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THE discussion in Massachusetts in regard to the decoration of the Memorial Hall, in the new portion of the State-house, in Boston, has been reopened in consequence of the introduction of a bill in the Legislature authorizing the State-house Commission to expend a part of its appropriation for that purpose. It will be remembered that the State-house Commission, some months ago, engaged Mr. Simmons to do the work, and that a good many citizens of Massachusetts were displeased that so important a commission should have been awarded without the knowledge of the public, and without considering the claims of local artists. The introduction of the bill to authorize the expenditure of the money afforded a chance to offer amendments, and Mr. Tatman, of Worcester, has proposed one, to the effect that selection of an artist should be made in unrestricted competition, under such reasonable rules as the State-house Commission may provide. This proposition is opposed by the *Boston Transcript*, on the ground that "the best artists will not compete," and that this "renders it practically certain that an inferior work will have to be accepted, because only men of second-rate ability will enter the competition;" and the *Transcript* rather goes out of its way to accuse Mr. Tatman of trying to "coddle the local artists," and in this way "conciliate voters." As Mr. Tatman never proposed to confine the competition to local artists, he may be acquitted of any desire to "conciliate voters," and we must confess that we are glad to see his amendment offered. Whether we would be glad to see it adopted is another matter. In the present instance, the agents of the State seem to have made an engagement with Mr. Simmons which should not be broken without good reason. It is quite possible that they may have exceeded their authority in treating with him, but any uncertainty should be construed in favor of upholding all contracts made by or in behalf of the Commonwealth, through its representatives, with innocent parties.

APART from this, which is the most important point involved in the whole matter, we are inclined to agree with Mr. Tatman's view of the proper method of selecting artists for decorating public buildings. There is no doubt of Mr. Simmons's qualifications for the undertaking, although there have been Massachusetts-born artists, such, for example, as Mr. Charles Sprague Pearce, whose qualifications every one would acknowledge to be equal to those of Mr. Simmons; but there is, in a well-conducted competition, particularly for decorative work, something stimulating, both to artists and to the public, which is of great value to art. The *Transcript* says that first-class artists will not condescend to enter competitions. There is a certain amount of truth in this statement, but it is true only because public competitions in this country are almost

always decided by favoritism, or political considerations, or some underhand influence, to which self-respecting men will not expose themselves. In Europe, and particularly in France, where artistic competitions are kept as free as possible from scandal, the greatest men do not hesitate to enter them, and find in them a wholesome antidote to the tendency to overrate themselves which so frequently attacks artists. Here, much more than in France, is needed the bracing influence of competition before qualified judges, to counteract the evil effect which newspaper flattery and ridiculous criticism have upon art and artists; and no better opportunity has ever offered itself for such a competition than would have been afforded by the Memorial Hall decoration. If the matter had been publicly discussed at the proper season, and a competition instituted under such terms as are offered in Europe, there is little danger that capable artists would not be found who would be glad to measure their skill against that of others in a friendly contest for a forty-thousand-dollar commission. That there would be some artists who would stand on their dignity, and refuse to compete, no one who knows the fraternity in America can doubt, but whether they would be those who could do the work most successfully is not so certain; and, in any case, to employ them directly would be to deprive the public of the educating effect of an interesting struggle, and the community of artists of what it most needs, an opportunity to make its best effort, under encouraging and stimulating conditions.

IT is a satisfaction to think that the great and widespread interest now taken in preventing loss by fire must, sooner or later, have important consequences. For several years tests have been regularly made in Germany of fire-resisting materials and methods of construction, and the trials have been carried out with a thoroughness and scientific appreciation of the object sought which are not only characteristic of the Germans, but afford an admirable example to others. Within two years, the British Fire Prevention Society, under the intelligent direction of some of the best architects and engineers in Europe, has made similar tests, and its reports circulate extensively in all English-speaking countries. Here, although many excellent investigations have been made under the direction of individual architects, a great deal of the so-called testing is arranged in the interest of manufacturers of certain materials, and is more or less misleading to the public, although architects are not often deceived by it; and the most efficient work has undoubtedly been done by the officers of the Manufacturers' Mutual insurance companies, who have devoted themselves with American ingenuity and perseverance to the determination of the best methods for preventing loss by fire in the industries with which they are concerned. The immense pecuniary value of this service to manufacturers, who have seen their insurance premiums reduced from two per cent a year on buildings, materials and goods, to an average of a small fraction of one per cent, is known to all architects, but the details of the work are not so familiar, and Mr. Atkinson's little book, on the "Prevention of Loss by Fire," will be read in the profession with great interest. The reproach which the underwriters, years ago, took so much satisfaction in casting upon the architects, that they neither knew nor cared how to protect their buildings against destruction by fire, is, if it ever had any justification, no longer deserved, but there are few architects, and still fewer owners, who cannot learn something from Mr. Atkinson's pages.

MR. THOMAS G. SHEARMAN, of New York, needs to be looked after by the Collectivist and Socialist orators.

A meeting was held at Cooper Union a few days ago, to consider the subject of Employers' Liability, and Mr. Shearman was so misguided as to remark, before the workingmen present, on the "folly of alienating themselves as they do from men of intelligence, but not horny-handed, and in trying to lead a separate life, and in trying to procure legislation in their own peculiar and especial interest; and the folly of believing that they cannot get sympathy and justice from intelligent lawyers and judges, and the more intellectual classes, if they will only go straight to them and ask for it." As to the way in which workingmen,—that is, men whose families are dependent on them for support from day to day, can get, what Mr. Shearman believes that they need, legislation to secure

the family against sudden destitution in case of accident to its head, he said, "Certainly, do not go in a spirit of hostility to the employer, asking that the greedy capitalist shall be compelled to disgorge, or that the cruel master shall be compelled to withhold his iron hand, or any such nonsense as that, but ask simple justice, and you will have no difficulty in bringing yourselves up to the level of these monarchies;" that is, to the level of the monarchical countries in Europe where workingmen are obliged by law to hold policies of insurance against disability.

WE are told that "quite a sensation" was caused by these words of common-sense, and the apostles who earn fame and a comfortable living by denouncing employers, and squealing to them to take their feet off the necks of some unspecified workmen, will have hard work to counteract their influence; yet every one knows that they are true. Instead of spending their days and nights, as the Collectivists would have us believe, in concocting diabolical plots for crushing and "exploiting" working-people, nine employers out of ten wish to see those among whom they live happy and prosperous, and willingly make considerable sacrifices for that end, where they are satisfied that they can do so judiciously; and it is the workmen who reward this thoughtfulness for their welfare by attacks on their employer's business, maliciously timed by their leaders so as to inflict the greatest possible injury on him with the least benefit to themselves. We heard a few days ago of a group of Southern families, friends of the person who told us the story, who have gradually reduced themselves to poverty, in order to support a community of colored people around them. The older members of this colored community were formerly slaves of the white families concerned. Emancipation set them free, at the expense of their masters; but, as they had always been well treated, they felt no disposition to fly from the "tyranny" under which they were supposed to have been "writhing." On the contrary, they settled in the neighborhood, as dependants, not to say hangers-on, of their former masters. The effect of emancipation on them, as it has been on a great part of the former slaves, was bad. No one could now compel them to work, and they fell into lazy and irregular ways, which led to the inevitable consequences, — want and misery. Their former masters could not bear to see them starve, and fed them, where they could not reform them; and the habits thus formed have persisted on both sides until now, the black families getting poorer and more shiftless, and their white benefactors, prevented by the law from trying effectively to reform them, sacrificing more and more of their own substance to keep them from hunger, until the process seems likely to end in reducing whites and blacks to destitution together. Notwithstanding the eloquence with which the Collectivists urge upon us their ideal society, every man clawing and trampling his neighbor, and the most eminent person being the one with the sharpest claws, every one knows in his heart that this little Southern village, and not the demoniac "struggle for life" community, is the real representative of modern civilization. It is true that every one is not so unselfish as these good people, but, taking the world generally, it is a rare thing to have an honest appeal for help go without a response.

THE accident at the Paris Exposition, by which nine persons lost their lives through the collapse of a temporary bridge, seems, from the latest accounts, to have been due, at least in part, to the unreasonable conditions imposed by the authorities. The bridge was, in fact, entirely outside the Exposition grounds, having been constructed by the proprietors of the Globe Céleste, which is separated from the Exposition territory by the Avenue Suffren, to span this thoroughfare, and thus to enable visitors to reach their exhibition directly from the Exposition grounds. One of the conditions imposed was that the central span should be sixty feet in the clear. This would be a serious matter with any bridge constructed of concrete, as was the case here; but for one put up for a temporary purpose, where it would be practically impossible to wait for the slow hardening of the cement, a sixty-foot span could almost be termed a reckless undertaking. The system adopted, that known as "*béton armé*," and consisting of a combination of concrete and iron bars, was excellent; but no iron bars can give tensile strength to concrete which has not had time to set, and the removal of the centring was followed almost immediately by the fall of the arch. Unfortunately, it

was necessary to take out the centring on a Sunday afternoon, when the Exposition territory was crowded with visitors, and it seems to have been impossible to keep people away from the vicinity, or even from the bridge itself, which was utilized by persons desiring to see the Globe Céleste up to the very moment of its fall. The accident is greatly to be regretted, not only in itself, but also because the severity of administration of the French law in regard to responsibility for accidents is likely to bring serious consequences to many of those concerned.

THE Annual Convention of the American Park and Outdoor Art Association will meet at the Art Institute, Chicago, Illinois, on June 5 next. The sessions will continue three days, and papers are to be read by Mr. Edwin D. Mead, of Boston, on Municipal Improvement; by Mrs. Cyrus H. McCormick, of Illinois, on Landscape Gardens; by Dr. Albert Shaw, of New York, on Outdoor Art; by Mr. William R. Smith, Director of the Botanic Garden at Washington, on the Arrangement of Plants in connection with Architecture; by Mr. William M. R. French, Director of the Chicago Art Institute, on Composition, in the distribution of buildings and natural objects; by Mr. William Ordway Partridge, of New York, on the proper setting of statuary in public places; and by other experts on various topics; while interesting committee reports will be presented by Mr. Frederick Law Olmsted, Jr., on Advertising Bill-boards; Professor Beal, of Michigan, on Prizes for Designs, and others. On Thursday evening, June 7, a joint meeting of the Association with the Architectural League of America will be held, at which Mr. Albert Kelsey, of Philadelphia, the President of the League, will deliver an address.

ALL arrangements have been completed for the construction of an electric railway in Belgium, connecting the cities of Antwerp and Brussels, over which passengers are to be carried at the rate of seventy-five miles an hour, making the trip between the two cities in twenty-five minutes. The system used is to be that with the third-rail conductor, already successfully applied in this country, and the trains, which will consist of a single car, on the American system, with sixty seats, are to depart in each direction at seven-minute intervals. As the State owns the present railway between Brussels and Antwerp, the managers of the new line have been obliged to provide against any injury to the public property by competition, by guaranteeing to the Government the continuance of its present receipts for passenger business between the two points, estimated at eighty thousand dollars a year, with an annual increase of ten per cent. Besides this, the Government is to receive one-half of the net profits of the new line, and is to have the privilege of taking possession of it at the end of ten years. The road will be very costly, on account of the expense of purchasing the right of way through a thickly-settled region, but the capital is provided for, and the line is to be in operation within two years.

FOR several years we have done what we might to draw attention to the fact that forest-renewal was a matter of vast importance for this country, new as it is to the uses of civilized man, and we note with pleasure every indication that comes to hand that this matter is receiving close attention in all parts of the country. One of the latest of these many manifestations is to be found in the just-issued report of the New Hampshire State Bureau of Labor, which deals with the great benefit that accrues to that State—a State whose surface still consists largely of "abandoned farms"—through the patronage of "summer boarders," whose welcome board-money helps to eke out the precarious income of many a landholder. The report points out that summer visitors are attracted by climate and by scenery and that trees furnish important elements in each of the qualities which make New Hampshire a favorite summer-resort, and then suggests that these qualities should be made permanent by inaugurating a State system of forest reservations, associated with a certain amount of park-building in the proper localities. If, at the same time, the six hundred lakes and ponds should be restocked with fish and the matter of road-building taken in hand, the reporters feel confident that the present income from summer boarders, which amounted last year to five million dollars, would speedily reach the proportion of an annual income of thrice that size.

ARCHITECTURAL ACOUSTICS.¹—V.

REVERBERATION: EXACT SOLUTION.

THE present paper will carry forward the more exact analysis proposed in the last paper.

For the sake of reference the nomenclature so far introduced is here tabulated.

t	= time after the source has ceased up to any instant whatever during the decay of the sound.
t', t'', t'''	= duration of the residual sound, the accents indicating a changed condition in the room such as the introduction or removal of some absorbent, the presence of an audience, or the opening of a window.
$t_1, t_2, \dots, t_n$	= whole duration of the residual sound, the subscripts indicating the number of organ-pipes used.
T	= duration of the residual sound in a room when the initial intensity has been standard.
i	= intensity of the residual sound at any instant.
i'	= intensity of minimum audibility.
$I_1, I_2, \dots, I_n$	= intensity of sound in the room just as the organ-pipe or pipes stop, the subscripts indicating number of pipes.
I	= standard initial intensity arbitrarily adopted, $I = 1,000,000 i'$.
w	= absorbing power of the open windows, minus their absorbing power when closed = area $(1 - .024)$.
a	= absorbing power of the room.
$a_1, a_2, \dots, a_n$	= coefficients of absorption of the various components of the wall surface.
s	= area of wall (and floor) surface in square metres.
$s_1, s_2, \dots, s_n$	= area of the various components of the wall surface.
V	= volume of the room in cubic metres.
k	= hyperbolic parameter of any room.
K	= ratio of the parameter to the volume, $aT = k = KV$.
A	= rate of decay of the sound.
p	= length of mean free path between reflections.
v	= velocity of sound, 342 m. per second at 20° C.

