE INDICATED. THE COLOR TREATMENT IS UNPRETENTIOUS, WITH A FEW SPOTS OF COLOR PLACED AT TOP OF SUPPORTING POSTS. THE COLOR SCHEME IS BLACK AND RED

EDITORIAL COMMENT

ON another page in this issue reference is made to the enormous fire loss which the average American taxpayer seems to look upon with the most careless indifference. Those engaged in studying the problem of accomplishing a diminished fire loss are agreed on the necessity of the earliest possible detection of a fire and of the desirability of the perfection of a system that will lead to this result.

As the fire loss in the United States is, per capita, greater than that of any country in Europe, it seems that we might learn some rather valuable lessons from abroad for the prevention and early detection of fires. Germany, for example, has rules that inflict penalties on householders when fire occurs through carelessness. It is also possible for adjoining property owners to sue and recover by civil action the loss or damage suffered through fires caused by the carelessness of their neighbors.

It seems logical to contend that any system of fire detection to reach its uttermost value should be connected directly with the fire alarm system of the local fire department or police headquarters. Even a fire detecting system is of little, if any, value unless it announces the beginning of a fire to persons equipped to take prompt action toward the extinguishing of the fire. The hysteria that is always present on the detection of fire until some level headed person has put in an alarm, is responsible for many fire losses that could have been averted had the fire department been promptly notified.

A means of fixing the responsibility for fires and the infliction of a proper penalty for carelessness should be defined by law in such terms that it would be easy to convict a property holder for fires due to carelessness, and such punitive action taken that it would act as a deterrent for others.

IN a statement which has been given wide circulation, it is suggested that the existing mode in interior design which seems to be so riveted to tradition is entirely the fault of the designer. We beg to take exception to that statement. We credit the designer with far greater ability than the results seem to suggest. The "spirit of creation" still exists in the make-up of the average designer of the interior, and he should not be blamed for a lack of creative ability because he is not allowed to create. In a majority of cases, the designer is an employee. His employer is, in the case of those who are designers in the industrial arts, at least, a merchandiser. The merchandiser is more interested in "best sellers" than in the development of artistic designs. The annual exhibitions of American industrial art held at the instigation of the Metropolitan Museum of Art, New York, are primarily to stimulate manufacturers to a greater appreciation of the art quality in furniture, textiles, wallpapers, and the like. It is the merchandiser himself who first must be made to see the value of originality in design. His hands, of course, are guided by the purchase and rejections of the consumer. On the other hand, unless the consumer is given opportunity to reject the creative efforts of the designer, how may its buying power be gauged? If, then, it is a matter of placing the blame on one or the other, for smugly repeating, with minor variations, the successes of yesterday, we claim the fault is the manufacturer's rather than the designer's. The writer of the statement already alluded to goes on to say that the artist—the designer, he is referring to—should guide his public. We quite agree, if the term designer and manufacturer are considered synonymous. Surely the taste of the buying public cannot be raised above "period" furniture if the same public has no opportunity to buy anything but "period" furniture. It is a case of buying "period" furniture or not buying at all. But, considering the words designer and manufacturer in their proper light, as employee and employer, it is not so easy for the designer, the employee, to guide the manufacturer, the employer. This is not a subject which affects only the designer and the manufacturer, but comes right home to many architects' offices. The young draftsman may be possessed with a brilliant idea; his employer with years of experience has perhaps become discouraged with attempts to improve existing forms and sees nothing in it but the possibility of shocking the sensibilities of the client. The idea is immediately cast aside, and the progressive young draftsman sees his ideals shattered. If the employer would consider himself in relation to his designer as he considers his client in relation to him, results will be probably much more satisfactory. If he must guide his client, then he, too, should give greater heed to the proposals of the more progressive members of his designing staff.

MASSACHUSETTS Institute of Technology has recently announced that through a grant from the Louis J. and Mary E. Horowitz Foundation, Louis J. Horowitz, president of the Thompson-Starrett

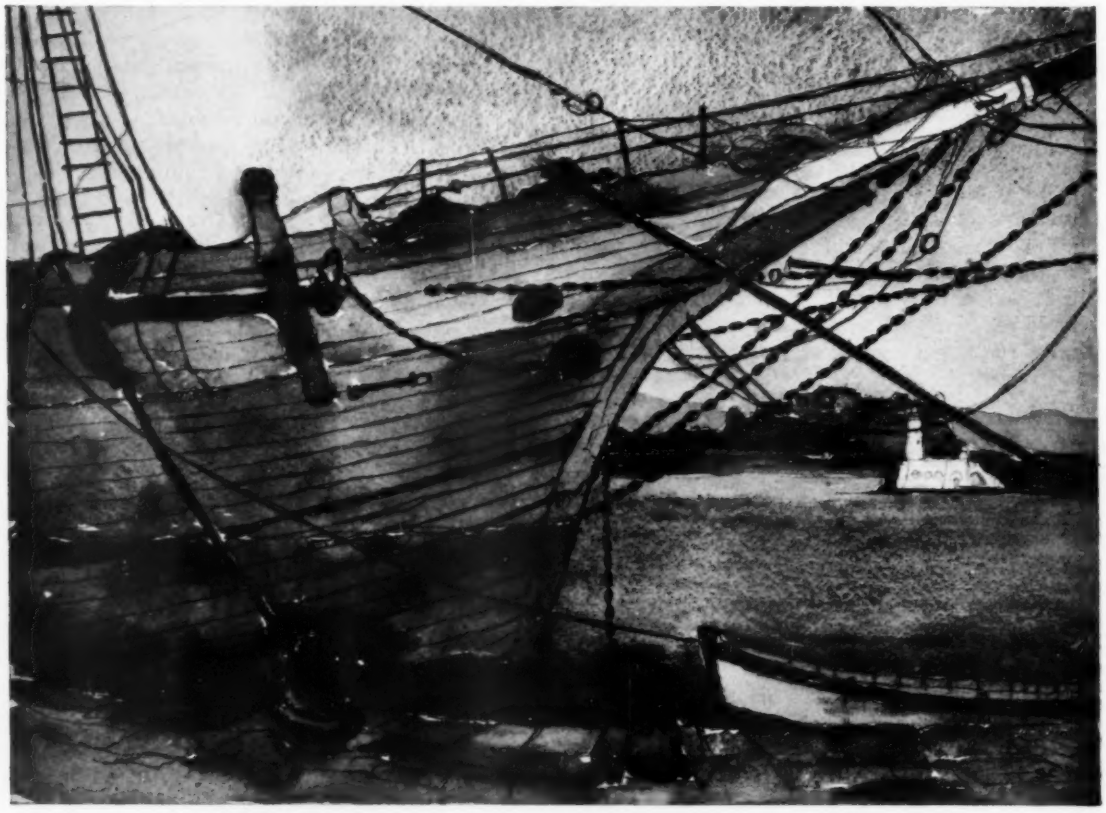
Company, has founded a course in "building construction to develop professional builders with a broad training in building operations, including business and engineering administration."

A course of this nature to develop building contractors having a broad conception of the field is looked upon with favor. Contractors are, of course, particularly concerned with the actual operation of erecting structures, but to carry forward this portion of the work efficiently and economically requires a volume of detail and also the concentrated study of men, materials and methods. At the same time the constructor should have some understanding of the work of the architect and the engineer. It is not sufficient that he be competent to erect a building from plans furnished to him. He should be able to read and speak in the language of the architect or engineer, grasp their viewpoints and have sufficient command of engineering fundamentals to enable him to meet the special problems that daily arise in the field.

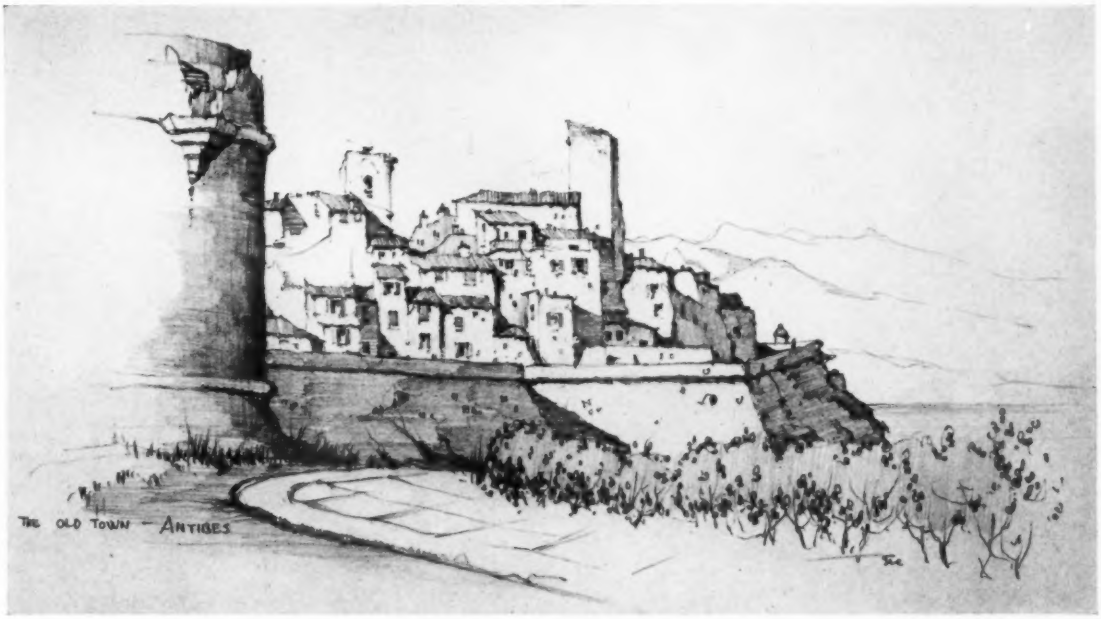
Many contractors are graduate bricklayers, ambitious carpenters or engineers who have entered the contracting field. They know their job thoroughly and usually possess excellent or at least sufficient executive and business ability to carry work through to completion. To reach this position has meant the directing of their efforts toward buying materials, financing, hiring labor, solving erection problems and similar items.

There has been a gradual evolution during many centuries and from the time when the architect was the master builder and every craftsman an artist we find today a complex situation which has been solved by separating the building industry into highly specialized organizations. In so doing there has been lost that working knowledge of the other trades evidenced by the inspiring architectural monuments of the past. We are confident that structures built today possessing architectural merit are due not only to excellence in the design conceived by the architect but to the sympathetic understanding and co-operation of the men on the job.

The course in building construction to be started in February at the Massachusetts Institute of Technology should meet an important need in the building industry by affording the means and opportunity for those enrolling to become in a sense super constructors. The M. I. T. announcement states that the new course "is designed to qualify men for the building profession in all its aspects." This rather large undertaking merits success and if successful other educational institutions will doubtless include a similar course in their curricula.



THE HARBOR, ANTIBES—FROM THE ORIGINAL WATER COLOR BY SAMUEL CHAMBERLAIN



THE OLD TOWN, ANTIBES

THE CHIMNEY TOPS OF ANTIBES

By SAMUEL CHAMBERLAIN

Illustrated with Water Colors and Sketches by the Author

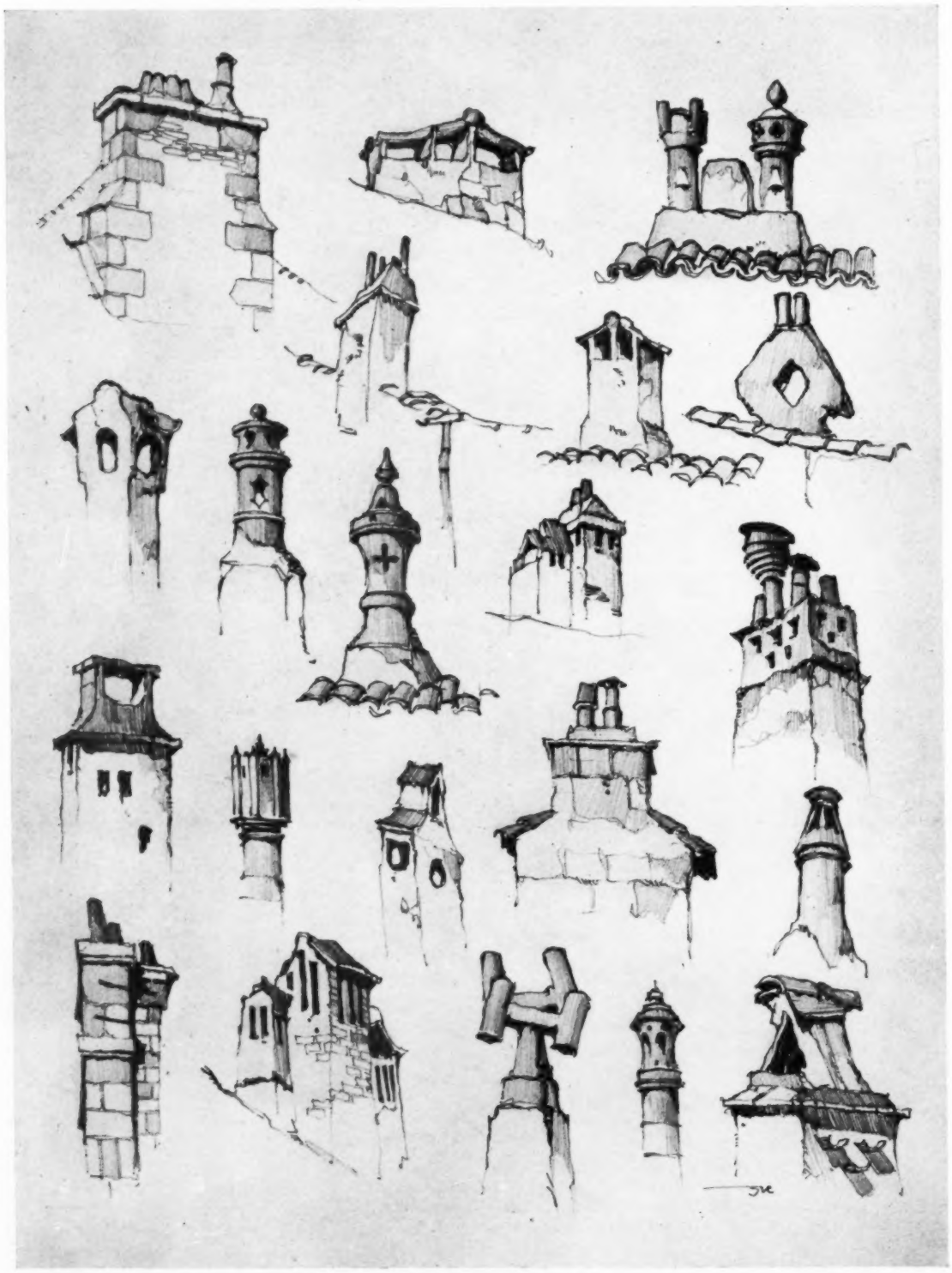
THERE is a new town and an old town of Antibes. The former resembles the outskirts of Atlantic City, but the old Antibes is a spiny, shimmering citadel, a knot of densely packed houses and towers roosting high on a rocky fortification and protected by a massive sea wall. It is a tangled mass of white and ochre walls, roofed with dazzling red and orange and capped with two gaunt, golden towers, silhouetted against the gaudy Mediterranean and the misty violet slope of the mountains. In the distance is the blazing yellow hilltop of Cagnes and still farther a tiny strip of opalescent whiteness, Nice.

