THE AMERICAN ARCHITECT AND BUILDING NEWS.

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Entered at the Post-Office at Boston as second-class matter.

OCTOBER 27, 1900.

CONTENTS.

ONE good effect of the discussion over tenement-house reform has been to bring out suggestions from the people who know the character of the tenement-house population, and understand how to benefit such people much better than the well-meaning sentimentalists who make up their schemes by reflecting upon what they would like if they had to live in the slums with their families. In regard to bath-rooms, for example, it seems to be agreed by the people who visit the dwellers in cheap tenements, attend them in sickness, and sincerely love them and wish their happiness, that such luxuries would be worse than wasted on them. Nearly all of them are brought up to think bathing dangerous, so that they would not use a bath-room if they had one, and it is obvious that the interest on the cost of it, besides the value of the space occupied by it, must be paid by the tenant. This is of itself a considerable burden to lay on people who have hard work to keep their families sheltered and fed; and it is an unnecessary one, for, under the present laws, which require water-supply in every story of every tenement-house, any one who wishes for a bath can supply himself with a pail, and a wash-rag or sponge, and can warm some water at the kitchen stove, without paying for a constant supply of hot water in a bath-room which he does not need, and which, in winter, he must keep heated if he uses it. We knew a man once, in New York, a Harvard graduate, who practised with success a highly honorable profession, and had been brought up in rather luxurious surroundings. He lived, when we knew him, in an up-town flat of the better class, which was provided with a bath-room; but, as he himself said, his family had so many things to be put away somewhere, and the bath-room was so convenient for storage, that they devoted it to that purpose, and took their baths in their rooms, with the aid of a sponge. In this flat it would have taken about half a day to clear away rubbish enough to enable any one to use the bath-tub; and poor laborers, who have no other place than their tenement to store their shovels and pickaxes, which often form their principal worldly possessions, cannot be expected to treat with any great respect a bath-room which they care nothing about.

ANOTHER thing that the theoretical tenement-house reformers do not sufficiently take into consideration is the destructiveness of poor tenants. Most families know something of the carelessness of servants, but house-servants are infinitely more considerate than the average inhabitants of cheap tenements. A letter to one of the New York papers from an owner of tenement-houses says that the window-sills are, in his houses, often used as blocks for chopping firewood on, the poor tenants, brought up in Italian or German or Irish cottages, with stone walls and dirt floors, never thinking that any part of a New York house need be handled more delicately than their own homes. Still worse than this; we remember once planning a model tenement-house under the direction of an agent, who knew thoroughly the class with which he had to deal. One of his suggestions was that the stair balusters should be made plain, so as to be easily replaced, for the reason that the inhabitants of his houses, if they found themselves short of kindling-wood, were apt to run out into the hall, wrench a baluster or two from the stair railing, chop them into proper lengths, and feed their fire with them. "They may be the best-paying tenants, too," said the agent, "so you don't want to turn them out; and the best way is to have it so you can put in new balusters easily." Of course, this simply illustrates the improvidence of the very poor, but centuries of experiment have shown that this improvidence is incurable, and all that can be done is to guard tenants and landlords alike from the more serious consequences of it, and to train the children, who are still capable of receiving new ideas, into habits of prudence, cleanliness and economy which their parents could never acquire.

BOSTON, which has had important exhibitions of pictures only on rare occasions, is, we learn, to have regular annual exhibitions, the first to be opened in Copley Hall, November 20 next. Only original works by contemporary American artists are to be admitted, and a peculiar feature of the plan is that the exhibitors of each year are to select the jury for the exhibition of the next year. It is curious that, while many valuable pictures by foreign artists are owned in Boston, American talent finds, as the artists think, little encouragement there, and it is hoped that the new exhibition, by bringing American art before the eyes of the Boston public, as it is brought before the people of New York and Philadelphia, may extend the market for native works.

THE American Association of Railroad Superintendents of Bridges and Buildings has issued a very interesting and important report on the use of concrete for foundations, culverts, bridge-piers, abutments and arches. Inasmuch as railway corporations in this country operating eighty-five thousand miles of track now employ concrete for such purposes, and its use is increasing, the experience of the engineers under whose direction it is made ought to be worth hearing, and the intelligence with which the replies to questions, which form the bulk of the pamphlet, are written makes them particularly valuable to architects. In general, the opinion of the railway-bridge engineers decidedly favors Portland-cement for concrete in place of natural cement. It is not many years since American engineers, in view of the troubles which frequently followed the swelling or cracking of Portland-cement as manufactured at that time, preferred, for permanent work, the natural cements; but the best Portland-cement of the present day is a very different material from that of ten or fifteen years ago, and work executed with it can be relied upon to a degree formerly unknown. Some of the contributors to the report say that nothing but the best imported cement is satisfactory for concrete; but this idea, in view of the constant improvement in the quality of American cements, has probably no longer any serious foundation.

THE cost of Portland-cement concrete, for railroad work, seems to be now about the same everywhere in this country, making allowance for local variations in cost of stone and sand, ranging from seven to eight and one-half dollars per cubic yard, with the average, perhaps, about eight dollars; and there seems to be little difference in cost between hand and machine mixing, the former being cheaper for small work, and the latter for work on a large scale. In regard to quality, the railroad engineers find no practical difference between the hand-mixed and machine-mixed concrete, and architects will probably agree in this view, the machine-mixing being, perhaps, a little more regular, but any carelessness in machine-mixing involving worse consequences than in hand-mixing. As between wet and dry concrete, meaning by the latter a concrete on which water can be brought to surface only by heavy

ramming, the railway engineers, as a rule, prefer a moderately dry material, such as will not quake under the rammer, but on which water will show after a few minutes' tamping. No doubt, a dryer concrete may, theoretically, be better, but it is quite possible for concrete to be put in so dry that it will begin to set, in hot weather, before the water is brought to the surface, so that the tamping injures it by breaking up the initial set; and, as one engineer remarks, concrete that is too dry is worse than if too wet. Concerning concrete work in freezing weather, again, the practice of the engineers does not quite support the theories. We are treated several times every year to demonstrations that freezing does not injure Portland-cement concrete; but nearly all the railway engineers, it seems, while they do not contradict the demonstrations, prefer not to do concrete work when the thermometer is below twenty degrees Fahrenheit. In any case, they find it much more expensive in cold weather, and, even when the sand and water are heated, they think that the concrete is unsatisfactory, inclining to crumble on the surface, if nothing worse.

THE New York *Evening Post* observes that, according to published reports, the official Boards of Arbitration, which have been established in twenty-three States, have practically accomplished nothing, except, perhaps, to call public attention to the advantages of arbitration generally. It might have been predicted beforehand that disputes between employers and employed in industrial matters could only be satisfactorily settled by referees familiar with the business concerned, and the arbitrations, which are now common, are almost invariably entrusted to such persons, instead of to the official arbitrators, who are, as the public supposes, appointed as a reward for political services, or as a compliment to some persons or cliques whose votes are desired. It may be said that in the few States where the Boards of Arbitration show any life, they have been zealous, and, on the whole, judicious, in fulfilling their duties; but the Illinois Board, one of the most intelligent, is convinced that successful arbitration depends on the confidence of the parties in the arbitrator's knowledge of the details of the business concerned, and that an official Board cannot furnish this knowledge; so that, where State Boards of Arbitration exist, their greatest usefulness lies in their employment of their official position to appeal to the parties in any industrial dispute to resort at once to some sort of arbitration, and, if necessary, to summon witnesses to fix the responsibility for any wrongdoing connected with the matter. The Massachusetts Board has done this with good results, and the Illinois Board thinks that all such bodies should be clothed with powers similar to those exercised by the Massachusetts Board.

AN advertisement in *La Construction Moderne* affords a suggestion which may be of value to the profession here and abroad. An architect, M. L. Garnier, of Laval, in France, gives notice that he has to sell an ancient "rétable d'autel," or reredos, dated 1649, and suitable, in dimensions and arrangement, for setting in a monumental chimneypiece. Probably a curiosity of this kind would find a purchaser in France without much difficulty, but it would find one much more easily, and at a higher price, here than anywhere in Europe. One of Henry James's heroes apologizes to people for his rustic interest in what he sees in Europe by explaining that he had never seen at home anything of human fabrication more than twenty years old; and the passion for old things, first, because they are old; secondly, because they are different from ordinary things, and thirdly, because they are beautiful, seems to be increasing in this country every day. A house in Boston is built around an arcaded court, the columns for which were brought from Italy, and are said to have belonged to a Byzantine palace in Venice; and the same house has, and is to have, a variety of door and window dressings, panels and so on, also brought from Italy; another house in Boston is furnished with window balconies purchased from the ruins of the Tuileries; a Boston church possesses some stone tracery of the fourteenth or late thirteenth century, brought from England; and everywhere, particularly in the richer and older States, great value is set upon things which, in Europe, are too common to be regarded. We have seen in a provincial junk-shop in France a beautiful iron spiral staircase, which would be a treasure for the library of some rich American; and there must be multitudes of similar objects, which, in Europe, may await for years the purchaser who would soon be found here. As the best things of the kind usually come from demolitions or alterations made under the direction of architects, and as, in any case, the architects are most likely to appreciate good things of the kind, it would be, as it seems to us, an excellent idea for French, or German, or English, or Italian architects who have charge of, or who know about, demolitions, to inform the profession briefly in this country, through the architectural journals, in regard to any chimneypieces, wrought-iron work, old floor-tiles, good stone window and door dressings, panels and sculpture generally, including even cornices, and, especially, panelling and interior woodwork, either painted or plain, tapestries, plaster or painted decorations, and door and window knobs, latches, locks, bolts, hinges and other metal-work. We think we know already a customer for a large amount of English or French oak panelling of the style of the sixteenth century or earlier, and for the wood and metal fittings of several rooms from French châteaux, in any style from Louis Quatorze to the Second Empire; and the possibility of getting such things in America would interest many purchasers who now go without them because they are unattainable. For these reasons, and in the hope of being of service, not only to people on both sides of the ocean, but to art itself, we will welcome inquiries from architects and others in this country for such objects of the sort as they would be glad to have, as well as information, in any language, from English, French, German, Italian, Austrian, Russian, Swiss or Dutch architects or others, in regard to any kind of old material of the sort that they may know of, and what little trouble there may be in trying to bring customers and sellers together we will gladly undertake.

THE train which runs every week between Moscow and Irkutsk, over the Trans-Siberian railroad, deserves the credit of being the most complete railway train in the world. The journey takes nine days, travelling day and night. The train consists of one first-class and two second-class cars, a baggage-car and a dining-car. As in many cases on the Continental railways, the dining-car contains also a parlor, and, on the Trans-Siberian railway, it includes also a library, a piano, a bath-room, with gymnastic apparatus, and a barber's-shop. The baggage-car contains the kitchen and pantry, refrigerator and linen-closet, and the sleeping-rooms of the seventeen trainmen. The passenger-cars, both of the first and second class, have numbered seats, so that every one is sure of his place; and they contain also the usual toilet-rooms, two special state-rooms, with large windows, for observation, and a dark room for photography. The air in the cars is warmed in winter by steam or hot water, and is cooled in summer by a refrigerating machine, which is capable of reducing the temperature in them to a point fifty degrees below that of the outside air. A story has been circulated in this country to the effect that the Trans-Siberian line is poorly built, and that it will have to be reconstructed before it can be of much commercial use. Whether there is anything in this beyond a very natural probability that the track was first laid with light rails, which will be replaced by heavier ones as traffic increases, is doubtful; but the rolling-stock, at least, seems to be modern enough, so far as the passengers are concerned.

THE latest attempt to unearth, so to speak, the personages of the ancient Greek legends is directed at Ulysses. It will be remembered that Ulysses, before he went to war, with the help of the gods, against Troy, and took such a round-about journey home again, lived in a castle, or palace, in Ithaca, of which Homer gives a minute description, mentioning even the flutes in the columns, which served to hold in place the spears brought by the gentlemen who came to call upon Penelope during her husband's absence. The modern island of Ithaca has been searched, in vain, for any traces of the building, which must have been an important one, and Dr. Dörpfeld, who has conducted the more recent investigations, is now satisfied that the Ithaca of Ulysses must be sought elsewhere, probably on the island now known as Santa Maura. Next spring, therefore, excavations are to be begun on Santa Maura, at the expense of a rich Hollander, Mr. Goekoop. Whether any traces will be found of the wily prince, whose followers were turned into pigs to punish them for their bad manners at Circe's table, remains to be seen, but something of interest is sure to be discovered, and the archæological tour, which Dr. Dörpfeld is to conduct to the place next year, to inspect the results of the excavation, is likely to be a popular one.

NOTES ON SOME EUROPEAN SYSTEMS OF FOREST ADMINISTRATION.[1] — VII.

FEDERAL SUBSIDIES.

Font in Siena Cathedral. A. Federighi, Sculptor. From *The Builder*.

REGULATIONS for the elaboration of reforestation projects and "works of defence," to be carried out with Federal aid, and for the presentation of these projects to the Federal Council were formulated in a pamphlet issued by the Department of the Interior in 1897.

How these projects originate will be found elsewhere. In conformity with the regulations for the execution of the Federal Forestry Law, demands for subsidy in favor of a *projet de reboisement* must be accompanied by a technical report, an estimate, and a plan of situation.

The technical report must contain: —

(*a*) The designation of the proprietor, of the lands to be replanted, of the locality, of the political commune and the forest *arrondissement*, and enumeration of any servitudes, or rights, to which the land may be subject.

(*b*) Necessary information as to the extent and boundaries of the surface to be reforested.

(*c*) A short description of this surface (situation, orientation, altitude, inclination, nature of soil).

