THE AMERICAN ARCHITECT

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The City Hall, Cleveland, Ohio

MR. J. MILTON DYER, *Architect*

THE development of the Cleveland civic center is one of first importance among similar undertakings going forward in this country. It involves not only a rearrangement of considerable magnitude, which when finally completed will have solved the problem of the central points from which the city's future growth will radiate, but it will also present in its architectural development one of the most important and dignified undertakings by any American city.

The group of buildings at present contemplated for the new Mall comprises the Post Office, the County Court House and the City Hall, all now completed, the Public Library and Public Auditorium, now in progress, and a proposed Union Station, the site for which has been established. The first building in this civic center to be erected was the Post Office, which in its architectural design determined to a great extent the character of the architecture and the selection of material for the succeeding buildings. For this Post Office a Corinthian order was selected; for the Court House, a composite order—both with fluted columns—while a simple Doric order with no flutings was used on the City Hall, the subject of the present illustration.

GRAND HALL

The exterior material of the City Hall is granite, the whole, as may be seen by reference to our illustrations, executed with the utmost simplicity and with but little ornamentation. A complete scheme of sculptured groups is contemplated for the three entrances and for the attic space of the main pavilion.

The tendency in municipal administration towards a plan similar to that proved by experience to be best adaptable to the conditions ruling in large executive or commercial buildings is shown in the planning of this City Hall. As will be seen, the interior departments were, for the most part, designed as those of a first-class office building. Wherever practicable, entire departments were planned as one unit with few if any partitions extending to the ceiling. The advantages of this arrangement are apparent. The result is better lighting and ventilation, a free and wide expanse of ceiling, and the facility for the adaptation to such future changes as inevitably occur in buildings of this type.

The main entrance vestibule is of gray marble, hone finish. In the grand lobby a Doric order was used, executed in Boticini marble, also hone finished. This lobby extends through three stories, and has

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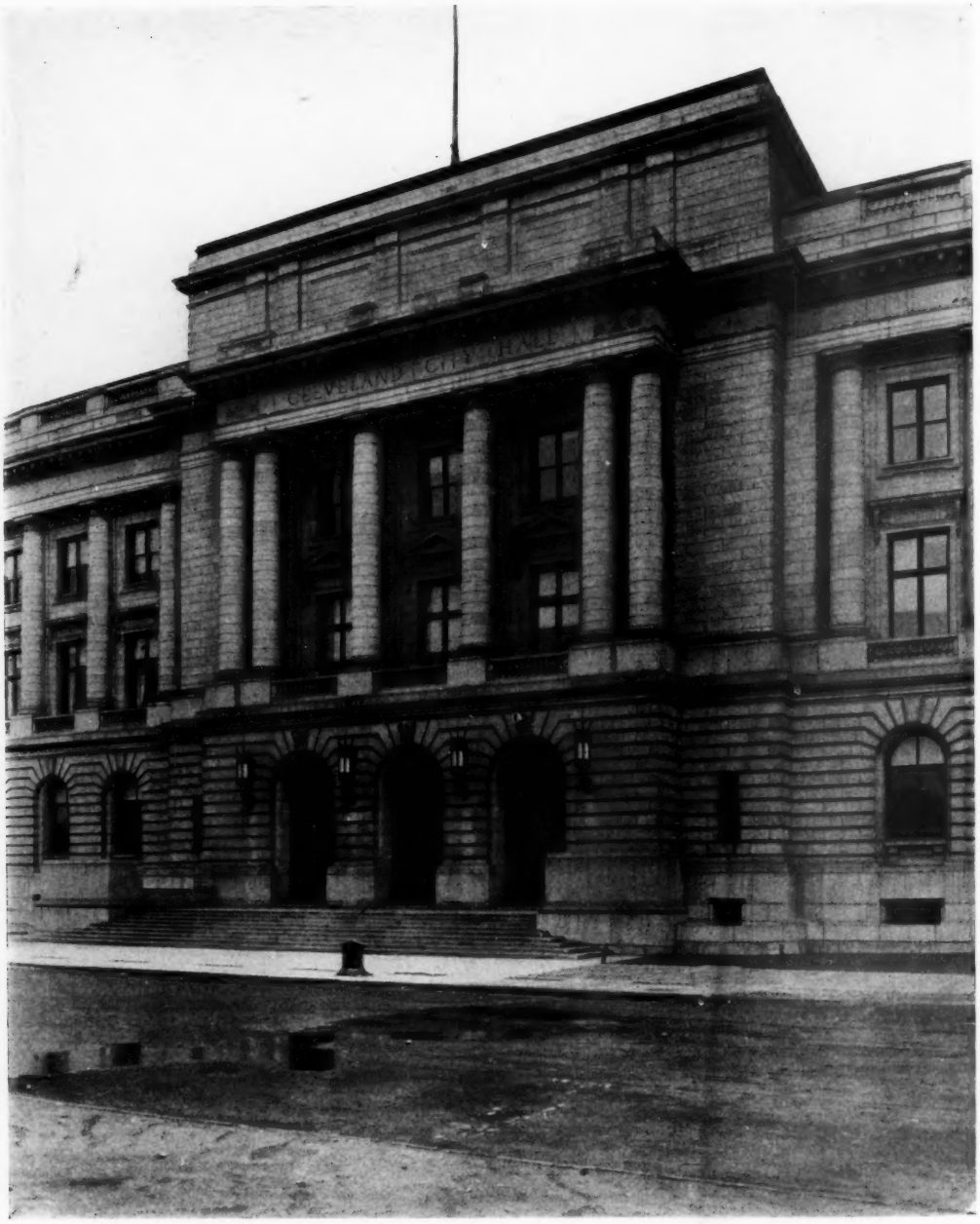


CITY HALL, CLEVELAND, OHIO
MR. J. MILTON DYER, *ARCHITECT*

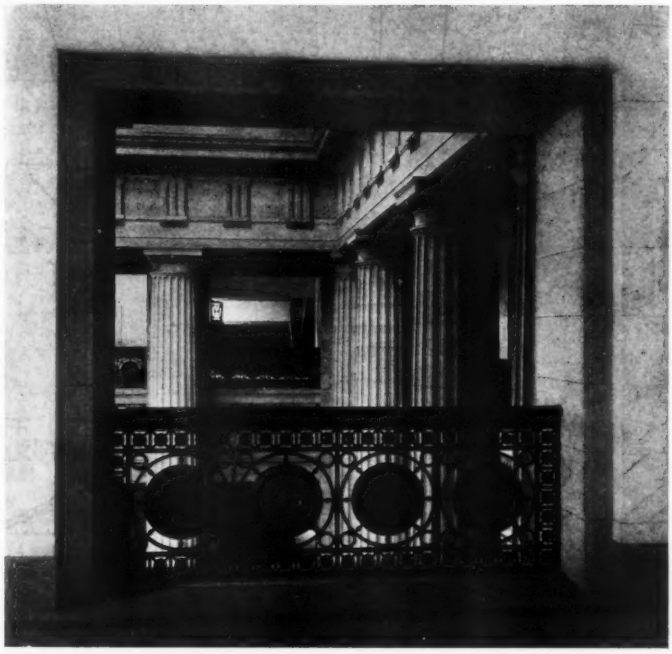
a barrel vaulted ceiling, admitting light. The lunettes at each end are 35 feet in diameter and offer the best opportunity for the future introduction of mural paintings.

The corridors on the first floor and also the floors themselves are executed in marble.

From the grand lobby open the three lobbies for the division of finance, the water works department and the treasurer, executed in marble, with bronze screens enclosing cages, as in a modern banking arrangement.

Some attempt at a more imposing architectural treatment was made in the council chamber, mayor's suite and law library. The council chamber, extending through three stories, is executed in oak, of the Elizabethan period. It has galleries at each end, and seats 750, in addition to the desks. Behind the rostrum a space 10 by 71 feet is designed to receive a mural painting. The preliminary sketch for this space was executed by Jules Guerin. The building has approximately 8,000,000 cubic feet, and cost complete, less than $3,000,000, or 37 cents per cubic foot. We are indebted to Mr. Charles Fuller Dowd for permission to publish the series of drawings by Albert Seaford, illustrated in the plate section of this issue.

COURT ROOM NO. 1



VIEW ON MEZZANINE FLOOR

EXTERIOR OF THE PARTHENON, ROME

SHOWING THE CONSTRUCTION IN BRICK MADE BY ONE BRANCH OF THE COLLEGIUM AND THE DECORATION IN MARBLE, SEPARATE THEREFROM, THE WORK OF A SEPARATE BRANCH

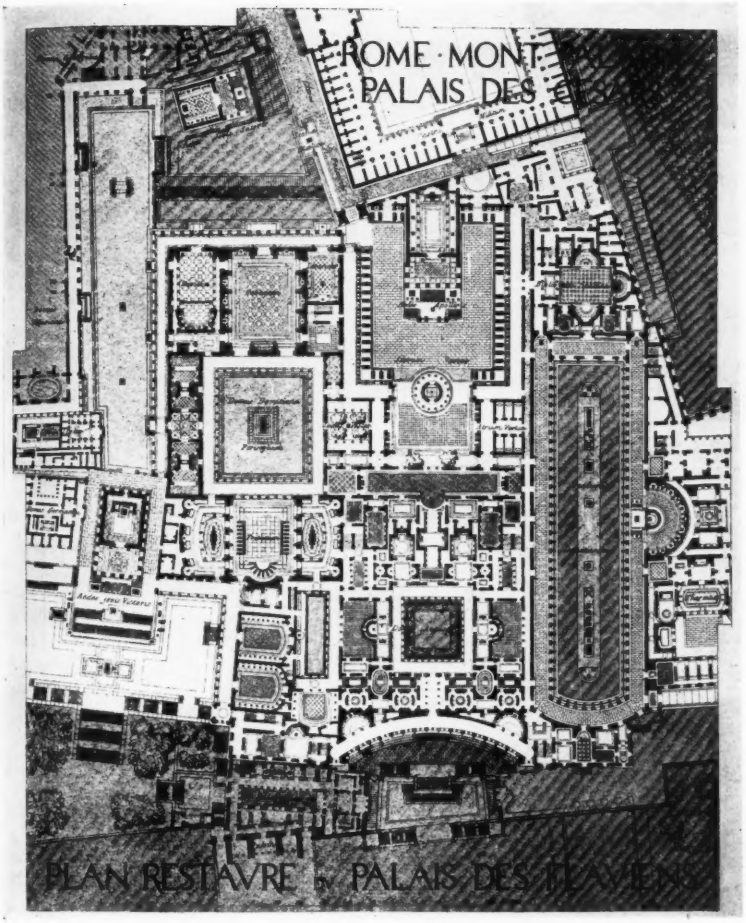
The Building Methods of the Roman Empire

PART III

BY CLEMENT HEATON

CARE OF TRADITIONS.—The intellectual atmosphere of the Colleges preserved the tradition of their art at the same time that it insured the necessary organization and discipline. Rules which fixed the methods of building existed in the College and consecrated the teaching of the past. This explains the age-long preservation of certain methods. The *lex collegii* enforced technical prescriptions and created a spirit similar to that in the Guilds of the Thirteenth Century at Paris, where the words "the usages and customs of the art (*metier*)" are so constantly repeated in the statutes of various corporations, the members of which swore to observe them.