One squints for some time at the blistered walls and roofs, the jig-saw profiles of Antibes before it becomes apparent that a large factor in all this grotesqueness is the regiment of chimney tops shooting up from the flat, sunbaked roofs. Chimneys are dull and monotonously alike in many regions of France, but in Provence they become individual in the extreme. There is always apparent in them the ingenious touch of the workman, confronted with the problem of concocting a chimney which will let out the smoke and keep out the rain. That a vast number of solutions are obtainable will, it is hoped, be shown by the sketches of chimney pots here reproduced. With the aid of ordinary roofing tiles, most extraordinary chimneys have been devised, and when various manufactured chimney pots of tin and tile are added, the effect can be almost exotic.

Some of the manufactured chimney pots resemble nothing more than pompous orange chessmen, punctured with diamonds and four leafed clovers and capped with a diminutive knob. Often a dozen different ones crop up from one cluster of chimneys and the effect is quite enough to awaken a fleeting recollection of Alice Through the Looking Glass.

The tin chimney pots are familiar to all those who have ever occupied a Paris attic room. Paris chimneys deserve a dissertation all their own, but with all their soaring eccentricities, they lack the striking originality of those of the Midi. Here is one from Antibes which resembles a miniature Parthenon, another that unwittingly takes the shape of a Chinese lantern and yet another which immediately recalls a Pueblo Indian shack. Some are broad and bungalowish like those of Brittany and some resemble toy hill towns. There are many built like bird houses and others which might be modelled after sentinel posts on the walls of a penitentiary. But all of them seem to fulfill the function of a chimney equally well.

Practically none of these chimneys show any conscious attempt to be either beautiful or picturesque, pure utility being the obvious aim. This fact cannot but be responsible for their interest and charm. When a conscious effort *is* made to build a



A PAGE OF CHIMNEY TOPS, ANTIBES

FROM THE ORIGINAL SKETCHES BY SAMUEL CHAMBERLAIN

MORE CHIMNEY TOPS, ANTIBES

FROM THE ORIGINAL SKETCHES BY SAMUEL CHAMBERLAIN

chimney of beauty, the result may be absurd, (witness the appendages to some of our American bungalows), or it may bring forth chimneys as exquisite as those of Venice. One of the relatively few books on chimneys, incidentally, is a rare German volume, filled with hundreds of facile pen-and-inks of the chimneys of Venice, as choice and as thorough a work of this kind as one could wish to find.

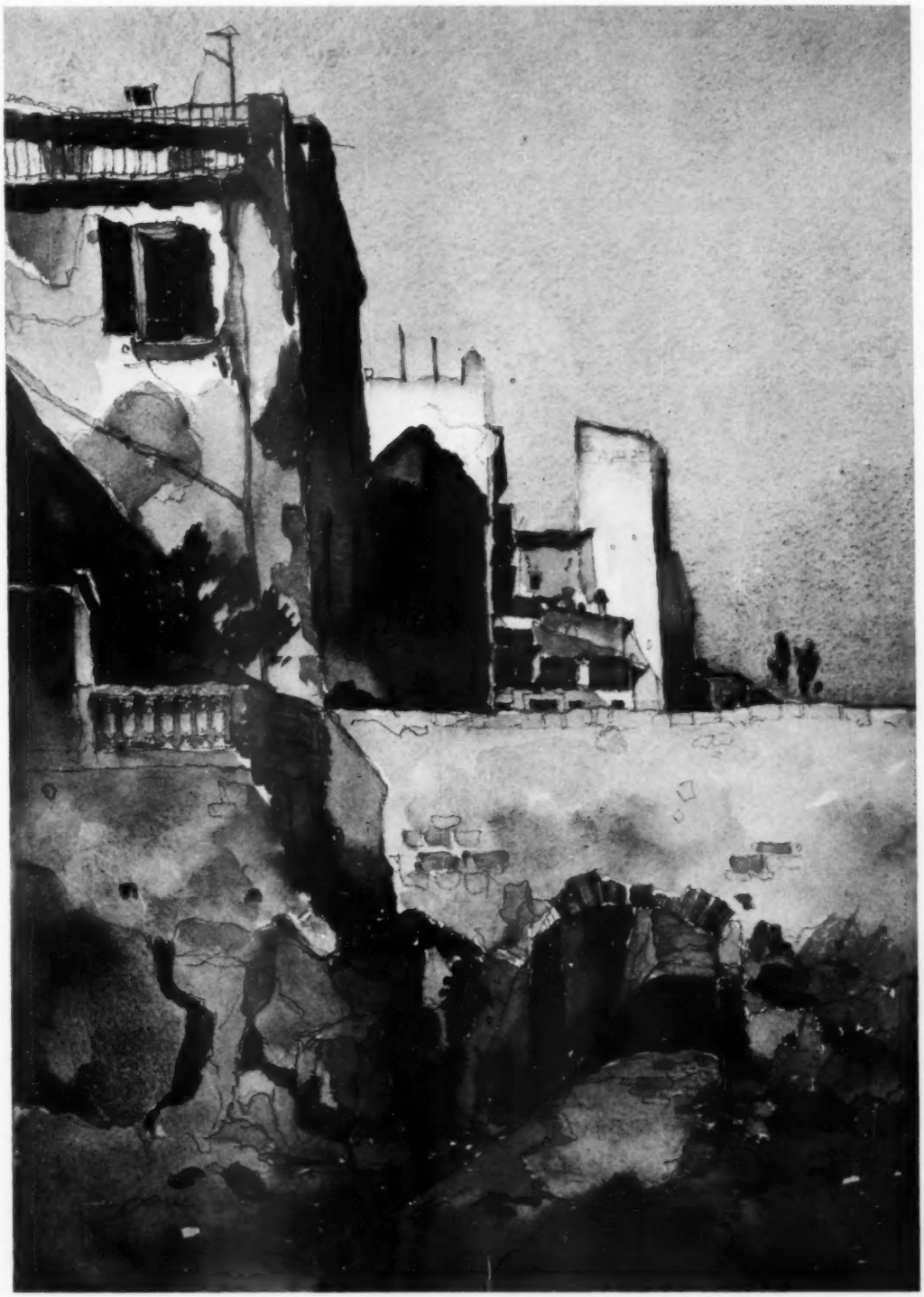
Antibes has a secluded little harbor, filled with a motley fleet of strange craft. There are gaudy fishing boats being loaded with cork-festooned nets and a battery of bottles of vin rouge for the night's vigil. And sleek, spotless sailing yachts, waiting idly for their owners' whims to lead them for a brief cruise in the open water. In contrast to these is a creaking old sailing vessel with its patched amber sails flapping disconsolately, strange crackling dialect coming from the dark and desperate looking deck-hands and the penetrating odor of stewing garlic wafting up from the hatch. A glaring white lighthouse and a sprawling fortress with a mass like a Chinese monastery, hem in the mouth of the little port.

Thousands of slabs of pink veined marble, fresh from Carrara, are stacked up on the docks. Ultimately they will be polished to embellish the rich facades of Paris parfumeries and pastry shops. Italian marble workers are everywhere along the quais. Usually they may be detected by the high tenor warbles of opera arias which float out from their dusty retreats. Basket makers have imbedded their shops in the cavernous vaults of the sea wall. Forests of stalks lean against the storm-lashed walls, waiting to be split by the industrious weavers. On the quais an excited alley of spectators watches four burly and dramatic stevedores indulge in the gentle pastime of bowling. The game is simple enough, but it never fails to arouse the most violent of gesticulations and a veritable barrage of choice epithets.

The ancient town of Antibes has retained its Italian flavor to a most convincing degree, even to the streamers of laundry, the vaulted passageways and the true Latin love of color which manifests itself in the liberal application of bright paint. Shutters and doorways and shopfronts are often painted salmon pink or violet or cerulean or apple green. There are many gay shaded fountains with the usual jug-toting housewives gossiping about them and countless pushcarts loaded with gorgeous fat peppers, glistening eggplants, chestnuts and figs and red cabbages. A further touch of color is lent by the ex-

THE GOLDEN GATEWAY, ANTIBES

FROM THE ORIGINAL WATER COLOR BY SAMUEL CHAMBERLAIN



OLD ANTIBES

FROM THE ORIGINAL WATER COLOR BY SAMUEL CHAMBERLAIN

uberant attire of the natives, who are largely Italian. Rarely does one hear a sentence of French in this crowded quarter, for everyone seems to speak Italian or a sputtering Provencal patois.

A gateway of much force and majesty is crowded in the narrow market place. Its two rounded towers, drenched in color, overwhelm the diminutive arched doorway between them. To get a view of this imposing mass, one is forced to beg a corner in the shop of a kindly cheese merchant across the way. There, surrounded by Gruyeres as big as cartwheels, mountains of Roquefort and Gorgonzola, Camembert and Brie and Port-Salut, I was able to attempt the water color here shown. Needless to remark, the atmospheric effect is entirely missing.

A HIDDEN CHURCH DOOR, ANTIBES
FROM THE ORIGINAL WATER COLOR

STREET SCENE, ANTIBES
FROM THE ORIGINAL WATER COLOR

Antibes is a painter's Paradise, so choked with color that mere black and white becomes a stifling medium. Consequently your correspondent fell into a wild and luxurious spree of color splashing, the real extent of which, fortunately, will not be disclosed by these reproductions in monotone.

ARCHITECTURAL COMPETITIONS

WE are glad to note, states *The Builder*, London, that at a recent meeting of the Royal Institute of British Architects it was decided that binding conditions in architectural competitions should be reduced to a minimum, and that instructions to competitors should, as far as possible, take the form of suggestions, which both they and the assessors may follow as they deem fit. Recent competition results have shown the need of some such change in the regulations concerning competitions, and we think the alteration agreed to will go a long way to satisfy competitors. Some binding conditions appear to be necessary in all or most competitions, but they should, in the light of recent experience, be reduced to a minimum.

INTERIOR ARCHITECTURE

THE THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, *Architects*—GEO. B. POST & SONS, *Consulting Architects*

FITNESS in architecture is attained by so designing a building that the style and details emphasize the purpose which the structure is intended to serve. Character is further introduced by expression in its design of traditions associated with the neighborhood in which it is located. It is natural that a hotel erected on the grounds of the United States Military Reservation at West Point should bear out in its architectural design certain traditions peculiar to its location. While its purpose as a hotel is never concealed, the architects have retained in the design of both the exterior and interior of the Thayer Hotel certain features which, while characteristic of the buildings of the Military Post, in no way duplicate their design. Built of brick and stone, in bold detail, the exterior is patterned after the design of the Academy group. The interiors are good examples of the art of interior architecture. Everywhere is structure the basis of design, and decorations—architectural ornament—are introduced to accentuate architectural motives and proportions and to emphasize the character of the design. Attention is called to the perspective sketch of the main lobby reproduced in the plate section of this issue. This sketch was the architects' conception of the room completely furnished. The furniture indicated serves

THE MAIN DINING ROOM OF THE THAYER HOTEL, WEST POINT, N. Y.

MANTEL, ENTRANCE LOBBY, THAYER HOTEL, WEST POINT, N. Y.

to complement the architecture, emphasizing the mantel as the center of interest: rugs, correctly placed, govern the location and grouping of furniture, and decorative accessories, as flags and banners, stimulate interest and lend additional character to the ensemble. The architects, however, were not allowed to control the furnishings, and the result, as may be seen in certain illustrations, bears evidence of a lack of continuity between architecture and so-called interior decorations, which is unfortunate. The articles of this department, representing the policy of THE AMERICAN ARCHITECT, are prompted by such conditions as these in the hopes that a more friendly co-operation may be brought about between the designer of the interior architecture and the one whose duty it is to select and place the furnishings.

The treatment of the entrance lobby, architecturally—both in the selection of materials and in the form through which they give expression—serves to emphasize its purpose as a sort of intermediary between the exterior and interior. It is logical that a hotel lobby should have a semi-outdoor appearance, and this suggestion has been attained in the Thayer Hotel by the use of stone on the walls and the floor, rough cut timber beams and iron lighting fixtures. It was intended, as may be seen from the perspective sketch already referred to, to introduce in the furnishings, by the use of flags and other accessories, a certain military atmosphere in keeping with its environment. Their introduction will tend to create unity between architecture and furnishings which appeared to be somewhat lacking when the photographs reproduced herewith were made.

GRILL ROOM, THAYER HOTEL, WEST POINT, N. Y.

ENTRANCE LOBBY, THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

ABOVE: BALLROOM. BELOW: SITTING ROOM IN THE PRESIDENTIAL SUITE

THAYER HOTEL, WEST POINT, N. Y.

CAUGHEY & EVANS, ARCHITECTS—GEO. B. POST & SONS, CONSULTING ARCHITECTS

Pargetting is almost entirely responsible for decorative results obtained in the main dining room. The heavy structural piers have been made unusually interesting by the application of ornamental plaster in a naturalistic design by which their monotonous arrangement and awkward proportions have been largely concealed. Appropriate motives in relief have also been applied to the beams and fields of the panels of the ceiling, by which structure is further emphasized and harmony immediately stimulated. A more bold and masculine scheme, in keeping with its character, has been carried out in the grill room. The ceiling beams of a structural nature are of hand cut timbers, occasionally hand carved. Chairs and tables of substantial design blend in with a tile floor. The ballroom is treated in a style similar to that employed in the main dining room. The detail is dignified, but not too formal; rich, but not elaborate.

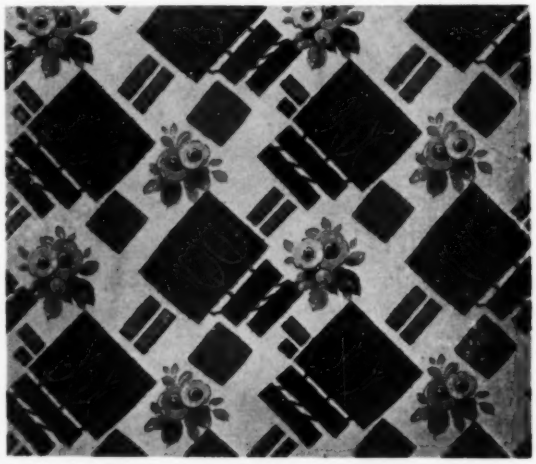
There are suites in one wing of the hotel for the accommodation of the President of the United States, the Secretary of War and other government and army officials of high rank. The sitting room and bedroom of the presidential suite are here illustrated. While not intended to typify any particular period, the rooms are in the style of American architecture and furnishings. A Colonial touch has been introduced in the arched openings and ornamental frieze of the sitting room, while the black and gold mantel of simple lines is representative of a period of American architecture influenced by the Greek. A modern adaptation of the four-poster bed of Colonial times gives a patriotic touch to the bedroom. Portraits of Washington and reproductions of the American eagle are entwined into the decorations.

There is an informal character to the treatment of the entire building, both inside and out, which makes its design especially interesting. Much of the formality with which life in this country was associated previous to the World War has disappeared, and architecture, like everything else, has felt the change. The modern American hotel is more than temporary living quarters; it frequently serves as a permanent dwelling for many of its guests. In order to serve that purpose satisfactorily, it must reflect a certain atmosphere suggestive of home life. Thus, the stiff dignity and coldness of the hotel of the past have been replaced by cordiality and domesticity on every side.