(*d*) The report must specify whether the project involves the creation of a new protective forest or the restoration of one already existing. In the first case the report must determine, if there be any natural regrowth, what is its character and what its probable future extension. The report must further specify what guaranty the proposed reforestation offers against the danger of landslides, stone-chutes and avalanches, etc., the defensive works which may need to be carried out in combination with the project, and the various difficulties involved in the scheme.

(*e*) The sort of culture (the sod, if any), the spacing of the plants, their species and growth, the time of planting (spring or autumn) and drainage and enclosure required by the culture. The construction, material and building-method of the "works of defence" must be stipulated.

The report must also set forth the reason for barracks, or installations, and roads which may be required.

(*f*) The report will also state particularly whether the work is to be done by the administration or under contract, and if an agent is to be specially appointed to superintend.

(*g*) The report will finally state the probable duration of the works.

The estimate will be made up according to Formula A, already in use. It will state: —

(*a*) The price of plants and seed.

(*b*) The cost of setting out.

(*c*) Cost of eventual drainage works, in total and per piece, with length of ditches and drains, etc.; sort and length of enclosure for the plants, with price in all.

(*d*) "Works of defence" must be clearly specified, and an estimate given of the length of the walls, their volume and price per cubic metre. The length and price per running metre of all mats, wattling, gabions, fascines, fosses and enrockments, paved or pitched, will be included. The length and number of stakes to be driven, the length and number of palings, will be estimated, and the price quoted per stake.

In the case of weirs and dams and other transverse constructions of stone or wood, or both, the report must figure the superficial area of their face and the price per square metre, and the length and price per running metre of all longitudinal palisades and revetments of stone and wood, or stonework (pitched and piled).

The cost of stockades and embankments against avalanches, and the cost of bridges to retain the snow, will be estimated, the latter per running metre.

(*e*) The estimate must include the cost of insuring laborers against accident.

Where the price of any article is above the ordinary, the estimate must give reason therefor.

As a rule, the situation-plan should not be drawn to a scale of less than 1 : 5000; it shall give the configuration of the land by means of horizontal curves, and such figures as may be necessary. All drainage and defence works must be indicated. The special plans for "works of defence" or drainage will be accompanied by requisite profiles.

Before the examination of the project on the ground by the Federal Inspectorate of Forests, the boundaries of the surface to be reforested will be staked where not otherwise sufficiently defined, as will be also the place of works of defence or projected drains.

Where the project covers a large extent of country, and especially where considerable defensive works are involved, the cost of making the situation-plan may be added to the estimate, but only in case the draughtsman is not a functionary of the Canton submitting the project.

The above-described papers being prepared, and duly signed by the forest official responsible, they will be transmitted by the Canton submitting the project to the Federal Council, the Cantonal Government specifying at the same time what percentage of the estimated cost it assumes.

For payment of subsidies the regulations require the Cantonal Governments to transmit yearly communications on the progress of work and demand for subsidies allotted.

These demands are accompanied by: —

1. A report of the proper forest official upon the state of the works.
2. A statement of expenses, with all the original papers necessary.
3. An inventory of tools bought, wood used, etc.

(Formulas are furnished for these.)

Important modifications must be approved by the Federal Council. As a rule, the subsidies are handed over only on completion of the works, and after proper inspection and certification, but on application by the Canton interested, the Council may grant the funds in installments upon the finished stages of the work. This is only in case of works costing in excess of the minimum of 1,000 francs.

The Federal Council takes no account, without special petition, of cost in excess of the estimates, and the Council must be notified of any delays in the work.

Avalanche and Torrent. — The construction of what might be called breaks or obstacles high in the mountains, where the snow begins to separate from the mass and slip down over the steep shoulders of the mountain to grow with added mass and speed into the irresistible, destroying rush of the avalanche, is an affair of comparatively recent years. These breaks are effective if located just in the right spot, where the snow's movement begins. They are usually palisades, or else dry walls of stone, about one metre high, of varying, but usually short, lengths. They are dotted about irregularly over the slope, but so arranged that those farther down stop or check the snow which passes through the gaps between the upper ones. Their distance apart is regulated by circumstances. As this defence is not costly and has proved effectual it is being extended to many points of danger. Terracing roughly with rocks and earth — where the latter is found — serves the purpose in certain places. A more detailed description of the means used to correct destructive torrents will be given in another place.

It is proposed to turn this work over to the engineers and the foresters; in this case the latter will take over the direction and superintendence of works upon the torrents in the whole higher mountain region, with authority to push forward necessary work without waiting to go through the red-tape of preparing projects, as above described, and awaiting subsidies. It is important to check the scouring of the torrent at once, and the forest officers are the ones to discover the mischief at the earliest and to be held responsible for its abatement. As one looks down from a high point amid the mountains and follows the track of some great avalanche, which, rushing from the cliffs down over the rocky slopes, cuts its broad path through the upper timber-belt as though with a scythe, one feels the impotence of man in the presence of those great elemental forces of Nature, the storm, the avalanche, the torrent, the landslide. Yet, something may be done by watchfulness and readiness to attack the small beginnings from which they grow.

Maps and Working-plans. — In the matter of forest surveys and cartography, Swiss forestry has made great advances in the last few decades. The substitution of the theodolite for the plane-table has brought the polygonometric method into more general use. Definition by color-washes is abandoned for the system of horizontal curves or profiles, which, of course, gives far better detail of the topography.

All forest-maps are now oriented from the meridian of the Observatory of Berne. A uniform scale of 1 : 2000 is used for all forest maps, except for those of large districts, where 1 : 4000 or 5000 is found more practical. The polygonometric survey, while it has

[1] Continued from No. 1291, page 93.

unquestioned advantages, is still, when carefully carried out, much more costly than plane-table work, an item worth considering in connection with forests of moderate yield. A combination of the two will, doubtless, be found to work satisfactorily, with careful triangulation and determining of outer boundaries and important inner lines by the instrument. It is, of course, not within the scope of these notes to go into the question of the actual working or culture of the forests, their divisions into classes and periods, the regulations for cuttings and plantings, for defensive and regenerative operations and general maintenance. It will suffice to say that the Swiss administration of forests is in the highest degree practical as well as scientific, and that it is based upon the principle of a careful consideration of local conditions and insurance of permanent and regular future supply.

The country of the Alps being practically throughout a pastoral country, the proper division of wood and pasture and the definition of the protective forests have presented serious and considerable difficulties. The pasture proper is in places so intermixed with the forest, and where such is the case it is so very difficult to afford the necessary protection to insulated forest masses that the question remains in large part in certain regions an open one.

The setting off of the protective forests is practically completed, and not without the overcoming of many very serious difficulties. While the process varied of necessity in certain Cantons, the plan has been carried out in all Switzerland, so that no forests whose destruction would entail general damage have been left out of the reservation, or, more strictly speaking, of the control of the Federal administration.

A. B. Bibb.

[To be continued.]

EXPERIMENTS TO DETERMINE THE EFFECT OF FREEZING ON CONCRETE.[1]

With the constantly increasing use of concrete, questions as to its qualities are continually arising. It has been a commonly accepted opinion among engineers that the building of concrete masonry, especially above ground, during freezing weather is bad practice and one to be avoided if possible. This would limit the concrete building season, in this latitude, from about April 1 to November 1, seven months in all, which is a comparatively short time. It has frequently been necessary for the Bridge and Building Department of the railroad with which the writer is connected to put in Portland-cement concrete footings during the winter months and considerable care has always been used to protect the freshly-mixed concrete from freezing. There has, however, been a feeling of uncertainty as to the effect of freezing if it should take place before the concrete had thoroughly set.

In order to determine as far as possible by experiment the result of freezing Atlas Portland-cement concrete and Louisville-cement concrete, which were taken as types of Portland and natural cements, eight 12-inch cubes of each kind of concrete were made and tested as described in the following tables:

Two of the latter were kept in a warm office until broken; they were used for purposes of comparison. Four were placed out of doors as soon as mixed in a temperature considerably below zero, and left outside for 28 days, when two of them were broken and two taken into the warm office and left for 28 days more before breaking. The two cubes of each test which were mixed with salted water were placed outside as soon as made, and left to freeze and thaw until broken at the age of 28 days. We were fortunate in the selection of the time for making these tests, since the weather to which the cubes were exposed outside was exceptionally cold for Chicago, and in fact the Portland-cement cubes were placed outside in the coldest weather experienced in Chicago for over twenty years. The weather moderated during the latter part of the 28 days in which the cubes were out, and they were then exposed to freezing at night and thawing during the day. Taking the size of the cubes and the weather into consideration, it may be said that freshly mixed concrete would probably never be subjected to a more severe test of this kind in this latitude.

Referring to Table No 1, showing the effects of freezing on the Atlas-cement cubes, it will be seen that the two cubes which were left in the office, Nos. 103 and 104, developed an average strength at the end of 28 days of over 185,000 pounds, which was the capacity of the testing-machine at the West Milwaukee shops of the Chicago, Milwaukee & St. Paul Railway. But probably the strength of these cubes did not much exceed this amount, as one of them began to fail at that load.

The two cubes which were placed outside in a temperature of about 15 degrees below zero immediately after being made, Nos. 147 and 148, developed an average strength of 115,000 pounds. The two cubes made at the same time and left out-of-doors for the same length of time and then kept in a warm room for 28 days more developed a strength of over 185,000 pounds, probably greater than that shown by the two cubes left in the office for 28 days, since no sign of failure by either of these cubes was manifest, indicating that the freezing of these four cubes had the effect merely of causing the concrete to harden more slowly than it would have under more favorable conditions of temperature. The two cubes mixed with salted water and then exposed to the cold for 28 days developed a strength of over 185,000 pounds, probably about the same as that of the two unexposed cubes.

The deductions which may be made from these Portland-cement tests are:—

Freezing before setting does not seem to injure the Portland-cement concrete even if, after having frozen hard, the concrete is exposed to alternate freezing and thawing weather.

Exposing freshly mixed Portland-cement concrete to a freezing temperature seems to affect its rate of hardening, making it slower, it appears, but that eventually the concrete will be just as good as if it had not been exposed to the cold.

The use of salt seems to largely counteract the effect of the cold in causing slow hardening.

Table No. 2 shows the tests of Louisville-cement concrete cubes. It will be seen that the cube left in the warm room, No. 119, and broken at the end of 28 days developed a strength of 43,400 pounds,

TABLE NO. 1.

Tests to Determine the Effect of Freezing on Atlas-cement Concrete.

Concrete composed of 1 Part Cement, 3 Parts Gravel, 4 Parts Broken Stone.

No. of Cube.	Date made.	Date broken.	Variation of Temperature. Max.	Variation of Temperature. Min.	Treatment of Cube.	Crushing-stress, pounds.	Behavior in Testing-machine.
103	[1]Feb. 6, 1899.	Mar. 6, 1899.	80°	18°	Kept in warm office from time made until broken.	Over 185,000	Unbroken, slight flaking, no cracks.
104						185,000	Slight flaking, split on one side in line of stress.
147	Feb. 6, 1899.	Mar. 6, 1899.	57°	-24°	Placed in open air as soon as made and left to freeze and thaw until broken.	130,000	Split and flaked in line of stress.
148						99,600	
149	Feb. 7, 1899.	Mar. 7, 1899.	57°	-24°	Mixed with salt water, placed in open air as soon as made and left to freeze and thaw until broken.	Over 185,000	Unbroken, slight flaking, no cracks.
150						185,000	Slight flaking, split on one side in line of stress.
151	Feb. 7, 1899.	Apr. 4, 1899.	57° Outside and 85° Inside.	-24° and 32°	Placed in open air as soon as made and left to freeze and thaw for 28 days, then placed in warm office for 28 days more, then broken.	Over 185,000	Unbroken, slight flaking, no cracks.
152						Over 185,000	

[1] Fire went out and temperature dropped below freezing for a short time on two nights.

The proportions and the materials used in the tests were similar to those used in building the track-elevation masonry of the Chicago, Milwaukee & St. Paul Railway, described in the October *Journal*. The gravel was composed of about two-thirds clean coarse sand and one-third small stones. The crushed stone was crusher-run limestone from Hawthorne, Ill. The cubes were all made by the same man and those for the same kind of cement were made on the same or on succeeding days. The specimens were moulded in boxes made of 1-inch boards, and left in these until taken out to be broken. Two of the eight cubes of each kind of concrete were mixed with salted water in the proportions of one pint of salt to ten quarts of water. The other six were mixed with ordinary hydrant water.

[1] A paper by Walter A. Rogers, M. W. S. E., Assistant Engineer, Bridges and Buildings, C. M. & St. P. Ry., read May 3, 1899, before the Western Society of Engineers and printed in the *Journal* of the same.

while cubes Nos. 153 and 154, which were placed outside in a temperature of ten degrees below zero as soon as made, showed an average strength of 33,000 pounds at the age of 28 days. Cubes Nos. 157 and 158, made at the same time as the last two and left out in the cold for the same length of time and then kept in a warm office for 28 days longer, had an average breaking-strength of 52,500 pounds. The two cubes mixed with salted water and exposed for 28 days developed a strength of 35,000 pounds, being but little more than those treated in the same way and mixed with fresh water.

The same deductions may be made from the tests of Louisville-cement concrete as from the Atlas tests, with the exception that the use of salt seemed to have had little, if any, effect on the strength of the cubes exposed to the cold. The fact that the extreme cold seems to have merely caused the hardening of the concrete to proceed more slowly than under more favorable conditions

of temperature is brought out in a marked manner by the fact that the strength of the cubes left out in the cold for 28 days and then kept inside for 28 days developed a strength of 20 per cent greater than those which were kept inside for 28 days and then broken.