Their statutes were probably held secret and never published, but some rules of the fullers' corporation have been preserved. If they were so careful as to the production of textiles it is certain that the precepts relating to the construction of important imperial buildings were upheld. This is proved by the fact that the building of an aqueduct was allowed only in certain seasons, commencing about April 1st, suspended during the great heat of summer to avoid too quick drying of the mortar, and ending about



RESTORED PLAN OF THE PALACE OF THE CAESARS AT ROME, PALATINE HILL

November 1st. Again, Pliny says (*Hist. hat. XXXVI. 55*) that under the operation of the *leges operum* lime was not to be used less than three years of age. Later custom in Italy shows this usage had been preserved till medieval times.

Division of the Groups

1. *Collegium structorum,* including *structores parietarii* (wall builders), *arcuarii* (builders of vaults), both exempt from public charges.

2. *Lapidarii* (stone masons), *marmorarii* (marble workers), *quadratarii.*

3. *Fabri ferrarii* (iron smiths and metalworkers), *lignarii* (woodworkers). The latter had subdivisions: *Clavarii materiarum* (makers of wedges), *sectores* (sawyers), *lignarii* and *fabri intestinarii* (interior woodworkers).

4. *Calcis coctores* (lime workers), including the *vectorii* and *navicularii* (carriers).

Officials of the College of Builders.—The officers of the *Collegium Structorum* were the *Curator operis,* or General Director, who represented this body with the State; the *Redemptor,* or *Locator operis,* the contractor, who acted under this curator; the *Mensor aedificiorum,* who had to do with measures, but whose office is not well known, and the architect, whose functions did not always correspond with those of modern times. At the bottom of the scale were an immense number of slaves, soldiers and prisoners, who worked in the quarries preparing stone, in the brick fields and forests, and who filled in the rubble between the courses prepared by the regular trained artisans. It was the result of having so great a body of unskilled laborers that much that is characteristic of Roman architecture was conceived and adopted.

The Roman authorities did not hesitate to draw on the country population by forced labor, in a similar way to the medieval *corvées.* Revolts of the country people, and flight of the urban artisans are recorded, and indicate intolerable conditions.

Practically no information has been transmitted concerning the specialists in Decoration, though it is said many Greeks came to Rome, attracted by the riches of the city, where private museums of art were formed, especially in the time of the Empire. These would have naturally formed a group apart. Other influences must have been at work at Rome, for along with much that is common to Greek decoration there is a tendency to naturalism, even in Etruscan and early Roman art. This, in the time of Trajan, blossomed out into the most exquisite art—where the vine, the ivy and other plants, with birds and animals, are to be seen, executed with as much delicacy as with comprehension in design. This exquisite work in marble, stucco, painting or mosaic could not possibly have come from the hand of men

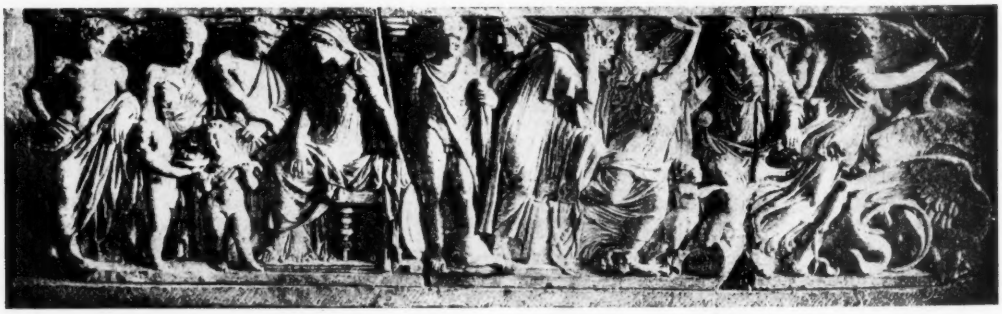
TEMPLE OF VESTA, ROME
A BUILDING EXECUTED BY THE WORKERS IN MARBLE

working at it only occasionally, or occupied with the heavy construction which characterizes Roman architecture, for it is lightness itself, in idea and execution.

So the actual work corroborates the assertion that the decorators formed separate groups among the constructors. This mastery of design came to a head in the reign of Trajan (98-117 A.D.), shortly after the Colleges had been recognized, and when the Emperor was at their head, before they had been degraded to the servile condition into which they afterward fell.

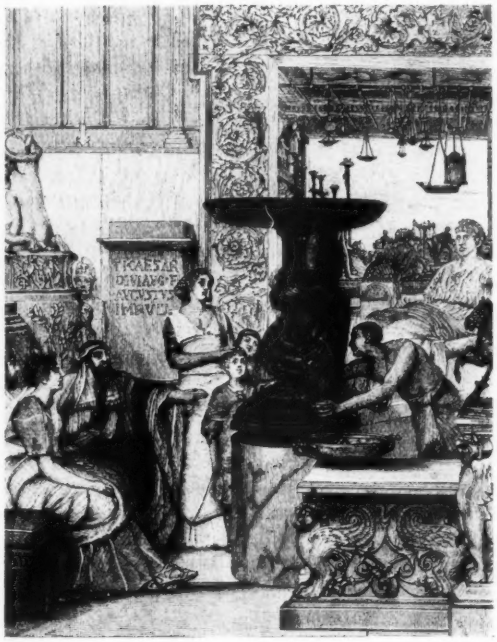
We may be sure that if the formulæ for making and using mortar were so carefully preserved, the right handling of decoration was well cared for and that no individual experiment on great problems was countenanced.

We see, then, the slow growth of a tradition, carefully supported with the great resources of the city of Rome, honored by the emperors, the outcome



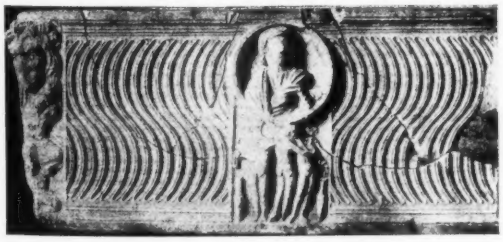
ROMAN SCULPTURE ON A SARCOPHAGUS, SECOND CENTURY, A. D., WORKS OF THE MARMORARII

of the finest minds and a long succession of competent craftsmen. We see also craftsmanship here as much as in Gothic art or other periods. The curious discord existing at Rome between declining decoration and still healthy construction points to conditions which affected one and not the other;



SCULPTURE, FROM THE PAINTING BY L. ALMA TADEMA, R.A.

possibly the servile life of the later builders degraded the part of art which demands freedom of mind, while construction continued as before, as long, indeed, as the imperial organization remained intact at Rome. But this power itself broke down at last, and the corporation fell with it, was lost or continued only in a weak and modified form, which led to the medieval practice.



ROMAN SCULPTURE ON A SARCOPHAGUS, SECOND CENTURY, A.D.

Recent Legal Decisions

Ignorance in Estimating Extras

The question of compensation for extras arises in every building contract and in view of the fact that no architect can foresee exactly what extras may be needed any more than he can tell what whims the owner will desire to satisfy, controversies must often be settled by the architect. Contractor William Jackson of New York agreed to build a house for Henry Donald which should not cost over $10,000 and at the time stated to Donald that the extras would not be over $200 by reason of changing the building material from unit brick to hollow tile. Jackson stated that hollow tile cost very little bit more than unit brick, yet when the house was finished, Jackson presented a bill for extras in the amount of $2,005, which Donald refused to pay. Thereupon Jackson sued Donald to recover for the extras, and in the trial of the case claimed that when he made the statement that the change from unit brick to hollow tile would only be a question of a couple of hundred dollars he made the statement in ignorance of what the cost would be. Among other things, the New York Supreme Court said: "He (meaning Jackson) is then in a culpable position of having induced the owner to substitute the hollow tile upon representation that he personally did not know to be true and charging a price that cannot be brought within the scope of the representation." Jackson should recover only such sum as he told Donald would be the amount of the extras. (Jackson v. Donald, 163 N. Y. S. 201.)

Is Architect's Final Certificate Conclusive?

This question arose just a few days ago in a suit by the Board of Education in the city of Hugo, Oklahoma, against Contractor R. O. Langworthy and the National Surety Company. The surety company went on the bond to secure the faithful performance of the contract by Langworthy. The school board filed suit claiming there was a breach of contract, and the question as to the significance of the architect's final certificate arose. The school board was given judgment by the lower court and this court holds the lower court was right in so doing. With reference to this particular question, the court laid down the law as follows: "There can be no doubt that notwithstanding the fact that a contract makes the certificate, report, opinion, or decision of an engineer or architect conclusive on the parties, the law writes into this provision that

the conduct of the engineer or architect must be free from fraud. Fraud on his part destroys the effect of the provision. Therefore, if the engineer or architect fails to exercise his honest judgment, or makes such gross mistake as implies bad faith, his decision, report, certificate, or opinion may be impeached." (National Surety Company v. Board of Education. 162 Pac. 1108.)

An American Corps for Camouflage

By Sherry Edmundson Fry, *Secretary, American Camouflage*

CAMOUFLAGE had its birth during the war. It is one of the consequences of the growing importance of aeroplane observation in warfare. It is humbug, disguise and concealment of military things, the art of making them look like something harmless and uninteresting to an observer. The great bulk of this work is quite simple and consists in masking batteries and equipment by means of obvious natural materials such as trees, bushes, grass, rocks, etc., the question in the main being to make them look like harmless details of the landscape.

More complicated questions arose; roads had to be screeneed for miles, both at the sides and from above. Village streets had to be made to look empty while great armies passed behind a painting. New bridges had to be hidden so completely that no observer could distinguish them. Railroad trains were so disguised that they melted into their surroundings.

In France, the work was begun by Forain, Guirend de Scerola and Abel Fruchet. They began by disguising cannon. They searched for means of invisibility for observation posts—roads, villages, woods and trenches. The services rendered were soon recognized as most important and necessitated the formation of the section of Camouflage. Other artists grouped themselves about the beginners and soon the schools of Classicists, Cubists and Impressionists presented a picture of perfect union.

The section was extended, and from a few dozen has grown to over a thousand, not counting the personnel attached to the numerous shops distributed in the zone of the armies.

Each army has now an equipment of camouflage commanded by an officer responsible to the general staff. Orders are communicated to the chief of section, who takes his squad of camoufleurs to the spot where it is necessary to make a transformation. Then, along the roads and streets, in all places where the eye of the enemy may surprise movement, long canvases stretched across in retreating layers are painted according to the peculiarities of the landscape, and are curtains little apt to be discovered, behind which troops may pass unobserved by the enemy.