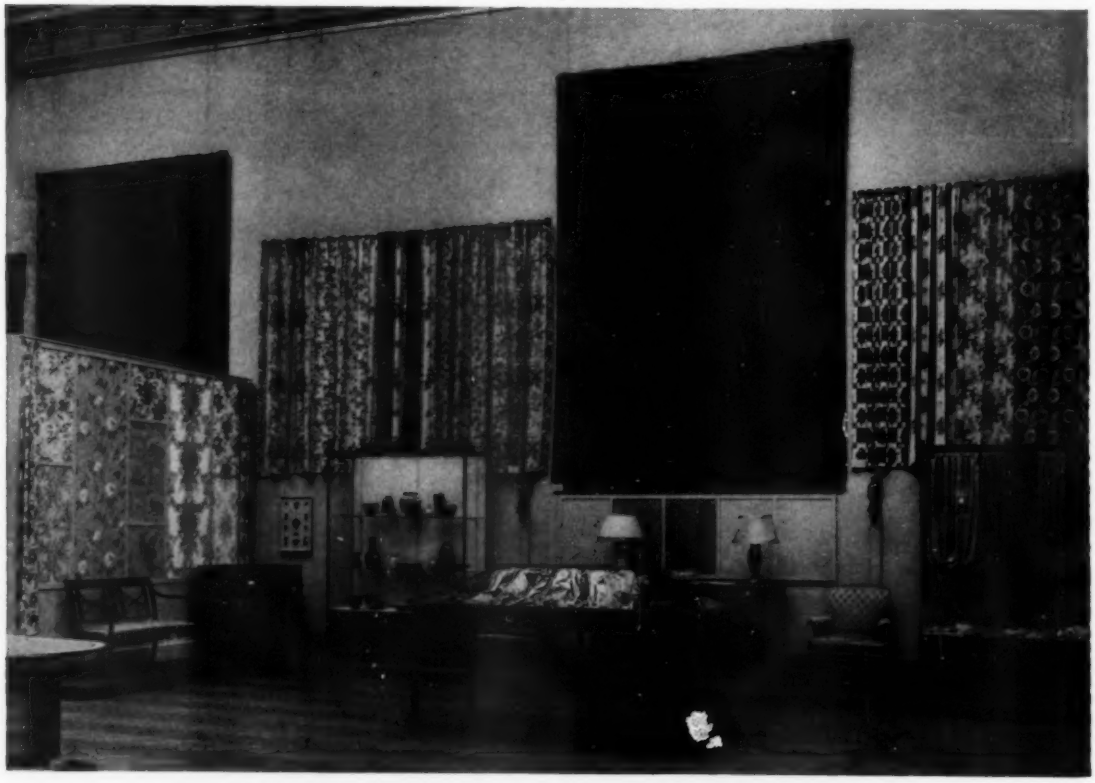
BEDROOM OF THE PRESIDENTIAL SUITE, THAYER HOTEL, WEST POINT, N. Y.

ANNUAL EXHIBITION OF AMERICAN INDUSTRIAL ART

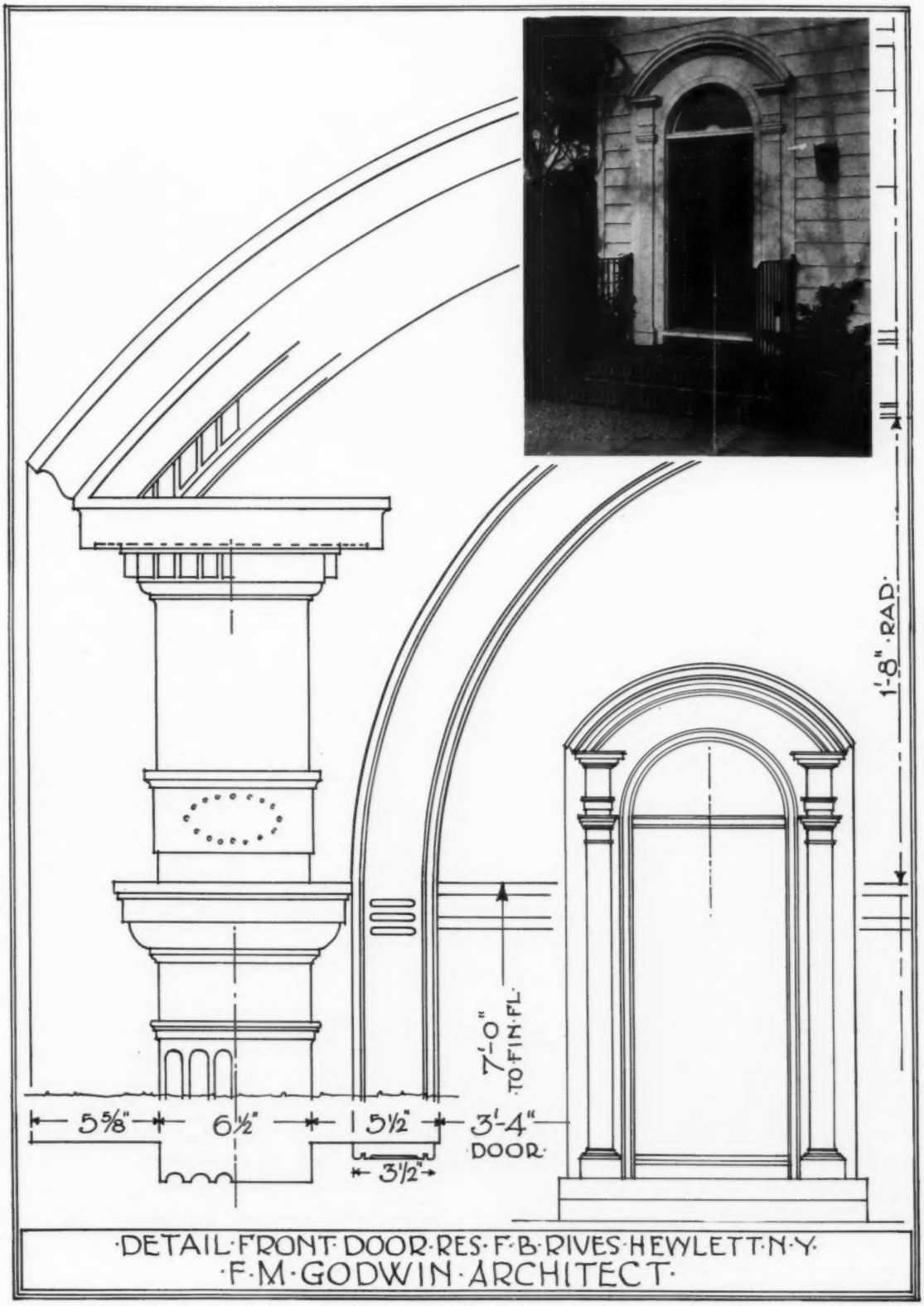
THE tenth annual exhibition of American industrial art, now on view at the Metropolitan Museum of Art, New York, is evidence of the fact that American designers are awakening to a realization of their ability to create conceptions of artistic merit and practical worth that are American in spirit, stamped with the nationalism of the country in which they are produced. It is refreshing to observe so pronounced a tendency on the part of our designers of industrial art to give expression to "our high-keyed staccato, dynamic mode of life," rather than to rivet their entire attention on precedent, as has been so long their custom, repeating, with minor variations, the successes of yesterday. There is actually little suggestion of *l'art moderne*, as expressed at the Paris exposition of 1925, although credit is due the French exhibition for presenting the original incentive from which the creative urge in this country was undoubtedly derived. As in previous years, the exhibition is limited to products of current manufacture designed and made in the United States. It speaks well for the future of art in this country when manufacturers actually devote time and money to the development of artistic designs in their respective industries, in bold contrast to the recent practice of producing only those designs that are considered as good sellers. The museum, in stimulating this tendency, rightfully claims to be acting as an art laboratory in industry.



TEXTILE WHICH IN ITS DESIGN REFLECTS THE SPIRIT OF MODERN AMERICA



VIEW OF THE EXHIBITION OF INDUSTRIAL ART IN WHICH ARE DISPLAYED TEXTILES, WALLPAPERS, FURNITURE, METALWORK AND POTTERY
(Courtesy of the Metropolitan Museum of Art)


1'-8" RAD.
7'-0" TO FIN. FL.
5⅝"
6½"
5½"
3'-4" DOOR
3½"
DETAIL FRONT DOOR RES. F. B. RIVES HEWLETT N.Y.
F. M. GODWIN ARCHITECT

CHANCERY BUILDING, DETROIT, MICH.

Donaldson & Meier, *Architects*

WITH the rapid growth, in recent years, of the Roman Catholic Diocese of Detroit, there has come into existence a number of agencies, organizations, and movements concerned with educational, philanthropic, and religious work, and other activities of related character. Heretofore the headquarters of these various activities had found locations in different parts of the city, having no logical relation to one another or to the administration of the Diocese. It became desirable, therefore, to gather these agencies all under one roof where they might be brought into close contact with one another and administered from some central point with the least possible amount of lost motion. For this purpose a diocesan headquarters building was conceived, and its construction undertaken upon a site on Washington Boulevard, in the heart of Detroit.

The building occupies a plot of ground 50x100 feet, which was formerly occupied by the old frame rectory of the adjoining St. Aloysius Church shown in one of the illustrations. It became necessary to make other provisions for the rectory, which was accordingly located on the eighth floor of the new building.

Economic considerations required that the building be planned to afford some revenue as an offset against the cost of maintenance, and therefore, the ground and second floors were planned for business purposes, with the exception of a small section at the rear of the second floor, which contains living quarters for the janitor, and a sacristy connected to the adjoining church by means of stairways.

The third floor, containing the executive offices of the Diocese, provides, in addition to the offices of officials, numerous reception and consultation rooms of different sizes to receive individuals, committees, or delegations. An important feature of this floor is a large fireproof vault containing metal cases specially designed for the filing and storage of important diocesan records. A movable ladder, attached to tracks, gives access to the upper sections of the filing cabinets.

The fourth, fifth and sixth floors, providing space for diocesan organizations and activities, are substantially self-explanatory.

The seventh floor is subdivided into suites of rooms forming permanent living quarters for diocesan officials, while the eighth floor is planned as the rectory of the adjoining church, of which the Chancellor of the Diocese is the pastor. A feature of this floor is a large dining room seating about thirty people, where officials of the clergy engaged in the building, or committees meeting for diocesan work are served, and where distinguished guests may be entertained.

An interesting feature of both the seventh and eighth floors is a number of flat wardrobes containing concealed beds, which may be quickly put in use to accommodate an unusual number of visitors of the clergy, avoiding the necessity of making arrangements for their housing at a public hotel, and giving a certain measure of hospitality.

The building is of the steel frame type supported on spread footings, and is of fireproof construction, with a facade of Bedford limestone, and rear and side walls of buff face brick. The floor and ceiling of the entry are embellished with hand made tile of special design, while the main corridor has a rubber tile floor, a marble wainscot, bronze doors, door and show window frames, with a plaster ceiling decorated in gold leaf and color by Paris & Wiley of New York.

An automatic elevator gives convenient access to the second floor from the seventh and eighth floors, and intercommunication between the various departments.

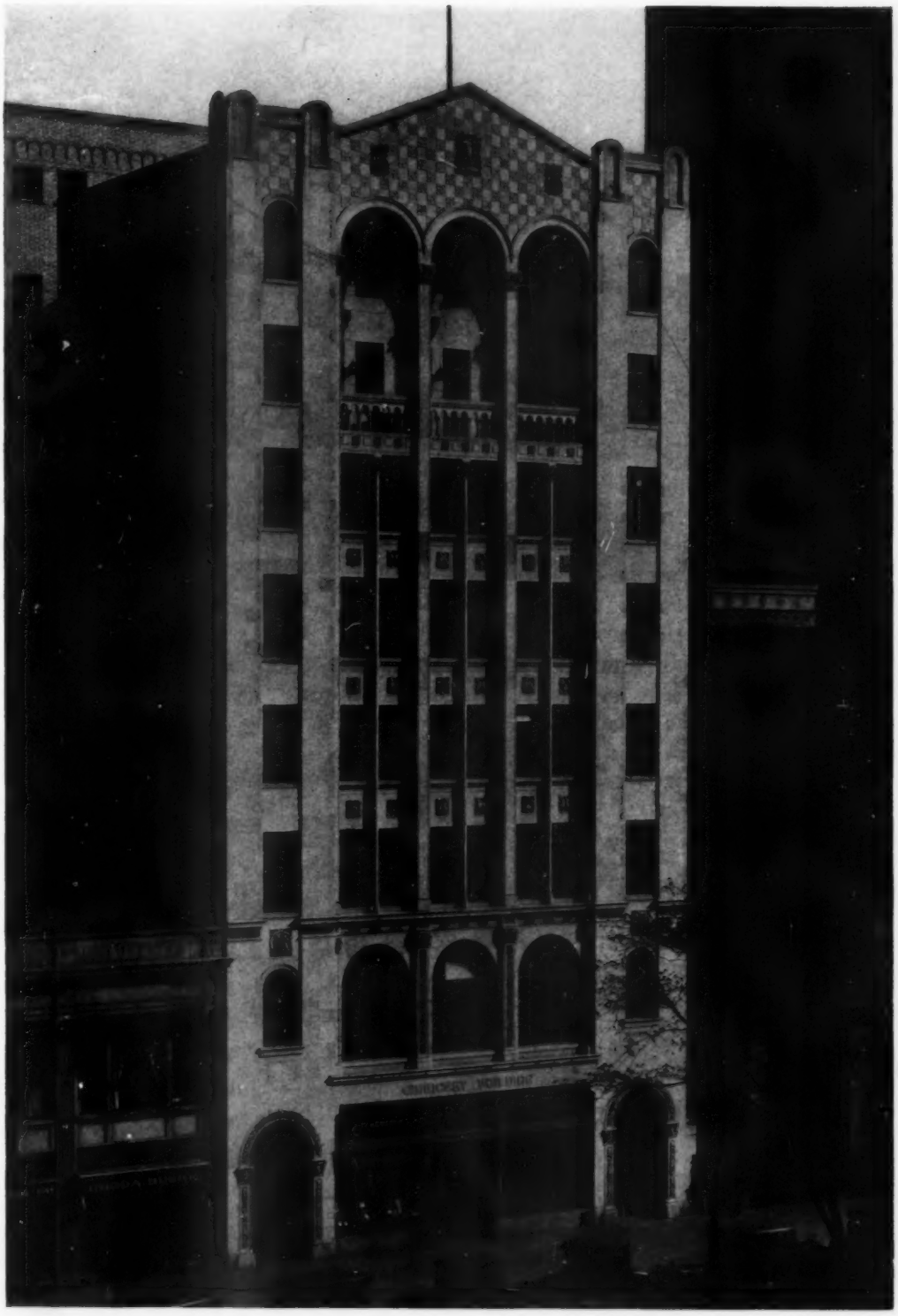
The windows are of the heavy steel casement type, while the finish throughout the building generally is very substantial and of high quality, the principal woods used being oak and birch, and for the floors rubber tile and linoleum, with the exception of the living quarters on the seventh and eighth floors which have oak floors.

The steel frame and foundations have been designed to carry four additional stories, and the cost of the building amounted to $462,000.00, exclusive of architects' fees, but including accessories and all items of equipment, as well as a quantity of specially designed furniture, giving a cost of 73c per cubic foot.

MOSQUES IN PARIS

PARIS will soon boast its one and only mosque, which is being built on the site of the old Hôpital de la Pitié. The necessity for its erection is a commentary on the growing number of Moslem North Africans in the French capital.