In this connection it may be mentioned that it became necessary to build a retaining-wall during the latter half of last November. This wall was built of Louisville-cement concrete, faced on the top and front with Portland-cement mortar. The weather was quite cold part of the time while the concrete was being mixed, and part of it must have frozen before setting had entirely taken place. The 2-inch plank form was left in position until spring and about 4 or 5 inches of sand was placed on the top of the wall. In removing the form this spring it was found that the body of the concrete, to all appearances, was in good condition. About 6 inches from the top, however, the Portland-cement facing was badly cracked and by sounding occasional spots were found both in the Portland-cement facing and in the back of the wall, where there seemed to be a thin, loose shell. Evidently these are surface defects and the wall itself appears to be in good condition.

The writer believes that the foregoing tests indicate that concrete work with cement possessing qualities similar to those tested may be carried on safely during moderately cold weather by using proper precautions, such as warming the materials and water, and by so protecting each layer of concrete that its top shall not freeze before the next layer is placed.

DISCUSSION.

THE CHAIRMAN, MR. T. L. CONDRON : — It occurs to me that the tests which Mr. Rogers has described are like nearly all other practical tests which we have to be guided by : they are incomplete. Unfortunately, there is very little opportunity for a sufficient investigation of these problems of strength. The physical limitations of tests are all well known, and it was very unfortunate in this case that one of the two Louisville-cement tubes that was left in the office failed at zero, practically, and consequently reduced the average of the two, something like 21,000 pounds; it seems just as reasonable to put these two together as to add together any other two cubes of concrete. It is utterly impossible to make two cubes of concrete alike. The failing of the Portland cement concrete occurs to me also not to have been measured; 185,000 pounds has not developed much of anything in some of the cases. In my experience in testing these cubes, the fact that you do not have absolute plane and parallel faces seriously affects the results of the compression tests. You get as near a plane surface as possible, but the testing-machines are usually quite rigid, more and more so as the load comes on, and any slight variation from parallel surfaces makes a very great difference in the result of the tests.

MR. POWELL : — Some years since I had in my practice a piece of concrete work to construct under very unfavorable circumstances, and the results obtained may be of interest in connection with the paper just read.

No attempt was made to keep a record of this work, the facts being, as I remember them, as follows :

I was required to build an anchor for a one hundred-ton shear-leg crane. This anchor consisted of a body of concrete about 14 feet square by 65 feet in length. It was for the Chicago Ship Building Company that the work was constructed. I had to put in this block of concrete in freezing weather. During all of the time of construction, the temperature was below the freezing point, and for a portion of the time, below zero. About one-half of the mass was below the surface of the water. The only function required of the anchor was weight, and, therefore, no particular care was taken to make the concrete extra strong. If it would stay together, that was all that was necessary.

The concrete was made with Milwaukee-cement, the proportions being, as I remember them, one part cement, two parts sand, and four to five parts broken stone. It was mixed with reasonable care; the materials were heated; the water was heated; and we used salt at the rate of about a double handful to a pail of water; that was as near as the measurements were made. The ice would form over the top of the concrete every night (in one case as much as six inches formed) until the work was above the surface of the river. When the work was above the water level, no attempt was made to protect it from frost.

In June or July following, the report came to me that this anchor was failing, owing to the crumbling of the concrete. I made an inspection of the work and found that the earth was settling on each side of the anchor, due to the thawing of the ice, which had been covered over, when the trenches alongside were filled. The concrete was hard and well set.

We attempted, some time after this, to cut a channel through the block in order to make some changes in the machinery, and I found the concrete was hard, thoroughly set. There was no indication of bad effects from frost, that I could find. No tests were made as to its bearing strength. It was good, hard concrete, and it is still in good shape.

MR. SMITH : — I might refer back to the illustration of the wash-out scene — where there is a piece of masonry carried two hundred feet away from the abutment. That masonry was built in the winter time, and cement-mortar was used. In the section which was carried away by the water, about 200 feet, there were, if I remember rightly, seven individual stones cemented together.

MR. CONDRON : — The point I raised was that it was very hard to determine the real strength of concrete by the cube tests. We might have got just the same results from these tests, if they had not been subjected to the freezing and thawing. The lack of parallelism of the faces would tend to have more effect on the results of the tests than almost anything else. I believe Mr. Rogers probably discovered, in making the tests, how difficult it was to get uniform bearing in the testing machine. Did you not?

MR. ROGERS : — Yes, I found that to be the fact, but I doubt if the difference in strength of these cubes could have been made by the difference in parallelism of the faces of the cube. Take, for instance, the Louisville tests, and the Atlas-cement tests, you will notice that the strength of the cubes, placed outside to freeze and thaw, is in each case considerably lower than that of those kept inside; you will also notice that the cubes which were taken outside for 28 days to freeze and thaw, then brought inside for another 28 days, show considerably more strength than those which were left inside.

MR. CONDRON : — They were twice as old.

MR. ROGERS : — Yes, but that shows that the cement had set while frozen. That was all that I was after. I did not care for exact strength, I wanted to get comparative results. I have heard it said a great many times that cement did not set while frozen, and therefore concrete made in freezing weather would probably be a very inferior article, and when thawed out would be practically valueless.

TABLE NO II.

TESTS TO DETERMINE THE EFFECT OF FREEZING ON LOUISVILLE-CEMENT CONCRETE.

Concrete composed of 1 Part Cement, 2 Parts Gravel, 4 Parts Broken Stone.

No. of Cube.	Date made.	Date broken.	Variation of Temperature. Max.	Variation of Temperature. Min.	Treatment of Cube.	Crushing-stress, pounds.	Behavior in Testing-machine.
119 } 120 }	Feb. 13, 1899.	Mar. 13, 1899.	85°	40°	Kept in warm office from time made until broken.	43,400 Defective	Gradually failed by splitting and flaking in line of stress.
153 } 154 }	Feb. 11, 1899.	Mar. 11, 1899.	57°	-10°	Placed in open air as soon as made and left to freeze and thaw until broken.	28,700 37,000	Ditto.
155 } 156 }	Feb. 13, 1899.	Mar. 13, 1899.	57°	-10°	Mixed with salt water, placed in open air and left to freeze and thaw until broken.	34,200 35,700	Ditto.
157 } 158 }	Feb. 11, 1899.	Apr. 8, 1899.	57° Outside and 85° Inside.	-10° 40°	Placed in open air as soon as made and left to freeze and thaw for 28 days, then placed in warm office for 28 days more, then broken.	54,200 50,900	Ditto.

MOLTEN WOOD. — A French Inspector of Forests named De Gall has succeeded in melting wood by means of very high pressure. The escape of the gases which form while wood is burning is hindered, and when the wood has been reduced to a liquid condition and has settled, it does not in any way resemble the body which it before was. It is, in fact, more like coal — black; hard and heavy. When broken the surface is seen to be very fine-grained, and it will take a beautiful polish. There is, however, no longer any trace of organic structure visible. On the other hand, it possesses many qualities which may finally lead to its adoption in various industries. It can be pressed into any form, is impervious to water and the action of acids, and is a non-conductor of electricity. Melted wood is without question of the highest scientific interest. Its usefulness must naturally depend upon its production, as there are already many things possessing the same qualities which are used in manufacturing. — *Boston Transcript.*

INAUGURATION OF THE PRESIDENT OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY.

THE formal inauguration of Dr. Henry S. Pritchett, former Chief of the United States Coast and Geodetic Survey, as President of the Massachusetts Institute of Technology took place on October 24th in the new Symphony Hall in Boston. A distinguished company was present consisting of representatives of colleges and universities from all parts of the country and of representatives of the Alumni organizations, the entire main body of the hall being filled by the students, 1,250 or more in number. Brief addresses were made by Senator Henry Cabot Lodge, by Col. Thomas L. Livermore, on behalf of the Corporation, and by ex-President Crafts. The principal feature, however, was, of course, the inaugural address of the incoming president.

Dr. Pritchett's practical experience as director of perhaps the most important purely scientific branch of the Government service rendered his inaugural address upon "The Relation of Educated Men to the State" peculiarly suggestive. His insistence upon the obligations of the institutions of higher learning to maintain about themselves an atmosphere favorable to the growth of a wholesome type of civic virtue is especially appropriate and inspiring coming, as it happens, upon the eve of a national election.

Dr. Pritchett explained that for some years past as an executive officer of the general Government, he had been obliged to study the graduates of colleges and of technical schools from the standpoint of their efficiency in comparison with other men rather than from the standpoint of the teacher; from the standpoint of their ability to do things rather than from the standpoint of knowing how to do things. In this capacity he had been forced to consider the relation of educated men to the Government, to compare their service to it with the service rendered by others. He called attention to the fact that a constantly growing proportion of the important places of the Government are passing into the hands of college-men and he asked the question whether the training received in our institutions of higher learning merely gave men increased power or did the college life also fit men for patriotic and loyal and unselfish service to the State.

In considering this question he called attention to the fact that the State represents the whole people, that in this capacity it had given generously to higher education both through the general Government in land-grants and through the State Governments by direct taxation. Even our older universities like Harvard and Yale had at some time, almost without exception, received aid from the State. Harvard was really founded by the Commonwealth of Massachusetts. The State, has, therefore, the right to ask what sort of instruction is being given in our higher institutions, and to know that in these institutions men are trained in high ideals of their civic duties.

While maintaining that on the whole the institutions for higher education had justified the aid which they had received from the State, President Pritchett brought forward certain qualities of education upon which he conceived the State had a right to insist and which had not always been remembered. He said, "The State has a right to expect of those educated in a large measure by its aid a decent respect for the service of the State." He deprecated the widespread tendency to belittle Government service, and to ascribe lightly the worst motives to public men. "The Government of the United States," he said, "is honestly conducted, and notwithstanding the crudeness of some legislation and the half-hearted service of a few, those who know best the machinery of the general Government have a rational optimism concerning the success of democratic institutions and a wholesome respect for those who work in public service. Educated men will find in increasing numbers their best career in the State's service and college-men should be the last to misunderstand and belittle it."

Another quality of the education given to the youth upon which the State has a right to insist is its catholicity. "No system of education," said he, "is a good one in which students and graduates get out of touch with the great body of their fellow-citizens. The higher institutions of learning, if they are to fill their real place, must be not only for the people but of the people."

Beyond all such considerations, however, and including them all is the quality of citizenship which our education is likely to produce and what education ought to mean. President Pritchett referred to the literature of the subject, quoting Aristotle's summary, "What is education and how are we to teach, and are we to aim at the development of the intellect or the moral character?" He called attention to the fact that the whole aim of modern education was the attainment of power, and to this end the intellect alone was considered in the training given to young men. He said that the State was interested in having in its service keen, efficient, intellectual men, but that it was still more interested in finding men of courage and patriotism and unselfishness. In other words, in the service of the State, if not, indeed, in all service, character counted for more than intellect and unless the training of the colleges and of the universities produced men who were not only intellectually able but who were also strong in civic virtue they fell short of their full duty. "The men who graduate from our higher institutions should, along with the training of their minds, grow into some sort of appreciation of their duties to the State, and they should come to know that courage and patriotism and devotion rank higher in this world's service than scholarly finish and brilliant intellectual power."

President Pritchett then took up in the light of these remarks the character of the training which comes from the study of applied science and called attention to the wise foresight of President Rogers and his associates in estimating the value of a scientific training, not only as a fitting for practical life but also for its development of character. In closing, as he turned to address the great body of students occupying the central portion of the great hall they rose as one man and remained standing during the five minutes of the President's personal appeal to them. The impressive appearance of this body of young men, 1,250 strong, was one of the features of the occasion.

THE AGGLOMITE FUEL PROCESS.

DANIEL T. PHILLIPS, United States Consul at Cardiff, in a report, describes at length recent tests of the agglomite process of manufacturing fuel in Wales, and declares that there is no reason why a pound of coal-dust, whether bituminous or anthracite, should be wasted in the United States.

By this process the coal and agglomerants are subjected to heat and pressure in a sealed vessel, by which a chemical combination of the ingredients is effected, the result being an entirely new fuel compound.

The coal and agglomerants are mixed and ground in a dry state. If tar or pitch or other liquid substances are used, they may be subsequently added; then the prepared material is put into a hopper attached to the end of a horizontal tube. The opposite end of this tube is connected with the briquette press. A worm is kept constantly revolving in the tube, conveying the material through the tube and feeding it into the pressing-ram chamber. The tube passes through a small furnace, which enables the material to become heated to a temperature of 500 or 600 degrees Fahr. The gases evolved cannot escape; hence the pressure produced within the tube is shown on an attached gauge to be about ten pounds per square inch. Practically, the tube is an automatically sealed vessel, for the closely-packed mass of coal materials fed from the hopper into one end of the tube by the revolving worm and the hot plastic mass fed out by the same worm into the press-chamber at the other end of the tube is so closely blocked up by the passages as to overcome the internal pressure of ten pounds per square inch created by the hot gases. These gases, under pressure, permeate the hot plastic mass which is being turned over and over as it slowly travels along the sealed tube.

Tar, as well as pitch, can be used as an agglomerant. Indeed, the use of tar, which is considered cheaper than pitch, affords opportunities for many possible new chemical combinations in the manufacture of agglomite. There is no question that a form of tar distillation goes on in the tube with the degree of heat employed; and that with such distillation carried on under pressure numerous well-known substances are broken up, rearranged, and are intimately incorporated with the particles of coal in a way which is not possible under any other fuel-manufacturing system. Millions of tons of anthracite coal-dust now thrown away can be successfully utilized in this manner.