In certain other regions it is necessary to transplant trees, make artificial ones, use rocks and clods, to make the landscape appear natural to the enemy. The French have a very poor opinion of the German tricks of camouflage, and their stupidity in being fooled by the same ruse or tricks indefinitely.

The function of a camoufleur is not always, as some suppose, without danger, and in the exercise of their duties many artists have lost their lives. As the things to be hidden or disguised are necessarily within range of the enemy guns, the camoufleur is often under fire and is forced to do much of his work at night.

The artists of America recognize the work of the French artists, and have formed themselves into an organization with the object of tabulating and later volunteering their services to the army as camoufleurs. They have offered their services to the War Department. When the time does come the artists will have saved much delay and will be ready to volunteer.

A plan is on foot to start a training and experimenting camp at Bantom Lake in conjunction with Columbia College, where something of the different men's ingenuity and capabilities may be discovered.

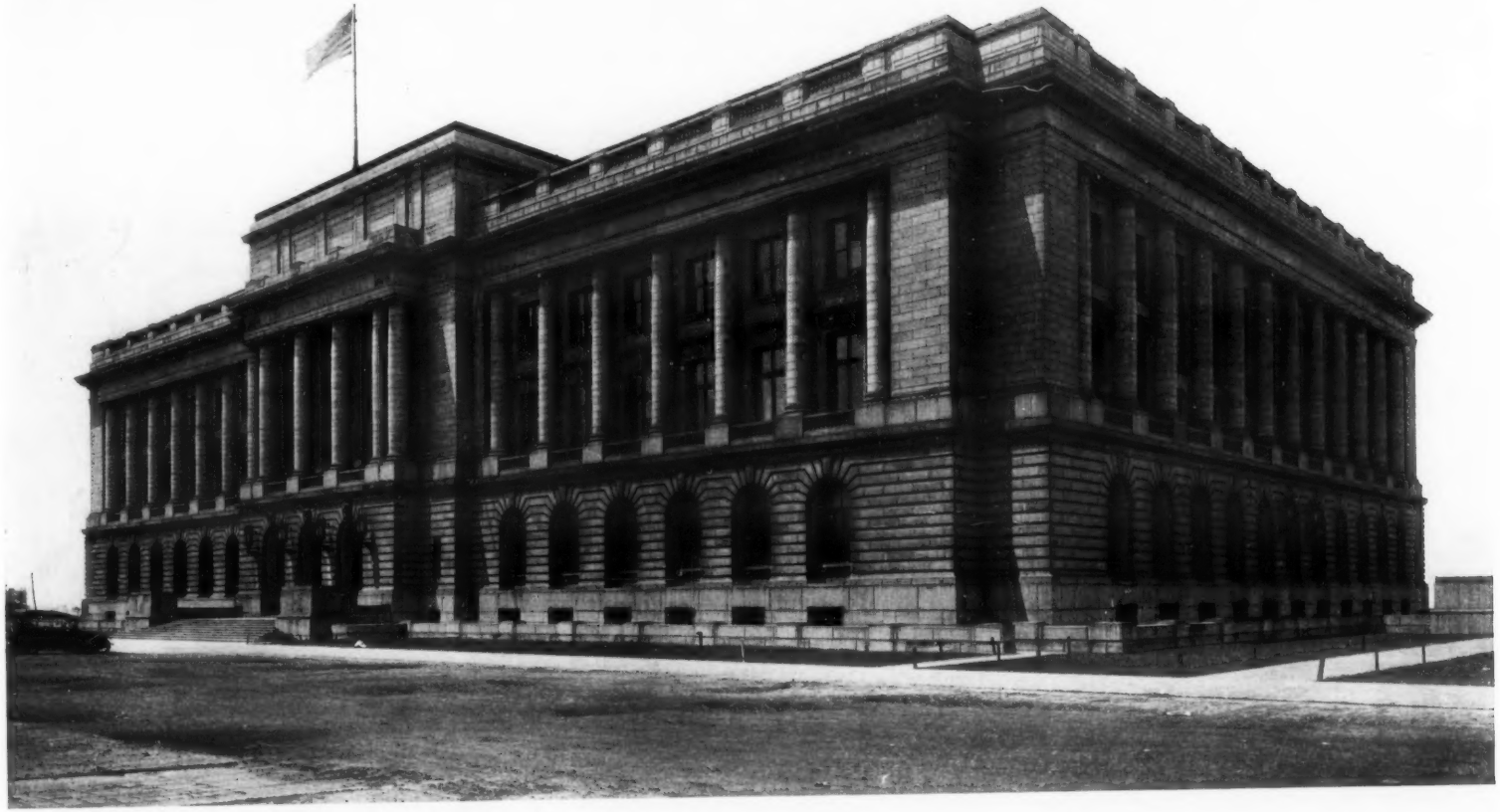


PLATE 32

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

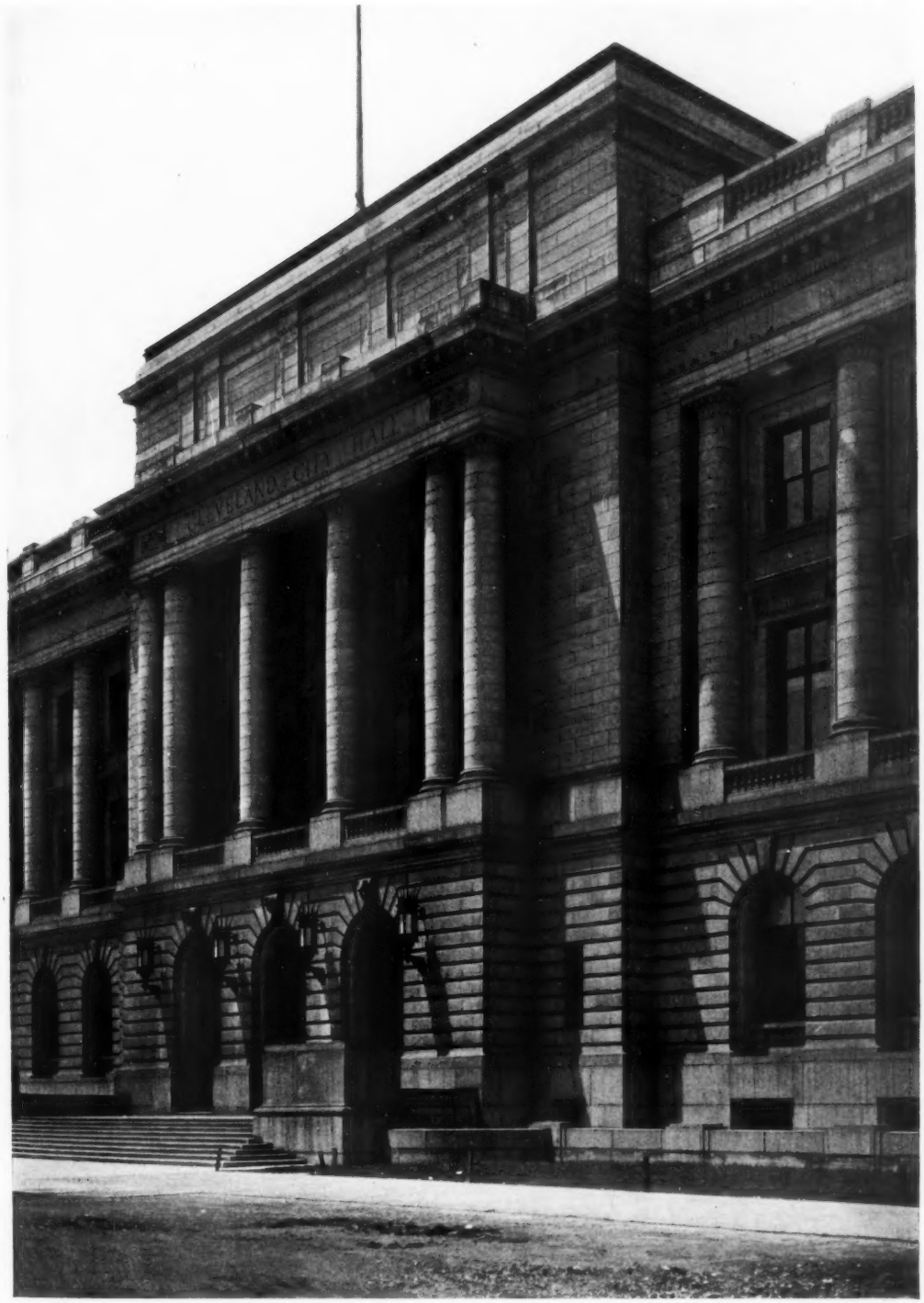