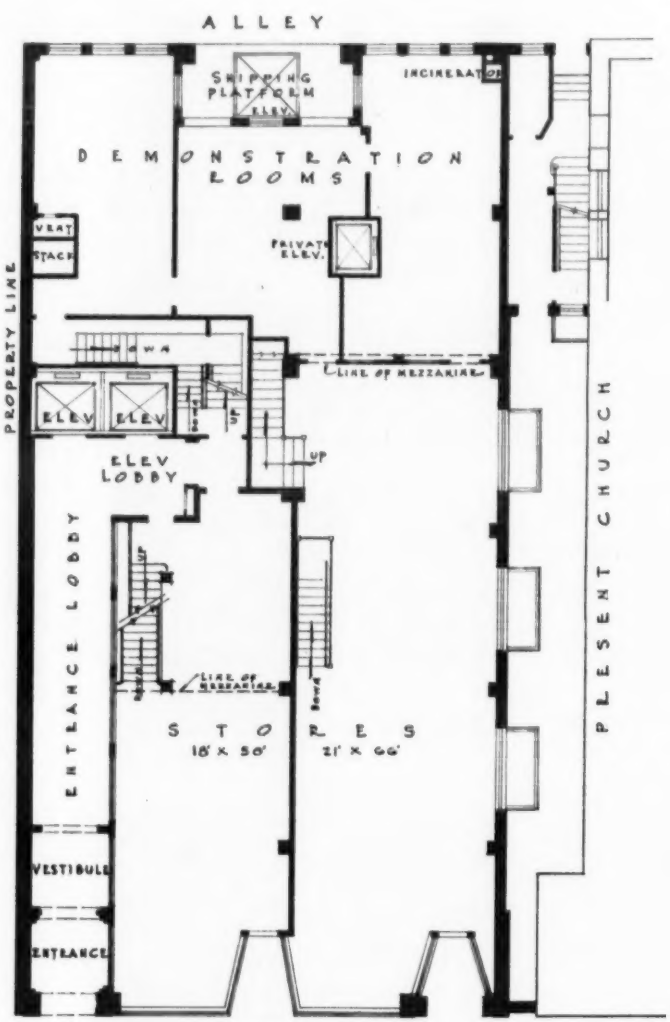
Though it will be the only mosque in the city, it will not be the first. Napoleon III built one, seventy or more years ago, for the use of his African troops. It was erected actually in the barracks, at that time on the Quai d'Orsay. After the Franco-Prussian War, when the Africans went home, the mosque became a clothier's shop, while the picturesque Moorish café and the Turkish baths, which had also been provided by the Emperor for the colored troops, became a prosaic canteen.



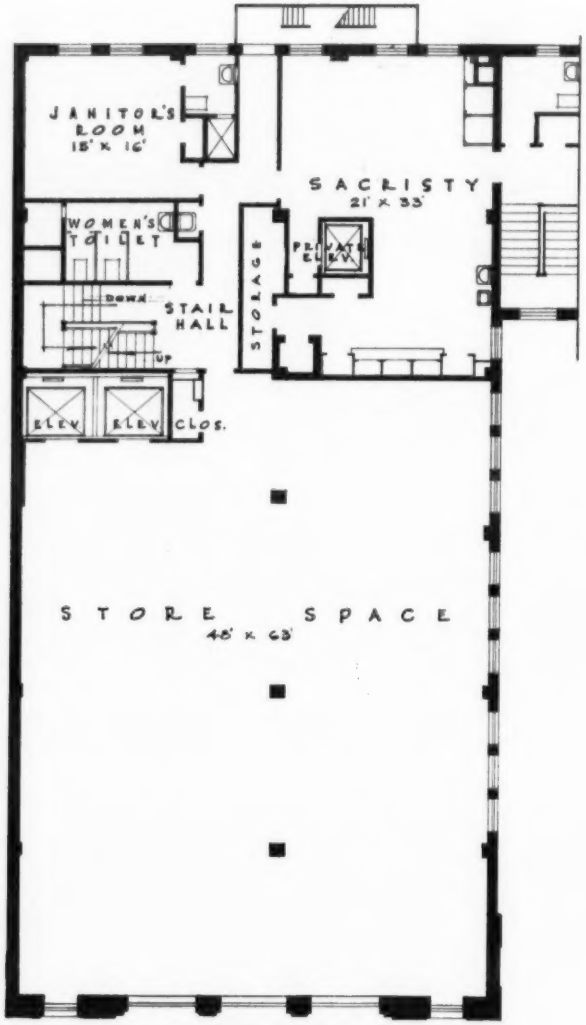
CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

(See plans on back)



FIRST FLOOR PLAN



SECOND FLOOR PLAN

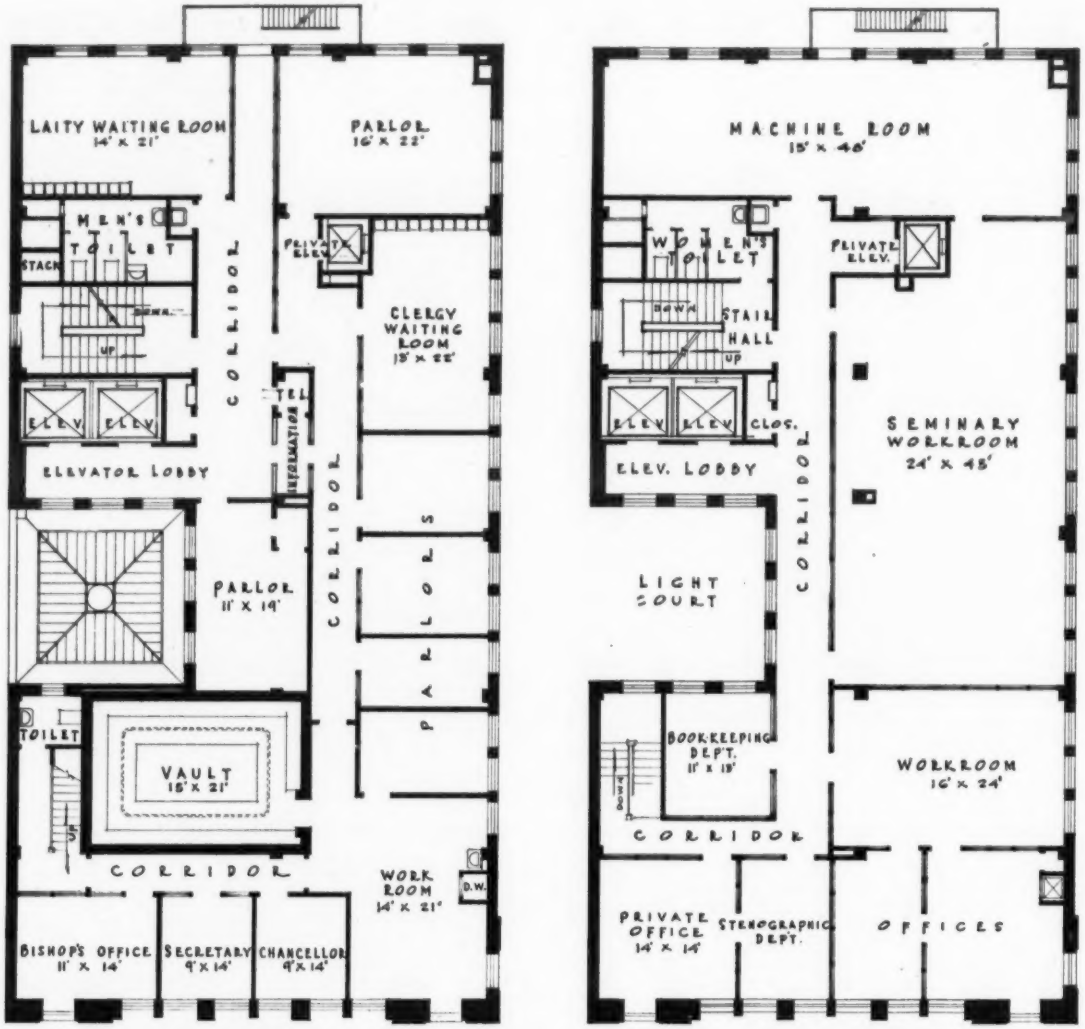
CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

(See plans on back)



THIRD FLOOR PLAN

FOURTH FLOOR PLAN

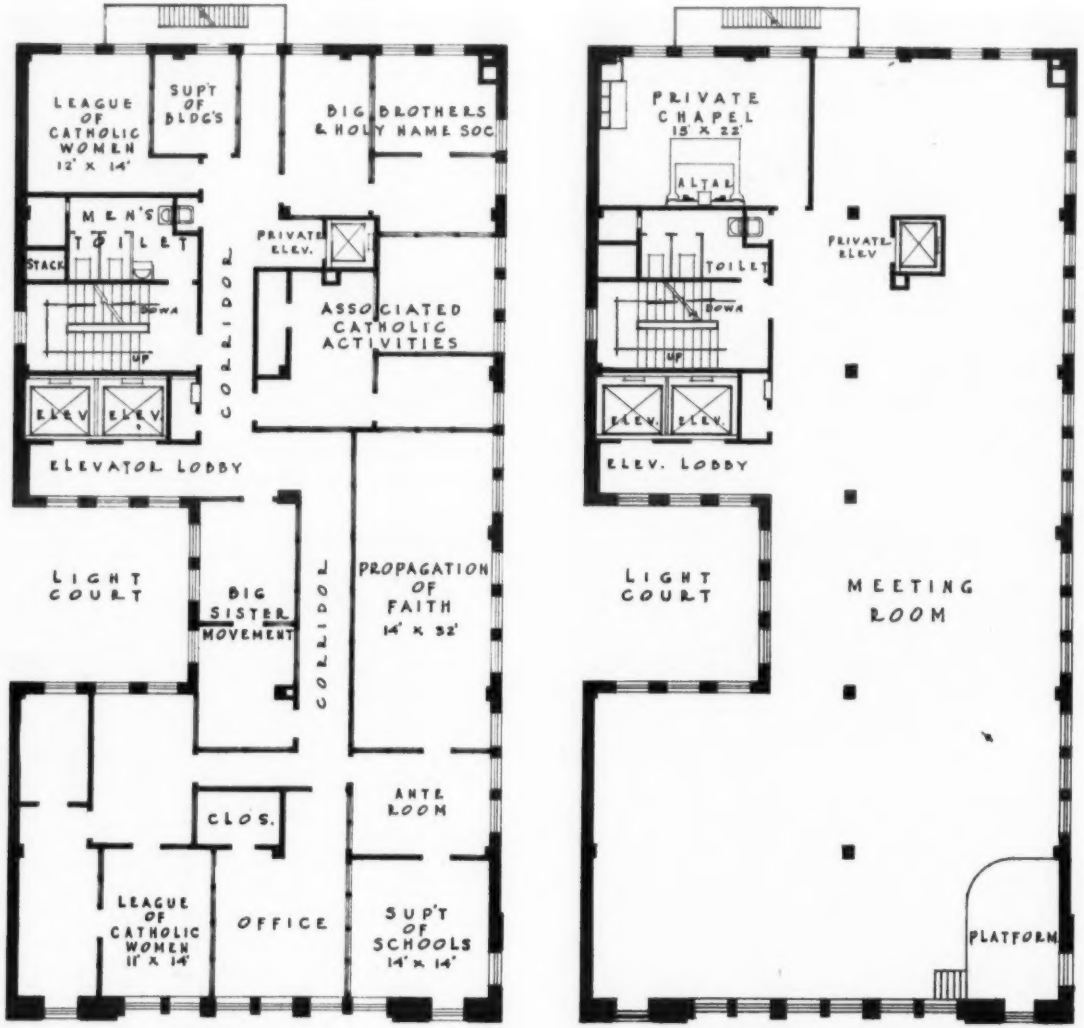
CHANCERY BUILDING.
DETROIT, MICH.

DONALDSON & MEIER,
ARCHITECTS

CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

(*See plans on back*)



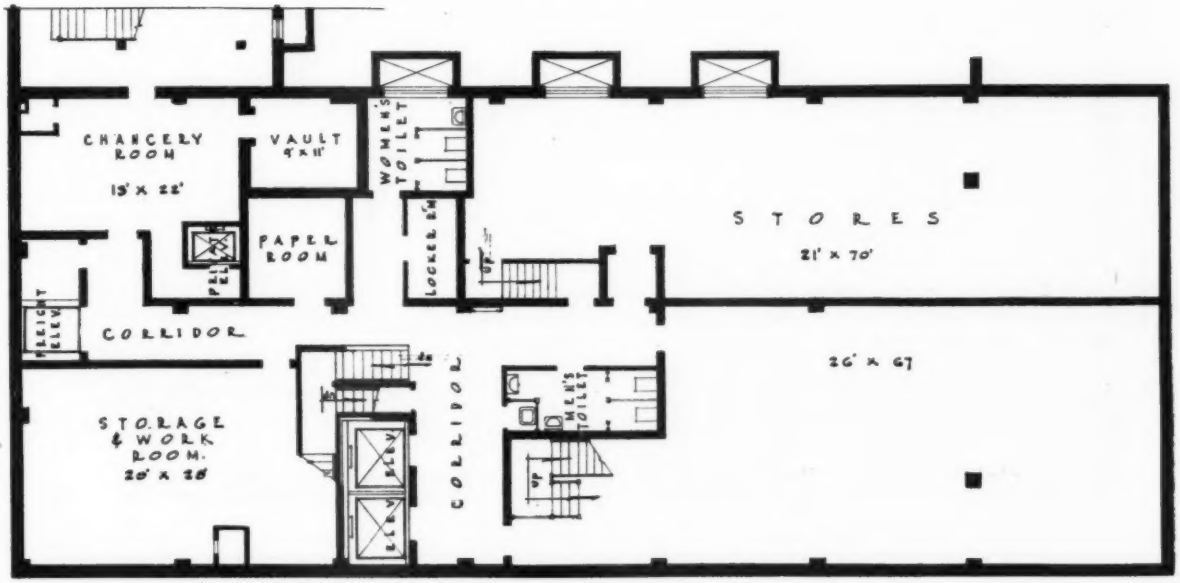
FIFTH FLOOR PLAN

SIXTH FLOOR PLAN

CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

DINING ROOM



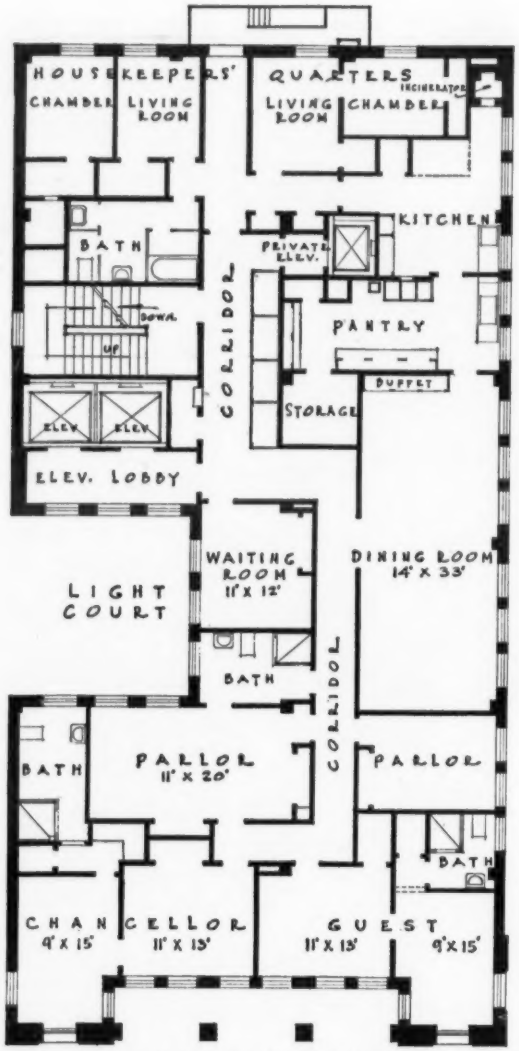
BASEMENT FLOOR PLAN

CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

(See plans on back)

SEVENTH FLOOR PLAN



EIGHTH FLOOR PLAN, RECTORY OF ADJOINING CHURCH

CHANCERY BUILDING, DETROIT, MICH.