James Stevens, a mechanical-engineer, who inspected the experimental-plant at work, reported that the fuel ignited very readily and burned, with a white flame of great heat, with much briskness. The briquettes slowly opened out on the grates and presented an appearance, when partly burned, like lumps of coral. There was no tendency to melt, and only 1.19 per cent fell through the grate-bars in the shape of ash. Owing to the excess of dirt in the coal, the clinker was 7.19 per cent; this, of course, can easily be avoided in a better-class fuel. The boiler was fired twenty times in six hours, but no further attention on the part of the stoker was necessary.

The smoke produced was very satisfactory, the amount visible after each firing being faint and lasting about one minute.

The average of a series of tests with Thompson's calorimeter proved that the calorific value of the fuel was 11.08 per cent higher than that of the coal from which it was made. This instrument gave an average theoretical evaporation of 14.9 pounds of water per pound of fuel from and at 212 degrees Fahr.

Mr. Stevens declares that in his opinion the agglomite process of making patent fuel, when carried out in suitable machinery, is superior to any of the processes known to him.

BOOKS AND PAPERS.

THE popular idea that great artists are born with pencils in their hands (an artistic silver spoon) is frequently a popular error; it is more often some accident in early life which not only points the way to an artistic career, but sometimes absolutely gives it birth. The accident in the case of Puvis de Chavannes[1] was a serious illness which changed his life's work from engineering to decorative art, to the profit of America and Europe. When he was twenty-three the sickness came and was followed by a journey to Italy; but

[1] "*Puvis de Chavannes.*" By Marius Vachon. Paris. 4 frs.

he says himself, that although the flame may have burst forth from some inborn embers when he saw the works of the great masters, he knew no more of the technical side of art than he did of the slang of the studios. Delacroix was his first master, and an inefficient one. When taken by a friend and introduced to the great painter as a devoted admirer, "Keep him in that idea, Vermeron, it's so rare!" Delacroix let teaching slide and soon dispersed his few pupils, and De Chavannes entered Couture's *atelier*, but he was no more fortunate there. One day when he tried to give the effect of silver-gray light which flooded the studio, Couture corrected his work and painted-in a conventional mass of bright colors. "Do you really see it so?" asked the younger man, and he resolved to leave; but he, nevertheless, took an active part, later on, in organizing an exhibition of Couture's works at the École des Beaux-Arts.

There can be no doubt that a man who begins to learn the technique of such a profession as painting when he is twenty-four has a vast amount of lost time to make up. All the years which should have been spent in acquiring the drudgery of drawing were passed at the Lycée; and yet it was probably to that fact that De Chavannes owed his classical proclivities and his general culture. But there is no rule in the making of an artist — no general and unalterable recipe. On the one hand you find a painter like Millais starting at twelve with no education but the technical one, and becoming great at twenty. On the other you may point to Puvis studying everything but what would be called necessary for an artist, and developing into a great painter at fifty; and again a Leighton, apparently doing all simultaneously — beginning to paint young, but no less a cultivated scholar, a great linguist, a talented musician, and one of the world's finest gentlemen.

Our painter exhibited his first picture at the *Salon* of 1850 — a "Pieta"; but it was a failure, the values were all wrong, and the spectator saw only two figures instead of three. Then came a period of snubbing by all Paris, and nine years running his pictures were rejected — he was treated as a "harmless idiot" in opposition to Courbet, another victim who was a "dangerous" one. But he was in good company. Read the following list of names, and try and reconcile the rejection of such artists (for we know all their youthful efforts now, and can judge the judges from the works themselves) with our ideas of justice: Delacroix, Jules Dupré, Barye, Troyon, Rousseau, Diaz, Millet and Corot were their names; and mark that these men are not now a mere fashion which will pass away when the vulgar rich and the ignorant millionaires turn their money-bags into other streams. Among the critics who "saw" were Théophile Gautier, Delécluze, Paul de St. Victor and Théodore de Banville. De Chavannes took much of the poetry of his nature from his Lyonnaise mother, and he was immensely influenced and helped by her who became his wife — the Princesse Cantacuzène; but his motto was another solution of the problem as to the definition of genius — "*Le génie, c'est la patience.*" He worked towards his own ideal, and like others, only a few appreciated him. Did not Mozart say, "I wrote my '*Don Juan*' for myself and a few friends"? He felt his strength as a master in his own particular line, and he would patiently wait until others found out the truth of his ideal. Nevertheless he was often depressed and weary at the constant refusals by the *Salon*, and the tone of the critics; and the smart criticisms of his clever friend Edmond About hurt his sensitive nature so much that a rupture of their friendship was inevitable.

De Chavannes had his own views about the line that the decorative artist should take in relation to the architecture of a building. He always chose his subjects, commencing by making mental studies and then drawing from life; and he also had his theories as to landscape backgrounds. Should they not be chosen from nature? Thus the landscape of the St. Geneviève series is that of the neighborhood of Paris. Trees, flowers, hills, rivers, may all be found about Meudon, Nanterre, St. Denis and Charenton. When a municipality wished to select subjects for him, he threw up the commission. He was determined to retain his independence.

The beautiful series of frescos decorating the walls of the Amiens Museum were inspired by the plains of Picardie, green meadows with silvery streams and waving poplars: "Ave Picardia Nutrix," "Ludus pro Patria," etc., these being by many considered finer than the frescos of the Panthéon.

In France it is possible for an architect and a painter to work together and in sympathy. You do not find rich amateurs commissioning a great sculptor to model a statue and then providing an ill-made pedestal from their own puny design. It is only in inartistic countries where the base is considered separate from the statue that such a vandalism could be perpetrated. When the city of Amiens decided to build a museum, the architect M. Diet visited De Chavannes, proposing that the painter's "Peace" and "War" were exactly what was wanted for the decoration of the museum. The State had purchased them, but was willing to let them go to Amiens, where they were followed by several others generously given to the municipality.

By many of his critics De Chavannes's coloring was considered weak; but is it not true that just as a small child can only see or love the brightest, crudest tints, so it is only a cultured mind which can appreciate the refined negative coloring of De Chavannes? To call his art *naïf, enfantin*, and his coloring *rudimentaire* was simply displaying ignorance and spite. No artist conformed more to the exigencies of the walls to be covered. In the Hôtel de Ville series, the staircase, walls, balustrades, etc., are of white stone. The artist, therefore, arranged his scheme of color to agree and harmonize with the architecture. "He did not hesitate," says M. Vachon, "to subordinate his figures to the backgrounds, *s'ingéniant à mettre dans le ciel, sur le paysage, ses bordures, les tons les plus frais, des bleus de saphir, des violets, d'hyacinthe, des roses, d'eglantines, et les ors fondus des crépuscules printaniers.*"

Rouen, Lyons, Paris, Marseilles, Amiens, Boston, all vie with one another in the possession of a vast and grand scheme of frescos by the greatest of modern decorative artists. Puvis de Chavannes may be put at the head of a new Renaissance, for his work is the most complete that we have seen in our own time.

SOCIETIES

THE ARCHITECTURAL LEAGUE OF AMERICA.

AT a meeting of the Executive Board of the Architectural League of America held October 2, 1900, the following were appointed members of the standing "Committee on Education":—

John Watrous Case, *Chairman*, Detroit Architectural Club; Albert Kelsey, T-Square Club, Philadelphia, Pa.; Prof. James M. White, The Architects' Club, University of Illinois.

Of the special committee on "Municipal Improvement," Mr. H. K. Bush-Brown, of New York, was appointed Chairman to succeed Mr. Cass Gilbert, who had, owing to the demands of his practice, resigned, having, however, rendered signal service to this Committee by a comprehensive plan for its work, submitted in his report to the convention of the League at Chicago in June, 1900.

EMIL LORCH, *Corresponding Secretary.*

ILLUSTRATIONS

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

HOUSE OF H. L. PRATT, ESQ., GLEN COVE, LONG ISLAND, N. Y. MESSRS. BRITE & BACON, ARCHITECTS, NEW YORK, N. Y.

ORIGINAL STUDY FOR THE SAME.

"DORCHESTER HEIGHTS" MONUMENT, SOUTH BOSTON, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

THIS structure, which still lacks the steps, balustrades, etc., shown in the drawing, has been erected in marble at the extremely small cost of, about, $25,000.

HOUSE OF R. A. SHILLINGFORD, ESQ., CLEARFIELD, PA. MR. CHARLES L. HILLMAN, ARCHITECT, PHILADELPHIA, PA.

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

INTERIOR COURTYARD: PETIT PALAIS DES CHAMPS ELYSÉES, PARIS, FRANCE. CH. GIRAULT, ARCHITECT.

THIS plate is copied from *l'Architecture.*

METALWORK, — XVIII: NO. 419 FIFTH AVE., NEW YORK, N. Y.

[Additional Illustrations in the International Edition.]

ENTRANCE TO ST. VINCENT'S HOSPITAL, NEW YORK, N. Y. MESSRS. SCHICKEL & DITMARS, ARCHITECTS, NEW YORK, N. Y.

THE CASINO, LAWRENCE PARK, BRONXVILLE, N. Y. MR. W. A. BATES, ARCHITECT, NEW YORK, N. Y.

ENTRANCE TO FOREST LAWN CEMETERY, BUFFALO, N. Y. MESSRS. GREEN & WICKS, ARCHITECTS, BUFFALO, N. Y.

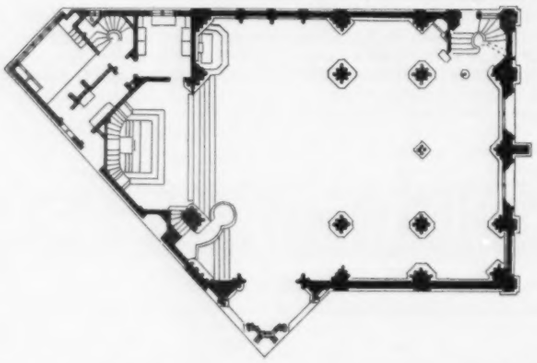
THE EMPRESS OF AUSTRIA'S MEMORIAL CHAPEL, GENEVA, SWITZERLAND. MR. LAWRENCE HARVEY, ARCHITECT.

ON Saturday, September 10, 1898, at two o'clock, Her Majesty the late Empress of Austria was murdered in Geneva by an Italian Anarchist. The whole population of Geneva turned out in procession before the representatives of the Austrian Monarchy

as a manifestation of their horror for the deed, and their deep sympathy for the bereaved family. A certain number of Genevese citizens have thought that the sentiments of the population of Geneva which were expressed publicly two years ago should be recorded in a lasting manner, and in the way the most agreeable to the stricken family and the people of Austria-Hungary. They have decided to erect a memorial chapel under the name of St. Elizabeth, and devote it to the use of the German-speaking Roman Catholics in Geneva. To prepare the design they have commissioned an English architect, Mr. Lawrence Harvey, a distinguished pupil of the celebrated German architect, Gottfried Semper, and of the Paris Ecole des Beaux-Arts, who will be well remembered in London for the classes of scientific masonry he conducted at the City and Guilds of London Central Institute, and for his lectures on "Style and Styles," delivered in the same establishment, the Royal Institute of British Architects, the South Kensington Museum and other places.

The design has been adapted to suit exactly the irregular site allowed for the purpose of the memorial by the city authorities. The building, although situated in a rather quiet place, will be the first object of interest seen by all visitors travelling by rail from Paris to Geneva.

The style selected for the building is late English Gothic, with fan-vaulting used freely, without any attempt at making the work become a result of archæological research instead of architectural



design. Some intricacy in arches and vaulting has been aimed at in order to give practical employment of a high order to the classes of scientific masonry Mr. Harvey is directing in Geneva on behalf of the Government.

All architectural features, both outside and inside, will be of black marble, polished in parts, and picked out with gold glass mosaic. The cells of the vaulting will be filled with mosaic representing Alpine plants on a field of gold; the ribs will receive narrow fillets of gold mosaic, and, if means be available, the whole of the walls inside will be covered with glass mosaic on the *cloisonné* system of Mr. Clement Heaton, formerly of London, now established in Neuchâtel.

All the decorative features outside, such as crockets, bosses, finials, etc., will be wrought in copper, with gold-leaf burnt in, which secures to the gilding nearly everlasting duration.

In opposition to all this wealth of material and color, the spaces between the piers will be filled-in with blocks of concrete of small dimensions, which by their size and roughness will give scale and value to the rest of the work.

The illustrations comprise a plan, an outside and an inside view. The latter, to be seen stereoscopically, should be looked at with one eye only, placed at the distance of the width of the picture. For the outside view the point of station is exactly in the centre at the level of the figures to the left of the entrance; for the inside view the point is opposite the pulpit on the left-hand side.

But the chapel is not one which should be judged solely from the data of drawings. The effect produced by the building itself will be far more artistic than is suggested by the views. Mr. Harvey is essentially a master of masonry who has rediscovered the secrets by which Mediæval churches and cathedrals, in spite of the prejudices raised against them in consequence of a change of ritual, continue to extort admiration from the most obdurate of critics. When the church is completed it will not only add a new attraction to Geneva, but it will be a worthy memorial of an Empress whose fate evoked the sympathy of the world.

INTERIOR VIEW OF THE SAME.