PLATE 33

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 34

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 35 COUNCIL CHAMBER

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 36 MAYOR'S PRIVATE OFFICE

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

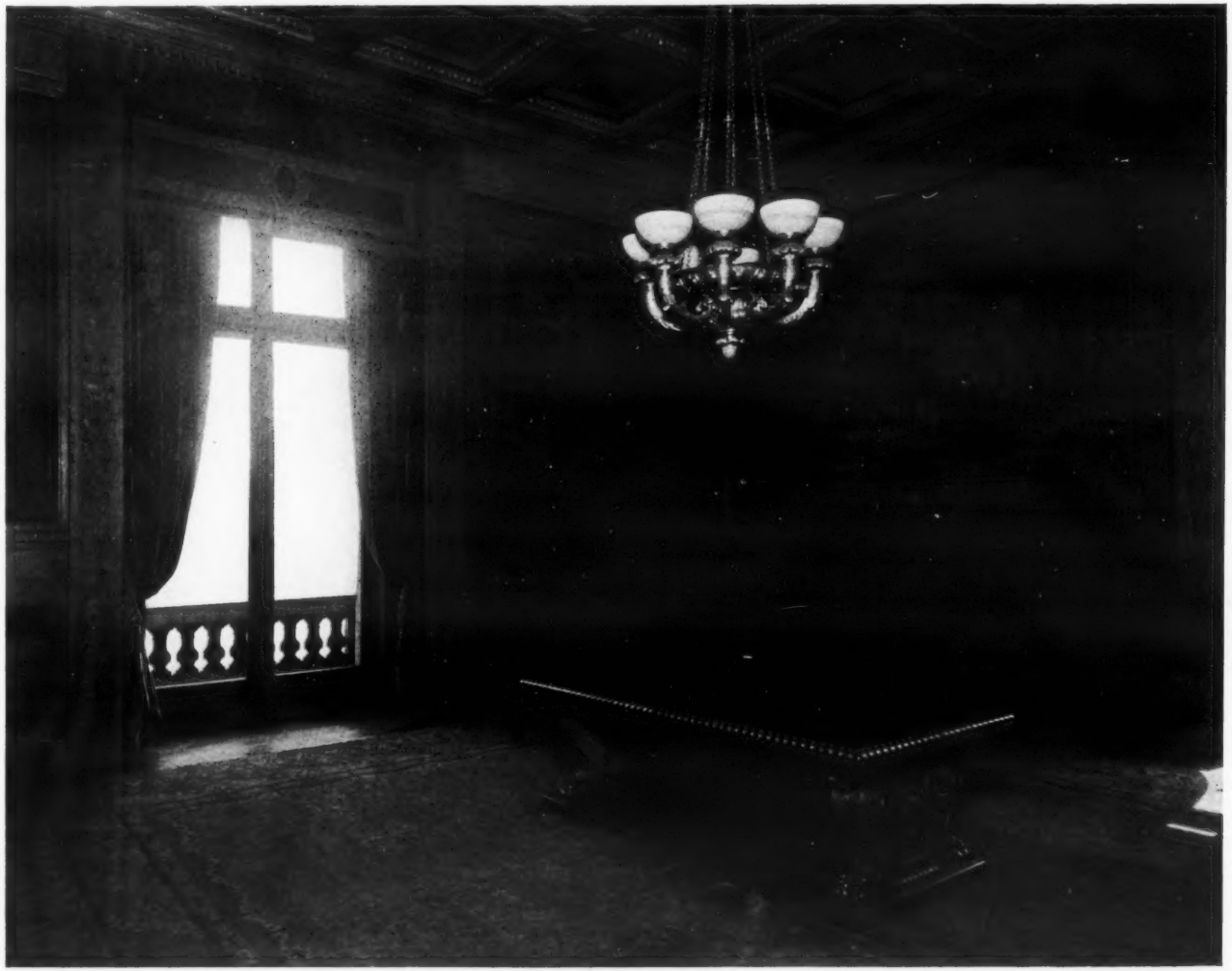


PLATE 37

MAYOR'S GENERAL OFFICE

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 38

MANTEL IN MAYOR'S OFFICE

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

LIBRARY

PLATE 39

MAYOR'S OFFICE

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

XUM

PLATE 40 THE GRAND HALL

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 41

ENTRANCE TO COUNCIL CHAMBER

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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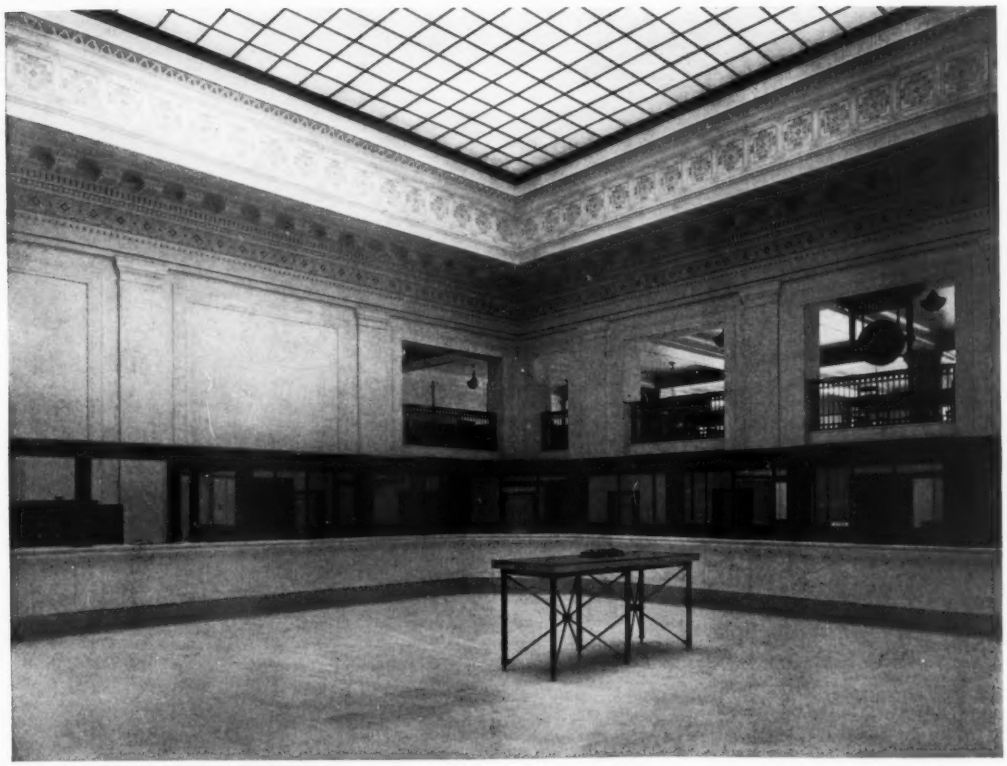

PLATE 42 DEPARTMENT OF WATER WORKS, ETC.

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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LOBBY

PLATE 43 LOBBY

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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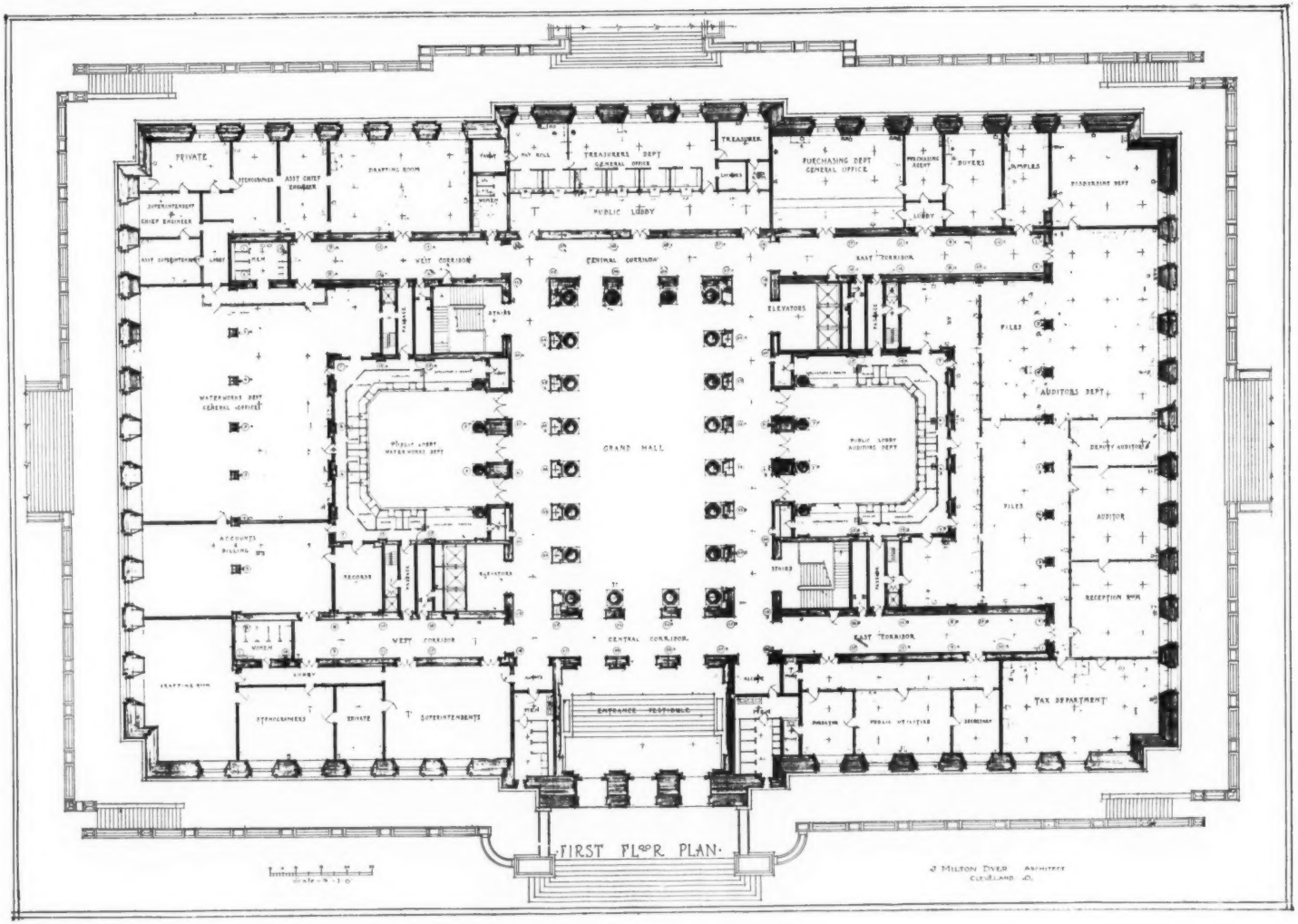

PLATE 44

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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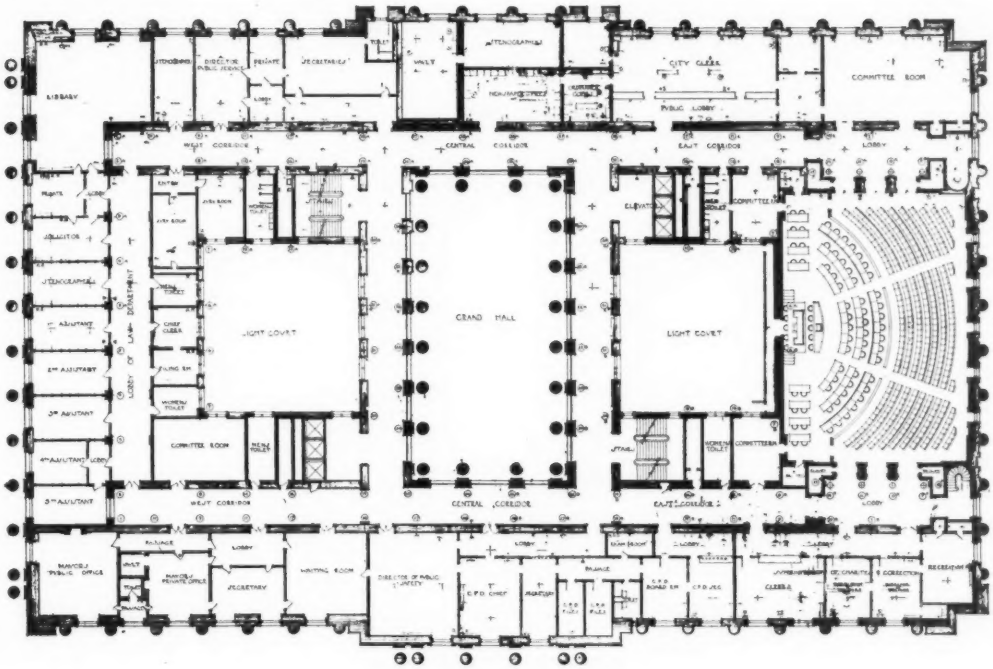