Let E denote the rate of emission of energy from the single organ-pipe.

$\frac{p}{v} =$ the average interval of time between reflections.

$\frac{p}{v} E =$ amount of energy emitted during this interval.

$\frac{p}{v} E \left(1 - \frac{a}{s}\right) =$ amount of energy left after the first reflection.

$\frac{p}{v} E \left(1 - \frac{a}{s}\right)^2 =$ amount of energy left after the second reflection, etc.

If the organ-pipe continues to sound, the energy in the room continues to accumulate, at first rapidly, afterwards more and more slowly, and finally reaches a practically steady condition. Two points are here interesting,—the time required for the sound to reach a practically steady condition (for in the experiments the organ-pipes ought to be sounded at least this long), and second, the intensity of the sound in the steady and final condition. At any instant, the total energy in the room is that of the sound just issuing from the pipe, not having suffered any reflection, plus the energy of that which has suffered one reflection, that which has suffered two, that which has suffered three, and so on back to that which first issued from the pipe, as:—

$$\frac{p}{v} E \left[1 + \left(1 - \frac{a}{s}\right) + \left(1 - \frac{a}{s}\right)^2 + \left(1 - \frac{a}{s}\right)^3 + \dots + \left(1 - \frac{a}{s}\right)^n \right]$$

where n is the number of reflections suffered by the sound that first issued from the pipe, and is equal to the length of time the pipe was blown divided by the average interval of time between reflections. The above series, which is an ordinary geometric progression, may be written:—

$$(1) \quad \frac{pE}{v} \frac{1 - \left(1 - \frac{a}{s}\right)^{n+1}}{1 - \left(1 - \frac{a}{s}\right)}; \quad \begin{array}{l} \frac{a}{s} \text{ is by nature positive and less} \\ \text{than unity. If } n \text{ is very large} \\ \text{or if } \left(1 - \frac{a}{s}\right) \text{ is small this} \\ \text{may be written:—} \end{array}$$

$$(2) \quad \frac{pEs}{va} = \text{the total energy in the room in the steady condition.}$$

$$(3) \quad I_1 = \frac{pEs}{avV} \text{ is the average intensity of sound in the room as the organ-pipe stops. Substituting in this equation the values of } a \text{ and } p \text{ already found:—}$$

$$(4) \quad a = \frac{KV}{T}, \text{ and}$$

$$(5) \quad p = \frac{va}{sA} = \frac{vKV}{sAT} \text{ we have}$$

$$(6) \quad I_1 = \frac{vKV}{sAT} \cdot \frac{T}{KV} \cdot \frac{Es}{vV} = \frac{E}{AV}. \text{ Also}$$

$$(7) \quad I_1 = \log_e^{-1} At_1, \text{ whence}$$

$$(8) \quad E = VA \log_e^{-1} At_1, \text{ where the unit of energy is the energy of minimum audibility in a cubic metre of air.}$$

It remains to determine K and a . To this end the four organ-pipe experiments must be made in a room with the windows closed and with them open, and the values of A' and A'' determined. The following analysis then becomes available:—

$$a = \frac{KV}{T''}, \text{ and } a + w = \frac{KV}{T'''}, \text{ whence}$$

$$\frac{a}{a+w} = \frac{T'''}{T''}. \text{ But for standard conditions in regard to initial intensity}$$

$$A' T'' = A'' T''' = \log_e I = \log_e (10^6) = 13.8,$$

$$\frac{T'''}{T''} = \frac{A'}{A''} \text{ and } T'' = \frac{13.8}{A'}. \text{ Substituting these values,}$$

$$\frac{a}{a+w} = \frac{A'}{A''}, K = \frac{aT''}{V} = \frac{a \cdot 13.8}{A'V}; \text{ whence}$$

$$(9) \quad a = \frac{A'w}{A'' - A'}, \text{ and}$$

$$(10) \quad K = \frac{13.8w}{V(A'' - A')}. \text{ Or if } K \text{ has been determined (9) may be written}$$

$$(11) \quad a = \frac{A'KV}{13.8}, \text{ a useful form of the equation.}$$

From equation (1) and (2) we may calculate the rate of growth of sound in the room as it approaches the final steady condition. Thus, dividing (1) by (2), the result, $1 - \left(1 - \frac{a}{s}\right)^n$,

gives the intensity at any instant $n \frac{p}{v}$ seconds after the sound has started, in terms of the final intensity. Of all the rooms so far experimented on, the growth of the sound was slowest in the lecture-room of the Boston Public Library in its unfurnished condition. For this room $\frac{a}{s} = .037$, and $p = 8.0$ metres.

The following table shows the growth of the sound in this room, and the corresponding number of reflections which the sound that first issued from the pipe had undergone.

LECTURE-ROOM, BOSTON PUBLIC LIBRARY.

n	Time.	Average Intensity.
1.....	.02.....	.04
5.....	.11.....	.17
10.....	.23.....	.31
15.....	.34.....	.43
20.....	.46.....	.53
30.....	.69.....	.68
40.....	.92.....	.78
50.....	1.15.....	.85
1.00.....	2.30.....	.98
1.00.....	3.45.....	.997
∞	∞	1.00

It thus appears that in this particular room the organ-pipe must sound for about three seconds in order that the average intensity of the sound may get within ninety-nine per cent of its final steady value. As throughout this work we are concerned only with the logarithm of the initial intensity, ninety-nine per cent of the steady condition is abundantly near. This consideration—the necessary length of time the organ-pipe should sound—is carefully regarded throughout these experiments. It varies from room to room, being greater in large rooms, and less in rooms of great absorbing power.

To determine the value of E , the rate of emission of sound by the pipe, formula (8), $E = VA \log_e^{-1} At_1$ is available. It is here to be observed that as this involves the antilogarithm of At_1 these quantities must be determined with the greatest possible accuracy. The first essential to this end is the choice of an appropriate room. Without giving the argument in detail here, it leads to this, that the best rooms in which to experiment are those that are large in volume and have little absorbing power. In fact, for this purpose, small rooms are almost useless, but the accuracy of the result increases rapidly with an increase in size or a decrease in absorbing power. On

¹ A series of papers by Wallace C. Sabine, Assistant-Professor of Physics at Harvard University. Continued from No. 1272, page 46.

this account the lecture-room of the Boston Public Library in its unfurnished condition was by far the best for this determination of all the available rooms. Inserting the numerical magnitudes obtained in this room in the equation:—
 $E = VA \log_e^{-1} A t_1 = 2,140. \times 1.59 \log_e^{-1} (1.59 \times 8.69) = 3,400,000,000.$

If the observations in the same room after the introduction of the felt, already referred to, are used in the equation the resulting value of E is 3,200,000,000. The agreement between the two is merely fortunate, for the second conditions were very inferior to the first, and but little reliance should be placed on it. In fact, in both results the second figures, 4 and 2, are doubtful, and the round number 3,000,000,000 will be used. It is sufficiently accurate.

The next equation of interest is that giving the value of K , number (10),

$$K = \frac{13.8w}{V(A'' - A')}.$$

It contains the expression $A'' - A'$, the difference between the rates of decay with the windows open and with them closed; A'' and A' depend linearly on the difference in duration of the residual sound with four organ-pipes and with one, and as both sets of differences are at best small, it is evident that these experiments also must be conducted with the utmost care and under the best conditions. The best conditions would be in rooms that are large, that have small absorbing power, and that afford window area sufficient to about double the absorbing power of the room. Practically this would be in large rooms that are of tile, brick, or cement walls, ceiling and floor, and have an available window area equal to about one-thirtieth of the total area.

The lobby of the Fogg Art Museum, although rather small, best satisfied the desired conditions. Sixteen organ-pipes were used, arranged four on each air-tank and, therefore, near together. Thus arranged, the sixteen pipes had 7.6 times the intensity of one, as determined by a subsequent experiment in the Physical Laboratory. The following results were obtained:—

$$A' = \frac{\log_e 7.6}{t_{16} - t_1} = \frac{\log_e 7.6}{5.26 - 4.59} = 3.0, \text{ and}$$

$$A'' = \frac{\log_e 7.6}{3.43 - 3.00} = 4.7$$

$$K = \frac{13.8w}{V(A'' - A')} = \frac{13.8 \times 1.85}{96. \times 1.7} = .156$$

Here, however, it is easy to show by trial that errors of only one-hundredth of a second in the four determinations of the duration of the residual sound would, if additive, give a total error of twenty per cent in the result.

It is impossible, especially with open windows, to time with an accuracy of more than one-hundredth of a second, and, therefore, this formula

$$K = \frac{13.8w}{V(A'' - A')},$$

while analytically exact and attractive in its simplicity, is practically unserviceable on account of the sensitive manner in which the observations enter into the calculations.

The following analysis, however, results in an equation, much more forbidding in appearance, it is true, but vastly better practically, for it involves the data of difficult determination only logarithmically, and then only as part of a comparatively small correcting term. For the room with the windows closed:—

$$A' t' = \log_e I_1; \text{ and for standard conditions in regard to initial intensity}$$

$$A' T' = \log_e I, \text{ whence}$$

$$T' = t_1 - \frac{1}{A'} \log_e \frac{I_1}{I}$$

$$T' a = KV, \text{ hence}$$

$$KV = t_1 a - \frac{a}{A'} \log_e \frac{I_1}{I}; \text{ and similar steps for the same room with the windows open give}$$

$$KV = t'_1 (a + w) - \frac{(a + w)}{A''} \log_e \frac{I'_1}{I}.$$

Multiplying the first of the last two equations by t'_1 , and the second by t_1 , and subtracting:—

$$K = \frac{1}{(t'_1 - t_1)V} \left[w t'_1 t_1 + \left(\frac{a t'_1}{A'} \log_e \frac{I_1}{I} - \frac{(a + w) t_1}{A''} \log_e \frac{I'_1}{I} \right) \right].$$

By equation (5)

$$\frac{va}{sA} = p, \text{ whence}$$

$$\frac{a}{A'} = \frac{sp}{v}; \text{ and similarly}$$

$$\frac{a + w}{A''} = \frac{sp}{v}. \text{ Substituting these values in the above equation}$$

$$(12) K = \frac{1}{(t'_1 - t_1)V} \left[w t'_1 t_1 + \frac{sp}{v} \left(t'_1 \log_e \frac{I_1}{I} - t_1 \log_e \frac{I'_1}{I} \right) \right].$$

As an illustration of the application of the last equation, the case of the lobby of the Fogg Art Museum is here worked out at length.

$$t_1 = 4.59$$

$$t'_1 = 3.00$$

$$V = 96 \text{ cu. m.}$$

$$s = 125 \text{ sq. m.}$$

$$w = 1.86$$

$$a = \frac{.171 V}{t_1} = 3.58 \text{ as a first approximation.}$$

$$p = 2.8$$

$$I_1 = \frac{pEs}{vaV} = 8.8 \times 10^6 I,$$

$$I'_1 = \frac{pEs}{v(a + w)V} = 5.8 \times 10^6 I.$$

Substituting these values in the above equation, there results

$$K = \frac{1}{152} [25.7 + 1.02(6.53 - 8.1)] = .169 - .010 = .159,$$

where the term .169 is the value of K that would be deduced disregarding the initial intensity of the sound, — .010 is the correction for this, and .159 is the corrected value of K . The magnitude as well as the sign of this correction depends on the intensity of the source of sound, the size of the room and the material of which it is constructed, and the area of the windows opened. This is illustrated in the following table, which is derived from a recalculation of all the rooms in which the open-window experiment has been tried, and which exhibits a fairly large range in these respects:—

Room.	V	P_1	w	Uncor- rected.	Correc- tion.	K
Lobby Fogg Museum.	96	8,800,000	1.86	.169	-.010	.159
Lobby Fogg Museum, 16 pipes.	96	67,000,000	1.86	.191	-.027	.164
Jefferson Physical Laboratory, 15.	202	1,700,000	5.10	.164	+.005	.169
Jefferson Physical Laboratory, 1.	1,630	390,000	12.0	.150	+.017	.167
Jefferson Physical Laboratory, 41.	1,960	300,000	14.6	.137	+.024	.161

Average value of $K = .164$

The value $K = .164$ having been adopted, interest next turns to the determination of the absorbing power a of a room. For this purpose we have choice of three equations, two of which have already been deduced.

$$(9) \quad a = \frac{A' w}{A'' - A'}, \text{ and}$$

$$(11) \quad a = \frac{A' KV}{13.8}, \text{ and a third equation may be obtained as follows:—}$$

It has been shown already that

$$T' = t_1 - \frac{sp}{va} \log_e \frac{I_1}{I}, \text{ and}$$

$$T' a = KV. \text{ Therefore}$$

$$a t_1 - \frac{sp}{v} \log_e \frac{I_1}{I} = KV, \text{ and}$$

$$(13) \quad a = \frac{1}{t_1} \left(KV + \frac{sp}{v} \log_e \frac{I_1}{I} \right).$$

Of these three equations the first, (9), for reasons already pointed out in regard to a similar equation for K , while rigorously correct, yields a result of great uncertainty on account of its sensitiveness to slight errors in the several determinations of the duration of the residual sound. The second, (11), is very much better than the first, but still not satisfactory in this respect. The third, (13), is wholly satisfactory. It has the same percentage accuracy as t_1 , and the only elements of difficult determination enter logarithmically in a small correcting term.

As an illustration of the application of these equations we

may again cite the case of the lobby of the Fogg Art Museum:—

$$\text{by equation (9), } a = \frac{3.0 \times 1.86}{4.7 - 3.0} = 3.3;$$

$$\text{by equation (11), } a = \frac{3.0 \times .164 \times 96}{13.8} = 3.4;$$

$$\text{by equation (13), } a = \frac{1}{4.59} (.164 \times 96 + 1.02 \times \log_e 8.8) = 3.8$$

The first two are approximate only, the last, 3.8, is correct with entire certainty in regard to the last figure.