NOTES AND CLIPPINGS

Professor Spring's Experiments on Plasticity. — In an article contributed to the *Revue Générale des Sciences*, Professor Spring, of Liège, has summarized a number of his experiments on the agglomeration of materials under heat and pressure. With all plastic bodies he finds that pressure alone is needed for the welding together of discrete particles, and if the particles under pressure consist of different metals capable of forming alloys, these alloys may be produced by the application of pressure only. Thus, copper and tin filings mixed together and compressed produce bronze, while copper and zinc filings form brass under the same conditions. On the other hand, a mixture of zinc and lead filings will not alloy any better under pressure than the two metals do when melted together. This welding together of the particles of a metal under pressure, and the production of alloys by mere compression, is attributed to the formation of a solid solution at the interfaces under pressure. Molecules of one fragment of iron will thus penetrate into the next, and, similarly, molecules of a fragment of zinc will pass into the body of an adjoining fragment of copper. This molecular mobility, however, differs from ordinary evaporation in that, for its exhibition, the presence of a mass into which the molecules can diffuse is needed. A molecule only passes from one fragment to another, provided that it is replaced by a second molecule from the second fragment. To further investigate the matter, cylinders of different metals, having ends as flat as it was possible to make them, were prepared, and pairs consisting of one cylinder piled on another were placed in a stove and kept there for from three to twelve hours, at a temperature at least 360 degrees Fahr. below the melting-point of the most fusible of the metals, and, in the case of platinum, the stove temperature was 2,880 degrees Fahr. below the fusing-point of the metal. Nevertheless, a couple of superimposed platinum cylinders, subjected to a pressure merely due to the weight of the topmost, welded together in this stove, and the same was the case with all the couples in which the two constituents were one and the same metal. In fact, on turning up the cylinders afterwards in the lathe, the joint could not be detected. When the pair consisted of metals capable of alloying with each other, union again took place; and in the case of the zinc-copper couple, a layer of brass $\frac{1}{100}$ inch thick was plainly visible at the joint. On the other hand, metals incapable of dissolving each other, such as zinc and lead, and zinc and bismuth, showed no signs of union when treated in the manner described. Professor Spring has also extended his experiments to sand and grains of limestone and similar constituents of the earth's crust, in order to ascertain if the agglomeration of these materials into rock could be brought about by pressure alone. This was found to be impossible even when the pressure used was equivalent to that of a layer of rock 30 miles thick. Professor Spring finds, however, that under high pressure water is capable of dissolving a fair amount of silica, which is deposited when the pressure is removed, and suggests that the cementing together of the grains of sand and carbonate-of-lime forming the bulk of our sedimentary rocks, may have been effected in this manner. A solution of silica traversing a layer of sand, without the application of great pressure, will also deposit a cementing layer of silica; but to obtain success, a slight pressure is necessary in order to keep the grains in contact during the contraction of volume accompanying the splitting up of the silicic acid, just as in gluing together two pieces of wood pressure is necessary until the joint has set.

A Lost Painting by Benjamin West. — O. B. Merrill, Tuscumbia, Ala., writes to the New York *Times*: "An article in the *Saturday Review* of September 1 regarding West's great painting, 'The Raising of Lazarus,' recalls an episode which occurred in this town away back in the fifties. The Methodist Episcopal Church in Tuscumbia had been undergoing some extensive repairs and improvements, so that when finished its congregation found itself confronted by a heavy debt and no funds in the treasury. My father and uncle, under the firm name of B. & T. H. Merrill, were lessees of what was then known as the Tennessee Valley Railroad, perhaps the second railroad built in the United States, extending from Tuscumbia to Decatur, forty-three miles, to circumvent Muscle Shoals in the Tennessee River between these towns. Business was not conducted in those days on the systematic line of today, consequently much of the freight arrived in damaged condition, addresses lost, charges unpaid, etc., and were held awaiting shippers' instructions. Among this lot of uncalled-for freight was a large painting some 10′ x 20′ in size, by Benjamin West, 'Christ in the Garden of Gethsemane.' This painting my father offered the church for exhibition purposes, thereby enabling them to pay their indebtedness. Now, the question is what became of this great painting? The lessees never sold any unclaimed freight for charges, but when the Memphis and Charleston Railroad Company was organized that old line, the Tennessee Valley Railroad, was bought by it, and made an integral part thereof, and so all the freight and other property pertaining thereto was turned over to the new company."

Wisconsin Farmers and the Advertising Nuisance. — One place where the signboard nuisance has not disfigured the natural scenery is the water-front of the Wisconsin River for some miles up and down the Dells. The smooth surfaces of the stone walls, the crags, cliffs, and standing rocks invite extensive painting and stencilling, which would be in plain view from decks of the steamers passing up and down the stream, but up to this time no amount of money has been able to control the privilege from a single individual owner. It is said that some time ago the agent of a concern which manufactured a certain decoction succeeded in painting a huge sign on the rocky cliff near the steamboat landing at Kilbourn. He was overtaken, brought back to the scene of his handiwork, and given the alternative of scraping off the letters or being ducked in the river. He agreed to obliterate the sign, somewhat to the disappointment of the residents, who were just in the mood for the ducking. — *N. Y. Evening Post.*

Simplon Tunnel. — The Simplon tunnel is proceeding slowly but steadily. On August 21 five and one-half of the nineteen kilometres it will measure had been completed. The engineers are puzzled and disquieted by the rapidly rising temperature as the digging proceeds. — *Exchange.*

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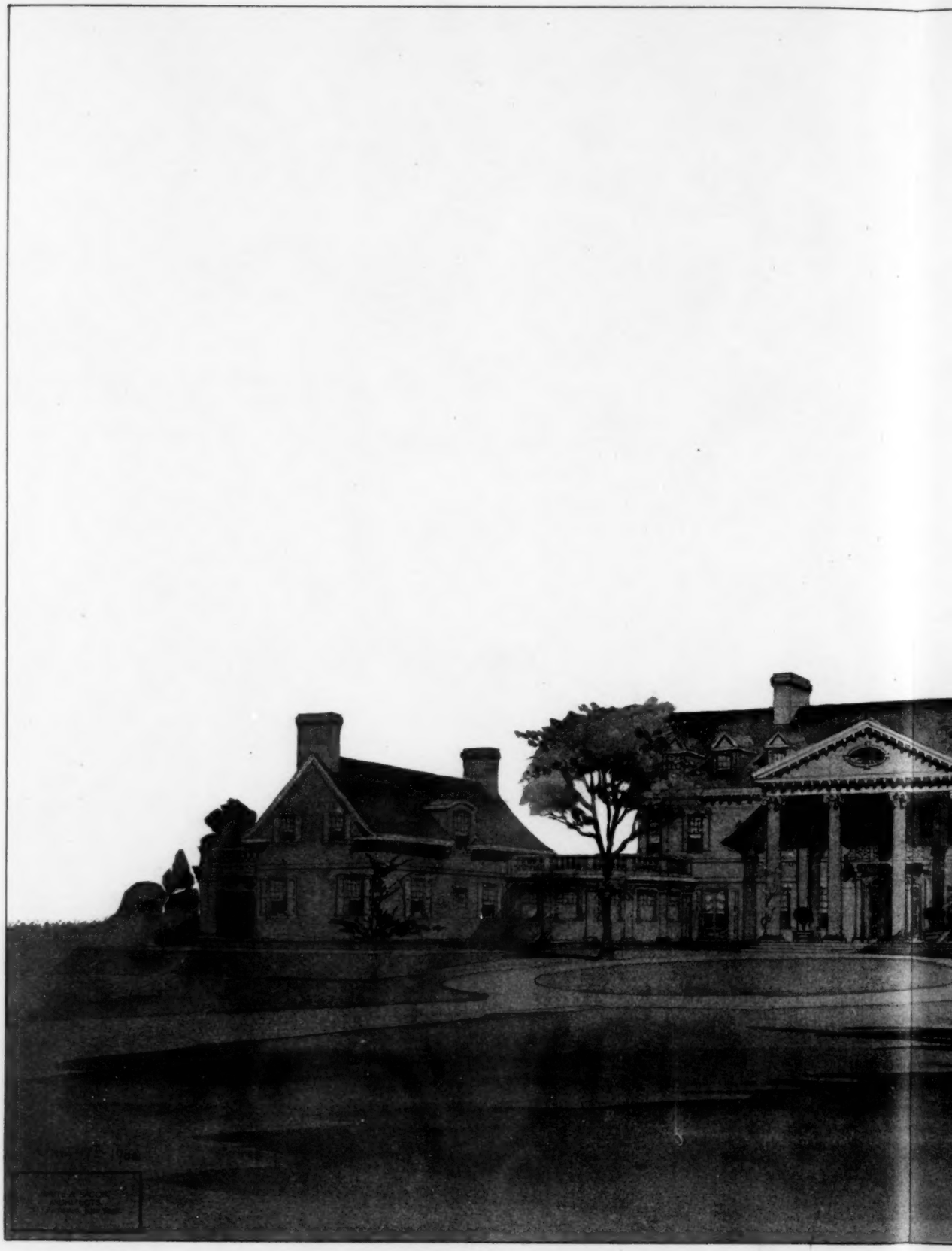

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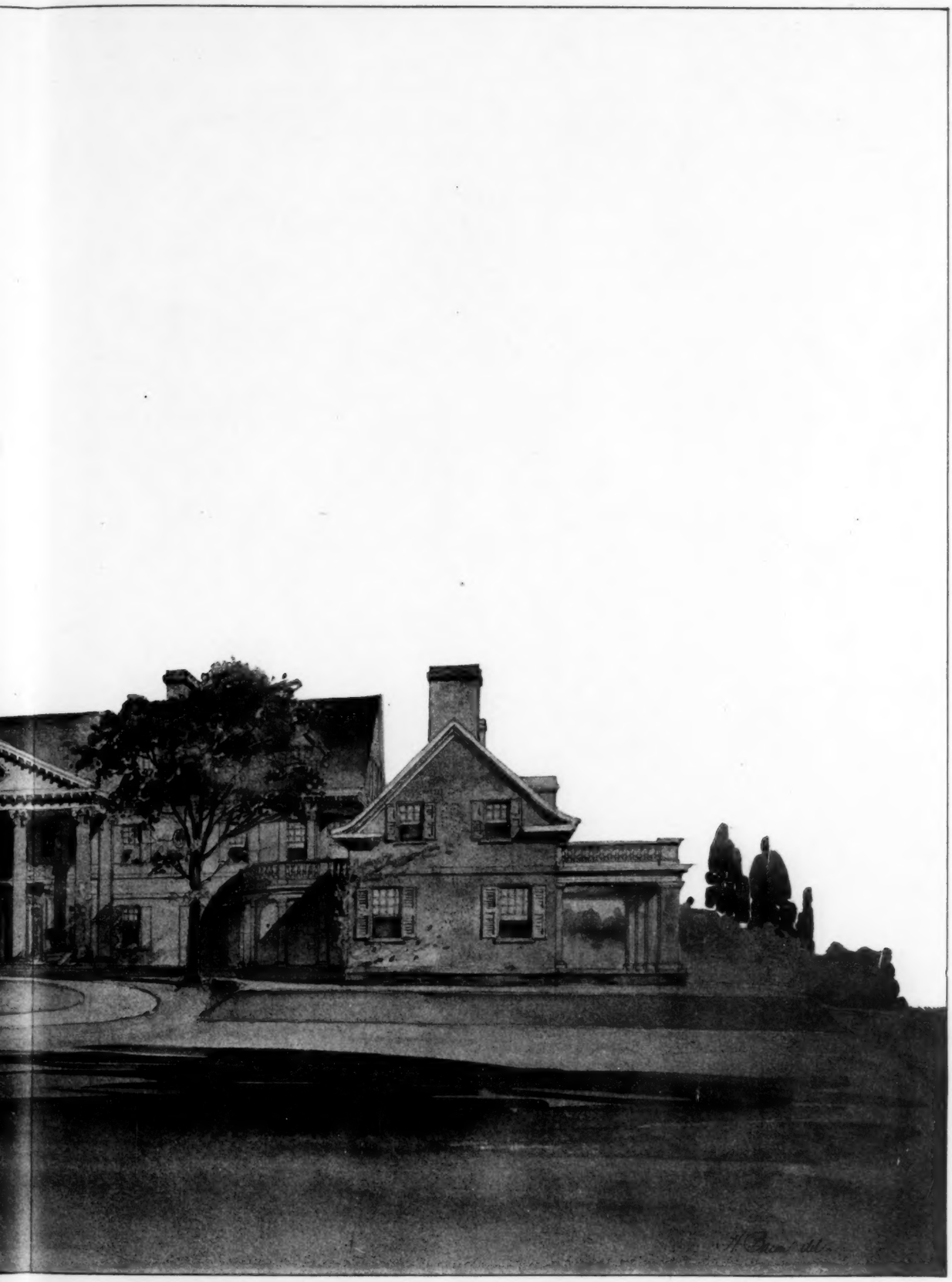