SECOND FLOOR PLAN

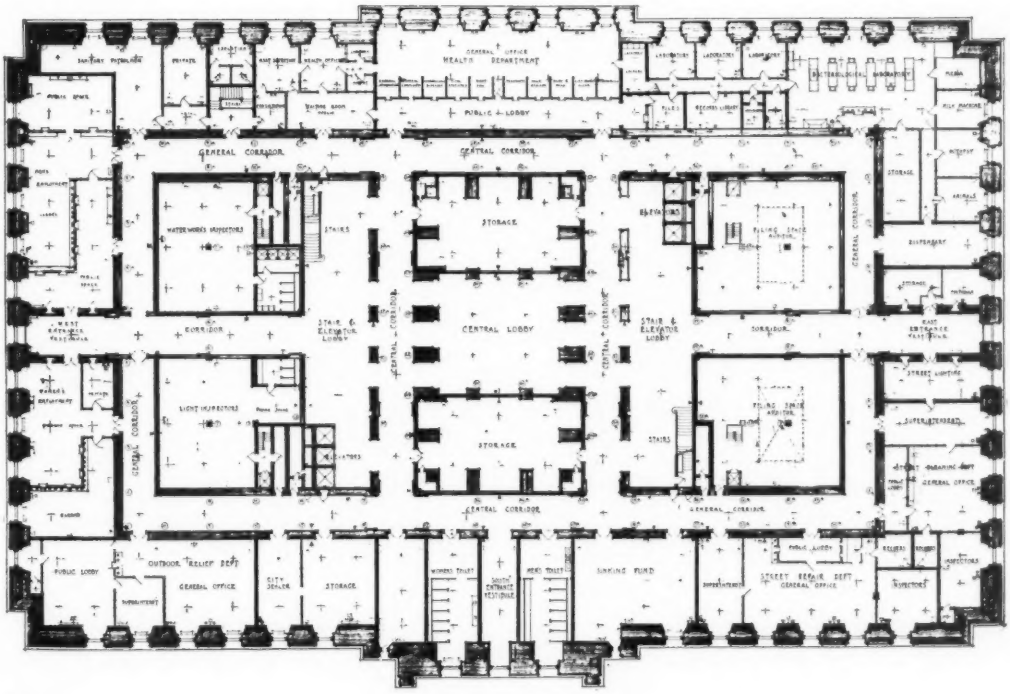


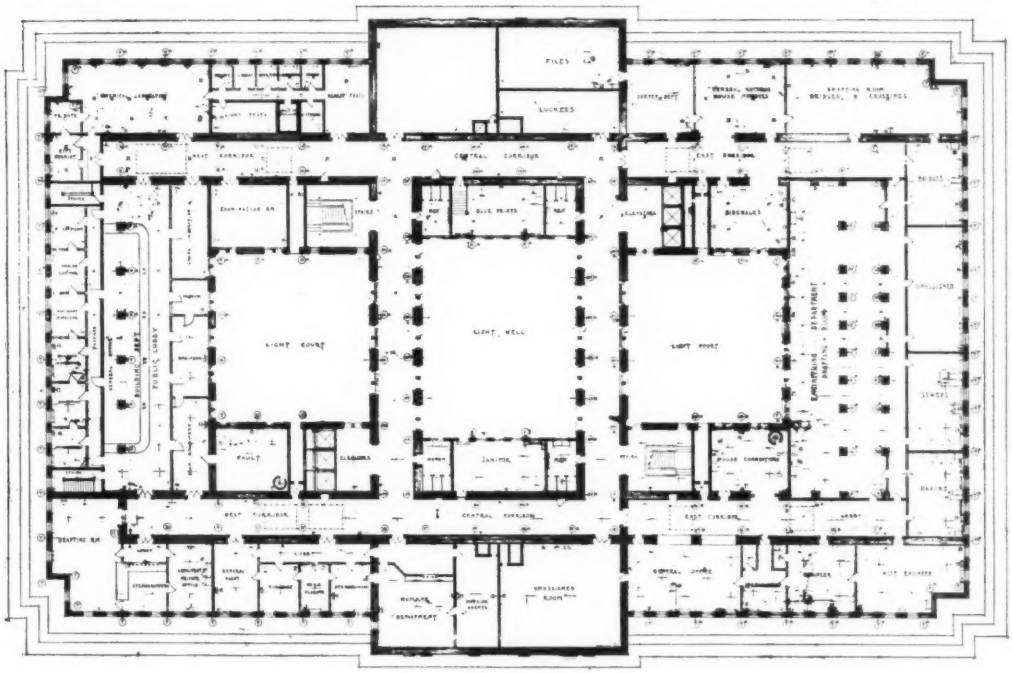
PLATE 45

GROUND FLOOR PLAN

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM



FOURTH FLOOR PLAN

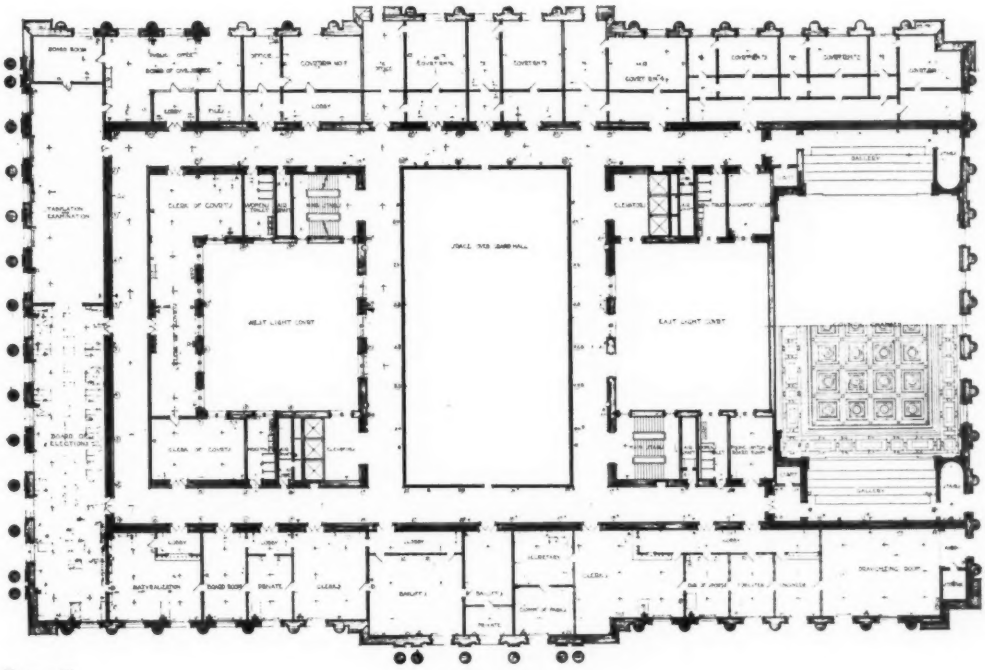


PLATE 46

THIRD FLOOR PLAN

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

Four original drawings by Albert Seaford of the City Hall, Cleveland, Ohio, J. Milton Dyer, Architect

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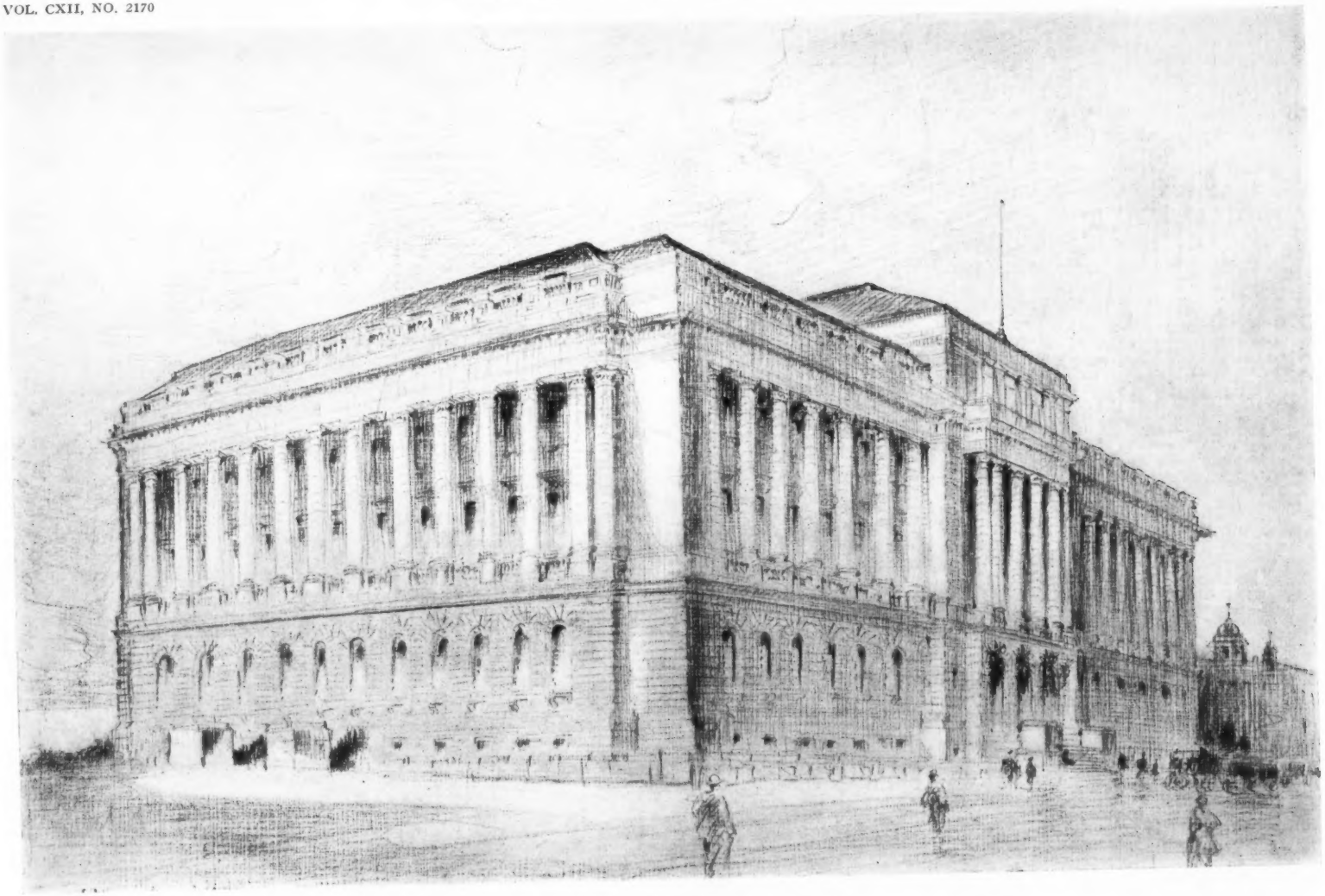

PLATE 47

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 48

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

XUM

PLATE 49

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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PLATE 50

CITY HALL, CLEVELAND, OHIO

MR. J. MILTON DYER, *ARCHITECT*

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VOL. CXII JULY 25, 1917 No. 2170

Garden Cities for France

THAT it is an ill wind that blows no good is again proved in the possibilities set forth by the action of the French Chamber which has adopted the principle of indemnities in full to property owners for the amount of their losses by the war.