There is but one other subject demanding consideration in this way, — the calculation of the absorbing power of objects brought into the room, as cushions, drapery, chairs, and other furniture. This may be approached in two ways, either by means of the rate of decay of the sound and the four organ-pipe experiment, or by open window calibration and a single organ-pipe.

Let A''' be the rate of decay when the object is in the room, A' being the rate when the room is empty. Then if a' is the absorbing power of the object:—

$$a = \frac{A' KV}{13.8}, \text{ and}$$

$$a + a' = \frac{A''' KV}{13.8}. \text{ Whence}$$

$$(14) \quad a' = (A''' - A') \frac{KV}{13.8}.$$

Or from the other point-of-view, equation (13),

$$a = \frac{1}{\ell_1} \left(KV + \frac{sp}{v} \log_e \frac{I_1}{I} \right),$$

$$a + a' = \frac{1}{\ell_1'} \left(KV + \frac{sp}{v} \log_e \frac{I_1'}{I} \right), \text{ whence}$$

$$(15) \quad a' = \frac{KV(\ell_1' - \ell_1)}{\ell_1' \ell_1} - \frac{sp}{v} \left(\frac{1}{\ell_1} \log_e \frac{I_1}{I} - \frac{1}{\ell_1'} \log_e \frac{I_1'}{I} \right);$$

where I_1 and I_1' are to be calculated as heretofore by a preliminary and approximate estimate of a and a' .

Here also it is easy to show *a priori* that the first equation, (14), while perfectly correct and analytically rigorous, is excessively sensitive to very slight errors of observation, and that on this account equation (15) is decidedly preferable. For example, felt being brought into the lobby of the Fogg Lecture-room and placed on the floor, the values of A''' and ℓ_1' were determined to be, respectively, 4.9 and 2.79. Borrowing from the preceding experiment, and substituting in equations (14) and (15) we have

$$a' = (4.9 - 3.0) \frac{.164 \times 96}{13.8} = 2.2$$

$$a' = \frac{.164 \times 96}{4.59 \times 2.79} (1.02 \left(\frac{1}{4.59} \log_e 8.8 - \frac{1}{2.79} \log_e 6.1 \right)) = 2.4$$

a very satisfactory agreement in view of the extreme sensitiveness of equation (14).

Thus three equations have been deduced, number (12) for the calculation of the parameter, k , (13) for the absorbing power, a , of the wall-surface, and (15) for the absorbing power, a' , of introduced material. Each has been verified by other equations analytically rigorous, and developed along very different lines of attack. In each case the agreement was satisfactory, especially in view of the extreme sensitiveness of the equations used as checks.

In the succeeding paper will be deduced, by the method thus established, the coefficients of absorption of the materials that are used ordinarily in the construction and furnishing of an auditorium.

WALLACE C. SABINE.

[To be continued.]

PURIFYING THE PASSAIC.—Acting under the new anti-pollution law just passed by the New Jersey Legislature, the New Jersey State Sewerage Commission in Jersey City has instructed its Secretary to send immediately to each of the municipalities which empties its sewage into the Passaic or its tributaries a notice, requesting it to furnish the Sewerage Commission with information as to how much time it will require to make plans for otherwise disposing of the sewage. With these reports as a basis the Commission will set a final date by which such plans must be finished by all the municipalities in question. — *N. Y. Evening Post.*



THE OPENING OF THE EXPOSITION OF 1900.

THE official opening of the Universal Exposition of 1900 took place on the appointed day, April 14th. On this day the President of the Republic, M. Loubet, was received in the Salle des Fêtes, constructed in the middle of the old Gallery of Machines. The inaugural day was fine with enthusiasm, but it must be confessed that the framework alone was ready—or almost: there were not many things ready for exhibition.

How many people have asserted up to the present time that the Exposition of 1900 had not, as our phrase is, a *clou*; that is to say, a single work which distinctly characterizes it and gives a date to the exhibition. In 1878, it was the Trocadéro with its cascade; in '89 it was the Eiffel Tower and the Gallery of Machines; and these two attractions, of which the first still dominates by its height of 300 metres the ensemble of the Exhibition of 1900, have left such a memory that many persons thought that nothing could equal their success. Well, this time, also, we have a *clou*, one otherwise monumental and artistic, of which the beauty and grandeur have enthused the crowd inspired with a single sentiment of admiration. And this *clou* is the magnificent perspective opened across the Champs-Élysées, this superb avenue bordered by two sumptuous palaces abutting on the Pont Alexandre III and having for its horizon, on



View across the Pont Alexandre III.

the left bank of the Seine, the grand silhouette of the Palais des Invalides with its golden dome. This marvellous ensemble, at length comprehended and admired by the very persons who formerly wept over the disappearance of the old Palais de l'Industrie which stood in the way, endows Paris with a new aspect, grandiose and ornamental, a new grandeur which will be, perhaps, still more imposing after the exhibition buildings are removed. At that time, in fact, the Esplanade will be disencumbered of the palaces which now cover it, and will open up to the view the Palais des Invalides which to-day is too much masked.

I have stated that the official ceremony took place in the Salle des Fêtes, built in the centre of the Gallery of Machines, of which it occupies five bays, without counting the detaching porticos and staircases. It cannot be seen from the outside, and its grandeur and beauty are only understood after one has entered it. It must be said that this Salle des Fêtes absolutely cuts in halves the admirable general effect of the old Gallery of Machines and that it lacks proper detachment. The staircases, very wide, give access to a grand gallery which surrounds it, but these staircases are hidden by the construction which formed part of the Exhibition of Alimentation and Agriculture, constructions far too enormous, heaped up pell-mell, not providing for any perspective, and masking the exterior decoration of the Salle des Fêtes. This criticism, of course, does not affect the architect of the Salle des Fêtes, M. Raulin, who, on the contrary, is the victim of this condition of things. M. Raulin, in order to

complete and deliver his room in time for use and in a satisfactory manner, has accomplished a veritable *tour de force*, a deed to astonish even those who are somewhat habituated to the prodigious efforts made to accomplish things in the last days preceding the opening of an exhibition.

This Salle des Fêtes, intended to be able to contain 15,000 spectators, is covered with a dome having 4,000 metres of superficial



The Champ de Mars, from the Trocadero.

area borne on a system of 16 arcades 45 metres high. The entire decoration is in staff, with grand panels of decorative painting signed by Cormon, François Flameng, Albert Maignan and Rochegrosse. The hall is lighted by a magnificent circular window, having an area of 1,700 square metres, which is due to the collaboration of MM. Ehrmann and Gaudin. Its composition is very happy and the coloring is charming. In the course of our walks and studies in the Exposition we shall certainly return to this fine room, which was one of the successes of the opening ceremonies.

Behind the Salle des Fêtes, on the side of the Champ de Mars, is found the Electrical Building in close communication with the grand ramps which descend on each side of the Château d'Eau to the gardens of the Champ de Mars. Unfortunately, the Château d'Eau, not having been finished, was not in operation. This forms the decorative background of the palaces which stretch along on each side of the Champ de Mars. In the style of Louis XV, it consists of a grand niche 35 metres across and 11 metres deep. The sheet of water falling from a height of 30 metres spreads through basins storied in such a fashion as to produce a most beautiful decorative effect. The quantity of water discharged is 1,900 metres a second. From the top of the ramps, 140 metres long, which surround the basins, the spectacle of all the palaces crowned with domes and towers is truly superb. In the background the Eiffel Tower masks too much the exotic buildings which cover the Garden of the Trocadero, where, terrace above terrace, the Colonial Exhibition spreads itself in picturesque fashion.

Near the Eiffel Tower, as in '89, there are a quantity of pavilions



The Foreign Buildings, from the Pont de l'Alma.

of different kinds. One of the richest, and one which particularly draws attention, is that of the Tour du Monde, for the decoration of which the architect, M. Marcel, drew his inspiration from the Orient — India, Indo-China, China and Japan. Here are also the Palais de l'Optique, admirably studied by the architect, M. Prosper Bobin, where they promise to exhibit to us the marvels of astronomical

observation, the Palais du Costume, where is to be unrolled before us the entire history of fashion, the Mareorama, the Transatlantic Panorama, the Palais Lumineux, the Tyrolean Chateau, the Swiss Chalet, etc.

On the other side of the Pont d'Jéna, on the Trocadero, where stood in '89 a few buildings, there is now a very labyrinth peopled with exotic buildings. That of Asiatic Russia dominates all the others. When all these buildings have been finished and the trees are clothed in their verdure, this spot will be one of the most enchanting of the entire Exposition.

Between the bridges of Jéna and Alma, on the left bank, is to be noted the Palace of Navigation and Commerce, 125 metres long, and also the Palace of the Army and Navy, which measures not less than 400 metres. Between them rises an immense dome which shelters the private exhibition of the iron-works at Creusot. Upon the right bank Old Paris silhouettes its ancient houses, towers and spires, and certainly forms one of the popular attractions which will have the most success.

But all this is as nothing. Beyond the Pont de l'Alma, on the left bank, there unrolls the charming panorama of the foreign buildings, to the number of twenty-three. In the first line, upon a terrace overlooking the Seine, there is the Servian Palace; next, that of Greece, very admirably studied by its architect, M. Lucien Magne; then comes that of Sweden; next, that of the Principality of Monaco, which reproduces a portion of the Palace of the Grimaldi; then comes the Spanish, of which the rich architecture is borrowed from the University at Alcalá, the Alcazar of Toledo, and the palace at Monterey. Side by side with it, the German pavilion, a very important structure, recalls the buildings of the fifteenth and sixteenth centuries, decorated with exterior paintings; then come the buildings of Norway, Belgium, Great Britain, Hungary, Bosnia, Austria, the United States, Turkey and, finally, Italy, all represented by structures that are interesting and picturesque, and to which we shall return later.

The opposite bank is chiefly occupied by the Palace of the Congresses and the Palace of the City of Paris, between which are the greenhouses devoted to horticulture, which strike a note full of color and freshness.

Finally, beyond the Pont des Invalides, appears the Pont Alexandre III, which unites in itself the art of the architect with the



Pont Alexandre III.

science of the engineer. The bridge is flanked by four ornamental pylons and presents a rich and imposing aspect. It has cost 7,000,000 francs, 1,000,000 of which have been devoted to decoration.

On the Esplanade rear themselves in parallel rows two ranks of palaces which shelter the different industries, French and foreign, which we shall examine after the exhibits are fairly installed.

Upon the other side of the Pont Alexandre III opens up the grand avenue Nicolas II, which passes between the Grand Palais and the Petit Palais des Beaux-Arts, both of which, after the close of the Universal Exposition, will be restored to the City of Paris, of which they will henceforward form a part of the architectural beauties.

The Petit Palais is the one which is most advanced, and here is to be sheltered during the Exposition the marvellous retrospective collections of French art. At the close of the Exposition it will be turned over to the City of Paris, which will there install its Museum of Fine and Decorative Arts. This Petit Palais, which its architect, M. Charles Girault, has studied to the last degree, has a sober and distinguished richness which is quite remarkable and which causes it to be one of the greatest successes of the Exhibition.

This hasty survey will be finished at the monumental gateway, which the architect, M. Binet, has raised on the Place de la Concorde, and which is surmounted by the statue "la Parisienne," which is much discussed and much criticised by the public. There was even at one time a chance that it would be removed and destroyed. This would have been an extreme thing to do, and all the more unjust as the model presented by the artist, M. Moreau-Vauthier, had been accepted. Therefore, they have allowed it to keep its intended place, and this was well done. The criticism which can be fairly levelled at this very modern statue is its lack of scale. It is, in fact, rather large, but it especially shocks the public taste because it breaks with written and classic formula. If the sculptor had crowned the entrance to the Exposition with a figure of Fame, blowing her trumpet, people would have found this wholly natural, and

its artistic good taste would not have been discussed. But how could any one be so audacious as to perch up there a modern Parisienne, clothed in a brocaded robe, her floating cloak opening over her skirts! All conventions were trampled under foot, all traditions cast to the wind! How could any one imagine an artist would decline to follow the beaten paths, but would search out a new one! Such rashness deserved chastisement, and his statue ought to be condemned to



Palais des Industries Diverses, on the Esplanade des Invalides. M. Tropey-Bailly, Architect.

death. But the criminal did not allow this to be done; he protested; he insisted, at least, that his work, prepared for the public, should be judged by the public; and so "la Parisienne" remains up there over the entrance to the Exposition. And when people have got accustomed to the idea that something other than a winged Fame can be looked for, something other than a Glory or a City of Paris, draped in a Classic peplum, as the crowning feature of a public monument, perhaps they will find that M. Moreau-Vauthier's "la Parisienne" does not lack elegance, and that there is owing to the artist at least the respect accorded to a really original and personal effort.

The successes of the opening of the Exposition of 1900 have been, then, the Palaces of the Champs-Élysées and the Pont Alexandre III. Among more trivial things, public curiosity has been amused mainly by the *plateforme mobile*, which, with continuous movement, serves a portion of the Exposition over a circular course which measures 6 kilometres and 150 metres. It was the success of the first day, and earned 118,630 entrance fees. The public, not having much of anything to see in the galleries, took a ride on the platform.

At the time when these lines shall appear, the Exposition will certainly be finished and in good shape; but there was great disappointment on the first day because of the impossibility of making the fountains work at the Château d'Eau, or the marvellous illuminations projected, and people recalled the memorable opening of the Exposition of '89, May 6th, when all the restaurants and cafés were gorged with diners, when the gardens were resplendent with lights and fireworks, and from its lofty height the Eiffel Tower seemed a veritable monument of fire. To tell the truth, it is this year this tower alone which has been able to cast some few gleams upon the unfinished buildings.

A DAY AT ROME.