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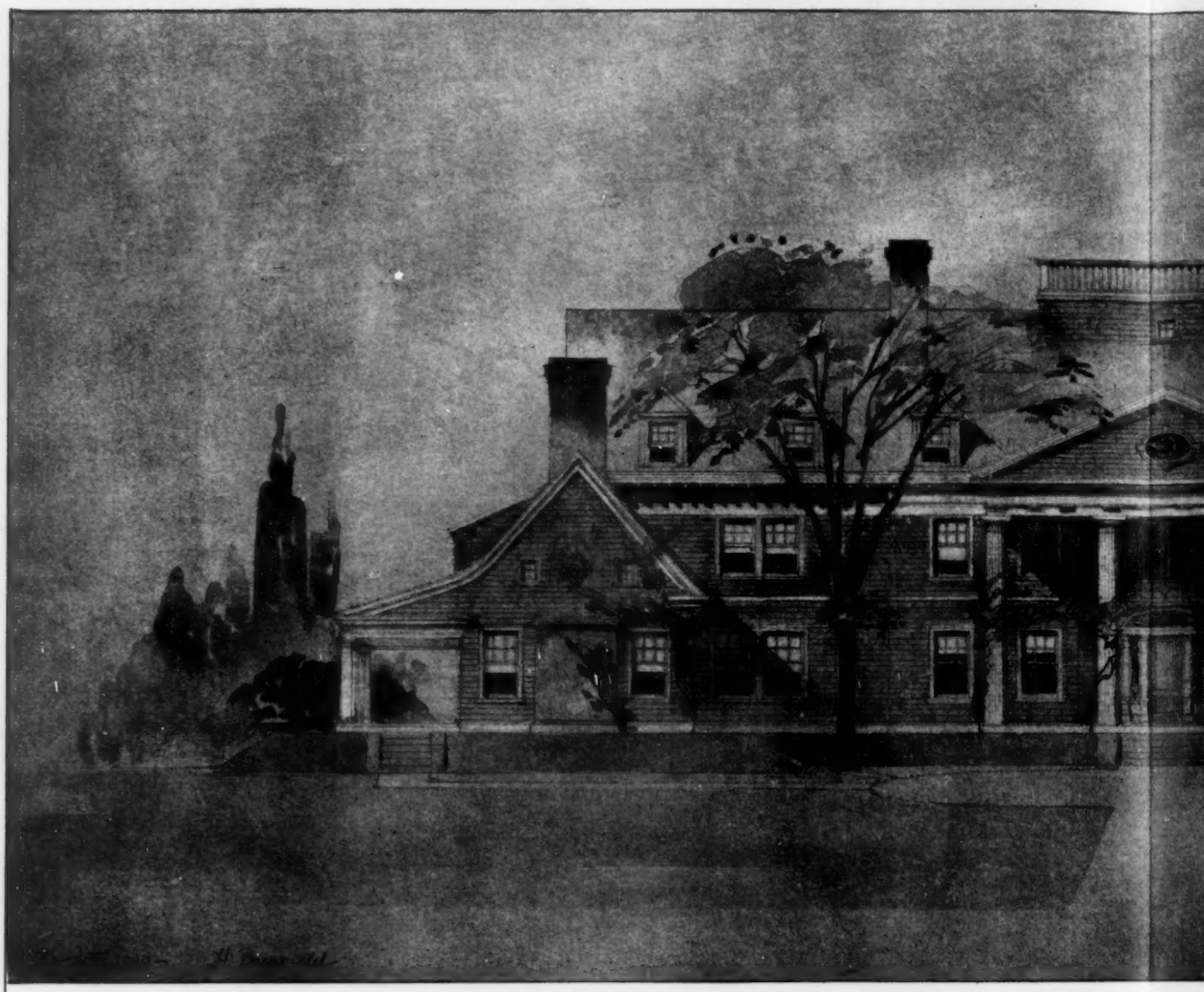

First Floor Plan
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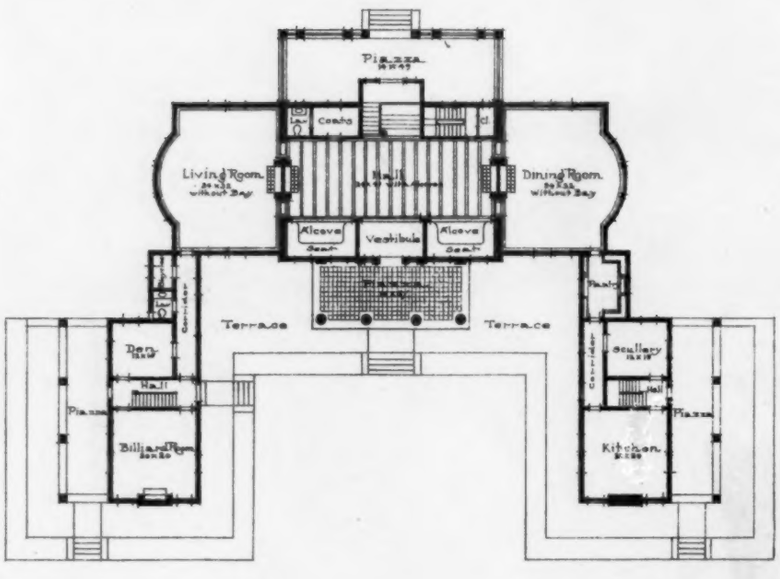

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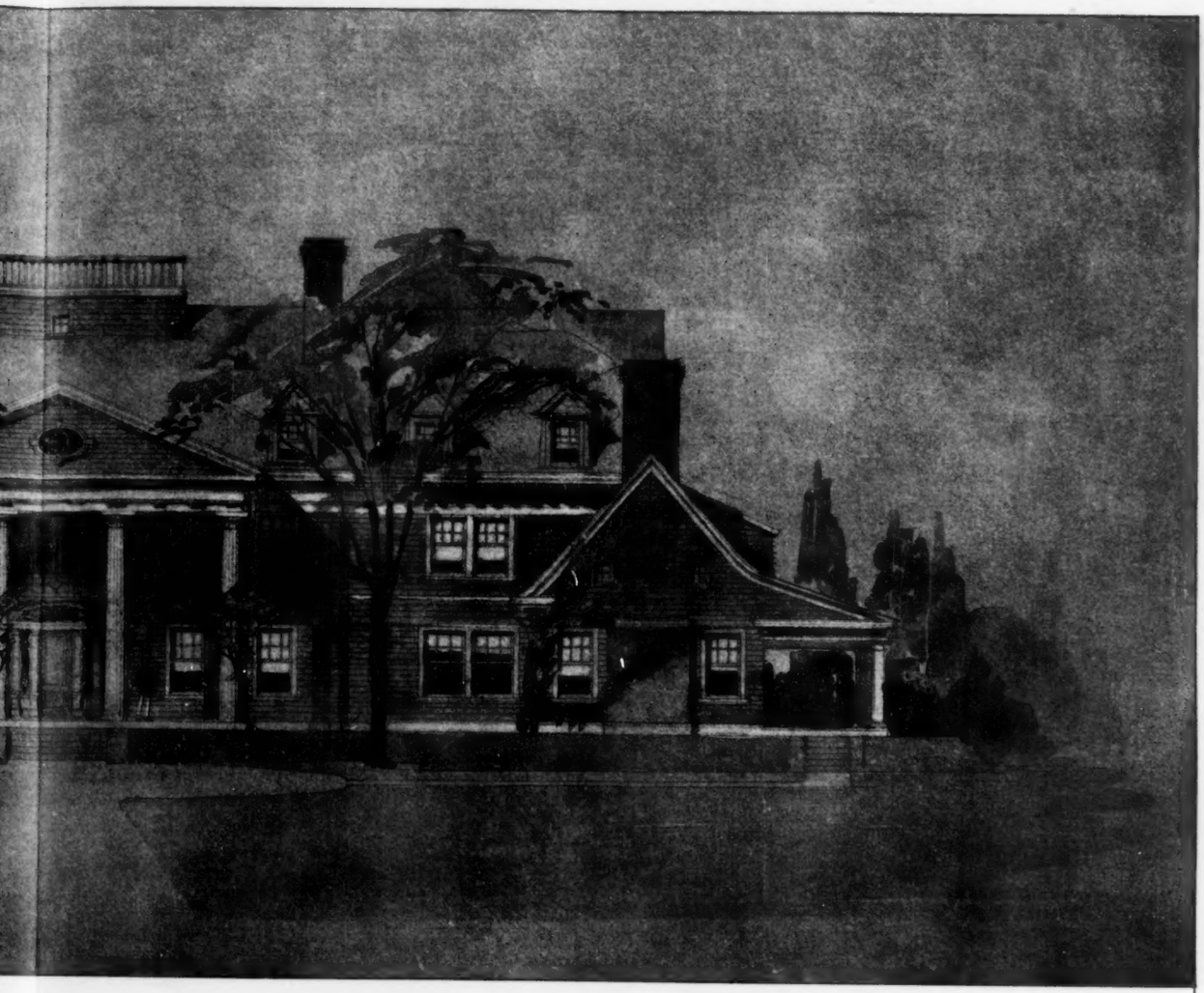

Second Floor Plan.
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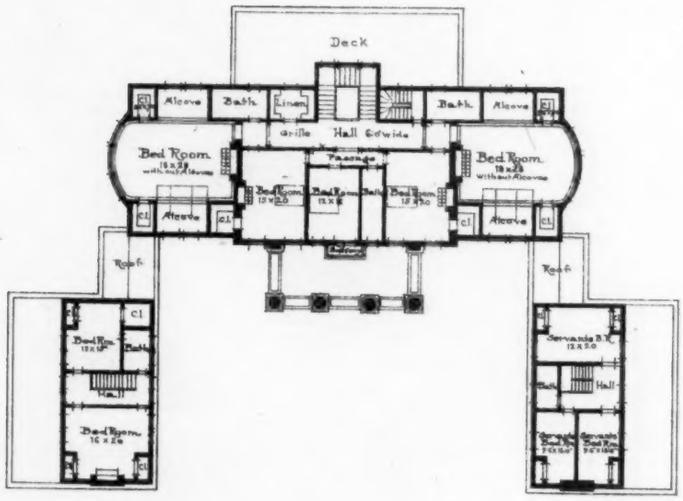

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Charles L. Hillman, Archt. Phila.

The American Architect and Building News

A WEEKLY JOURNAL OF CONSTRUCTIVE AND DECORATIVE ART.

VOL. LXX.—No. 1296.] SATURDAY, OCTOBER 27, 1900. PRICE, { INTERNATIONAL ISSUE, 50 CTS / REGULAR " , 15 "

From *l'Architecture.*

INTERIOR COURTYARD: PETIT PALAIS DES CHAMPS ELYSÉES, PARIS.

CH. GIRAULT, ARCHITECT.

Topographical Index of Advertisers.

[For pagination, see Alphabetical Index on Cover 2.]

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METALWORK XVIII. — No. 419 FIFTH AVENUE, NEW YORK, N. Y.

The American Architect and Building News

IS PUBLISHED EVERY SATURDAY BY

The American Architect and Building News Co.,

211 Tremont St., Boston, Mass.

Advance Subscription Rates:

Regular Edition, $6.00 per year; six months, $ 3.50
International Edition, per year in advance, 16.00
" " quarterly " 18.00

[Foreign Postage, $2.00 Extra.]

☞ Payment should be made to American Architect and Building News Co. direct, either by draft or post-office order.

Address all business correspondence to the publishers direct.

Advertising Agents:

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H. M. Carleton, Temple Court, 5 Beekman St.

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JOSEPH P. MITCHELL has opened an office at 302 Massachusetts Building, Kansas City, Mo., where he will be pleased to receive catalogues, etc.

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WANTED. — Architects versed in construction, thoroughly practical and first-class outside men but deficient in design and rendering. Only such men as are willing to acknowledge deficiency in design and who are desirous of increasing their practice are requested to write for information. Dietrich & Lapointe, architects, 1135 Broadway, N. Y. City. 1297

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PARTNERSHIP. — An architectural engineer of fifteen years' experience, extensive acquaintance, recognized ability and successful in securing contracts, desires to form partnership with a graduate architect of experience and first-class ability. Address "A. E.," care *American Architect*. 1296

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659,104. Furnace. — John S. L. Rodrick, Washington, D. C.

659,144. Sash-Center. — George W. Golden, Detroit, Mich.

659,153. Door-Securer. — Ferdinand D. McGee, New Bedford, Mass.

659,177. Metallic Shingle. — Henry E. Moomaw, Salem, Va.

659,203. Hinge. — Numa A. Bourquin, Reading, Pa.

659,208. Hot-Air Furnace. — Samuel A. Cheney, Newburyport, Mass.

659,255. Flushing Device for Water-Closets. — Robert Pauls, Altona, Ger.

659,287. Bench-Plane. — Edw. O. Carvin, Valley Springs, Cal.

659,305. Ventilating Attachment for Windows. — Samuel M. King, Paris, Me.

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659,354. Door. — James A. Wheeler, Oswego, N. Y.

659,392. Snow-Guard for Roofs. — Charles H. Gilman, Melrose, Mass.

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BUILDING PATENTS.

659,453. Floor and Wall-Tie. — Alfred Plant, New York, N. Y.

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659,481. Trap or Siphon for Drains or the Like. — Wilhelm Kesselring and Emil Röthenbacher, Strasburg, Ger.

659,483-484. Cylinder-Lock. — Henry S. Lockwood, South Norwalk, Conn.

659,492. Apparatus for Conveying or Transporting Building or Other Materials. — Niels C. Schouboe, Copenhagen, Denmark.

659,493. Safety Device for Elevators. — George E. Shepler, Pittsburgh, Pa.

659,513. Square. — Armand P. Dubus, New Orleans, La.

659,514. Sink-Strainer. — Edward S. Duffy, Chicago, Ill.

659,541. Automatic Cut-Off for Cisterns. — Jackson T. Martin and Clarence G. Martin, Springfield, Mo.

659,548. Means for Discharging Fire-Extinguishing Liquids Through Gas-Distributing Pipes. — Alexander Reid, Jersey City, N. J.

659 633. Door-Latch. — Henry Lomax and John Tomlinson, Darwen, Eng.

659,643. Apparatus for Cleansing Water-Pipes. — Vincenzo Bonzagni, Boston, Mass.

659,644. Construction of High-Pressure Water-Taps. — William Bradley, Sheffield, Eng.

659,645. Pipe-Boiler. — Chas. D. Casad, Seattle, Wash.

BUILDING INTELLIGENCE.

(Reported for The American Architect and Building News.)

[*Although a large portion of the building intelligence is provided by their regular correspondents, the editors greatly desire to receive voluntary information, especially from the smaller and outlying towns.*]

ADVANCE RUMORS.