DONALDSON & MEIER, ARCHITECTS

NEW YORK ACADEMY OF MEDICINE, 103RD STREET AND FIFTH AVENUE, NEW YORK

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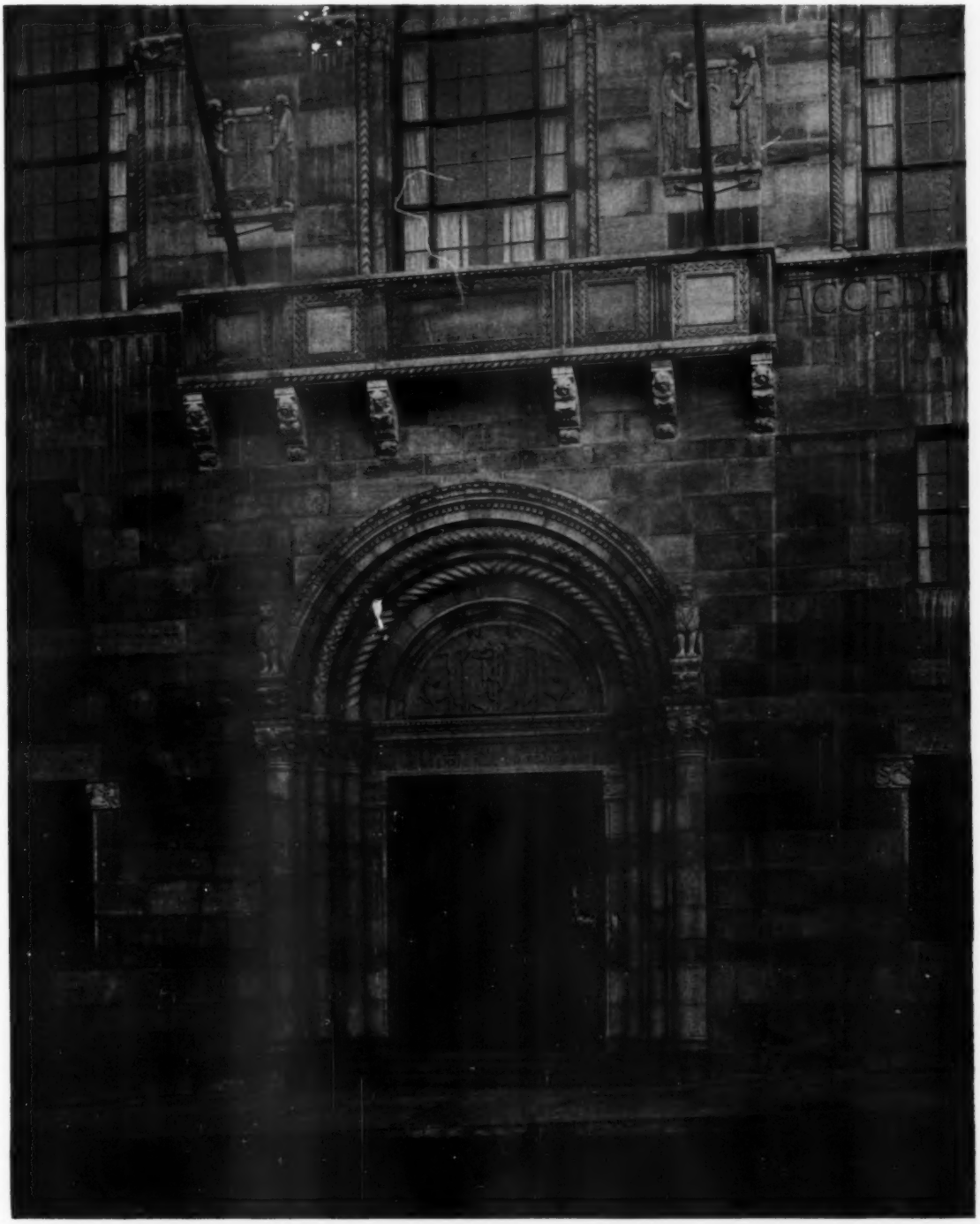

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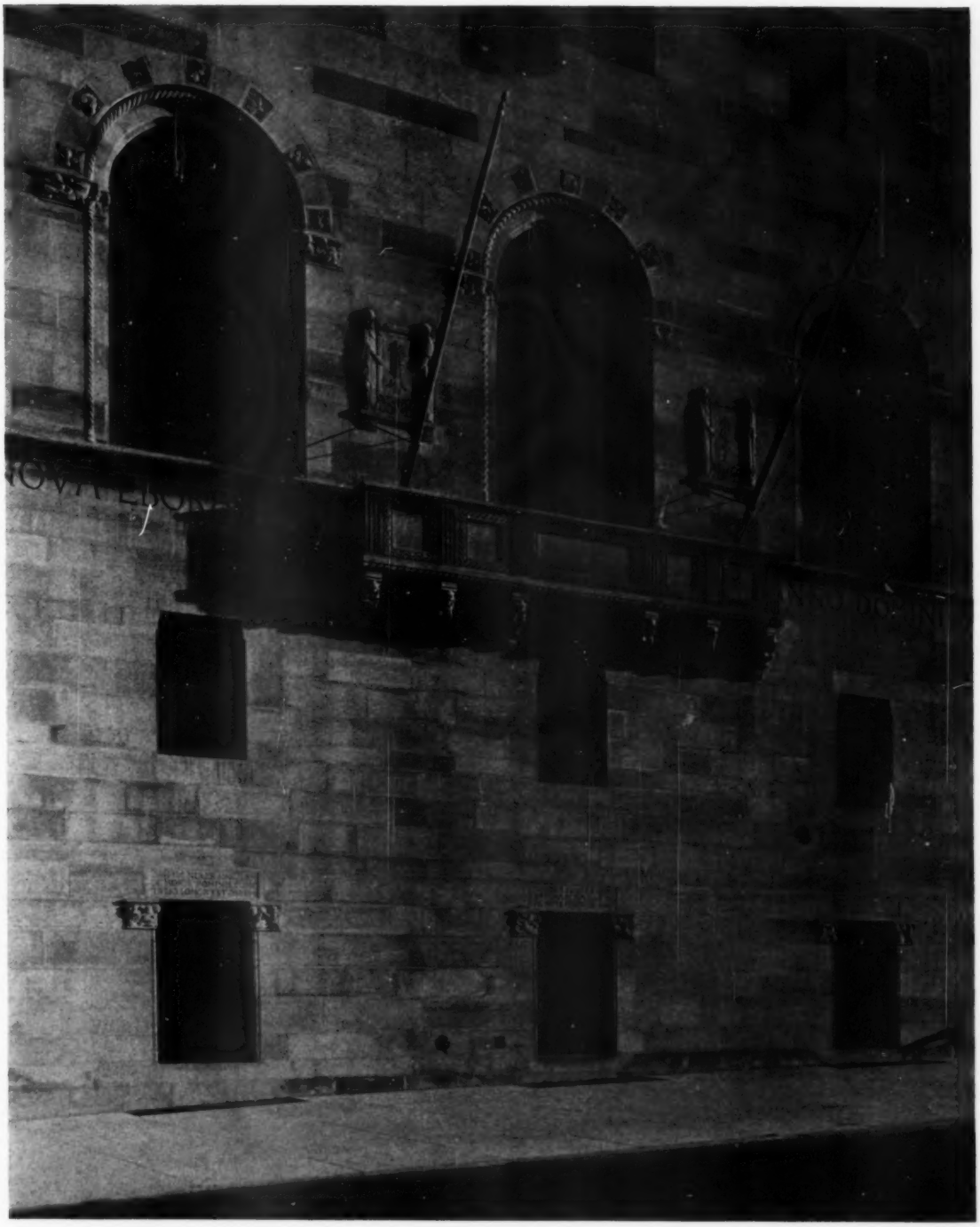

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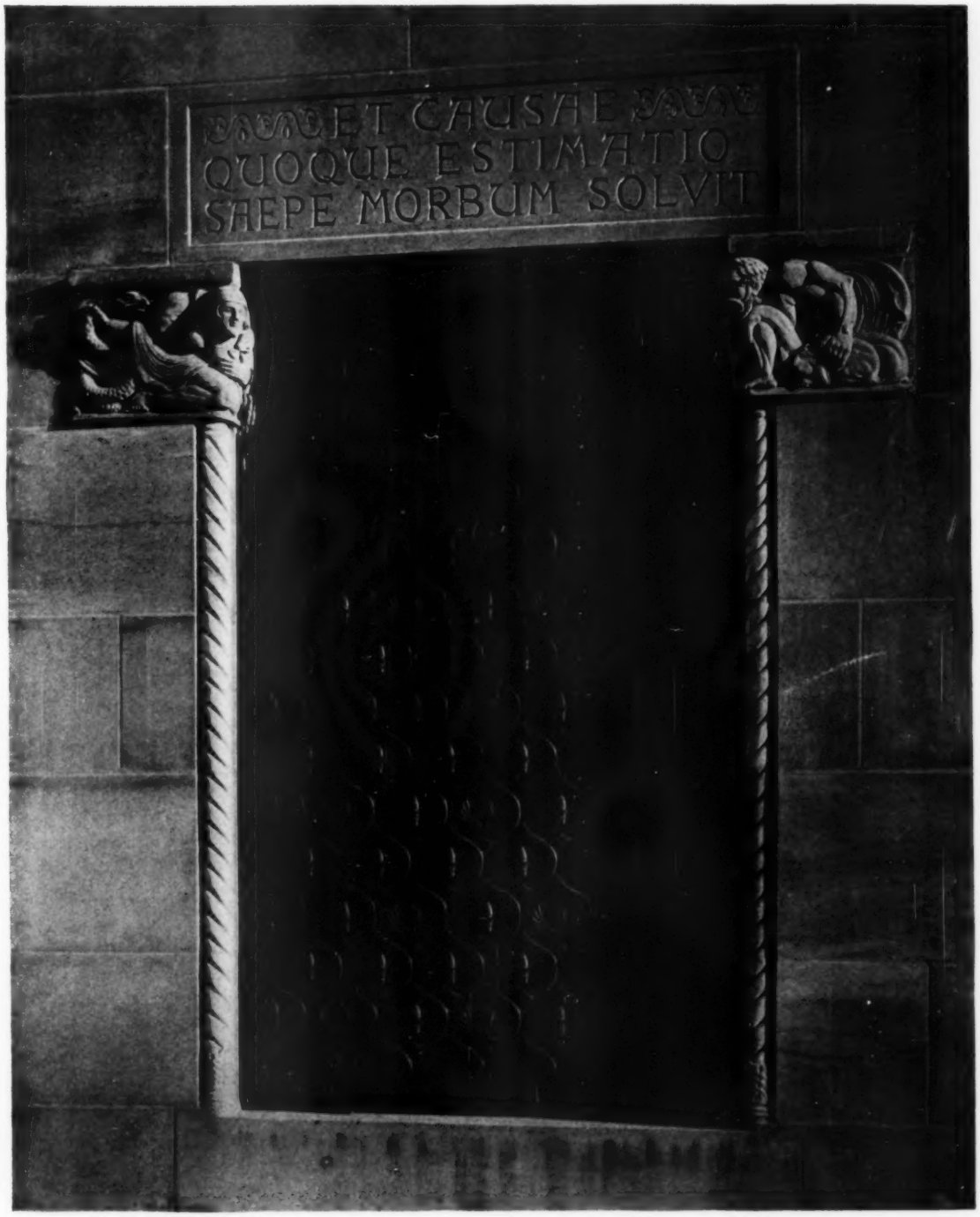

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ENGINEERING AND CONSTRUCTION

THE NEW ERA IN CONCRETE

By John G. Ahlers, *Secretary Treasurer, Barney-Ahlers Construction Corporation*

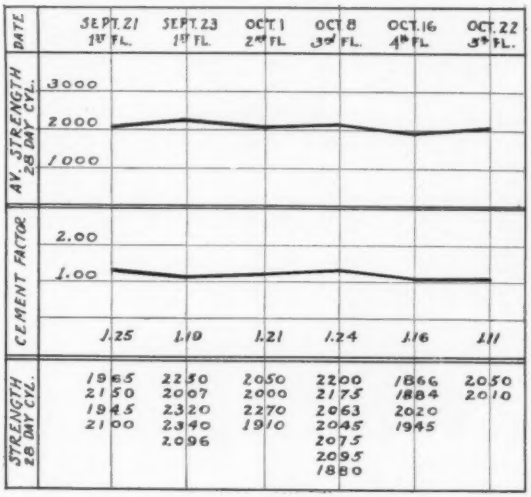
It has been interesting to watch during the last six years or more the attempt by Science to solve the problem of field control of concrete and make this material one of positively known and predetermined strength. In the last two decades there has been an enormous expansion in the use of concrete, but until recently it has not been surely determined that concrete was a safe material under all conditions. There were, until now, too many unknown factors entering into its production. There had been failures and instances of disintegration. Practice has built up fixed and rigid specifications for safety's sake. The resulting costs have not always been in keeping with the demands for efficiency in the use of this material.

In the use of concrete we are at the beginning of a positive era because new and scientifically exact theories about the strength of concrete have been tried out for three or four years in field work. It has been proven that a more extended use of scientific control will result in lower costs. With the strength predetermined and kept exact within small limits of unimportant variation, a feeling of more confidence in concrete as a structural material may be expected.

As usual, research has paved the way for progress —years of work and over one hundred thousand tests by Professor Duff A. Abrams and his staff in the Structural Research Laboratory of the Lewis Institute, established beyond a doubt the truth of the water-cement ratio theory. It is the application of the water-ratio theory to field methods and field work that is opening a new vista for concrete.

The water-ratio theory, briefly described, is that the strength (and thereto related qualities) of concrete is controlled by the ratio of water to cement as long as the result is a workable plastic mix, and that the sand and stone particles act as fillers, being held together by the cement crystals which are more or less binding in proportion as more or less water is used to dilute the cement paste.

This may sound revolutionary in its broadest application, but reasonable and simple when viewed from a common sense point of view. At first it may seem to allow unreasonable and unlimited variation in the old fixed standard proportions of cement, sand and stone, but the limit of workability is an exacting governor and an incentive toward economy.



UPPER CURVE SHOWS AVERAGE 28 DAY STRENGTH OF CONCRETE IN POUNDS PER SQUARE INCH OBTAINED ON A WAREHOUSE FOR JULIUS KINDERMAN & SON, NEW YORK; GEO. S. KINGSLEY, ARCHITECT. LOWER CURVE INDICATES VARIATION IN THE CEMENT FACTOR OR THE RATIO OF WATER TO CEMENT OVER A PERIOD OF ONE MONTH. FIGURES BELOW CEMENT FACTOR CURVE ARE THE STRENGTH OF CYLINDERS TESTED ON DATES NOTED FROM WHICH THE AVERAGE STRENGTH CURVE WAS PLOTTED. NOTE THE UNIFORMITY OF STRENGTH OF CONCRETE DURING A PERIOD OF ONE MONTH AS SHOWN BY THE FLATNESS OF THE STRENGTH CURVE

The new theory was not stated as simply in the first Bulletin issued in 1918 by the Lewis Institute. Workability or plasticity was considered best obtained by finding the so-called fineness modulus and the proportions of fine and coarse aggregates with control of the relative consistency. The main idea was there, however, and soon eminent bodies, such as the Joint Committee of Engineers, began writing water-ratio specifications, placing the burden of a guarantee as to strength on the contractor.