PERHAPS the quickest contrast to be had in travelling from the north to the south of the Alps is to be found in the Mont Cenis route. The change from Brieg to Domodossola is great, but a long diligence-ride intervenes, while three hours takes one from the cheerless mountain scenery of Modane to the vineyards and orchards about Turin, and about three hours more exchanges these for the orange-groves and palms of Genoa. Notwithstanding the severity of the present season in North Italy, snow enough to whiten the ground having fallen in Genoa the day before our arrival, the orange-trees were in full fruit, tea-roses in bloom in profusion, and the country apparently as richly adorned with foliage and flowers as in the middle of summer; yet on our way from Genoa to Rome we found the mountains behind Spezia covered with dazzling snow, and from Rome itself Soracte appeared with a mantle of white. Except for this, however, there was no suggestion of winter in Rome. The air was cool enough to make a long walk not unpleasant, but the sun was so bright that the shady side of the street was the preferable one. As it was Holy Week of the Jubilee Year, much of our time was spent in the Vatican quarter, and I was much pleased with the new building which has been going on within the last few years in that region. The architecture of modern Rome has, in general, a strong flavor of plaster and stucco, but the new blocks beyond the Vatican are, in many cases, fine architectural compositions, with stone attached columns, pilasters and rusticated basements, rather in the style of modern Paris, but with an advantage in point of scale, the Roman buildings frequently covering the whole front of a block,

and having six, and often seven, stories in the vertical wall, while the seven-story Parisian buildings generally have, at least, two stories in the roof. The Roman arrangement is simple, the first story and entresol forming the basement, the columns or pilasters, or both, taking up three, or, perhaps, four stories more, and the upper story being treated as an attic; and, if the blocks present less variety and interest than would be found in Paris, they have, at least, great dignity, as well as a simplicity and elegance which are very pleasing.

Perhaps, it would have shown a more correct taste to speak of antique Rome before mentioning the modern city, but the professional man cannot see professional work going on without interesting himself in it. However, there is always something new, and generally something beautiful, to be found in the results of the current excavations in Rome, and we soon found our way to the Forum. Here the attention of the Government archaeologists seems to have been turned, of late, rather away from the Palatine Hill, where, however, a small party is still at work, toward the Forum itself, where much has been done. In the House of the Vestals several beautiful pavements, some of them inclined, as if they had formed the bottom of small swimming-baths, have been uncovered, and careful trenching is going on over what remains still unexplored. On the other side of the Forum, in front of the Basilica of Constantine, much trenching is in progress, and fragments have been found of a number of magnificent porphyry columns. These seem to have formed a portico in front of the basilica, supported by the piers of brickwork which still exist, and some of the larger fragments have been set up on the piers, giving an idea of the splendor of the complete colonnade.

I remembered having read that the black stone, which historians mention as having been set in the pavement of the Forum to mark the spot where Caesar fell under the stabs of his assassins, had been found, rather to the surprise of the archaeologists, who had hardly dared to hope that an object of such historical interest would have been preserved; and, wishing to see if the account were true, I inquired of some workmen where the stone could be found. Two of them knew nothing about it, but they referred me to a third, apparently an inspector, who answered very readily that it was near the Arch of Septimius Severus, where, as he pointed out to me, two men were standing.

Following his indications, I came to a place where important explorations were evidently going on. In the middle was a rough shed of boards, and under the shed was to be seen a slab of polished black marble, about five-and-one-half feet square, as nearly as I could judge, set at the level of the ancient pavement, which was plainly visible around it. The situation of the stone, directly in front of the Curia, and thirty or forty feet away from it, certainly suited the theory that it marked the place where Caesar died, and I was rather astonished to have the two men, who were still standing there when I arrived, and who appeared to belong to the party at work on the spot, point it out as the *sepulcro di Romolo*, one of them even explaining, for fear that I might not know who "Romolo" was, that he was the *fondatore di Roma*.

The man who originally directed me to the place had accepted without hesitation my description of the stone that I wanted to find as the one marking the spot where Caesar was murdered; and I could not account for any one's thinking that it was the tomb of Romulus, but the workmen lighted a candle, and took me down into a trench which led to a cavity under the black stone. Here I discovered that the slab of black marble, which was broken into several pieces, rested on one or more flat stones of another kind, supported in the middle by a short pier, made of a stone roughly squared, and set vertically; and on this pier was very plainly visible an inscription in the most ancient Latin characters. "Numa Pompilio," said my guide, pointing to the inscription. I did not attempt to read it, but, even if I could have done so, the mystery would not have been explained. Why should Romulus, whose village was probably confined to the summit of the Palatine, with, at most, a small extension along the ridge toward the Capitoline hill, have been buried far outside the walls of his little settlement, in what was undoubtedly then, and for many generations afterwards, a swamp? Numa Pompilius must have known where his immediate predecessor was buried, but supposing that Romulus was really interred in the Forum, and that the stone with the ancient inscription was actually set up by Numa Pompilius to mark his grave, how did it come to pass that the pavement of the Forum was carried over a spot so sacred in Roman eyes, and by what chance did it come about that Cæsar was killed just over the tomb, so that the stone which marked the place of his assassination exactly coincided with that covering the sepulchre of the founder of Rome? Yet, if Romulus, instead of being buried in a meadow, overflowed every spring, was given a grave on the Palatine, within the walls of his own city, as seems much more probable, how came a stone with an inscription unquestionably of the age of Numa Pompilius to be found supporting the roof of a burial-chamber in the Forum, and who, if not Romulus, the only man of importance who had died in the colony, would have been buried in such state? I need not say that the solution of these problems is far beyond my power, but they are certainly among the most curious in Roman archaeology. C.

THE DOMESTICS OF THE GERMAN CROWN PALACES.—There are 1,500 persons upon the German Emperor's list of employés, including 350 women-servants, who are engaged in looking after the twenty two royal palaces and castles that belong to the crown. — *Exchange*.

ILLUSTRATIONS

[Contributors of drawings are requested to send also plans and a full and adequate description of the buildings, including a statement of cost.]

A COMPETITIVE DESIGN FOR THE UNITED STATES CUSTOM-HOUSE, NEW YORK, N. Y. MR. FRANCIS H. KIMBALL, ARCHITECT, NEW YORK, N. Y.

PLANS, SECTION AND SIDE ELEVATION OF THE SAME.

TEMPLE FOR THE INDIANAPOLIS HEBREW ORGANIZATION, INDIANAPOLIS, IND. MESSRS. VONNEGUT & BOHN, ARCHITECTS, INDIANAPOLIS, IND.

[The following named illustration may be found by reference to our advertising pages.]

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DETAIL OF MAIN FRONT: HOUSE AT BELLE HAVEN, CONN. MR. N. C. MELLEN, ARCHITECT.

PRINCIPAL FRONT OF THE SAME HOUSE.

THE GARDEN FRONT OF THE SAME HOUSE.

S. E. FRONT OF PALACE FOR THE EMPEROR OF KOREA. MR. J. REGINALD HARDING, ARCHITECT.

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COTTAGES AT PORT SUNLIGHT, ENG. MESSRS. WILSON & TALBOT, ARCHITECTS.

NOTES & CLIPPINGS

PLAINS OF ABRAHAM PURCHASE. — It is learned that the Government while intending to preserve the Plains does not want to make the purchase. It will, therefore, be made through the City of Quebec, to whom the Government will refund the purchase money. It will then make a present to the City of Quebec of the property, and the municipal authorities will preserve and maintain the historic site. — *Exchange*.

VANDALISM IN WASHINGTON. — A "vandal" bridegroom from Pennsylvania, while on his honeymoon trip to Washington City the other day, broke off the head of a miniature Diana in one of the memorial tablets that decorate the interior of the Washington Monument. The bridegroom tenderly gave the Diana head to his bride as a souvenir of their visit to Washington. A policeman saw the act and arrested the vandal, who was let off by an inartistic police-magistrate with a paltry fine of \$1, to the disgust of the Superintendent of Public Buildings. The latter states that eight out of ten of the mutilators of the tablets caught so far are ministers. Of the 177 memorial-tablets, but seven are still intact. — *Baltimore Sun*.

A TOWN FOREST. — Brunswick, Me., a town of about seven thousand inhabitants, is thought to be the first municipality in the United States to undertake forest-planting on a large scale, or what is practically the old-world institution of a town forest. The town owns a tract of about one thousand acres of what was once pine land, but long since given over to fire and huckleberries. At a recent meeting of the Council \$100 was appropriated to improve this land by planting it to white-pine. Seed will be purchased and a nursery established to raise the young trees. At the right age they will be transplanted in rows and set out in the positions they will finally occupy, and will then require little more care except protection from fire. The land at present is absolutely unproductive. If the new plan is successful, it will not only be ornamental, but profitable. Town forests are common in Europe, and often furnish a large part of the municipal revenue. The Division of Forestry of the United States Department of Agriculture will assist in the work in Brunswick. — *N. Y. Evening Post*.

A NEW USE FOR BALLOONS. — M. Letorey, a French architect, has applied the captive balloon to the cleaning or decorating of cupolas, high roofs, towers and monuments. The balloon can be raised or lowered from a wagon by a windlass, and it can be steadied by stays from the side of the envelope. It has two platforms, or nacelles, one on the top, the other underneath, and these communicate by a ladder up a central tube. The "balloon scaffold," as it is called, might be useful and safe in many operations, such as now require steeple-jacks; for example, the wreathing of Nelson's Column, and also in wireless telegraphy as an aerial station. — *London Globe*.

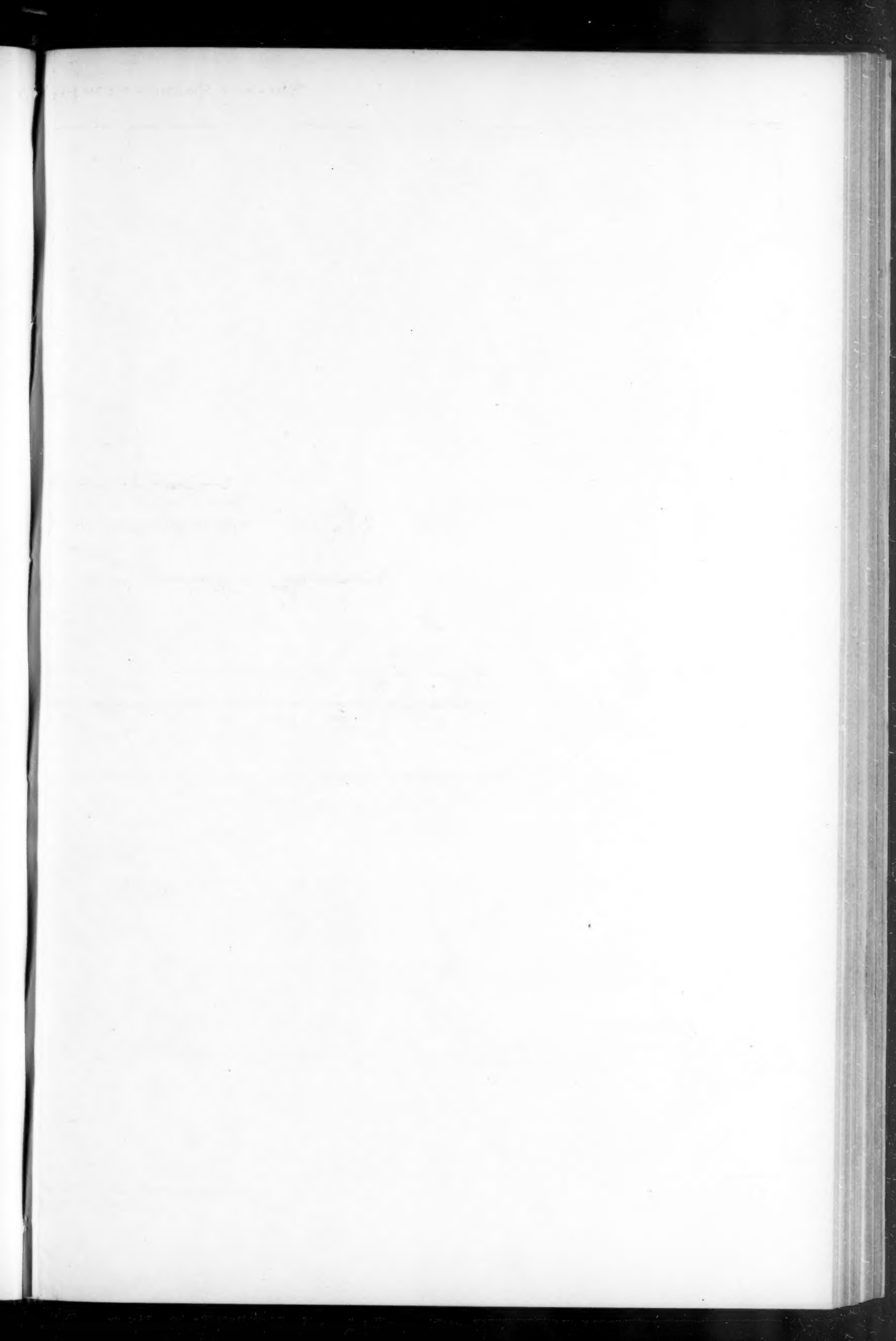
ANCIENT FRESCOS AT BOSCO REALE, NEAR NAPLES. — An important and interesting discovery of frescos has just been made at Bosco Reale, near Naples, where for some time past excavations have been slowly going on in the grounds of a villa called Voua, belonging to the De Prisco family. A huge peristyle and four large chambers have been discovered, on the walls of which are some twenty frescos of large dimensions, rich coloring, and of a design hitherto unequalled in any brought to light in the Pompeii district. Most of the figures are full-sized and more carefully executed than any hitherto known. One is probably a portrait of Epicurus, another represents two young female figures reclining on large cushions at a banquet. A third fresco represents a woman, richly clad, playing a lyre, while a fourth is an exquisitely designed representation of a gladiator seated by the side of a female figure. Rich mural decorations, fresh in color and perfect in drawing, cover the parts of the walls not occupied by the main frescos. Unfortunately for students of art, it is feared that exposure to the air and the light will cause these magnificent paintings to fade as quickly as those at Pompeii and in the Naples Museum. Every effort is being made to preserve them as long as possible, but lovers of art are taking advantage of the opportunity to see so unrivalled an example of pre-Christian mural decoration before it fades. — *Rome correspondence of the London Post*.