Atlanta, Ga. — Architect Denny has completed plans for the proposed Masonic Temple to be erected on Broad and Ellen Sts. The building will be 74 feet in height, 150 feet long by 60 feet broad. It will be built of light-colored brick in classic design.

Austin, Tex. — The Sisters of Charity contemplate building a hospital at Tobin Park, to cost $50,000.

Baltimore, Md. — The American Brewery have had plans prepared by the Fred W. Wolf Co., Chicago, Ill., for a $30,000 addition to its building.

Bay City, Mich. — Mueller & Mildner, Detroit, have prepared plans for a large four-story brewery to be located here.

Birmingham, Ala. — D. A. Helmich, architect, has

BUILDING INTELLIGENCE.

(*Advance Rumors Continued.*)

prepared plans for a city-hall to cost about $165,000.

Brockton, Mass. — Architect T. M. Clark, 22 Congress St., Boston, has prepared plans for a two and one-half story frame residence, 35′ x 40′, to be erected for F. R. French; cost, $5,000.

Buffalo, N. Y. — Mrs. Mary E. Meyer will erect a three-story brick dwelling at 188 Bidwell Parkway after plans by Architect A. E. Phillips; cost, $10,000.

George Duchscherer has plans for alterations to the Lenox apartment-house on North St. to convert it into a family hotel; cost, about $20,000.

Engineer Robert Reidpath has prepared plans for an eight-story addition to the plant of the Larkin Soap Co., at the northeast corner of Seneca and Larkin Sts. The building is to be of steel construction and will cost about $178,000.

Reports state that a new life-saving station will be built for the city's water frontage in the near future. It is estimated it will cost between $50,000 and $75,000.

The American Agricultural Co. will erect 5 new brick and frame buildings to cost $40,000 on the site of the company's plant recently destroyed by fire.

Canandaigua, N. Y. — Allen & Vance, 220 Devonshire St., Boston, Mass., have prepared plans for extensive alterations and additions to the frame residence of Mrs. F. F. Thompson. Same architects have also prepared plans for a one and one-half story frame barn, 40′ x 70′, to be erected for Mrs. Thompson; cost of both operations will be about $25,000.

Chicago, Ill. — Miron H. Wilson, of Evanston, has donated an amount believed to be about $50,000 to replace the old building on W. Chicago Ave., occupied by the Northwestern University Settlement.

Architect A. G. Lund has drawn plans for a three-story and basement brick and stone apartment-building to be built on the South Side; cost, $16,000.

Frank V. Newell has plans for an apartment-house, 75′ x 147′, to be built at the corner of S. Park Ave. and 56th St.; cost, $50,000.

F. T. Bunker and J. E. Turner will erect a four-story flat-building on Howard Ave., near 69th St., after plans by Architect Geo. O. Garnsey; cost, $18,000.

John Jeffrey will build a three-story apartment-building to cost $40,000 at Kedzie and Park Aves. Plans by Architect C. W Nothnagle.

Goodhart Bros. are having plans prepared by Architect J. D. Atchinson for a laundry building to be erected on Cottage Grove Ave. The proposed structure will be of brick and mill-construction, 80′ x 180′, three stories high; cost, $50,000.

Northwestern University has had plans prepared by Architect D. H. Burnham & Co. for a cold-storage and warehouse to be built at 152-164 E. Kinzie St. It will be a brick structure, 133′ x 185′ and 18′ x 46′ x 133′, nine stories in height; cost, $200,000.

Davenport, Ia. — Clausen & Burrows are drawing

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

plans for remodelling the building recently purchased by the Y. M. C. A. Among the improvements will be a brick addition, 95′ x 100′, to be built in the rear; entire cost, $20,000.

Des Moines, Ia. — H. L. Hall, of Detroit, Mich., will erect an apartment-building after plans by Hallett & Rawson. It will be a three-story, 60′ x 132′ brick structure; cost, $50,000.

Proudfoot & Bird are preparing plans for a four-story, 66′ x 137′ warehouse of steel construction to be built at W. 7th St. and the Des Moines Union tracks; cost, $30,000.

W. E. Ballard will erect a residence at Park Lane and Grand Ave., to cost $7,500. Plans by Proudfoot & Bird.

Detroit, Mich. — Malcomson & Higginbotham are preparing plans for the new Craft School; cost, about $40,000. Address the Secretary of the Board of Education. The same architects are preparing plans for 5 brick residences to cost $20,000; and plans for a fire-engine house for the Board of Fire Commissioners.

Architect Mills has prepared plans for a terrace of 7 brick residences for Mrs. Schwartz, to be built corner John R. and Hancock Sts.; cost, $30,000.

R. E. Raseman has prepared plans for a six-story store, 30′ x 100′, for Theodore H. Eaton, to be erected on Woodward Ave.

Dudley, Mass. — Architects Cutting, Carleton & Cutting, of Worcester, have awarded Frank A. Upham, of Webster, the contract to erect the proposed public library building. It will be of brick, one story, 32′ x 34′.

Duluth, Minn. — The Lowell Block at E. 1st Ave. and Superior St., will be remodelled into a modern hotel; cost, $15,000.

Architect A. F. Rudolph is preparing plans for the proposed sandstone library to be erected at 2d St. and 1st Ave. It will be two and three stories high, 90′ x 100′, of fireproof construction, costing $70,000.

Edgewater, Ill. — R. W. Bailey is having plans prepared by Architects Church & Jobson for a two-story dwelling, 50′ x 60′, with boulder front; cost, $10,000.

Elkton, Md. — The Board of Health is agitating a project to erect a hospital here. The county commission has been interested and it is understood that competitive plans and specifications will soon be asked.

Escanaba, Mich. — Architect H. L. Oppenheimer, of Chicago, Ill., has drawn plans for the summer hotel to be erected here by Wm. A. Forbes, of Detroit. It will be a modern structure in every detail, with main building, 148′ x 150′, and wings, 32′ x 170′. It will contain 220 rooms; cost, $100,000.

Galveston, Tex. — T. S. Rabitt, Levy Building, has prepared plans for J. Levy & Bro. for the reconstruction of the Harmony Club Building at 2120 Post-office St.; cost, $10,000.

Grafton, Mass. — Architects Frost, Briggs & Chamberlain, of Worcester, have awarded Eli Belisle the contract to erect the new high school at his figure, $16,222. The building will be of red brick, with granite and limestone trimmings, and slated roof, all in Colonial style. The outside dimensions will be 58′ x 72′, with a projection 17′ x 32′ in front. Will be two stories, with a well-finished basement, containing two large lunch-rooms and recreation rooms, bicycle rooms, teachers' toilet and girls' and boys' sanitary. Heated by steam.

Great Falls, Mont. — St. Ann's Catholic Society is having plans prepared for a church of red brick with stone trimmings, 65′ x 100′, with seatings for 800; cost, $25,000.

Green Bay, Wis. — The congregation of SS. Peter and Paul society will erect a brick and stone schoolhouse in the early spring; cost, $10,000.

Jersey City, N. J. — The Directors of Education have decided to erect a school-house in the 12th ward to cost $80,000 and one in the 8th ward to cost $55,000.

Kansas City, Mo. — Architect E. J. Eckel is preparing plans for the club-house which the Lotus Club will build at Lake Contrary; cost, $30,000.

Lake Providence, La. — Architect Wm. Stanton, Vicksburg, Miss., has prepared plans for the proposed court-house to cost $15,000.

Lawrence, Mass. — Architect Eil Thibodo has drawn plans for two business and apartment blocks to be erected on Essex St. by Harris Berman, Esq. The structure will be frame and four stories high; cost, $16,000.

Marshalltown, Ia. — H. B. Dodge will erect a three-story, 45′ x 50′ frame hotel, after plans by Prescott & Co.; cost, $8,000.

McKeesport, Pa. — The finance committee of the council has authorized an issue of bonds to the amount of $15,000 to be used for the erection of a fire-station.

Milwaukee, Wis. — A. C. Eschweiler has prepared plans for a two-story, 40′ x 100′ red pressed-brick and sandstone dormitory to be erected on the campus of Milwaukee-Downer College; cost, $25,000.

Messrs. Asmuth, Zimmerman, Manegold and others have formed a partnership to establish a malting plant here. Reports state that about $500,000 will be expended in a plant.

T. W. Goodrich will erect a residence on Astor near Martin St., after plans by Architect H. J. Rotier. It will be a three-story, 50′ x 60′, brick and frame structure, costing $12,000.

Architect H. J. Esser is drawing plans for the proposed car-barn and office block for the Milwaukee Electric Light & Railway Co.; cost, about $500,000.

Minneapolis, Minn. — F. S. Fletcher will build a residence at Lake Harriet on 44th St., near Upton Ave. It will be a two-story structure, with attic and basement. The chimney, basement and first story will be built of rough boulders and the second story of wood with tile roof; cost, $9,000.

Monaca, Pa. — E. E. Kochler & Co. will build a business block. It will be brick, slow-burning construction, 60′ x 70′, three stories high. Plans by J. A. Snyder, Beaver Falls; cost, $15,000.

Mount Desert, Me. — Kingsbury & Montague, 15 Exchange St., Boston, Mass., have prepared plans for a residence for F. Damroch, New York City, to cost $6,000.

Newport, R. I. — E. Rollins Morse, who purchased the Rhua House property and the adjoining site known as the Cole estate last year, will shortly have the two houses torn down and on their site will be erected a large and handsome villa of Colonial architecture.

Norwalk, Conn. — Architects Harney & Purdy, 35 Nassau St., New York, have completed plans for an addition to St. Mary's Free Hospital. Building will be two and a half stories, 15′ x 25′, of brick and stone, and cost about $25,000.

Oak Park, Ill. — Architects Patton, Fisher & Miller, Chicago, have prepared plans for an auditorium hall, the front of which will be three stories high and will be divided in apartments. The auditorium will have a seating capacity of about 1,500. Willis S. Herrick, D. L. V. Goodwill and others are interested; cost, $25,000.

Omaha, Neb. — Architect John Latener has prepared plans for a three-story, 38′ x 50′ addition to be built to the Home of the Good Shepherd; cost, $15,000.

Orange, N. J. — McKim, Mead & White, architects, New York City, are drawing plans for the erection of a new building for the Young Men's Christian Association; cost, about $40,000.

Paducah, Ky. — The Alden Knitting Mills are having plans prepared by Architect Wm. L. Brainerd for a brick and stone factory, to cost $10,000.

Paris, Ky. — It is proposed to erect a public library here at a cost of $10,000.

Philadelphia, Pa. — Architect Wm. G. Hale has completed plans for the proposed addition to the Hale Building at 1330 Chestnut St. It will be a seven-story, 25′ x 100′ structure, and will be an exact counterpart of the present building to which it will be connected by a six-foot corridor.

Punxsutawney, Pa. — The Elk Brewing Co. will build a six-story brick and steel brewery, 78′ x 110′, to cost $187,000.

River Forest, Ill. — Architect E. E. Roberts, Oak Park, has prepared plans for a dwelling fitted with all modern conveniences for J. L. Jackson; cost, $10,000.

Sagaponeck, L. I., N. Y. — Architects James E. Ware & Son, 3 W. 29th St., New York, are preparing plans for a private residence to be erected for Mr. Roswell S. Warner. Building will be of brick and frame, finished in hard wood and have all modern conveniences; cost, about $20,000.

Sewickley, Pa. — The Y. M. C. A. will erect a three-story brick and stone association building on Beaver St., to cost $50,000.

Shrewsbury, Mass. — Architect John P. Kingston, of Worcester, has finished plans for a very attrac-

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

tive residence for Henry Beauvais. It will be frame, two stories, with all modern improvements.

South Bend, Ind. — The Singer Manufacturing Co. has decided to abandon its present immense plant and will soon contract for a new factory in the western part of the city. The building will be fireproof and modern in every particular; cost, about $600,000.

Architects Parker & Austin are preparing plans for a lodge and office building to be erected by Messrs. Trepp & Kamm; cost, $13,000.

State Center, Ia. — Prescott & Co., of Marshalltown, have prepared plans for a two-story brick store-building, 25′ x 80′, to be erected by Schilline Bros.

St. Cloud, Minn. — The Polish Catholic congregation are making arrangements to erect a church to cost about $7,000.

Toledo, O. — Architect Louis H. Tochumy has prepared plans for a brick and stone flat-building to be 60′ x 100′, and three stories high; cost, $20,000.

Uniontown, Ala. — R. H. Ware will erect an ice-factory at a cost of $15,000.

Winter Park, Fla. — Architects Rand & Skinner, 336 Boylston St., Boston, Mass., have drawn plans for a one-story frame library building, 30′ x 60′, to cost $6,000.

Worcester, Mass. — Work has been commenced on the new residence of Mrs. E. M. Holman to be erected on Dayton St. It will be frame, two stories high, and will cost $5,000.

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

Architect W. H. Harvey is completing plans for a fine residence for E. C. Gilman to be built on Pleasant St.

ALTERATIONS AND ADDITIONS.

Brooklyn, N. Y. — *Manhattan Ave.*, nr. Montauk Ave., interior alterations on engine-house; $5,000; o., Chelsea Jute Mills, 1155 Manhattan Ave.; a., W. B. Tubby & Son, 81 Fulton St., N. Y.

Philadelphia, Pa. — *Arch St., No.* 1609, interior alterations & two-st'y bk. addition, 23′ x 70′; $9,000; o., Benevolent Protective Order of Elks; b., Henry C. Dahl.

Gratz St., Nos. 1836-38, alterations & two-st'y bk. addition to stable, 36′ x 43′; $5,500; o., Mary B. Muchmore; b., Wm. Steele & Sons.

APARTMENT-HOUSES.