Contractors in some instances have tried to apply these laboratory ideas to field work, but the simplicity of the idea being obscured in the use of many formulas, curves, equations and tables, the progress was very slow and it was not until the Joint Committee Report came up for adoption in 1923 and the famous paragraph 28 read, that the contracting field realized how impractical it was to produce concrete in the field the same as it had been done in

a laboratory. It was decided to prove that laboratory refinements could not be applied to conditions found in the field.

A committee of New York contractors was formed in 1923, funds raised, and a set of field tests was conducted on several construction operations. These tests were carefully made under the

RODDING CONCRETE IN TEST CYLINDER MOLD. CYLINDERS, TO MAKE COMPARATIVE RESULTS OF VALUE, MUST BE CAREFULLY MADE IN THE FIELD AND UNIFORMLY HANDLED AND TREATED IN THE TESTING LABORATORY

direction of members of the Lewis Institute staff, and the supervision of all interested parties, with the idea of giving new methods a fair trial.

As might be expected when actually working with the problems of field application, the most earnest critics of the new methods were the first to be convinced of their merits and worked the hardest to find ways and means of overcoming obstacles.

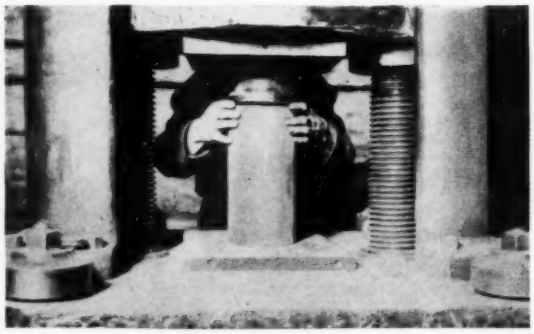
In consequence within two of the contracting organizations working on these first field tests, practical appliances for putting the water-ratio theory into use on job scale using mechanical means of measurement and control were developed. Since that time many papers have been written on this subject and many have been published in the Proceedings of the American Concrete Institute, 1926. Many concrete operations are being controlled by water ratio and the method of field control of concrete has been worked out so that it is now reduced to a practical procedure.

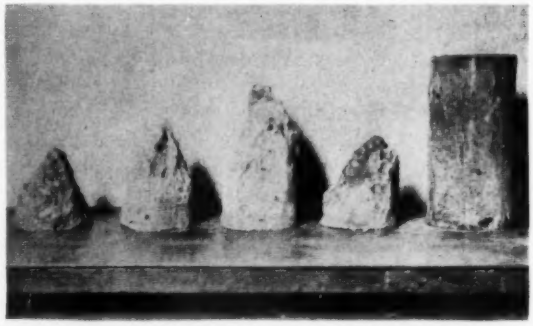
The first step for water-ratio control of concrete is the writing of a specification permitting its use as an alternate to the old method of proportioning dry ingredients only. The alternate must state the strengths it is intended to secure. The American Concrete Institute Proceedings for 1926 contain such specifications, and others of more recent development appear in the American Society of Civil Engineers' Proceedings.

The second step is work in the field trying the various available aggregates and cement in combination making job samples of concrete by trial, to obtain the correct proportions, for workable and good-looking concrete. This can best be done by trial for then it is only necessary carefully to measure the water and the cement. This is the trial method and is coming more and more into use—experience has shown it to be the best. While trials are being made the job can follow the old fixed proportion formulas, using the following as a guide for:

1,500 lbs. concrete, 7½ gallons of water per sack cement 1:3:6
2,000 lbs. concrete, 6½ gallons of water per sack cement 1:2:4
2,500 lbs. concrete, 5½ gallons of water per sack cement 1:1½:3

Where a large inspection force is available, it is possible, and not difficult, to work out the desirable





ABOVE: PLACING CONCRETE CYLINDER IN TESTING MACHINE. NOTE SPHERICAL BEARING BLOCK ON MACHINE HEAD. BELOW: TYPICAL BREAKS OF CONCRETE TEST CYLINDERS

proportions and ratios by calculations based on examination and sieve analysis of materials. The best outline for this procedure appears in the Portland Cement Bulletin, "Design and Control of Concrete Mixtures."

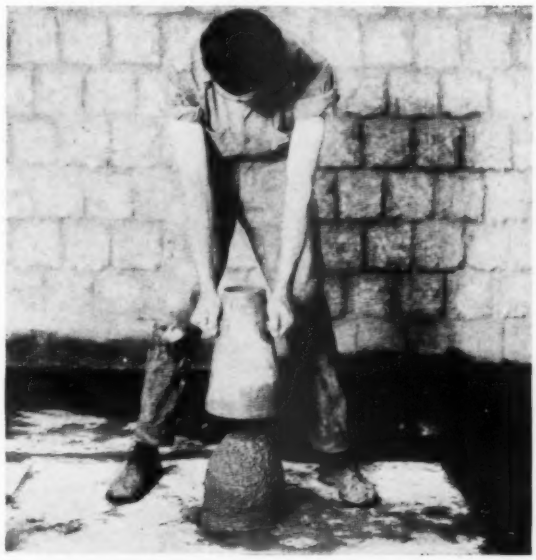
It is fundamental in any job control system that the starting point must be information gathered

from the actual materials being used. Such items as quality or cleanliness of aggregates, time of mixing, method of handling, quality of cement, and similar factors, change from job to job and their effect must be found and reckoned with.

These variables are contained in the strength of concrete made under job conditions with a water-cement ratio of "one," that is, one cubic foot water, 7½ gals., to one cubic foot cement, 94 lbs. Take many samples of concrete made thus and use the strength of these samples as a guide to other water ratios and hence strengths desired. The proportions of sand and stone may be changed as long as the concrete is plastic and workable.

It is essential to measure the cement most carefully, the water more carefully and the various quantities of fine and coarse aggregates as a matter of information only. Workability can best be measured by the slump test, as indicated by the drop in the height of a cone-shaped mass of concrete when released.

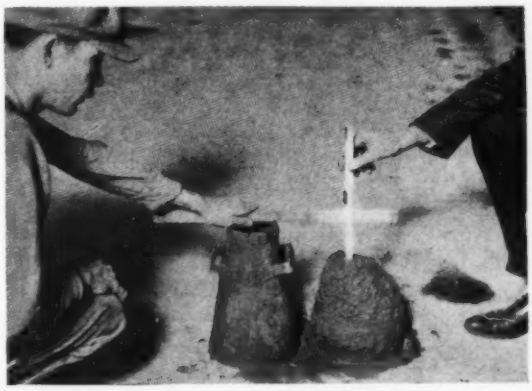
The strength of the concrete is found by making test specimens in cylinders with length twice the diameter, preferably not smaller than 6" x 12".



WITHDRAWING THE SLUMP CONE. THE SLUMP TEST IS A SIMPLE METHOD OF REGULATING THE CONSISTENCY OF CONCRETE MIXTURES. THE ONLY APPARATUS REQUIRED IS A METAL CONE, MADE OF 20 GAUGE METAL, ABOUT 12" HIGH, 4" DIAMETER AT TOP AND 8" DIAMETER AT THE BOTTOM. THE CONE IS COMPLETELY FILLED WITH A SAMPLE OF THE CONCRETE BEING USED

These cylinders must be made very carefully in accordance with the American Society for Testing Materials specification. This point cannot be overstressed as it is safe to say that most cylinders are either improperly made, poorly cured, badly capped or faultily broken. This is a severe criticism, but no engineer must expect a few small pieces of 6" x 12" concrete to be representative of the product used unless the cylinders are most painstakingly made and handled.

Unless cylinders are large enough, at least 6" x 12", and unless they are properly tamped and if not cured under similar conditions *always*, it is not possible to secure reliable comparisons. One mis-



MEASURING THE SLUMP AFTER THE SLUMP CONE HAS BEEN REMOVED. THE DIFFERENCE BETWEEN THE HEIGHT OF THE CONCRETE IN THE CONE AND ITS SETTLEMENT (SLUMP) INDICATES THE WORKABILITY OF THE CONCRETE. THE SLUMP OF GOOD WORKABLE CONCRETE VARIES BETWEEN 4 AND 7 INCHES

step in this important part of concrete control will unbalance results even though all other requirements for correctly made cylinders have been carefully followed.

It is essential that laboratories use pains and care in breaking the samples. The rate of applying the load, the drying, curing, capping and handling must all be done under standard and uniform conditions. There must also be enough (never less than five samples in any group) to give fair representative averages.

From these carefully gathered test data and calculations there must be laid down fixed rules as to proper water-cement ratios for different classes of work. This is what Professor Abrams in his paper published in *Concrete* for September, 1926, calls: "Fix the water-cement ratio which will produce the required strength (free water held by the aggregates must be included as mixing water in fixing this ratio)."

This subject of free water in aggregates is a source of annoyance and uncertainty to field supervising forces. There is moisture in both sand and coarse aggregates, and in varying amounts. The amounts may easily be found by tests in a few minutes. Do this by weighing 100 oz. samples, dry in tin pan over a small fire and reweigh. The loss of weight in ounces will be the percentage of moisture. In any batch the amount of free water is then the weight of the charge times the percentage, giving the answer as so many pounds of free water in the batch. This amount must be deducted from the

total desired as laid down by the water-ratio curve.

Field operators become very competent in judging moisture and after some experience can tell by inspection the moisture content within less than ½%. Field men may keep on hand standard samples of aggregate in sealed jars for comparison. The use of a "maximum average," ½% more than the average found or assumed, insures an ample margin of safety. Professor McMillan in his paper published in the Proceedings of the American Concrete Institute, 1926, states: "The difficulties which may arise from variation in the amount of water carried by the aggregate have seemed to many a serious objection to the water-ratio specification. The experience on this building and other considerations indicate that under favorable conditions as to source of materials and facilities for storage, these difficulties may never be realized."

The above method of compensating for moisture in both fine and coarse aggregate is that used in one system of mechanical field control for water-cement ratio.

Another method uses immersion of the fine aggregate only in water on the assumption that the voids in the sand are constant and a fixed amount of water thus insured. The moisture contained in the coarse aggregate must be calculated and deducted.

Both methods assume or calculate the moisture in the coarse aggregate. The former system assumes or calculates the moisture in the fine aggregate and actually carefully balances water to cement, allowing change in proportion of sand and easy changes in ratio of water to cement. The second method calculates the amounts of water to cement and assumes the voids in the sand to be constant. This method lacks the means of rapidly changing the volume of sand for better workability.

Some mechanically controlled arrangement for use on the job is desirable. There have been perfected the above two systems which represent much intensive study in their development so that engineers and architects may avail themselves of the practical application of laboratory methods.

Actual savings in cost can be made by the use of the water-ratio control of concrete. The reason for economy lies in the fact that with a given fixed ratio, more well-graded sand and stone may be

"STRENGTH REGULATOR" IN USE ON A CONCRETE CONSTRUCTION JOB. THE WATER RATIO BALANCING ARM IS SEEN IN FRONT OF THE WATER TANK AND TO THE LEFT OF THE CEMENT HOPPER. THE COMPENSATING MOISTURE ARM IS ON THE OPPOSITE SIDE OF THE MACHINE

added and the concrete still kept within the required strength. The limits of the addition and proportion of sand and stone are controlled entirely by workability leading to use of well-graded fine and coarse aggregates.

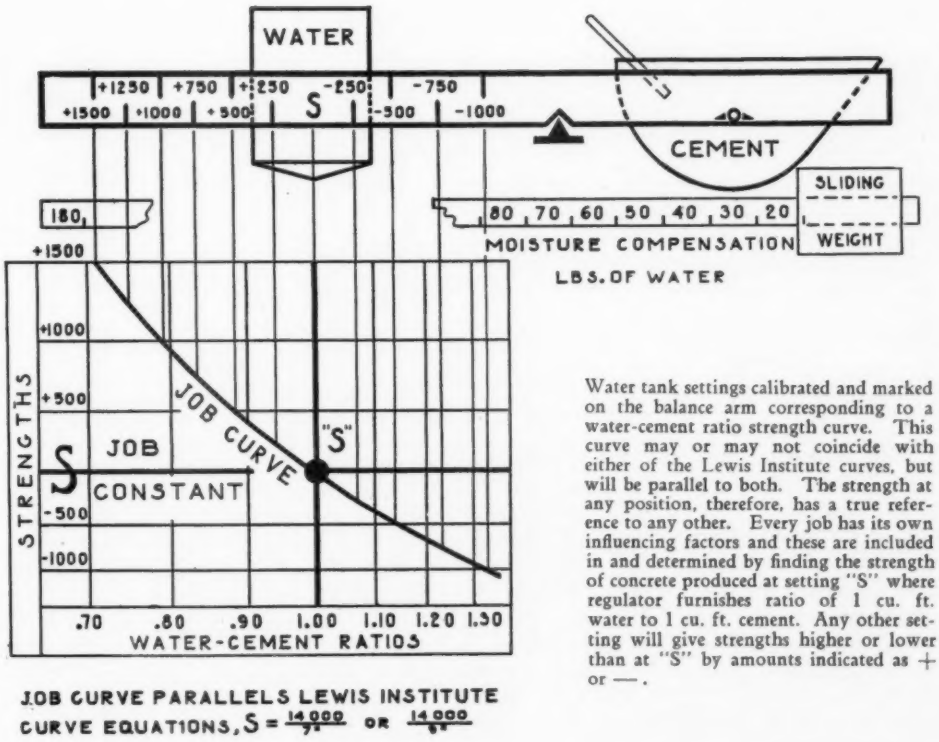
Experience on many contracts has shown that savings of 25 cents to 40 cents may be expected in the cost of each cubic yard of concrete. In addition, a knowledge of the strength of the structural concrete is assured.

In the past, architects may well have looked on concrete with misgiving and doubt, unless it was made under most strict and rigid specifications and, therefore, probably 50% or more over the strength used in design. There is no reason, however, now for such misapprehension and through the use of specifications now available, appliances and methods tried out and found reliable, we may proceed with safety.

Another reason for the adoption of a new specification along these lines is that under the application of these ideas the aim and purpose of both engineer and contractor may be made to coincide. Architects may confine their attention solely to the strength as controlled by the water-cement ratio, leaving the contractor free to combine his aggregates to better advantage, saving money and returning these savings to owners through lower bids—and the gauge is the strength of the resulting concrete, nothing more.

The effect of these radical changes in conception should be felt in the architectural field for now we may with safety employ concrete where we never thought of it before. Concrete can be made any desired strength, hence we can build bold arches and slender piers—we may build the finest ornamental work and rest assured of its strength and permanence. Foundations on which all structures must rest will be, and have been, brought up to the standard of remaining materials in the structures to a point of exact knowledge as to power of resistance and permanence.

It is easy enough to build recklessly safe, regardless of cost and to have structural designs 100% stronger than necessary. This has been almost universal practice in the past on all high-grade concrete structures. When a conscientious designer knows he can keep his construction material not more than



Water tank settings calibrated and marked on the balance arm corresponding to a water-cement ratio strength curve. This curve may or may not coincide with either of the Lewis Institute curves, but will be parallel to both. The strength at any position, therefore, has a true reference to any other. Every job has its own influencing factors and these are included in and determined by finding the strength of concrete produced at setting "S" where regulator furnishes ratio of 1 cu. ft. water to 1 cu. ft. cement. Any other setting will give strengths higher or lower than at "S" by amounts indicated as + or —.