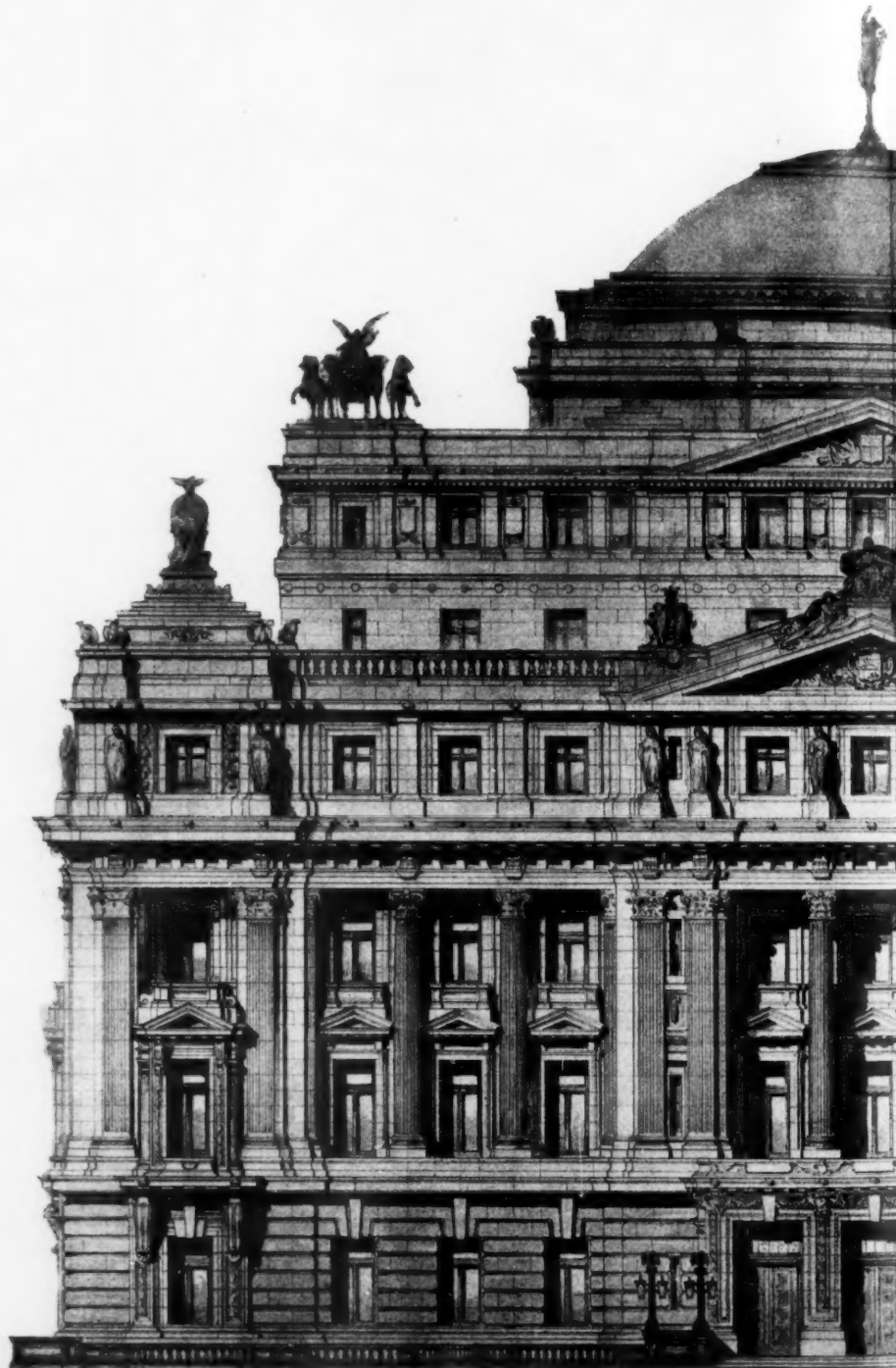
THE ATHENÆUM CLUB-HOUSE, LONDON. — The first idea of such a society seems to have taken shape in the mind of one who has received and deserved to receive a great deal of abuse, alike from men of his own and of the opposite party — the Right Hon. John Wilson Croker, the object of Macaulay's undying fury and the Mr. Rigby of "Coningsby." With all his faults, which were sufficiently numerous, he had some good qualities; and the foundation of the most successful London club, of its class, stood him, we doubt not, in good stead before the tribunal of Rhadamanthus. Mr. Croker was assisted in his efforts to start the new venture by Sir Humphry Davy, and no less a person than Faraday acted for a time as secretary. The first home of the club was No. 12 Waterloo Place, and on May 26, 1824, the committee engaged in organizing it celebrated by a dinner their taking possession of that house. On June 22 in that year the earliest printed list of members with a preamble of "objects and reasons" was issued, and in February, 1830, the present building was opened. It remained substantially what it then was till last year, when the additional story, now approaching completion, was begun. During the erection of their house there was, of course, much difference of opinion as to details among its members. The most important of these turned on the question whether an ice-house should or should not be attached to the premises. Mr. Croker was opposed to the icehouse and in favor of more ornament of a costly and characteristic kind than its partisans desired. He got his way, as he was apt to do, and his success was commemorated in a very happy epigram, which Mr. Waugh has done well to rescue from oblivion: —

"I'm John Wilson Croker,
I do as I please;
They ask for an icehouse,
I'll give 'em — a Frieze."

— *The Spectator*.

THE OLD PALACE OF AVIGNON. — That old question has been revived about the mediæval palace of Avignon, a favorite town with many English travellers to the south, and identified in recent times with John Stuart Mill, who lived there. For long years the celebrated château or palace of the Popes in the southern city has been used as a barracks. The soldiers have not been respectful toward the frescos or the sculptured work ornamenting many parts of the great construction, which is one of the marvels of mediæval architecture. Now the citizens of Avignon and their Municipal Councillors seem to be energetic in their determination to do something for the improvement of the palace, and to rescue it from the hands of the rough soldiery, who care naught for the art, history and literature with which the château is identified. Among the numerous acts of vandalism committed has been the desecration and, it may be said, the obliteration of the mural paintings in the chapels of St. John's Tower, representing the scenes in the Baptist's life, the "Crucifixion," and "St. Martial." Furthermore, frescos representing the "Last Judgment" and "Christ on the Cross" are utterly defaced. General de Galliffet, War Minister, has now been approached on the subject, and has promised to give it every consideration. The citizens of Avignon want to turn the château into a museum of religious art, but this and the building of a new barracks will necessitate a large outlay. Thus, great difficulties are in the way, and it may be a long time yet before the Palace of the Popes becomes a rendezvous of intelligent or merely curious visitors from every quarter of the globe. The Emperor Napoleon III promised so far back as 1859 to apply 4,000,000 francs to the restoration and preservation, as an interesting historic relic, of the palace, but he was too fully occupied with other schemes and projects to carry out his promises. Artists and archaeologists are now joining the Municipal Council and citizens of Avignon in defending the interests of the old city of the Popes and its splendid castle, or palace, which rises so majestically from the banks of the Rhône, and is itself alone well worthy of a trip to Provence on the part of all who are not so dead to the past as the vandals who have desecrated the frescos and wrought other damage which, it is to be feared, is irreparable in the old mediæval structure. — *London Telegraph*.





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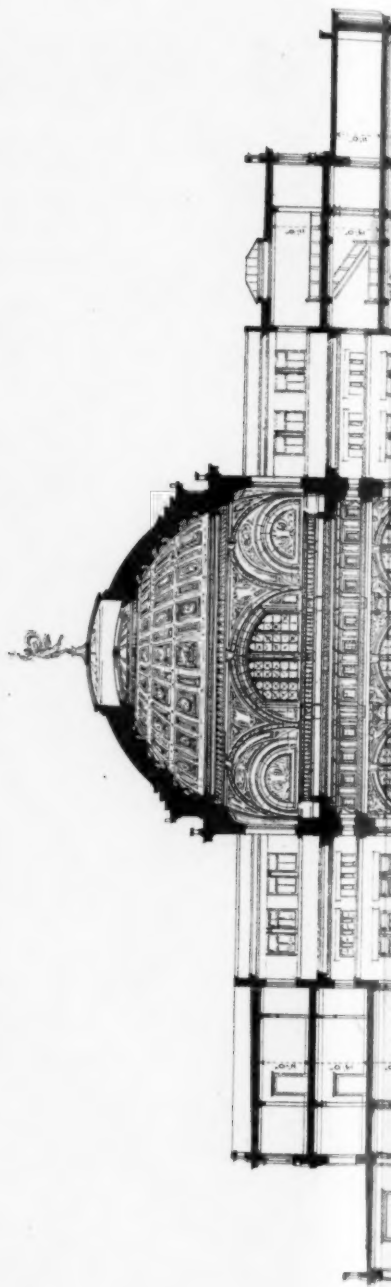
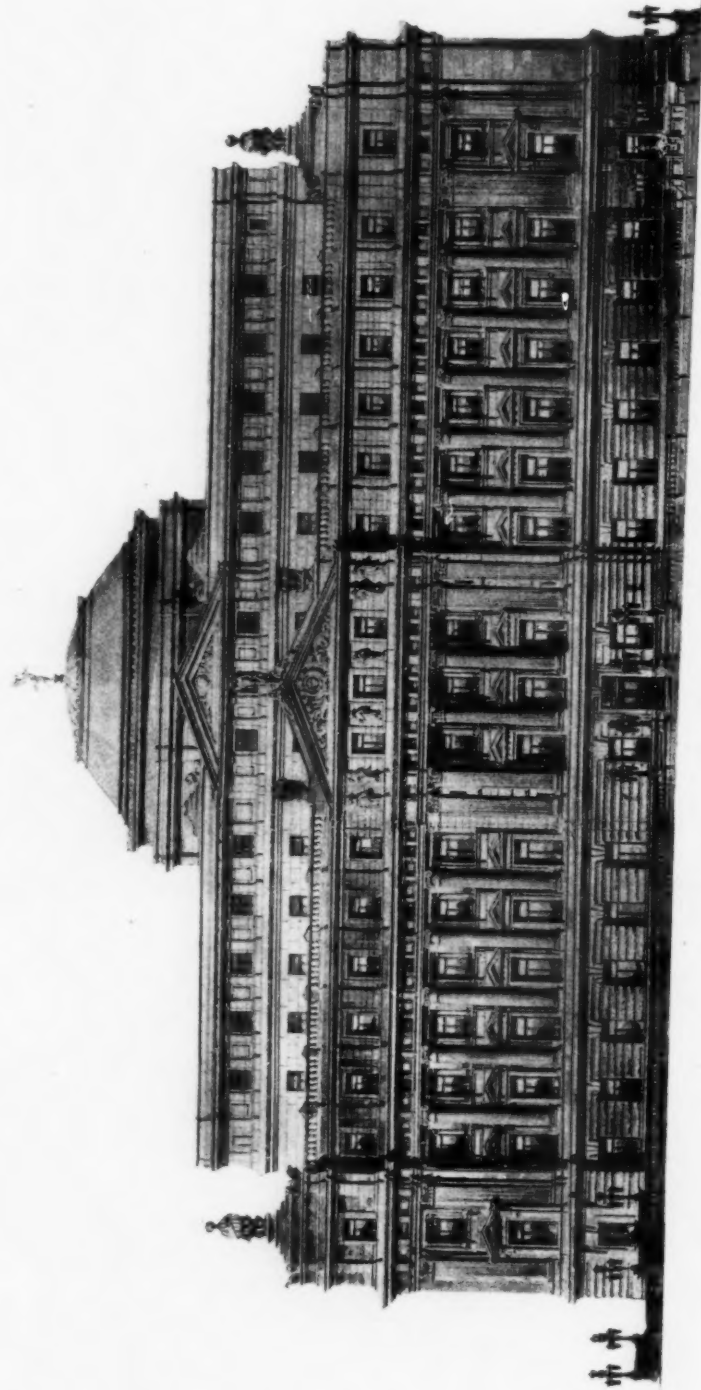
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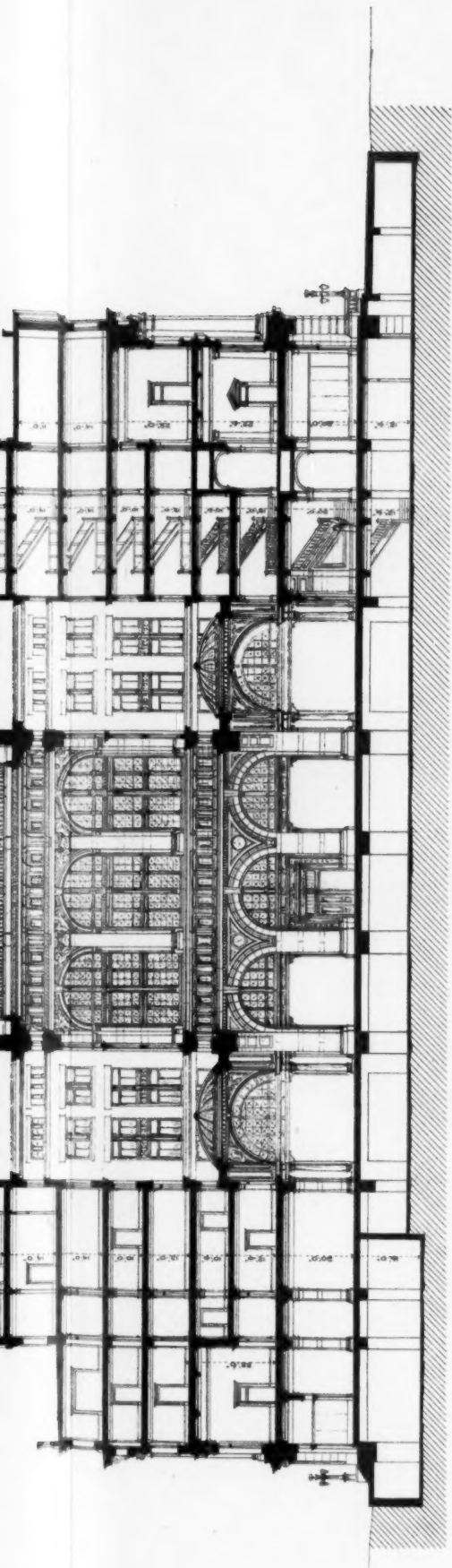
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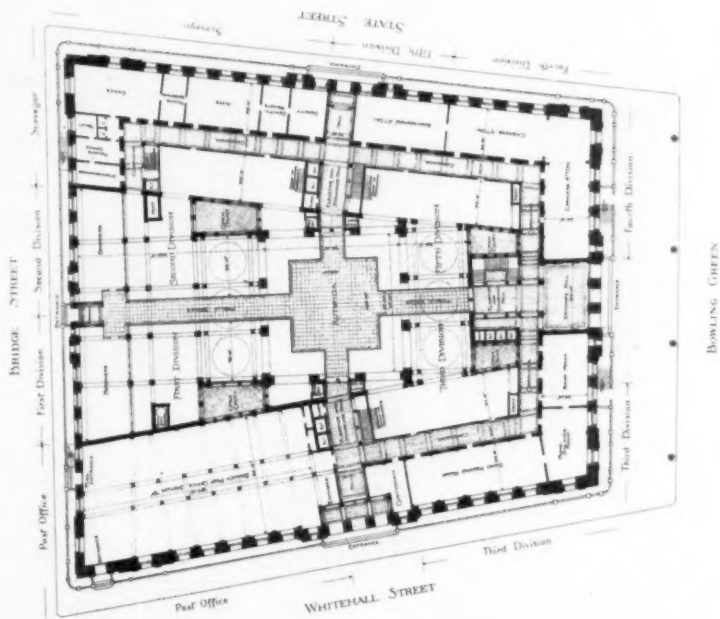
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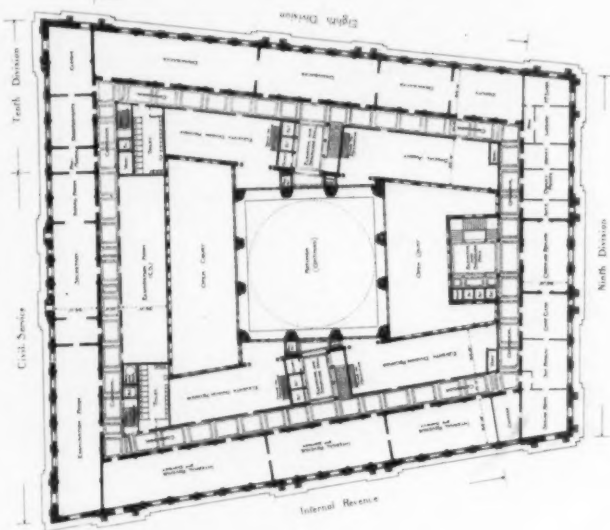