The benefits that will accrue through such a policy will not, as might at first appear, be to the individual property owner, but more largely to the general public. Nationalization, or State ownership of land, decentralization of the population and the replacing of ruined towns by well planned garden cities, are among the principal topics now under discussion for the rebuilding of Northern France. Those who strongly urge the adoption of a measure of indemnity are as strongly in favor of the State's availing itself of an opportunity to take over certain lands, and thus to carry forward on the largest scale, experiments in the formation of garden cities.

These experiments, as is further pointed out, are at the outset assured of success, and as an instance of what can and probably would be accomplished, Dravoll, an experimental garden city, in the Department of Seine and Oise, is referred to.

The success of this venture in co-operative housing has been so great as to cause many men who have tried to discredit such attempts to become the most enthusiastic supporters of the scheme for garden cities, now proposed by the French Government.

Dravoll started in 1909 with a capital of $4,000, and it now has a capital of $160,000 in which about 300 families are interested.

A correspondent from France to the Associated Press, whose dispatch is printed in a recent issue of The New York *Times,* states as to the success of Dravoll:

"The essential features of the Dravoll Society were the purchase of land and construction of buildings on the installment plan. The State had nothing to do with this except by facilitating loans through the public loan institution."

The project as outlined for the rebuilding of the devastated area in the North of France, and which could be placed in practical operation if the proposed legislation is passed, comprehends that when the State has taken over the land by purchase, it may be leased to the different Communes which in turn would let it to societies formed on a strictly co-operative basis, or directly to individuals.

The improvement of the land in every case would need to comply with certain restrictions preventing too great concentration of population, and the setting apart in every settlement of such spaces as would provide public parks and playgrounds, the whole development to have the most improved hygienic installations.

A scheme of this sort would result, if properly conducted, in restoring a devastated section to habitable conditions, and affording an opportunity to carry forward on a large scale, ideas of co-operative town planning that have never before been attempted.

The result of this effort toward rehabilitation of that section laid waste by war will be watched with considerable interest.

Adjusting the Government's War Purchasing Machinery

HOW Government specifications are being changed to meet practical war conditions; how sources of supplies are being surveyed and developed to satisfy a demand heretofore unheard of, and how conclusions are being reached as to fair and reasonable prices, are questions gone into in the first of a new series of war bulletins.

They are to be prepared under the direction of Waddill Catchings of New York, just appointed an assistant to the director of the Council of National Defense. Mr. Catchings is also the chairman of a new committee of the Chamber of Commerce of the United States to co-operate with the Council. The series will be issued through the National Chamber for the purpose of placing before business

men authoritative statements regarding government activities in procuring materials and supplies for the war.

It is made clear in the first bulletin that the Council confines itself to investigating, reporting, making recommendations, and bringing government officials in contact with business men. The fact is emphasized that it does not make purchases, issue orders, or have any part in carrying them out. It has not the power to do this by law and does not do it in fact. Notwithstanding all vague opinion to the contrary, the buying is still done by the War and Navy departments through the several bureaus.

Effective work has been accomplished, it is said, in adapting peace-time government specifications to immediate needs. A difficulty immediately apparent was that they were prepared years ago for our small army in time of peace and fell far short for the present necessities of a million or more men.

An example of how the Council of National Defense committees have assisted the Government is said to be furnished by the work of the Emergency Construction Committee in connection with the erection of $55,000,000 worth of cantonments. There are to be sixteen of these great camps and the War Department desires to let the contract for the cantonments to the contractors best fitted to undertake such work. The Emergency Construction Committee has recommended such contractors, having determined them by inquiring of the American Institute of Architects, the chief engineers of railroads and all companies engaged in large construction work.

A Pressing Need for Zoning Laws

AS a protection against harmful building operations the new zoning law in New York is proving of great value. It has been assailed by certain interests, as it was sure to be, but the attitude of the majority of real estate owners has been so pronouncedly favorable as to leave little hope of success to that small body of men who are not disposed to regard its working with favor.

When normal conditions are once more established, and the people have opportunity to more calmly regard the problems that confront them, there will undoubtedly be a period of abnormal building during which there will be erected in many cities the additional houses necessitated by a shifting of the industrial population already begun.

The value of a zoning law to any growing city need not be urged. Now is the time to take such matters under careful consideration. A zoning law, regulating the location and nature of buildings, would undoubtedly save many cities from costly errors always occurring during "boom" movements, while of considerable financial betterment to the speculators who conduct them, often leave conditions that react unfortunately upon the esthetic welfare of the entire community.

William Winter

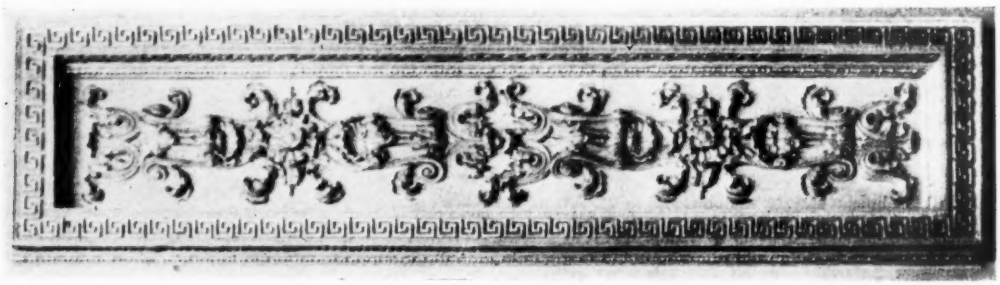
NO man in this country, and few if any abroad, ever labored with more enduring results to elevate the Art of the Drama in its every phase than did William Winter, who recently died at the advanced age of eighty-one years.

He gave to his work a devotion and resourcefulness rarely equaled. As a writer of the most refined English, and as a dramatic critic of the first rank, he possessed the rarest power of analysis and a versatility that was remarkable.

He published many volumes of reminiscences, some charming books of verse, but he will perhaps be more widely remembered for his series of sketches on English scenery and historical localities.

A writer would need to publish but two such rare volumes as *"Shakespeare's England"* and *"Grey Days and Gold"* to endear himself to a large circle of deeply appreciative readers.

Not only the critical view of the drama past and present, but the accurate scenic presentation of plays will suffer from the passing of a man whose books fill many volumes and whose style was the height of refined and scholarly expression.



Birch

By Samuel J. Record

Professor of Forest Products, School of Forestry, Yale University.

BIRCH is another wood that is being featured in magazine advertisements and in booklets and makes its bid for popular approval. To the reader of these, certain questions are likely to be suggested. To what extent are the claims of the manufacturers justifiable? If this wood, which has been always with us, has all the merits claimed for it why should it now be demanding further recognition by the American public?

In general, it may be stated that the present standard of lumber advertising is high and the claims reliable. The organization of lumber manufacturers along the lines now followed inures to the benefit of all concerned. It results in the standardization of forest products, eliminates waste of material, and affords the buyer protection. The organizations realize that success depends upon the satisfaction of the user of their material, and this means that attention must be devoted to every detail of manufacture from the standing tree to the finished product. They strive to regulate the sawing, drying and re-manufacture so as to guarantee to the purchaser lumber of uniform quality in grades well adapted to his use and backed by a responsible organization. They also enlist the co-operation of makers of paints and wood finishing products, craftsmen and builders in order to get the best out of their material.

STANDING BIRCH

The finest woods in the world can be ruined by inefficient handling. The more costly woods, however, are more likely to be accorded the treatment they require. Many of our more common and cheaper woods are apt to be slighted and therefore to produce mediocre effects, when, if given the same degree of attention, they will show results equaling or surpassing those obtained from fancy cabinet woods.

There are certain woods, such as mahogany and Circassian walnut, which have won enviable and abiding place in public esteem. They have become standards. Their waning supply and increased cost have led to the introduction of other materials either in the guise of the genuine or at best as substitutes. The very name substitute carries a stigma of inferiority. It is one important function of the lumber organizations to take their woods out of the substitute class and to let them be known and judged solely on their own merits, to be appreciated because of intrinsic worth, without apology and without deceit.

The history of birch has been too largely that of a substitute material. So readily does it lend itself to stains that it has been extensively employed to imitate something else. Birch is believed to have been the first wood in this country to be employed as an imitation of mahogany, and Boston furniture manufacturers were putting it to that use very early It is still so used and one of its commercial names is "mahogany birch," a tribute to its success as a counterfeit. It also became a substitute for cherry as the supply of that wood became depleted. The secretary of the Northern Hemlock and Hardwood Manufacturers' Association states that replies to a circular letter to architects show clearly that 90 per cent of them think of only one use for birch—that is to imitate mahogany. Success as a substitute for

such valuable woods as mahogany and cherry implies quality of a high order, but does not bring the prestige the wood deserves; it does, however, indicate possibilities as yet undeveloped.

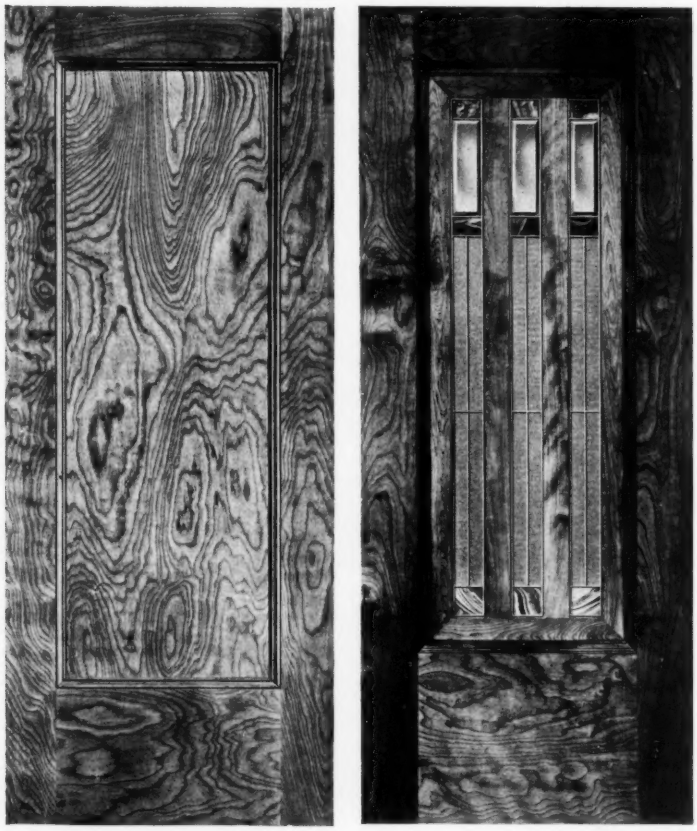
The use of the singular form of the name birch might give the impression that there is only one species of the tree. In reality there are ten native species reaching tree size in America, and six of them are of greater or less commercial importance. The two making up the bulk of the lumber cut are the sweet, black, or cherry birch (*Betula lenta*) and the yellow birch (*Betula lutea*). The ranges of the species overlap, though yellow birch predominates in Wisconsin and Michigan, where most of the birch lumber is now manufactured.