THE PRINCIPLE UPON WHICH THE "STRENGTH REGULATOR" IS BASED. ONE BALANCING ARM IS USED TO OBTAIN + OR — STRENGTH IN THE CONCRETE THROUGH REGULATION OF RATIO OF WATER TO CEMENT. ANOTHER ARM PROVIDES A MEANS OF COMPENSATING FOR THE MOISTURE IN THE AGGREGATE

AT LEFT: THE "INUNDATOR" IN UPRIGHT POSITION. THE INUNDATION SYSTEM CONSISTS OF A SELF DUMPING, SELF-RIGHTING SAND MEASURING CONTAINER; A WATER CHARGER; AND AN EXCESS WATER TANK. AT RIGHT: INUNDATOR IN DUMPING POSITION

10% above the required strength, he will so specify.

Many incidental advantages have developed during the actual use in the field of new methods of concrete control. For instance, on building construction work, where the strength of the concrete is exactly known, it has been found that the forms may be removed with safety earlier than has been the custom and thus effect a saving in both time and money. We see new adoptions of concrete in higher buildings with steel cores in columns and lighter safe slabs. Further developments are promised through the premixing of carefully measured proportions of cement and water.

We have not arrived in the new era of concrete, but we are slowly approaching it. We are keeping pace with progress, and the day when we have universal faith in concrete as a building material of exact known strength, is not far off.

STANDARD FORM OF AGREEMENT BETWEEN OWNER AND ARCHITECT REVISED

HE third edition of The American Institute of Architects' Standard Form of Agreement between owner and architect for use when a percentage of the cost of the work forms the basis of payment, has recently been issued. Simplification of this standard document has resulted in an improvement over the form copyrighted in 1917.

The arbitration article formerly consisting of six paragraphs has been condensed to one paragraph containing one sentence. The short form cannot fail of being fully as effective as the long form of the former edition.

Article 2, "The Architect's Fee" that formerly was in effect, repeated and elaborated upon by article 6 "Payments," has been omitted. Article 6 has been revised in part as respects wording. "The Owner's Decisions," Article 7 of the second edition, has been omitted. Its omission leaves the document fully as effective.

The conditions of agreement have been reduced from fourteen articles to twelve and cover the following: The Architect's Services; Reimbursements; Separate Contracts; Extra Services and Special Cases; Payments; Survey, Borings and Tests; Supervision of Work; Preliminary Estimates; Definition of the Cost of the Work; Ownership of Documents; Successors and Assignments; and Arbitration.

Copies of The Standard Form of Agreement between owner and architect can be obtained at the rate of five cents per copy by addressing the Executive Secretary of the A. I. A., the Octagon House, Washington, D. C.

FIRE DETECTION

Its Importance and Application to All Types of Structures, Beginning with the Smallest House

An analysis of the causes contributing to fire losses in the United States during 1924, as compiled by the Actuarial Bureau of The National Board of Fire Underwriters, discloses that the following partly or strictly preventable causes were responsible for losses of more than ten million dollars each; defective chimneys and flues; matches and smoking; petroleum and its uses; sparks on roofs; stoves, furnaces, boilers and their pipes; electricity; exposure (including conflagrations); and unknown causes. Causes that largely contributed to the total losses include: hot ashes and coals, open fires; sparks from machinery; and sparks from combustion. Other causes while relatively small help to swell the American fire loss to well over five hundred million dollars.

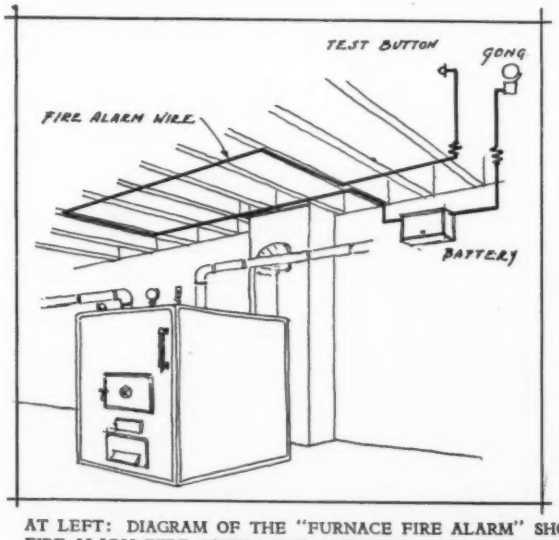
In the majority of the classifications of fire loss causes, the loss could have been materially reduced had the fire been promptly reported and fire fighting apparatus been brought into play as soon as possible. The factor that determines the extent of the resulting damage or loss is the time involved between the origin of the fire and the calling into action of the fire fighting apparatus.

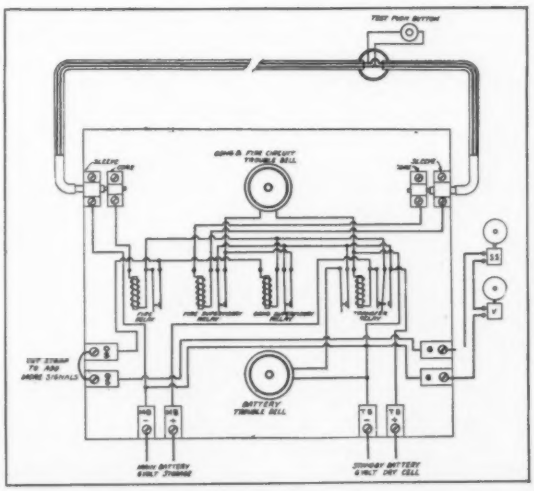
Fire prevention engineers have spent many years in the study of measures to prevent fires. The idea is now advanced that present materials and methods have reached the point in development where further results will not warrant the expense and effort required to secure them and that a balance must be secured between fire prevention and fire detection.

The fact that prompt fire detection cannot be left to the human factor requires no argument. It is thoroughly recognized that the positive warning of the existence of a fire is essentially a mechanical problem. Fire detection as a mechanical feature immediately becomes a part of the equipment installed as a security measure to safeguard buildings and their occupants.

It is axiomatic that a fire detecting system should automatically detect and report fires at their inception and before they have reached serious proportions. Any system of this type to justify its use must be dependable and insofar as possible not dependent upon the human element. The vital parts of the system should be under the supervision and control of one responsible party. The parts not under this control at a central point should be protected against injury, either accidental or intentional, that would prevent proper operation of the system. The system should be free from false alarms, easily tested to prove that it is in working order, and its electrical current supply system positively assured up to that point where a fire might make any system of no value whatever.

The Laboratories of The National Board of Fire





AT LEFT: DIAGRAM OF THE "FURNACE FIRE ALARM" SHOWING THE PRINCIPAL PARTS OF THE INSTALLATION. THE FIRE ALARM WIRE COVERS THE PROBABLE HAZARD FROM FIRE CAUSED BY OVER HEATED BOILER. TEST BUTTON AND GONG ARE LOCATED AT ANY DESIRED POINT, PREFERABLY IN THE SECOND STORY. FUSING OF THE ALLOY IN THE FIRE ALARM WIRE CLOSES THE CIRCUIT AND CAUSES THE GONG TO RING UNTIL SHUT OFF OR THE BATTERIES ARE DISCHARGED. AT RIGHT: WIRING DIAGRAM SHOWING THE ARRANGEMENT OF A SIMPLE FIRE DETECTING SYSTEM WITH SERVICE AND PROTECTIVE FEATURES THAT GUARD AGAINST TAMPERING WITH THE VITAL PARTS OF THE SYSTEM, BATTERY TROUBLE OR FAILURE OF THE MAIN BATTERY. LIGHTING SERVICE OF 110 VOLTS CAN BE SUBSTITUTED FOR THE MAIN STORAGE BATTERY

Underwriters have recently approved a thermostatic system that has certain unique features. The heart of this system consists of a "fire-detecting" wire, which is placed in the areas for which protection is desired. The "fire-detecting" wire is approximately 3/16 inch in diameter. An alloy that fuses at 160 degrees Fahr. is located in the center of this wire. The alloy is covered with a slotted steel tube, porous insulating sleeve, a brass sleeve, rubber tube insulation and braided cover. This part of the system is in effect a continuous thermostatic wire having two electrical conductors. In action the fusible alloy melts at 160 degrees, expands, spurts through the slotted steel tube and porous insulating covering to the brass tube, thus creating a short circuit that translates the heat of the fire into a fire alarm. The unique feature of this wire is that since it is a continuous thermostatic wire, it is operative at any point throughout its length, and it is not essential that the fire spread to any specific point to release the alarm.

A simple form of this system is shown in the accompanying diagram. In applying a system of this type to houses, the importance of protection is approximately in the following order: Furnaces or heating plant, kitchen, attic or garage (depending upon conditions), chimney and fireplace, stairways, and rooms in general. In decorated rooms the fire-detecting wire can be run above picture moulding, in the angle between side walls and ceilings and painted or covered with a thin coat of plaster. In concealing the wire it must be remembered that the effectiveness of the system depends upon the rapidity with which the fusible alloy reaches 160 degrees Fahr. A thin coat of plaster probably retards this action by about 20 seconds. From the simple form it is relatively easy to extend the fire alarm wire and add protective features to the system. In so doing the system becomes a closed circuit operated by storage battery or 110 volt lighting service with a standby battery that is automatically placed in service by a transfer relay, should the lighting service or storage battery fail to function. This service includes an alarm gong and fire circuit trouble bell, and a battery trouble bell. Accident or tampering with the fire circuit, or battery circuit, is indicated by the trouble bell. The addition of audible and visible alarm signals and manually operated boxes further extends the application of fire detecting systems to meet the demands of particular conditions. To assure the prompt response of the local fire department these systems should be connected with the local fire department station.

The subject of fire prevention and fire detection is a large field and much still remains to be done beyond present-day practice if America's fire losses are to be materially reduced. Occasional fires in even "fireproof" buildings demonstrate that these buildings are only as fireproof as their contents and that fire must be promptly detected.

AMERICAN LUMBER STANDARDS AND SIMPLIFIED PRACTICE

THE Bureau of Standards has issued a revised edition of Simplified Practice Recommendation No. 16 Lumber. The recommendations contained in this volume have been accepted by the majority of Lumber Manufacturers' Associations, Retail Lumber Dealers' Associations, The American Institute of Architects, and many other organizations. The recommendation clearly sets forth standard classifications, nomenclature, basic grades, sizes, shipping provisions, grade marking, and inspection of lumber. Drawings and sizes of recommended stock mouldings, frame material, and trim, and recommended specifications for standard grades of Red Cedar shingles are included.

Revised Simplified Practice Recommendation No. 16 Lumber, can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C., price 15 cents.

STEEL LOCKER DATA

A COMPREHENSIVE catalog of steel lockers has been issued by The Durabilt Steel Locker Company of Aurora, Illinois. In addition to illustrating and describing the various types of lockers made by this company the volume contains practical articles on "The Locker in the Modern School" and "The Modern Golf Locker Room." The dimensioned detail drawings of lockers and the plans of typical locker rooms will be found of practical value in the drafting room. General or "open" locker specifications are included together with valuable general information. This catalog should prove to be a useful addition to the material files. This volume has evidently been thoughtfully conceived. The catalog has been indexed in accordance with the A. I. A. Standard Construction Classification. It will be sent to architects upon request.

SWEDEN'S FORESTS

OF Sweden's land area of 158,500 square miles, about 52 per cent is forested. Two-thirds of the productive forest area is north of the Dal River, while the southern part of the country has to a great extent been cleared for cultivation.

HAND WROUGHT IRON

THE EDWIN F. GUTH COMPANY, of St. Louis, Mo., has recently announced the establishing of a new division of the company completely equipped to manufacture hand wrought iron gates, balconies, grilles, curtain rods, hardware and other work of a similar nature. The announcement states that experienced craftsmen will be employed under the supervision of J. J. Moher. Work will be executed from designs by architects, or the company will submit special designs for approval.

Add Charm to Your Houses with DICKEY CHIMNEY TOPS

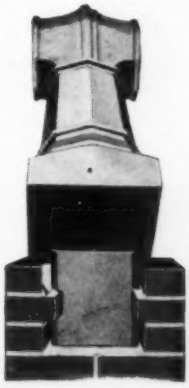
The architect's knowledge of practical, decorative ornamentation is depended upon to make the house attractive. Specify Dickey Chimney Tops for the unique charm they create—their economical and everlasting qualities. They will fulfill your clients' highest expectations.

Dickey Chimney Tops are made in sixteen styles and sizes, suitable to houses large and small and to various types of architecture. They are easily painted to harmonize with any color scheme—effecting a pleasing and distinctive color accent. Among the designs are plain, hooded and windguard styles, made to fit flue lining of practically any dimension. Dickey Chimney Tops improve the draft and appearance of any chimney. Made of hard-burned fire clay, they are heat-resisting and weather-resisting—last forever.

Our catalog, "Safety, Durability and Economy for Roofs, Walls and Chimneys," contains illustrations and detailed information about these effective, everlasting Chimney Tops. Write nearest office, or see Sweet's catalog.

A Hooded Windguard Style. Effective and practical — prevents down drafts in chimney.

One of the 3 Windguard Style Tops. This in different proportions to suit varying architectural requirements.



Showing opening in base of Chimney Top into which Flue Lining extends when top rests on chimney.

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THE LAW AS TO ARCHITECTURE

By Clinton H. Blake, Jr., *of the New York Bar*

The right of the architect to charge a commission on furniture or special fixtures is in many instances a matter of considerable importance as well as a cause of disagreement with the client. I have recently had occasion to consider two cases of this kind, each of which has involved a possible loss of commissions to the architect. In the first case, an organ was installed in a residence and built in as part of the building. The owner, on the other hand, himself placed the order for the organ direct with the organ makers. The architect had considerable correspondence with the latter, and prepared his drawings to suit the organ installation and performed considerable services in connection therewith. The other case involved the remodelling of a banking building and the installation in this connection of safe deposit vaults. It was claimed here, also, by the owner, that the order for the vaults was placed direct and arrangements for their installation made direct with the vault manufacturers. On the other hand, it was claimed by the architect that the plans had been prepared so as to take care of the installation, that the vault installation was clearly shown on the plans, that the architect had been consulted in connection with the vaults and performed various services in this connection, and that he was therefore entitled to his fee on the cost thereof.

In each of these cases, the architect's position, I believe, is sound and can be successfully sustained. They are excellent examples, however, of the special necessity which rests upon the architect of making clear to the owner the fact that he is to be paid a commission on the cost of special installations of this character, if he is properly to protect his rights and avoid loss and dissatisfaction on the part of his client.

It is natural, perhaps, that the layman should consider that the architect's fee is based on the cost of the building proper only, and that it does not extend to special fixtures or furnishings. A prudent architect will take judicial notice, so to speak, of the fact that this feeling prevails and will guard his interest by leaving open no room for misunderstanding.

The ordinary rule applicable to such cases is that the architect is entitled to compute his fees on the cost of the building and to include, as part of this cost in so doing, all fixtures and installations in connection with which he has performed services. This does not mean, of course, that a mere casual service rendered by the architect in connection with any one item will enable him to a fee on the cost thereof. It does mean, however, that where he is called upon to give, and does give, real service in the consideration of plans for special features or installations and gives a substantial amount of time to their consideration and prepares his plans so as to take care of them and gives the benefit of his advice and knowledge in connection with them, the cost of the work done is rightly to be included as a part of the general cost of the building. This is in accordance with the well recognized custom of the profession and of the provisions of the standard form of contract of the Institute.

At the same time, it is well to recognize the fact that the tendency of the ordinary court or jury, in the absence of a very clear contract and understanding, will be to restrict the architect in the computation of his fee to the cost of the building proper and to eliminate from this cost an item which would be considered roughly under the classification of special furnishings or the like. It is very difficult ofttimes to draw accurately the border line between fixtures installed by the owner direct and passed upon casually by the architect, and fixtures which the owner has ordered direct but as to which the architect has been really consulted in the true professional sense and in connection with which he has performed sufficient services to entitle him to include the cost of the fixtures in the cost of the work upon which his fee is based.