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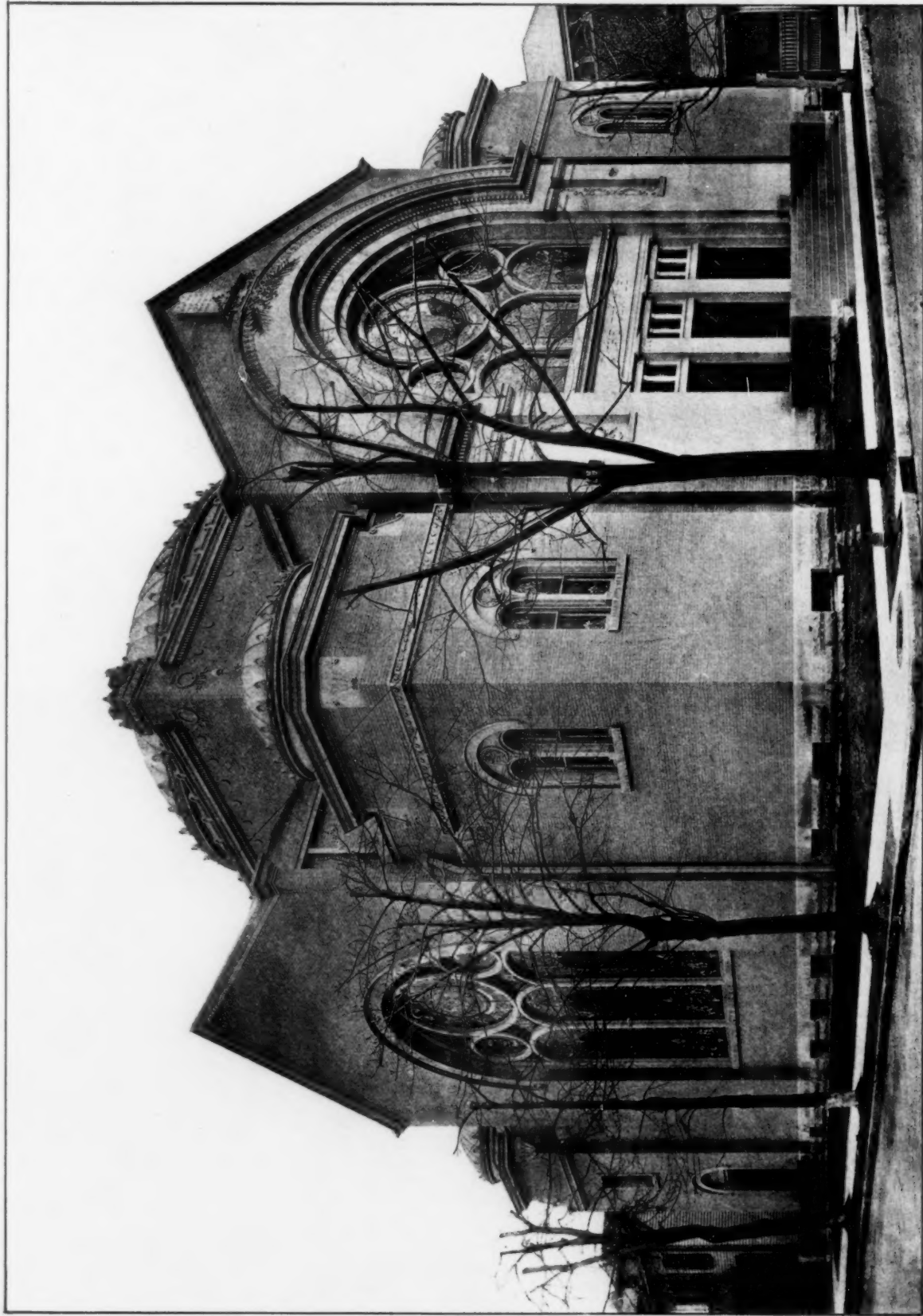


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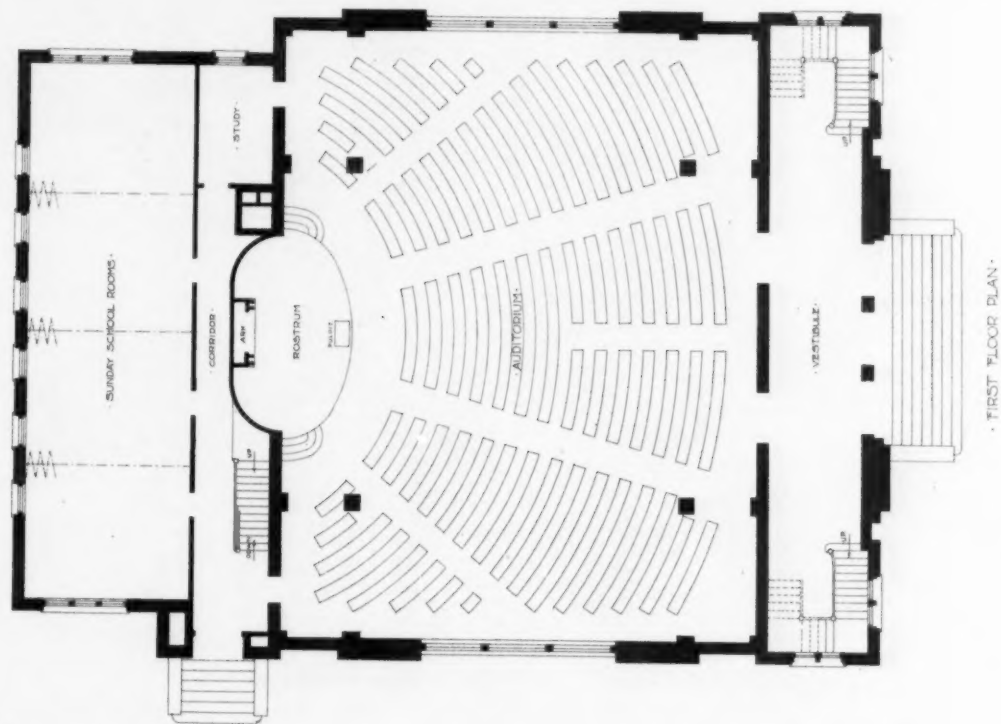