The woods of these two species are much alike, appear together on the market usually without distinction, and are employed for much the same purposes. So far as interior finish, floors and doors are concerned there is no ground for separating the woods. They are both fine and uniform textured, with small pores scarcely distinguishable without a magnifier unless a dark filler is employed in finishing. In hardness and strength birch is closely associated with oak and maple. The grain is usually straight and does not rough up or splinter. Unlike some imported cabinet woods birch does not contain any natural crystals or grit to dull the worker's tools, and it can be sliced into veneers, dressed and polished to a high degree with ease. It is well adapted to carving, as it is uniform in structure, compact, firm but not brittle.

The color of the heartwood may perhaps best be described as light reddish brown with some variation toward a darker shade. The sapwood is yellowish. There are no important differences other than color between heart and sap, though the cabinet maker finds he gets the best joints by gluing sap edges together and heart edges together. The strength, texture, hardness and other mechanical properties of sap and heart are the same, and where the wood is to be dark-stained or painted there is no preference between them. Neither heart nor sap is especially durable when exposed to the severe conditions which promote decay.

One of the most characteristic features of birch wood is its high natural luster, which imparts to it a soft, satiny appearance. Some selected panels in the Yale collection of cabinet woods compare favorably with those of satin wood and have a rich golden color and wavy grain.

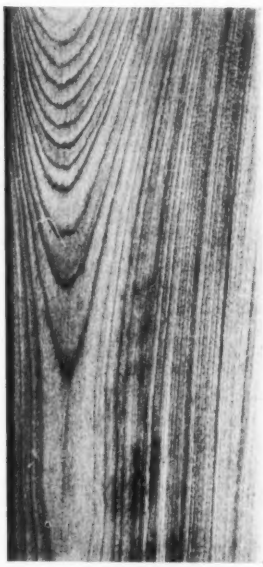
For the most part birch lumber has no very pronounced figure or grain, though rather highly figured birch is to be had, especially in rotary cut veneers. The medullary rays which are so conspicuous in quarter-sawed oak and sycamore and to a less extent in mahogany, beech and cherry, are too fine in birch to show prominently, though observable as fine dark-red lines on radially cut material. Since the pores are small and evenly distributed throughout the annual rings of growth, flat-sawn lumber and rotary-cut veneer do not present the strong contrasts in grain found in such species as oak, ash, and other ring-porous woods.



AT LEFT: FIGURED BIRCH, ROTARY CUT, SHOWING CONTOUR OR LANDSCAPE EFFECT. AT RIGHT: BIRCH VENEER, ROTARY CUT

Comparatively few birch logs are conspicuously curly-grained and produce material highly prized for cabinet and panel work and for veneers. When such logs are rotary-sliced a landscape grain resembling a contour map is obtained. When quarter-sawed the true waves are revealed, and matched veneers give the effect of gathered satin. There are in birch no irregular deposits of dark pigment such as give much of the figure to red gum and Circassian walnut.

The absence of pronounced figure in birch, the fine and uniform texture, and usual light color make possible the successful application of many finishes and stains. There is no resin present to cause trouble. It has been said that when certain stains are used a chemical reaction takes place between the stain and the wood and after a year or so shows bad results. This matter was brought to the attention of a prominent manufacturer of wood finishes, who, in a letter to the writer, says: "We have never known of any difficulty in finishing birch, provided right methods and materials are used. In our own sample department we finish a great many thousand feet of this wood with splendid results, and our finishers find that it takes finishing material very well and that it is easy to work. As to the permanency of finished birch, we have panels in our finishing department which were finished eight or nine years ago and the finish is just as beautiful to-day as when first applied."



TYPICAL BIRCH SECTION

There is good evidence, however, that much fine interior woodwork of birch and other hardwoods as well has been spoiled either through lack of knowledge on the part of the wood stainer or because of the use of certain brands which do not give good results on this material. For instance, some silver grays in use give the wood the appearance of having been painted with a mud finish, others impart an undesirable greenish cast, and still others leave yellow streaks. A good silver gray with dull finish and quiet tone is well adapted to birch, but it is to the advantage of the purchaser to try out this or any proposed stain on a piece of wood to make sure of getting the exact effect desired. The use of birch permits a wide range of finishes in the same building to afford variety, harmonize with furniture and decorations, meet varying lighting conditions, and to suit individual tastes.

The use of birch for high-grade doors is on the increase and excellent effects are possible with selected stock either quarter-sawed or rotary-cut. Veneered interior doors, if properly built, are entirely satisfactory; a veneered exterior door must be well protected by a porch or it will give trouble. A door of choice material for the panels, or a flush door of matched veneers or of one piece of rotary-cut veneer, with or without inlaying, is an object of beauty and artistic merit. Figured birch lends itself admirably to this purpose.

Birch makes excellent flooring. It differs from maple principally in color, being reddish in tone like beech instead of white. It gives equally good appearance and service whether plain-sawed or quartered. In this respect it differs from yellow pine and Douglas fir flooring, which is very much better when quarter-sawed or edge-grain. The unselected grade of clear birch combines appearance and durability, but there is no selection for color. Red clear birch is manufactured from all-red face stock especially selected for color. It costs more, but for purposes where a floor of rich, warm tint is desired it is well worth while.

Success with birch flooring, interior trim, paneling and doors is dependent upon the treatment the wood receives. In this respect it is like most other hardwoods used for such purposes. The lumber should first be carefully air-seasoned in properly constructed piles that will not allow serious warping, checking or case-hardening. It should then be kiln-dried, dressed to standard sizes, and stored in dry sheds. It should be shipped in closed cars to prevent the absorption of too much moisture from the air. It should not be unloaded in damp weather, or stored in open sheds or in newly plastered rooms, or put into place until the moisture has been dried out of the walls. It is always advisable to use artificial heat to help dry out a building before hardwood floors, doors and finish are placed. Lack of attention to these details is inviting trouble, not only with birch but with any hardwood.

Birch is a wood for inside uses and should not be employed in contact with the ground or where the moisture conditions are favorable to rot. It is suited for moldings, base, doors, door frames, window frames, beam and panel ceiling, wainscoting, grille work, built-in cabinets and tables, and for newel posts and other parts of ornamental stairways. It is growing in favor for use inside resi-

dences, apartments, banks, churches, lodge rooms, hotels, offices, hospitals and college buildings. It will withstand rough usage much better than softer woods. Birch can be used throughout even the largest buildings by varying the finish, and more conveniently and economically since the millwork material can be bought in one order.

In the Hotel St. Francis in San Francisco (the largest hotel building west of Chicago) all doors, door frames, window frames, in fact all the trim, except where marble is used, are of birch with mahogany finish. The William Penn Hotel in Pittsburgh is finished in birch stained a soft brown. In the new building of the Massachusetts Institute of Technology the woodwork, except in the president's room, is of birch. The entire woodwork in the Osborn Memorial Laboratories at Yale University is of birch with a slight brown finish. These are typical of a long list of important buildings in which birch is proving its merit.

The supply of birch lumber is equal to many years' demand. It is estimated that there is a total of over 10,000,000,000 board feet of this timber standing in Michigan, Wisconsin and Minnesota, of which Michigan is credited with 5,100,000,000 ft., Wisconsin with 4,300,000,000 ft. and Minnesota with 700,000,000 ft. In Wisconsin the stand of birch is nearly twice that of maple and is greater than that of any other hardwood and about one-third that of hemlock. In Michigan the stand of birch exceeds that of any other hardwood with the exception of hemlock and maple. It is about one-third as plentiful as hemlock and one-half as plentiful as maple. Birch is also found in the New England States and in New York, Pennsylvania and West Virginia and to a less extent elsewhere.

The cut of birch of all kinds in the United States reported for the year 1915 was approximately 415,000,000 board feet. The exact amount of sweet and yellow birch lumber included in this total is unknown, but Wisconsin and Michigan together reported a cut of 275,000,000 ft., nearly all of which must have been from these two species. Although birch is growing in popularity and use it is probable that the annual cut will not materially increase. At the present rate of consumption the manufacturers claim that there is a fifty-year supply in sight. It seems certain that there is enough of this wood in the forest to meet the needs of the oncoming generation.

An Uncommon Form of Memorial

An interesting form of memorial has recently been placed by the Aberdeen (Scotland) Literary Society on the top of a hill overlooking that city. It takes the form of a bronze tablet on which is engraved a chart or guide to the conspicuous mountains and other noticeable features seen from the summit.

Illinois Society of Architects Annual Election

The Illinois Society of Architects has elected officers for the ensuing year, as follows: President, Stafford Fox Thomas; first vice-president, Arthur F. Hussander; second vice-president, James B. Dibelka; treasurer, Samuel N. Crowen; secretary, John Reed Fugard; financial secretary, H. L. Palmer; directors, F. E. Davidson, H. B. Wheelock, George W. Maher, E. S. Hall, N. Max Dunning and George Beaumont; board of arbitration, Irving K. Pond, J. C. Llewellyn, Elmer C. Jensen, Richard E. Schmidt, Dwight H. Perkins, George C. Nimmons and A. E. Robinson. A report of the annual meeting, held this week, will appear in next week's issue of the *American Contractor*.

North Carolina Architectural Association Elects Officers

The annual meeting of the North Carolina Architectural Association was held in Greensboro on July 11.

It was decided to hold the next annual meeting in Winston-Salem, January, 1918. The following officers were elected: W. C. Northup, Winston-Salem, president; James F. Garise, Jr., Wilmington, vice-president; Harry Barton, Greensboro, secretary and treasurer.

Book Note

THE SMALL COMMUNITY HOSPITAL. By John Allan Hornsby, M.D. Full Cloth, 110 pages, size 5½ x 9 inches. St. Louis, The Modern Hospital, Publishers.

Between the covers of this small volume there has been placed a large amount of information that will be of considerable value to architects because it is the result of the observation of a member of the medical profession whose work for a number of years has had largely to do with the administrative side of hospital work. Dr. Hornsby writes with much information and draws on a large fund of practical experience. The work is divided into eight chapters dealing with the various phases of the small community hospital, its creation, financing, planning, construction and arrangement of the interior. There are also chapters on equipment and organization. The book is a reprint of a series of articles that appeared in the *Modern Hospital*.

A Mantegna Panel for America

A panel painting, 7⅛ x 12 inches, by Andrea Mantegna, and valued at $200,000, is now on the way to this country, having been purchased in London by an American firm of art dealers.

This panel, originally belonging to Charles I, has been for centuries in the possession of the Earl of Pembroke and Montgomery. It will be the highest priced picture of its size in America.

A Fund to Aid Artists

Announcement has been made by the National Arts Club of New York of the issuance of an art stamp, to be sold for one cent, in quantities of twenty-five or more, to provide a fund for American art workers or their dependents who may, as a result of the war, become reduced in circumstances.