A court will not be inclined to consider this cost as a building cost for the purposes of figuring the fee, if the architect has merely given some offhand or passing advice. Even where the contract provides that his fee shall attach to all furnishings on which he has been consulted and has advised, the court will be likely to rule that the consultations made and advice given must be substantial and have a substantial bearing upon the fixtures chosen and their installation or incorporation in the building.

In the case of the organ, for example, had the owner merely asked the architect what he thought of a particular make and the architect had replied that he thought well of it and the owner had then requested the architect to leave a space in the music room wherein the organ could be installed and the architect, in framing his plan, had done this, it is very doubtful whether he would have been entitled to a commission on the cost of the instrument. The border line is crossed, however, in favor of the architect when it appears that he was consulted in far more detail and more seriously, that he corresponded and advised with the owner and the organ manufacturers, that he studied his plans so as to accommodate the organ and made proper provision for it as a definite part of the building and generally performed all of the services necessary to its installation, except the actual ordering of it and the actual installation by its manufacturers.

Similarly, with respect to the bank vaults, if the architect is merely asked his opinion regarding a certain make and is requested to leave an open space available for their installation, he may not be in a position to charge a fee on their cost. If, on the other hand, he is really consulted in a substantial sense, considers with the owner various proposed types of vault, confers with the vault manufacturers and makes real provision in his plans for the vault installation and oversees the installation insofar as he can do so in a general way, he is in a position where he may well claim that he has performed services such that he is entitled to be paid a fee on the cost of the vault work and fittings.

In the case of movable fittings, such as furniture and the like, the agreement that the architect is to be paid a commission on the cost thereof, and the fact that he has performed services in connection therewith, entitling him to such commission, must be proven with special clarity. Obviously, furnishings of this type are not in any sense a part of the building, as an organ or vaults would be. If the owner, therefore, expects the architect to advise with respect to the furnishings and the architect finds that he is to be called upon to give a substantial amount of his time to this work, he will do well to make it clear beyond any possible misunderstanding, by an exchange of letters or by incorporation of the understanding in the original contract, if that be possible, that his commission is to attach to the cost of the articles bought under his supervision and advice.

LEGAL DECISION

A CLIENT employed an architect to prepare plans and specifications for a dwelling house. Evidence was introduced by a client, tending to show that the instructions given to the architect had named a certain sum as the amount which the client had in mind to spend. It appeared, however, that the client had required the preparation of the plans and specifications in accordance with his exact wishes with respect to size, details and construction methods, and that there was no definite agreement that the cost of the building should be limited to a stated amount. The client abandoned the idea of building, and then urged as a defense to an action by the architect the fact that the plans and specifications had not been delivered, and the fact that the building cost was not reasonably close to the sum which the client had specified. The court held that there was no evidence of any refusal to deliver the plans; that the client had in effect refused to accept them, and that under these conditions a delivery was not necessary; that the sum which the client named as the cost which he had in mind was by way of estimate only, and that there was no agreement that the cost should not be in excess of any stated amount. The court accordingly refused to instruct the jury that the architect could not recover unless the cost of the building in accordance with the plans which he submitted was "reasonably close to the sum specified by the defendant." The court said:

"One who proposes to build may in his contract of employment of an architect state an amount as the limit of cost of the building which is to be erected and provide that at least reasonable conformity to this requirement shall be a condition under which the services shall be rendered; or it may result from the terms of the agreement that the cost of the proposed building shall not be in excess of a definite maximum. If either result follows from the construction of the contract, liability for services is negatived unless the building can be built for an amount reasonably within restrictions upon expenditure. But a contract may be made in which the sum named is only by way of estimate, and where the instructions given require the preparation of plans and specifications for the construction of a building according to the expressed wishes of the owner as to size, method, and details of construction. In such a case, mere nonconformity in the cost of construction under the plans and specifications with the amount so estimated does not prevent a recovery, and the general request now considered is inapplicable. The requested instruction was not directed to the effect of an employment conditional in nature, such as has been described. Had it been given, it then would have been the duty of the jury to find for the defendant in case a statement of proposed expenditure was specified in the contract, but not by way of a condition or as a controlling element, and even although coupled with instructions to accomplish a definite result regardless of a larger cost."

Schwender v. Schrafft, 246 Massachusetts 543.

SUPERIOR CRAFTSMANSHIP REWARDED

THE New York Building Congress recognized the superior craftsmanship of twenty mechanics who have been working on the New Paramount Theatre and Office Building, New York City, when the president, R. H. Shreve, presented them with certificates and gold buttons on Monday, November 15. With this award, one hundred and seventy-seven mechanics have received certificates from the New York Building Congress, attesting to their superior skill. These craftsmen are also made Honor Members of the Congress with the privileges of assisting in its various activities. At the exercises held in conjunction with the awarding of certificates to those mechanics working on the Paramount Theatre, short talks were made by B. J. Moore of Rapp and Rapp for the architects, Adolph Zukor for the owners, L. J. Horowitz of Thompson-Starrett Co., for the builders, John J. Collins of the Tunnel and Subway Constructor's Union, for labor, and Dwight L. Hoopingarten, a director of the New York Building Congress.

A PRACTICAL SUGGESTION FOR COLD WEATHER MASONRY

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THE RESTORATION OF SANCTA SOPHIA

THE REPORT OF COMMITTEE ON FOREIGN RELATIONS OF A.I.A.

ACTION to restore the Church of Sancta Sophia in Constantinople has been taken by the Executive Committee of The American Institute of Architects. Accepting a report of its Committee on Foreign Relations, headed by William Emerson of Boston, the Institute has officially decided "to use its influence with such authorities as may seem desirable toward securing the physical restoration of Sancta Sophia."

The matter must be approached with the greatest delicacy and diplomacy. The international situation, it is declared, is not favorable at this time to successful negotiations with the Turkish Government. There seems to be no possibility of making the church into a museum, but the Turkish Government might be interested in having the co-operation of American architects in the physical restoration of the building.

Professor Emerson H. Swift of the Department of Fine Arts of Columbia University, who has just returned from abroad, and who spent considerable time studying the church by permission of the Turkish Government, expressed the opinion that the Ottoman authorities might listen favorably to a proposal from Americans to restore the church to its original state if there were no flavor of politics in the move, and if it were backed by American capital.

The church is badly in need of repair, particularly the roof, which is overgrown with vegetation and has fallen in in some places. Rain water, leaking through the gaps, has injured frescoes on the plaster of the triforium, but the mosaic decorations of the original plan, dating from the time of Justinian, are as yet unharmed.

Professor Swift said that the Turks now probably would not object to the removal of the plaster covering the mosaic designs, placed there during the Turkish Conquest in 1453, owing to the national objection to the Christian symbols used in the decorative scheme, and the portrayal of human figures in the designs.

As late as 1848, Fessati, an Italian architect employed by the Sultan Abdul Modjid to restore the building, found, underneath a coat of whitewash, mosaics termed superb, but was compelled to cover them again with painted canvas or gold leaf.

FAMOUS OLD HOUSE SOLD

THE famous Harwood House, Annapolis, Md., one of the noted examples of Georgian architecture in the United States, was recently sold at auction to Dr. Enoch Barton Garey, President of St. John's College, for $47,000. Dr. Garey did not make known his backers in the purchase, but let it be understood that the building is to be presented to St. John's. The college is expected to use it as a museum.

The building, of brick and two stories high, contains much hand woodcarving. An ancient and valuable growth of boxwood is in the garden.

THE 1927 PARIS PRIZE COMPETITION

THE first preliminary competition for the annual Paris Prize of the Society of Beaux-Arts Architects will be held on January 15, 1927. The Paris Prize entitles the winner to enter the advanced class of the Ecole des Beaux-Arts in Paris, and also to receive $3,000 for expenses for two and a half years' residence and study abroad. Competitors must be American citizens and under twenty-seven years of age on July 1, 1927.

Application for circular should be made to Philip Allain Cusachs, Chairman of the Annual Paris Prize Committee, 126 East 75th Street, New York, N. Y.

MEMORIAL TO HENRY BACON, ARCHITECT OF THE LINCOLN MEMORIAL AT WASHINGTON, D. C., UNVEILED RECENTLY AT ST. GEORGE'S PROTESTANT EPISCOPAL CHURCH, NEW YORK

CHARLES A. PLATT, ARCHITECT
HENRY HERING, SCULPTOR

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Milcor engineers are prepared to work with you in designing buildings for light occupancy to obtain maximum usable floor space from the building area available. You will be interested also in the value of Milcor Steel Domes for reinforced concrete floor construction in light occupancy structures of all types. This cooperative engineering service involves no charge or obligation. We shall be pleased to discuss plans with you at any time.

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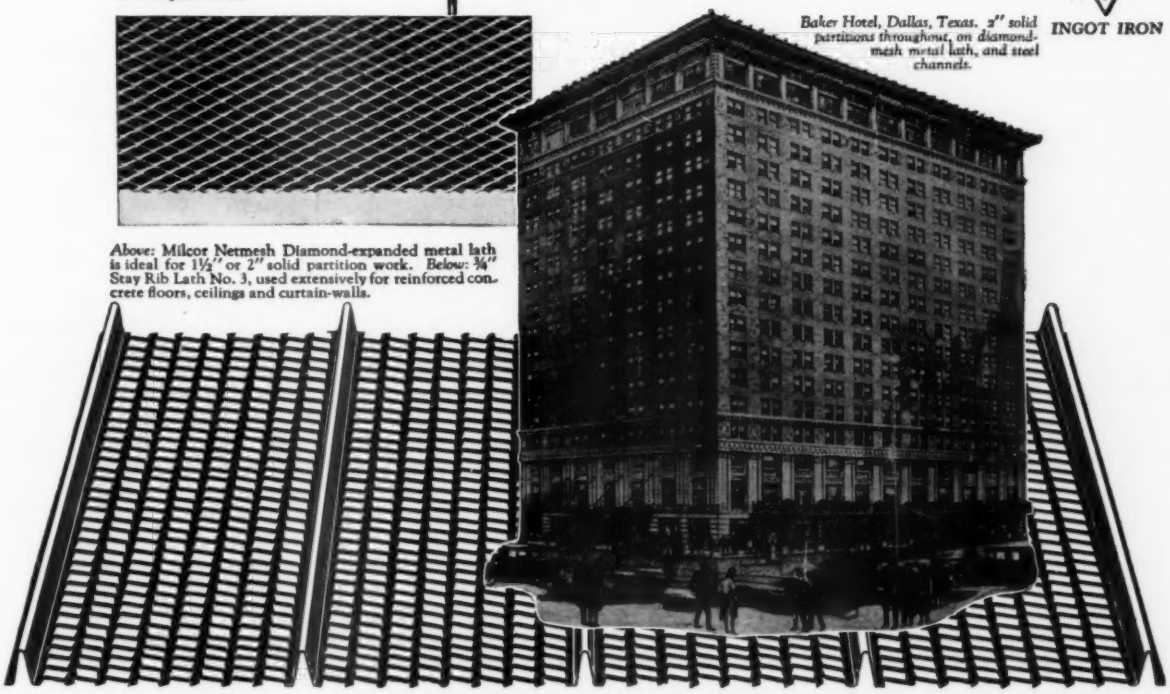
Above: Milcor Netmesh Diamond-expanded metal lath is ideal for 1½" or 2" solid partition work. Below: ¾" Stay Rib Lath No. 3, used extensively for reinforced concrete floors, ceilings and curtain-walls.



Baker Hotel, Dallas, Texas. 2" solid partitions throughout, on diamond-mesh metal lath, and steel channels.

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TRAVELING ART COLLECTIONS ARRANGED BY CARNEGIE CORPORATION

THE CARNEGIE CORPORATION announced recently that art collections worth $100,000 were ready to be sent out to twenty colleges in the United States and Canada for use in the teaching of art. This represents the second step in the Carnegie Corporation's program for encouraging a deeper and more extensive study of art in the institutions of higher education in the United States. The first step was the grant of fellowship to twenty-seven young men and women to prepare themselves to teach art.

The collections which are to go out now consist of 1,800 reproductions in photograph and color facsimiles of the greatest works in architecture, sculpture and painting; 50 original prints representing different processes and schools from the sixteenth century to the present; a set of textiles in 35 pieces dating from antiquity to the present day and illustrating all kinds of materials and design characteristic of different races; and two hundred books on the art of every period and people. The books are in French and German as well as English. Many are rare and valuable, having reproductions in color of the great masterpieces. The publishing houses of the world have been canvassed to get twenty sets of each work. A catalog giving a detailed description of each piece in the collection is now on the press and cabinets are provided to hold the objects in the collection.

It is believed that this collection will give the teacher using it all the equipment necessary for the teaching of the history and theory of art. It represents to the teaching of art what the laboratory is to the teaching of chemistry and physics. And the Carnegie Corporation is providing the collection on the belief that art cannot be taught satisfactorily without materials just as the sciences cannot. In this country few colleges now have such materials and those that are not near the few metropolitan centers with great museums must teach art in the abstract, if at all.

REVISED EDITIONS OF "A ZONING PRIMER" AND "A STANDARD STATE ZONING ENABLING ACT"

REVISED editions of "A Zoning Primer" and "A Standard State Zoning Enabling Act, under which municipalities may adopt zoning regulations," are announced by the Division of Building and Housing of the Department of Commerce. These publications, both by the Advisory Committee on Zoning, appointed by Secretary Hoover, rank among the most popular pamphlets issued by the Department, more than 50,000 copies of each having been sold by the Superintendent of Documents.

The "Primer" explains the methods by which zoning protects property and health and avoids unnecessary scrapping of serviceable buildings. There has been a wealth of added experience in the application of zoning to the most varied problems in many types of cities and villages. The revised edition takes into account the developments of the past four and a half years, and includes a list of zoned municipalities by states.

"A Zoning Primer" records that "on January 1, 1926, the 426 zoned municipalities in the United States had a total of more than 27,000,000 inhabitants, exceeding half the total urban population of the United States. Thus a majority of all people living in incorporated places with 2,500 or more people now enjoy the protection and other benefits of zoning. On January 1, 1921, there were only 35 zoned cities and towns, with less than 11,000,000 population, so that in a period of five years the number of zoned municipalities increased more than twelvefold.

"Undoubtedly the most convincing statement which could be made in regard to the value of zoning is that so many of the large cities of the United States now feel that it is impossible to continue to develop further without the adoption of a building zone plan. On January 1, 1926, 48 of the 68 largest cities in the United States, having in 1920 a population of more than 100,000 each, had adopted zoning ordinances, while most of the others had zoning plans in progress. Moreover, it is not alone our larger cities which realize the necessity for timely regulation of the uses of property. Hundreds of the smaller cities and towns, especially in California, Illinois, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Wisconsin, but also in many other States, have passed zoning ordinances and hundreds more were reported as having zoning plans in progress."

HISTORIC CASTLE OPENED AS TOWN HALL

THE historical Shrewsbury Castle, once the home of King Edward I., and twice a royal fortress, has been restored to its old brilliancy and converted into a council chamber after its presentation to the town by the Shropshire Horticultural Society.

THE AMERICAN ARCHITECT SEMI-ANNUAL INDEX

DUE to the fact that many of our readers have not realized that a semi-annual index has always been bound into the last issue of June and December, and have therefore missed the service which this index affords, it has been decided to present the index for the last six months as a supplement to our December 20th issue. We hope that in this new form it will prove more useful as it can be more conveniently handled. It is suggested that readers go through this index to refresh their memory as to what we have published during the past six months to see if reference to any particular subject would be immediately helpful.