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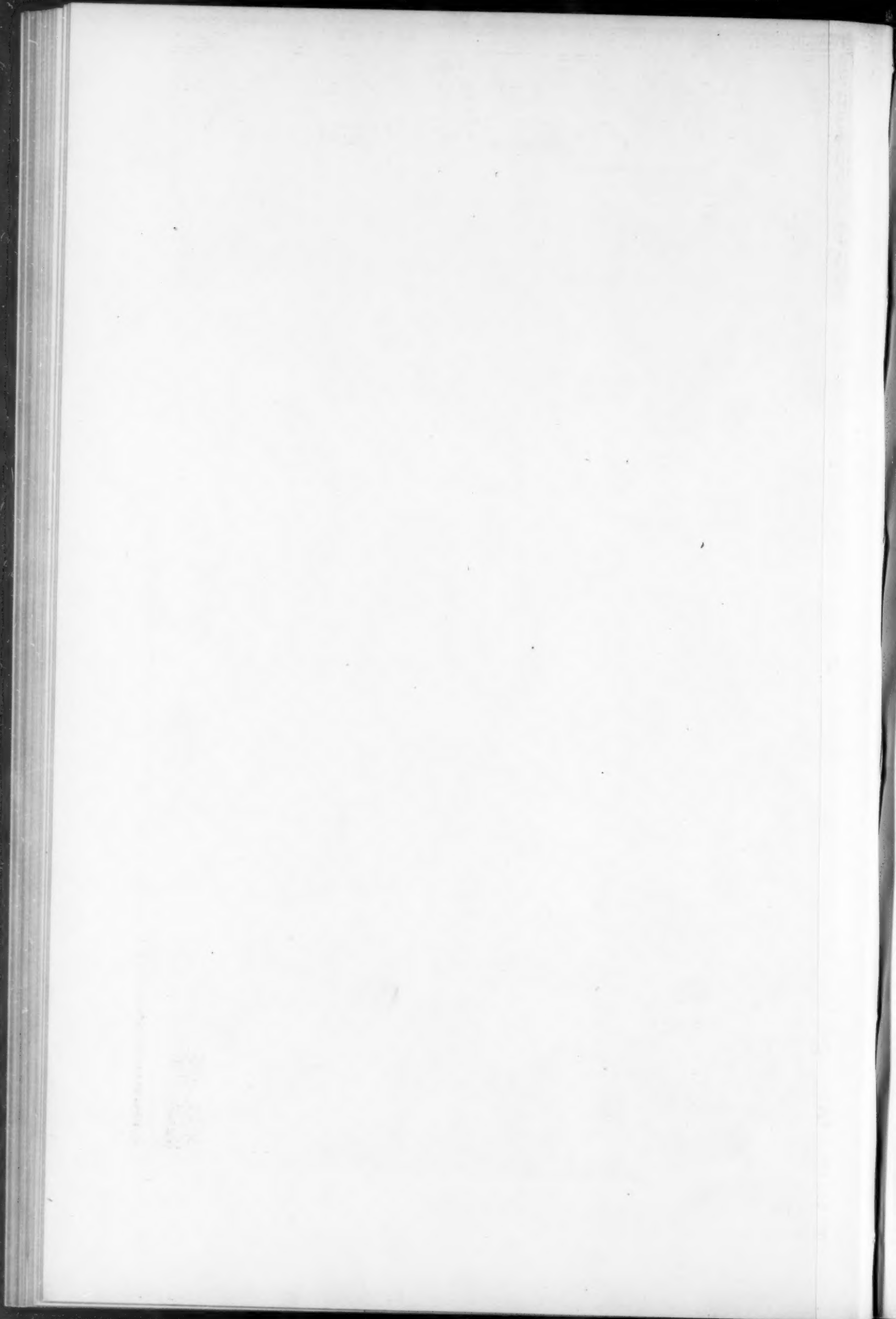
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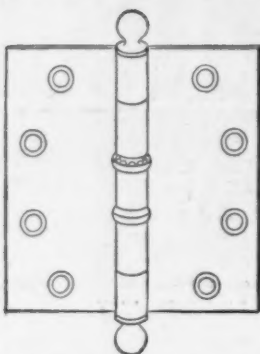
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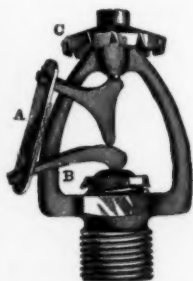
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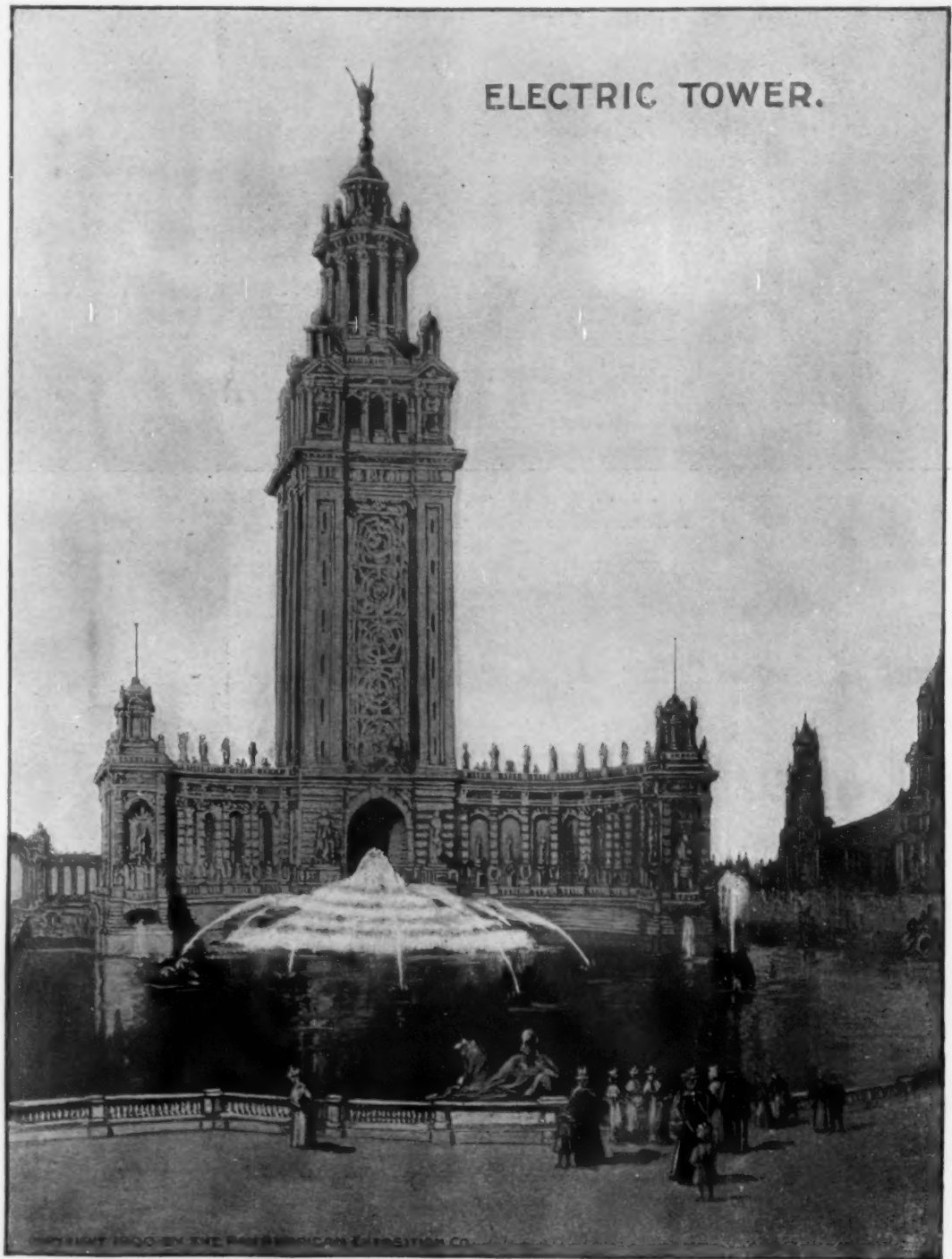
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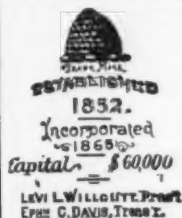
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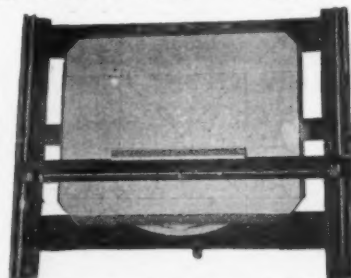
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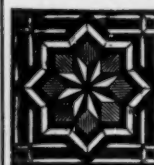
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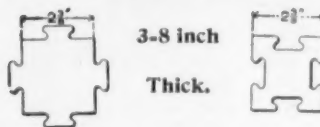
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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Elizabeth, Pa.—Architect J. A. Lohman, Charle-rol, is preparing plans for a three-story brick, store, office and bank building for Wylie Bros.; cost, \$12,000.

Elkhorn, Wis.—H. C. Koch & Son, architects, Milwaukee, are preparing plans for a store and theatre for E. H. Sprague. It will be 75' x 112', brick and stone, costing \$20,000.

Fort Dodge, Ia.—H. C. Koch & Son, architects, Milwaukee, Wis., are preparing plans for court-house to be erected here for Webster County. It will be a brick, stone and terra-cotta structure four stories in height, and will cost \$107,000.

Chandler & Park, architects, of Racine, Wis., have prepared plans for a new school building, to cost \$20,000.

Graceville, Minn.—E. J. Donahue, architect, St. Paul, has plans for a convent and school building to be erected for the Sisters of St. Joseph. The convent will be 41' x 90', three stories, pressed brick and cut-stone trimmings. The school buildings will be 40' x 68', two stories, pressed brick and cut stone; cost, \$25,000.

Indianapolis, Ind.—Architects Scharn & Rubush, Fitzgerald Building, are preparing plans for a six-story rear addition to the Star store, at Missouri and Washington Sts.; cost, \$20,000.

Ironwood, Mich.—Andrew Carnegie has promised \$12,000 for the erection of a public library building here.

Irwin, Pa.—Architect Chas. M. Robinson, Altoona, has prepared plans for a two-story brick and stone bank building, 25' x 70', for the Citizens' National Bank; cost, \$20,000.

Knoxville, Tenn.—Architects Beaver & Thompson, Roberts Building, will prepare plans for the \$10,000 college building to be erected by the Tennessee Medical College. It will be constructed of brick with stone trimmings, and will be four stories high.

Little Rock, Ark.—Architect Harding has prepared plans for a five-story and basement brick, stone and terra-cotta wholesale dry goods store, 57' x 140', for the Gas Blass Dry Goods Co.; cost, \$40,000.

Marshall, Mo.—Miss Mamie Hale, of Columbia, will prepare plans and furnish specifications for the two buildings to be erected for the Missouri State Asylum for the Feeble Minded.

Mason City, Ia.—Smith & Guttererson, architects, Des Moines, are drawing plans for a residence for W. E. Brice. It will be frame, with stone foundation, 35' x 40', shingle roof; cost, \$11,000.

Maquoketa, Ia.—Netcott & Donnan, architects, of Independence, have prepared plans for a two-story school-building, 46' x 66'. It will be of pressed brick and cut stone, slate roof; cost, \$10,000.

Menominee, Mich.—H. A. Foeller, Green Bay, Wis., has drawn plans after which Chas. A. Spies will erect an opera-house and business block, to cost \$60,000.

Milwaukee, Wis.—H. C. Koch & Son, architects, are drawing plans for a brick, stone and terra-cotta

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

office-building to be erected for Daniel Wells on Wisconsin and Milwaukee Sts.; cost, \$600,000.

Minneapolis, Minn.—Harry W. Jones, architect, has drawn plans for the erection of a flat building on 17th St. and Park Ave. It will be three stories and basement, brick and cut stone; cost, \$25,000.

Wm. M. Kenyon, architect, is preparing plans for a building to be erected by Chute Bros., on Central Ave., above University, next to their present building. It will be 80' x 100', three stories, pressed brick and brownstone; cost, \$40,000.

F. B. & L. L. Long, architects, are preparing plans for a two-story brick flat building to be erected on 7th St. and 8th Ave.

Plans have been prepared for a Catholic parochial school building to be erected on Nicolet Island, on the King property. It will be of pressed brick and cut stone trimmings; cost, \$25,000.

Montreal, Can.—The Harbor Board has accepted the plans of the Conners syndicate to build a 1,000,000 bushel elevator here. There will be storehouses attached having a storage capacity of 2,000,000.

New Glasgow, N. S.—Architect John P. Kingston has prepared plans for a fine two and one-half story residence to be erected here for Raymond Daud, a prominent lumber dealer; cost, \$6,000.

New Kensington, Pa.—J. M. Doolittle has had plans prepared by Architect B. H. Ellis for a \$7,000 brick veneered dwelling.

New Worcester, Mass.—Philip M. Pfaffmann, a satinnet manufacturer, 1469 Main St., is having plans prepared for an attractive two and one-half story private residence to be erected here.

New York, N. Y.—The Board of Estimates and Appropriation have appointed Architects Horgan & Slattery, 1 Madison Ave., to draw plans for remodelling the County Court-house; cost will be about \$1,000,000.

Oshkosh, Wis.—Architect H. J. Esser, Milwaukee, is preparing plans for a telephone exchange building for the Wisconsin Telephone Co. It will be of brick, stone and terra-cotta, with composition roof; cost, \$15,000.

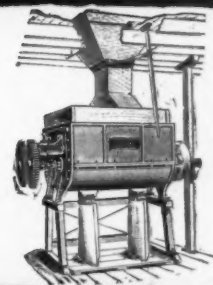
Paris, Tex.—Architect W. G. Barry has completed plans for a two-story pressed brick office-building, 45' x 216'; cost, \$18,000.

Peoria, Ill.—It is proposed to erect a new school-house on the corner of Madison Ave. and Sloan St., in the Averyville School District, to cost about \$20,000.

Philadelphia, Pa.—Architects Newman, Woodman & Harris have furnished designs for a new building for the Corn Exchange National Bank to be erected at the corner of 2d and Chestnut Sts. The structure will be two stories high, 46' x 47', and will be constructed of brick ornamented with Indiana limestone.

Pittsburgh, Pa.—Alden & Harlow, architects, 4th Ave., will prepare plans for the eleven-story addition, to cost about \$300,000, to be built to the Hotel Henry by D. F. Henry.

Princeton, Mass.—Architect John P. Kingston,



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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

of Worcester, has prepared plans for a summer residence to be erected here for Dr. Henry S. Knight, of Worcester.

Rochester, N. Y.—The Youman and Erbe Manufacturing Co. will build a brick factory, at a cost of about \$50,000.

Rock Island, Ill.—Geo. H. Johnston contemplates building a theatre here. It will be a brick structure, 60' x 150'; cost, \$50,000.

Seattle, Wash.—The Washington Cold Storage Co., C. H. Hamilton, president, will begin immediately the erection of a three-story brick cold-storage plant at the corner of Railroad Ave. and Virginia St. It will be 112' x 118', and will cost \$50,000.

Sharpsburg, Pa.—F. C. Sauer, Hamilton Building, Pittsburg, is preparing plans for a school-building to be erected by St. Joseph's Roman Catholic Church. It will be 50' x 90', three stories high, and constructed of brick and stone; cost, \$25,000.

Sharon, Pa.—Architect F. K. Hewitt, Tiffin, O., has prepared plans for a two-story brick and stone store and flat building, 43' x 80', for the Hughes Estate; cost, \$10,000.

St. Paul, Minn.—E. J. Donahue, architect, has prepared plans for a building to be erected by Terrance

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BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Kenney on 7th St. and Bradley, to be used for a post-office sub-station. It will be 28' x 89', two stories, brick and cut-stone, and will cost, \$8,000.

Shelbyville, Ky.—Architects L. H. Gruber & Sons have prepared plans for a \$15,000 frame residence for W. J. Thomas.

Uxbridge, Mass.—Architects Fuller & Delano, of Worcester, are completing plans for the proposed brick and stone savings bank building. This building is to be three stories, 62' x 73', and to be occupied by the savings bank, post-office and national bank. The third floor contains a Masonic hall, banquet room, ante-rooms, etc.

Webster City, Ia.—Liebbe, Nourse & Rasmussen, Des Moines, have completed plans for the new Catholic Church; cost, \$11,000.

West Warren, Mass.—Architects Cutting, Carleton & Cutting, of Worcester, have awarded the contract to erect the proposed Bliss Block to E. D. Ward, of Worcester; estimated cost, \$10,000.

Whitinsville, Mass.—Architects Cutting, Carleton & Cutting, of Worcester, are preparing plans for a business block to be erected here for J. A. Johnston. It will be of frame construction, three stories in height, 62' x 75'. The first floor will be arranged for stores, the second for offices and the third for halls.

Worcester, Mass.—Architect A. J. Harrington has drawn plans for a three-story house to be built on Peen Ave., for John H. Sheehan. It will be of frame, three stories high, 28' x 54'; estimated cost, \$5,000.

Extensive alterations are being made in the factory of the American Iron & Steel Co. at its Grove St. works. The present building will be raised one

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

story and a new gravel roof laid. The estimated cost of this work is about \$10,000.

Mrs. A. H. Stebbins is to build a new apartment-house on Hollis St. It will be of frame, three stories, 47' x 57', and will be arranged for 6 families. The cost will be about \$6,500.

Architects Fuller & Delano are preparing plans for a large stone and wooden residence to be erected in Auburn for John C. MacInnes, of Worcester. The residence is to be about 100 feet long and of very attractive design.

The new building for the Ancient Order of Hibernians will be commenced at once. J. A. McDermott has the contract at \$35,179. The plans were prepared by Barker & Nourse.

Wymoning, N. Y.—Architects Pond & Pond, Steinway Building, Chicago, Ill., will prepare plans for a \$10,000 hall building to be erected here.

Youngsville, Pa.—Marston & Howard, Warren, are preparing plans for remodeling the Rouse Hospital; cost, \$15,000.