The stamp is the work of Eugene F. Savage, winner of the Rome Prize in 1912, and bears the motto "Service Together," symbolizing the relation which exists between the farmer who supplies the nation's food and the soldier who defends the nation. The prominent artists who are on the committee to promote the sale of the stamps are Douglas Volk, Colin Campbell Cooper, Herbert Adams, John G. Agar, Paul W. Bartlett, Edwin H. Blashfield, Arnold W. Brunner, William A. Coffin, C. C. Curran, Daniel Chester French, Charles Dana Gibson, Cass Gilbert, Philip L. Hale, Francis C. Jones, Alexander Konta, W. H. Lippincott, Ernest C. Peixotto, Gardner Symons, J. Alden Weir.

Graduates, University of Illinois

The following men have been this year graduated from the College of Engineering, University of Illinois, Urbana, Ill.:

In Architecture

H. J. Barnes, Joliet, Ill.; W. A. Behel, Lake Bluff, Ill.; Le Roy Bradley, Fort Wayne, Ind.; J. B. Carroll, Bradford, Ill.; J. N. Crawford, West Lafayette, Ind.; C. R. Federman, Indianapolis, Ind.; G. A. Ferguston, Washington, D. C.; J. H. Flemming, Davenport, Iowa; H. L. Gogerty, Zearing, Iowa; F. L. Goldman, St. Louis, Mo.; A. S. Graven, Menomonie, Wis.; D. E. Jones, Little Rock, Ark.; G. P. Lagergren, St. Paul, Minn.; R. E. Lawrence, Ripon, Wis.; M. Lovell, Chicago, Ill.; G. W. Lutes, Lutesville, Mo.; Marion Manley, Junction City, Kan.; H. G. Overend, Edelstein, Ill.; J. J. Patterson, Danville, Ill.; C. B. Rowe, Chicago, Ill.; J. P. Russett, Cedar Rapids, Iowa; E. G. Schaumberg, St. Louis, Mo.; T. J. Strong, Cheney, Wash.; R. H. Thiele, Ramsey, Ill.; K. M. Waggoner, Decatur, Ill.; C. A. Williams, Sterling, Ill.

In Architectural Engineering

Dan Babcock, Anderson, Ind.; G. C. Darrell, Chicago, Ill.; R. E. Dippell, Freeport, Ill.; W. B. Ewer, Chicago, Ill.; E. M. Finn, Lawrence, Mass.; C. J. Gruhl, Milwaukee, Wis.; C. A. Gustafson, Fort Dodge, Iowa; S. I. W. Hornkohl, St. Joseph, Mo.; M. S. Jackson, Pine River, Minn.; N. A. Knudsen, Armstrong, Iowa; Edw. Lerch, Rock Island, Ill.; M. C. Levinson, Chicago, Ill.; J. T. Lewis, Rockford, Ill.; A. D. Little, Genoa, Ill.; H. H. Lueder, Cherokee, Iowa; R. M. Lueder, Cherokee, Iowa; C. C. Lundeen, Rock Island, Ill.; G. W. Mahn, Urbana, Ill.; C. O. Mueller, Chicago, Ill.; H. E. Mueller, Chicago, Ill.; E. R. Mullins, Champaign, Ill.; W. T. Purcell, Chicago, Ill.; R. S. Raaberg, Chicago, Ill.; J. G. Ritter, Chicago, Ill.; P. T. Rockey, Freeport, Ill.; J. C. Sherrick, Monmouth, Ill.; Edw. Smidl, Chicago, Ill.; G. W. Stoddard, Milwaukee, Wis.; T. S. Tanner, Dwight, Ill.; J. H. Ticknor, Peoria, Ill.; T. W. Tolmie, Dubuque, Iowa.

Building Crafts Exhibition

Previous exhibitions of The Architectural League of New York have been marked by large and well arranged displays of examples of varied works of the building and furnishing crafts from American workshops.

Mr. William Laurel Harris, in an article in a recent issue of *Good Furniture*, commenting on this feature of the last exhibition of the League stated:

"In making this innovation—so contrary to the ideas of ten years ago and still opposed by the customary policy of conservative art societies to-day—the architects, sculptors, decorators and other purely artistic guilds represented in the membership of the league have frankly acknowledged a community of interests which has always existed and which will always exist between the creative artist and the manufacturer.

"It is the artisan and the manufacturer who are usually entrusted with the vital task of carrying out the ideas expressed by architects' drawings and specifications. This is not at all a novel condition or circumstance, but the frank acknowledgment of this interdependent and co-operative effort has never, before the present season, been officially recognized in the annual exhibition of the Architectural League of New York at the Fine Arts Building.

"On the skill and faithfulness of the manufacturer and his artisans depend, in a large degree, the final achievements of all our architects."

These exhibitions of the work of American Craftsmen have been, even in their limited space, received with such satisfaction by every architect attending, that the League has now decided to prepare for an exhibition early in the coming winter, that will be an exclusive presentation of the Building Crafts.

Under such auspices, there can be no doubt that this will be one of the most important showings of the work of the American Craftsman. To secure this result, every craft, guild and manufacturer will need to lend the utmost of co-operation, and it is to be hoped they will do so.

Just at the present time, the plans for this exhibition have not been sufficiently matured to warrant their publication, but we learn that an announcement of all the details of plan and scope will be announced by The Architectural League early this fall.

Graduates, University of Pennsylvania

At the recent commencement of the School of Architecture, University of Pennsylvania, twenty-four men received the degree of Bachelor of Science in Architecture, three Master of Science, and twenty-four received certificates of proficiency for satisfactorily completing the requirements of the two-year special course.

INDUSTRIAL INFORMATION

Water Supply Systems for Rural Homes

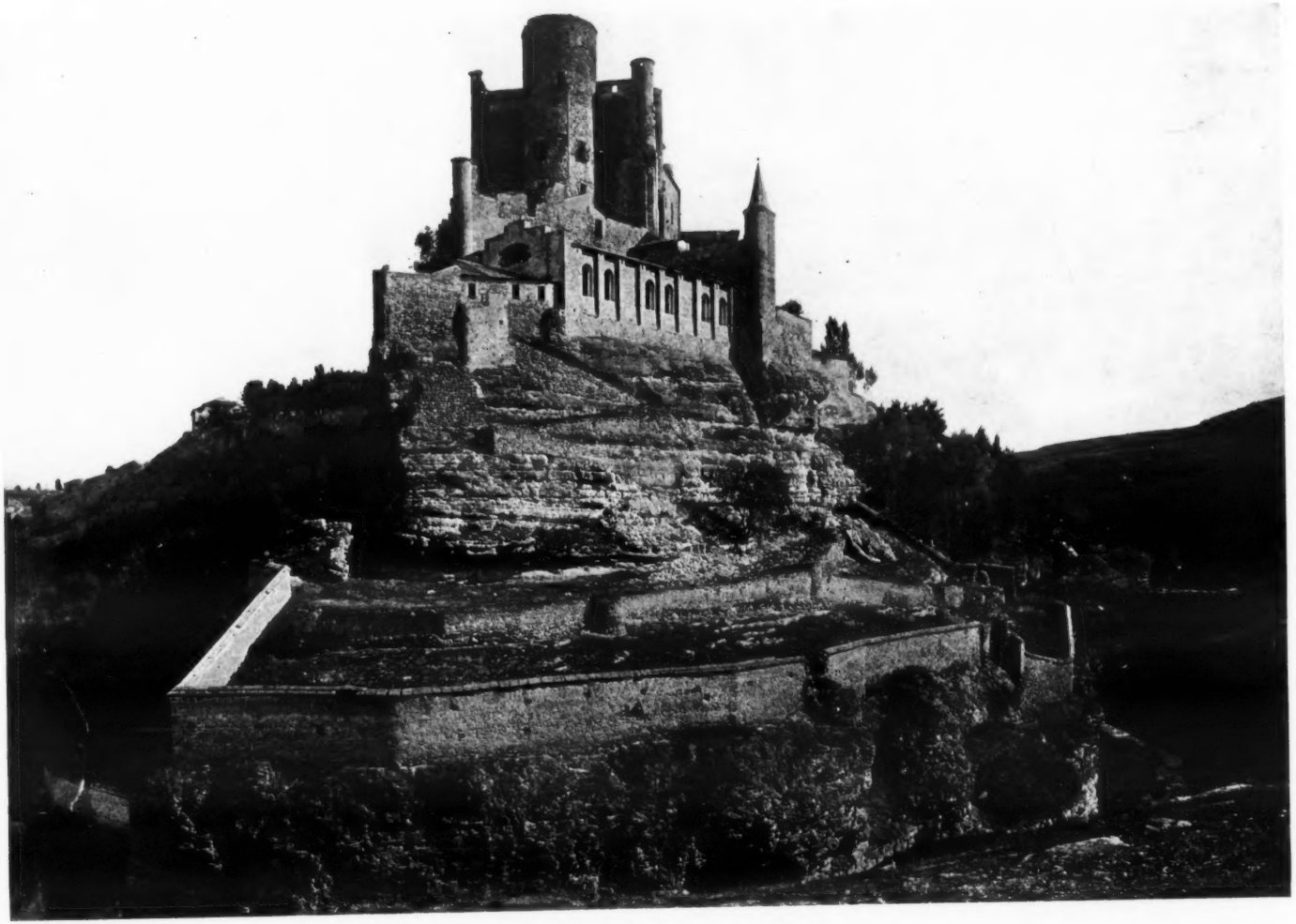
Simple and effective hydro-pneumatic apparatus for supplying water to farm homes, country clubs, greenhouses, suburban residences and other isolated establishments is manufactured by the Deming Company of Salem, Ohio. The system consists of a cylindrical tank into the bottom of which is pumped water until the air pressure at the top of the tank becomes strong enough to expel the water through the piping of the system; and a pump, either hand-power, electric motor or gasoline engine driven, connected with the water supply. A 32-page booklet describing this apparatus will be sent by the company upon request.

White Stainless Cement

The numberless building requirements of strength and appearance which are being met with Portland cement render especially interesting the progress that is being made toward perfecting cement products. The Sandusky Cement Company of Cleveland, Ohio, manufacture the Medusa brand of white Portland cement, which they have made the subject of an attractive booklet of forty-eight pages, recounting the many uses which this material has for plain and decorative building construction. Instructions for the use of Medusa White in mixing stucco, colored concrete, artificial marble and in obtaining any desired finish are given. As a mortar the advantage claimed for this brand is its stainless quality. Pictures are scattered profusely throughout the booklet illustrating the points of argument.

Heating and Ventilating Radiators

A theory of so-called direct-indirect heating and ventilating worthy of investigation is that of C. C. Shipp & Company of Indianapolis, Ind., manufacturers of radiators. The direct-indirect radiator is fitted with a cast-iron wall box which admits fresh air from outside the building and carries it under and around the radiator before diffusing it into the room. There are screen fittings for the ventilating box, fresh-air control adjustments and air-moistener attachments to further the cause of health and comfort. The system is completed, of course, by an outlet for the expulsion of impure air at another location in the room. It is recommended chiefly for schools and other public buildings. A very handsome and complete booklet on the subject may be had by application to the company.



THE ALCAZAR, SEGOVIA, SPAIN