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E. Sixty-fifth St., No. 50, two-st'y extension, 13' x 34' 5"; \$15,000; o., Eliz Harper Stanton, 22 E. 63d St.; a., C. W. Romeyn, 55 Broadway.

E. Seventy-fourth St., No. 50, two-st'y extension, 7' 4" x 14' 10"; \$14,000; o., Frank L. Froment, 52 E. 74th St.; a., A. N. Selen, 39 E. 42d St.



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Hudson St., cor. Perry St., six-st'y bk. flat & store, 53' x 39' 8" x 56'; \$50,000; o., G. A. Elterich, 445 W. 40th St.; a., Moore & Landis, 148th St. & 3d Ave.

W. Forty-seventh St., Nos. 106-108, seven-st'y bk. & st. flat, 44' x 89' 9"; \$100,000; o., M. S. Mannes, 495 Fifth Ave.; a., Pollard & Steinam, 19 Union Sq.

Manhattan Ave., cor. 118th St., seven-st'y bk. & st. flat, 95' x 100' 11"; \$250,000; o., Geo. L. Felt, 69 E. 115th St.; a., F. C. Browne, 143 W. 125th St.

Fifth Ave., cor. 34th St., six-st'y bk. bachelor aparts., 19' 10" x 103'; \$50,000; o., Charlotte Weatherly; a., Herts & Tallant, 32 E. 28th St.

CHURCHES.

Freelandville, Ind.—One-st'y bk. with st. trimmings church, 54' x 104', slate roof, hot air; \$15,000; o., German Evangelical Society; a., Thomas Campbell, Vincent es.

New Lexington, O.—Bk. church, 38' x 72', slate roof, furnace; \$12,000; o., Baptist Society; a., D. Riebel, Columbus.

Tama, Ia.—One-st'y bk. church, 60' x 110', shingle & tin roof; \$12,000; o., Catholic Society; a., Frank Crooker, Marshalltown.

EDUCATIONAL.

Columbus, O.—Four-st'y bk. woman's educational building, 50' x 100', comp. roof, steam; \$60,000; a., Yost & Packard, Y. M. C. A. Building.

Denison, Tex.—Three-st'y bk. convent, 9' x 122', metal shingle roof, hot water; \$25,000; o., Sisters of St. Mary; a., J. M. Nelson & Co., Sherman.

New Athens, O.—Three-st'y bk. college building, 75' x 140', slate roof, hot air; \$20,000; o., Trustees of Franklin College; a., Yost & Packard, Columbus.

Peoria, Ill.—Two-st'y & base. bk. & st. school, 60' x 62', slate roof, furnace; \$10,000; o., School District No. 9; a., Albert Kiefer.

Philadelphia, Pa.—Park Ave., cor. Norris St., two-st'y st. Sunday-school building, 65' x 80'; \$20,000; o., Park Ave. M. E. Church; b., Jas. Johnston; a., Thomas P. Lonsdale.

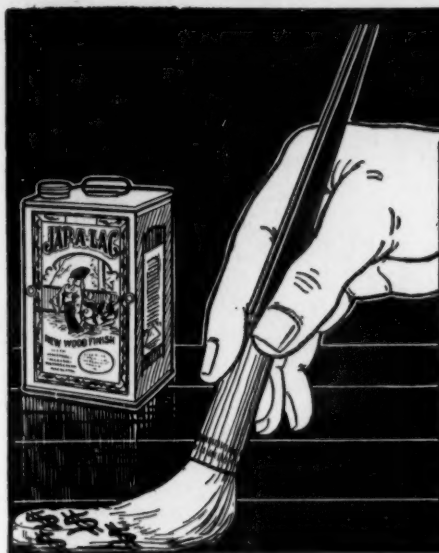
West Liberty, O.—Two-st'y & base. st. school, 75' x 75', slate roof, hot air; \$20,000; o., School Board; a., Yost & Packard, Columbus.

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Columbus, O.—W. Broad St., four-st'y bk. cigar factory, 44' x 140', comp. roof, steam; \$40,000; o., E. W. Swisher; a., C. A. Stribling & Co.

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No. 594,326, Jun. 15, 1897
No. 563,275, May 25, 1897
No. 583,276, May 25, 1897
No. 591,588, Oct. 12, 1897

No. 620,888, Mar. 14, 1899
No. 601,428, Mar. 29, 1898
No. 608,540, Aug. 2, 1898
No. 608,972, Aug. 9, 1898

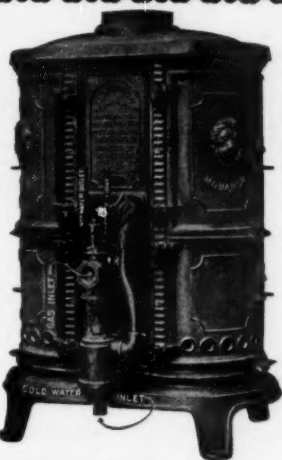
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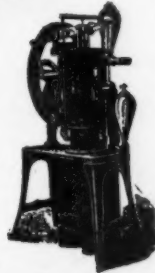
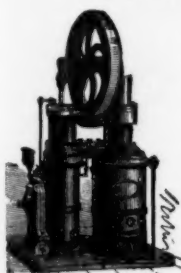
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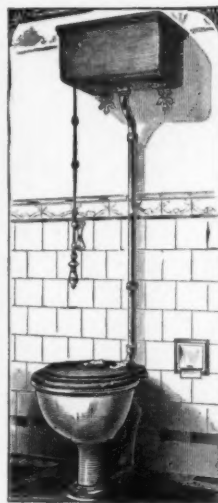
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SCHOOL-HOUSE.

[At West Liberty, O.]

Sealed bids will be received until June 9th, for the erection of a school-house. BOARD OF EDUCATION. 1275

SCHOOL-HOUSE.

[At St. Bernard, O.]

Bids are wanted until June 5, for a school-house. WM. SCHULHOF, Clk. Bd. Educ. 1275

BARRACKS.

[At Fort Du Pont, Del.]

Sealed proposals will be received until May 31st, at the office of Constructing Quartermaster, Delaware City, Del., for construction of 2 barracks, 2 double sets of N. C. S. O. Quarters, administration building, stable and wagon-room building, guardhouse, bakehouse, 6 single sets officers' quarters, hospital and hospital stewards' quarters at Fort Du Pont, Del. J. DEL. LAFITTE, Constructing Quartermaster. 1274

HOSPITAL BUILDINGS.

[At Farmington, Mo.]

Bids are wanted until May 31, for buildings at the State Lunatic Asylum No. 4. H. H. HOHENSCHILD. 1274

SCHOOL-HOUSE.

[At Roland, Ia.]

Bids will be received until June 2d, for the erection of a school-house. E. F. BELL, sec. 1274

SCHOOL-HOUSE.

[At Fort Dodge, Ia.]

Sealed bids will be received until May 31st, for erecting an eight-room school building. D. A. WELLER, sec. 1274

SCHOOL-HOUSE.

[At Minnewaukan, N. D.]

Bids will be received until May 28th, for the erection of a \$10,000 school building. J. T. MORRIS. 1274

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mill, 80' x 210', slate roof; \$100,000; o., Boyce Paper Mills Co.; a., Chas. B. Pride, Appleton, Wis.

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Pattison St., three-st'y fr. dwell.; \$4,800; o., Chas. O'Connor; b., Geo. E. Sharon; a., Geo. H. Clemence.
Waller Ave., three-st'y fr. dwell., 31' x 38'; \$5,500; o., Geo. M. Waite; b., M. L. & L. N. Hall.
Germain St., two-st'y fr. dwell., 41' x 54'; \$8,000; o., Thomas Brown; b., A. N. Booth; a., E. T. Chapin.

STORES.

Louisville, Ky.—Fourth St., bet. Walnut & Green Sts., four-st'y bk. store building, 30' x 200', tin roof, steam; \$16,000; o., Klein Estate; a., Kenneth McDonald.

Robinson, Ill.—Two-st'y bk. & iron store & flats, 130' x 131', gravel roof; \$18,000; o., Jones & Jones; a., Newton U. Gaunt.

Terrell, Tex.—Two-st'y bk. & st. store & office building, 100' x 115', gravel roof; \$23,000; o., Cartwright, Price & Purvine; a., C. A. Gill & Son.

Toledo, O.—Lafayette St., three-st'y & base. bk. stores & flats, 40' x 60', asphalt roof, furnace; \$6,000; o., Charles Dixon; a., Langdon & Hohly.

COMPETITIONS.

MUNICIPAL BUILDING.

[At Johnstown, Pa.]

Plans and specifications for the erection of a municipal building will be received until May 29th, at the office of the city clerk. J. W. CRAMER, City Clerk. 1274

PROPOSALS.

HOSPITAL.

[At Tomah, Wis.]

Sealed proposals will be received at the office of Indian Affairs until June 6th, for the erection of a hospital at the Indian School at Tomah, Wis. A. C. TONNER, acting com. 1275

HOSPITAL ANNEX.

[At Toledo, O.]

Sealed proposals will be received until June 2d, for the erection of a wing to the hospital building for male patients. H. A. TOBEY, sec. 1275

LIBRARY.

[At Tucson, Ariz.]

Sealed bids will be received until June 1st, for the erection of a public library building. H. D. UNDERWOOD, Library Commissioner. 1275

Treasury Department, U. S. Life-saving Service, Washington, D. C., May 17, 1900. Sealed proposals for the construction of a Life-saving Station on the westerly side of the harbor of Gloucester, Massachusetts, will be received at this office until 2 o'clock P. M., of Friday, June 1, 1900, and then publicly opened. Plans and specifications, forms of proposal, and full information can be obtained upon application to the Superintendents of Construction, Life-saving Stations, 17 State Street, New York City; to the Assistant-Inspector, 1st and 2d Life-saving Districts, Room 148, Post-office Building, Boston, Mass., or to this office. HORACE L. PIPER, Acting General Superintendent. 1274

ASYLUM BUILDING.

[At Farmington, Mo.]

Sealed proposals will be received until May 30th, for the erection of certain buildings for the State Lunatic Asylum No. 4. H. H. HOHENSCHILD. 1274



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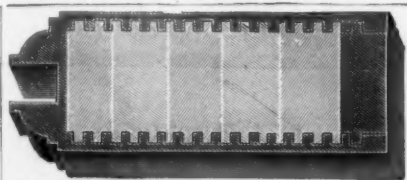
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SECTION 1. No Member should enter into
partnership, in any form or degree, with any
builder, contractor, or manufacturer.

SECTION 2. A Member having any ownership
in any building material, device or invention,
proposed to be used on work for which he is
architect, should inform his employer of the
fact of such ownership.

SECTION 3. No Member should be a party to
a building contract except as "owner."

SECTION 4. No Member should guarantee an
estimate or contract by personal bond.

SECTION 5. It is unprofessional to offer draw-
ings or other services "on approval" and
without adequate pecuniary compensation

SECTION 6. It is unprofessional to advertise in
any other way than by a notice giving name,
address, profession, and office hours, and
special branch (if such) of practice.

SECTION 7. It is unprofessional to make altera-
tions of a building designed by another archi-
tect, within ten years of its completion,
without ascertaining that the owner refuses
to employ the original designer, or, in event
of the property having changed hands, with-
out due notice to the said designer.

SECTION 8. It is unprofessional to attempt
to supplant an architect after definite steps
have been taken toward his employment.

SECTION 9. It is unprofessional for a Member
to criticize in the public prints the professional
conduct or work of another architect except
over his own name or under the authority of
a professional journal.

SECTION 10. It is unprofessional to furnish de-
signs in competition for private work or for
public work, unless for proper compensation,
and unless a competent professional adviser
is employed to draw up the "conditions" and
assist in the award.

SECTION 11. No Member should submit draw-
ings except as an original contributor in any
duly instituted competition, or attempt to
secure any work for which such a competition
remains undecided.

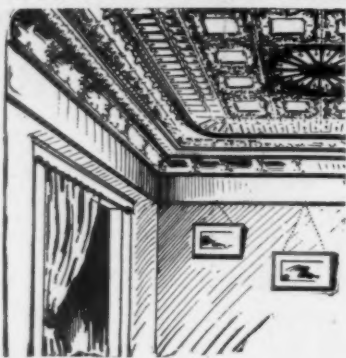
SECTION 12. The American Institute of Archi-
tects' "schedule of charges" represents mini-
mum rates for full, faithful and competent
service. It is the duty of every architect to
charge higher rates whenever the demand for
his services will justify the increase, rather
than to accept work to which he cannot give
proper personal attention.

SECTION 13. No Member shall compete in
amount of commission, or offer to work for
less than another, in order to secure the work.

SECTION 14. It is unprofessional to enter into
competition with or to consult with an archi-
tect who has been dishonorably expelled from
the "Institute" or "Society."

SECTION 15. The assumption of the title of
"Architect" should be held to mean that the
bearer has the professional knowledge and
natural ability needed for the proper invention,
illustration and supervision of all building
operations which he may undertake.

SECTION 16. A Member should so conduct his
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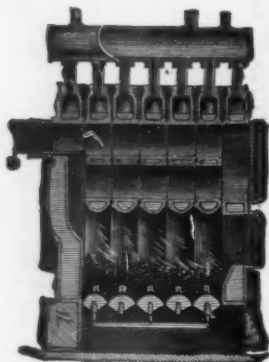
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" dark.....	@ 12 00	50 00 @ 80 00 }	Dark " @ 12 00
" red.....	@ 12 00	Enamelled B'k.	Pressed " @ 17 00
Chicago pressed.....		Imported	Paving 11 00 @ 13 00
" Moulded.....		Enam. (edge)	Second " @ 12 00
Baltimore.....	27 00 @ 41 00	105 00 @ 120 00	Third " @ 10 00
Philadelphia.....	19 00 @ 21 00	" (edge & end.	
Trenton.....	17 50 @ 18 50	120 00 @ 135 00	Dom. { @ 65
Milwaukee.....		Domestic.	{ @ 85
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