Brooklyn, N. Y. — *Grove St.*, nr. Knickerbocker Ave., 3 three-st'y bk. flats, 25′ x 58′ 6″; $27,000; o., John Eich, 693 Park Ave.; a., W. B. Wills, 17 Troutman St.

New York, N. Y. — *Jackson Ave.*, nr. 165th St., four-st'y bk. flat, 28′ 6″ x 65′; $16,000; o., Frank A. Fichtler, 887 Jackson Ave.; a., Moore & Landsiedel, 148th St. & 3d Ave.

E. Fourth St., Nos. 277-279, 2 six-st'y & base. bk. flats & stores, 24′ 9″ x 81′ 3″; $50,000; o., Lippman & Gold, 58 Rutgers St.; a., Horenburger & Straub, 122 Bowery.

One Hundred and Twenty-seventh St., nr. Lenox Ave., seven st'y bk. & st. flat, 50′ x 89′ 11″; $90,000; o., Geo. W. Martin, 1459 Brook Ave.; a., Neville & Bagge, 217 W. 125th St.

Ninety-fourth St., nr. West End Ave., seven-st'y bk. flat, 75′ x 88′; $125,000; o., Gustav Bauhahn, 1741 Topping Ave.; a., Schneider & Herter, 46 Bible House.

One Hundred and Thirty-fourth St., nr. 7th Ave., 7 five-st'y & base. bk. flats, 25′ & 30′ x 84′ 11″ & 87′ 10″; $190,000; o., Ruth & Hoffmann, 169 E. 106th St.; a., M. Bernstein, 245 Broadway.

Sullivan St., No. 142, seven-st'y bk. flat & store, 25′ x 87′ 3″; $35,000; o., Nieberg Bros., 133 Crosby St.; a., M. Bernstein, 245 Broadway.

West End Ave., cor. 100th St., 2 seven-st'y bk. & st. flats, 48′ 10″ & 56′ x 87′ & 100′; $105,000; o., Elias Kempner, 35 Nassau St.; a., Geo. F. Pelham, 503 Fifth Ave.

Syracuse, N. Y. — *James St.*, cor. Pearl St., six-st'y bk. & st. aparts., 86′ x 122′ x 132′ x irregular; $140,000; o. & b., John Moore; a., Geo. Fred Pelham, 503 Fifth Ave.

HOSPITALS.

Boston, Mass. — *Haymarket Sq.*, three-st'y bk. relief hospital, 60′ x 70′ x 120′, flat roof, steam; $60,000; o., Boston City Hospital; b., H. P. Cummings & Co.; a., Kendall, Taylor & Stevens.

HOUSES.

Boston, Mass. — *Ashmont St.*, nr. Bruce St., 2½-st'y fr. dwell., 32′ x 42′, pitch roof, furnace; $5,500; o., Thomas Connell; b., W. U. Sherman; a., A. B. Fisher.

Summer St., No. 357, fr. dwell., 34′ x 39′, flat roof, stoves; $4,000; o., Celia Livingston; b., G. Dempsey; a., J. Keough.

Eliot Pl., nr. Newcastle Road, 2½-st'y fr. dwell., 26′ x 46′, pitch roof, furnace; $6,000; o., Brooks Walker; b., P. R. Parks; a., Geo. E. Parsons.

Walk Hill St., nr. Wachusetts St., fr. dwell., 25′ x 28′, flat roof, stoves; $4,500; o., Margaret McNeil; b., R. McNeil; a., J. G. Hutchinson.

Savin Hill Ave., nr. Wesley St., 2½-st'y fr. dwell., 28′ x 49′, pitch roof, furnace; $6,000; o., John Sparrow; a., T. Sheehan.

Faulkner St., No. 24, three-st'y fr. dwell., 26′ x 50′, flat roof, stoves; $4,500; o., John Hayward est.; a. & b., W. T. Henderson.

Columbus Ave., Nos. 2029-49, 10 bk. dwells., 20′ x 50′, flat roofs, stoves; $50,000; o., Wm. H. Smith; b., H. H. Porter; a., Wm. H. Booth.

BUILDING INTELLIGENCE.

(Apartment-Houses Continued.)

BUILDING INTELLIGENCE.

(*Houses Continued.*)

Ridgemont St., cor. Eleanor St., two 2½-st'y fr. dwells., 36′ x 54′ x 58′, pitch roofs, furnaces; $11,000; o., F. S. Gourley; b., Ross & McCay; a., Geo. B. Howe.

Somerville, Mass. — *Belmont St.*, nr. Highland Ave., 2 two-st'y dwells., 28′ x 40′, pitch roofs, furnaces; $10,000; o., J. D. Prindle; b., J. R. McLellan; a., J. Kelley.

Worcester, Mass.—*Reeves St.*, cor. Greenwood St., three-st'y fr. dwell.; $4,500; o., W. H. Thomas; b., Dorais & Dupuis.

Cambridge St., three-st'y fr. building; $4,500; o., Samuel Daly; b., Eli Legnard.

Ashton St., 2½-st'y fr. dwell.; $4,500; o., Fred Durgin; b., F. J. Goff.

Lincoln Ave., three-st'y fr. dwell., 39′ x 58′; $4,500; o., Anna F. Erikzen; b., Erik Erikzen.

Columbia St., three-st'y fr. dwell., 28′ x 54′; $4,500; o., Jere Hennessey; a., John P. Kingston.

Boylston St., three-st'y fr. dwell., 26′ x 60′; $4,500; o., Lizzie McMahon; a., Edward Carleton; b., F. S. Yates.

STABLES.

Brooklyn, N. Y. — *Bergen St.*, nr. E. New York Ave., three-st'y bk. stable & dwell., 35′ x 86′, steam heat; $20,000; o., C. W. Seaman, 1267 Pacific St.; a., M. W. Morris, 234 Hancock St.

New York, N. Y.—*One Hundred and Seventieth St.*, nr. Bristow St., five-st'y & base. bk. stable & storage, 20′ x 65′; $9,000; o., C. A. Sprossig, 1395 Bristow St.; a., P. C. Hunter, 1046 E. 169th St.

STORES.

Brooklyn, N. Y. — *Cook St.*, cor. Morrell St., five-st'y bk. stores & tailor-shops; $10,000; o., Ray Reissenberger, 310 Throop Ave.; a., Sass & Smallheiser, 23 Park Row, N. Y.

Chicago, Ill. — *State St., Nos.* 63-99, and *Wabash Ave., Nos.* 73-95, twelve-st'y bk. store & lofts, 150′ x 390′ & 150′ x 288′; $1,500,000; o., Marshall Field; a., D. H. Burnham & Co.; b., William Mayor & Co., 167 Dearborn St.

Ada St., No. 4758, two-st'y bk. stores & flats, 24′ x 25′; $10,000; o., B. J. Klaus; a., Anton Charvat; b., Frank C. Layer, 1327 Millard Ct.

Michigan Ave., Nos. 11444-54, two-st'y bk. store & flats, 62′ x 120′; $35,000; o., Leon Avignon; a., J. H. Huber; b., Campbell & Hobson, 11527 Michigan Ave.

State St., Nos. 2321-25, four-st'y bk. stores & aparts., 86′ x 166′; $40,000; o., Mrs. Julia F. Porter; a., W. A. Otis, 606, 175 Dearborn St.; b., R. & S. Sollitt, Hartford Building.

Malden, Mass. — *Highland Ave. and Medford St.*, three-st'y store & dwell., 54′ x 56′, furnace; $12,000; o., David Maloney; a. & b., Peter Donahue.

New York, N. Y. — *One Hundred and Forty-third St.*, nr. Alexander Ave., bk. flat & stores; $18,000; o., Peter McGlade; a., W. C. Dickerson, 149th St. & 3d Ave.

Third Ave., cor. Westchester Ave., 2 two & four-st'y bk. lofts & stores, irregular; $40,000; o., R. Seigman, 45 W. 42d St.; a., A. Arctander, 362 Alexander Ave.

TENEMENT-HOUSES.

Brooklyn, N. Y. — *Morrell St.*, nr. Varet St., four-st'y bk. tenement, 25′ x 84′; $14,000; o., Louis C. Halpern, 715 Broadway; a., H. Smith, 836 Broadway.

Hart St., nr. Evergreen Ave., three-st'y bk. tenement, 20′ 4″ x 78′; $12,000; o., C. F. Guttier, 1480 De Kalb Ave.; a., Hugo Smith, 836 De Kalb Ave.

New York, N. Y. — *F. Fifth St., Nos.* 811-817, 3 six-st'y bk. tenements, 26′ 4″ & 26′ 8″ x 85′; $75,000; o., Balleisen & Wexler, 264 Bushwick Ave., Brooklyn; a., Sass & Smallheiser, 23 Park Row.

Ninth Ave., cor. 16th St., six-st'y bk. tenement & store, 25′ x 100′; $25,000; o., Wilhelmina Ruck, 363 W. 8th St.; a., Chas. Rentz, 153 Fourth Ave.

One Hundred and Eightieth St., nr. Lafountain Ave., 3 three-st'y fr. tenements, 21′ 2″ x 56′ 6″; $16,500; o., Nellie Rice, 660 E. 144th St.; a., W. C. Dickerson, 149th St. & 3d Ave.

One Hundred and Forty-third St., nr. Alexander Ave., five-st'y bk. tenement, 25′ x 80′ 7″; $18,000; o., Peter McGlade, 606 E. 143d St.; a., W. C. Dickerson, 149th St. & 3d Ave.

Park Ave., nr. 100th St., five-st'y bk. tenement & store, 40′ x 95′ 11″; $45,000; o., Albert Schwarzler, 18 E. 90th St.; a., M. Bernstein, 245 Broadway.

Eighty-sixth St., five-st'y & base. bk. tenement, 25′ x 86′ 8″; $30,000; o., A. Bachrach, 610 Broadway; a., M. Bernstein, 245 Broadway.

COMPETITIONS.

SCHOOL. [At Natchez, Miss.]

Sealed plans and specifications will be received at the city clerk's office until November 15 for a new modern school-building. W. G. BENBROOK, mayor. 1298

PROPOSALS.

BARRACK. [At Peddock's Island, Mass.]

Sealed proposals, in triplicate, will be received at the Depot Quartermaster's office, 170 Summer St., Boston, Mass., until November 2, 1900, for constructing at Fort Andrews, Peddock's Island, Mass., one barrack and one single set officers' quarters. W. H. MILLER, Depot Quartermaster, U. S. A., Boston, Mass. 1296

BARRACK. [At Nantasket Head, Mass.]

Sealed proposals, in triplicate, will be received at the Depot Quartermaster's Office, 170 Summer St., Boston, Mass., until November 2, 1900, for constructing at Fort Revere, Nantasket Head, Mass., one barrack. W. H. MILLER, Depot Quartermaster, U. S. A., Boston, Mass. 1296

HOSPITAL BUILDINGS. [At Howard, R. I.]

Sealed proposals will be received until November 1 for erecting a dining-hall and service buildings and connections for the State Hospital for Insane. CHAS. H. PECKHAM, sec. bldg. com., bd. State charities and corrections, Providence, R. I. 1296

HOTEL ADDITION. [At Kineo, Me.]

Bids will be received October 29 for building additions to Mt. Kineo House. CHAS. A. JUDKINS, mgr. 1296

SCHOOL-HOUSE. [At New York, N. Y.]

Sealed proposals will be received until October 29 by the committee on buildings, board of education, for erecting new addition to public school 61, east side of 3d Ave., between 169th and 170th Sts. R. H. ADAMS, *et al.*, committee on buildings. 1296

FIRE-STATION. [At Providence, R. I.]

Sealed proposals will be received until November 2 by the joint standing committee of the city council on city property for the erection of a central fire-station on the city lot on Exchange Pl. BURMAH E. PERKINS, chairman. 1296

COURT-HOUSE. [At Atlanta, Ga.]

Bids will be received by the commissioners of roads and revenues until December 5th for material and labor for completing addition and alterations to Fulton County Court-house. H. M. WOOD, clk. 1297

Treasury Department, Office Supervising Architect, Washington, D. C., October 23, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 22d day of November, 1900, and then opened, for the installation of a wiring system for the U. S. Court-house and Post-office building at Topeka, Kansas, in accordance with the drawings and specification, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at Topeka, Kansas, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1297

Treasury Department, Office Supervising Architect, Washington, D. C., October 18th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 20th day of November, 1900, and then opened, for the completion of the interior finish, plumbing, gas-piping, etc., for the U. S. Post-office, Court-house and Custom-house at St. Paul, Minn., in accordance with the drawings and specification, which will be furnished at the discretion of the Supervising Architect on application at this office, or at the office of the Superintendent at St. Paul, Minn. JAMES KNOX TAYLOR, Supervising Architect. 1297

Treasury Department, Office of Supervising Architect, Washington, D. C., October 19, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 24th day of November, 1900, and then opened, for the installation of a wiring system for the U. S. Custom-house at Portland, Oregon, in accordance with the drawings and specification, copies of which may be obtained at this office, or at the office of the Superintendent of Construction at Portland, Oregon, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1297

Treasury Department, Office Supervising Architect, Washington, D. C., October 20, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 21st day of November, 1900, and then opened, for the excavation, foundations, basement walls and structural steel for the U. S. Custom-house, New York, in accordance with the drawings and specification, copies of which may be had at the discretion of the Supervising Architect on application to this office or the office of the architect, Cass Gilbert, 111 Fifth Ave., New York. Applications must be accompanied by a certified cheque for $100 which will be held at this office until the return of drawings and specifications. JAMES KNOX TAYLOR, Supervising Architect. 1297

HIGH SCHOOL. [At Syracuse, N. Y.]

The board of high school commissioners will receive bids until November 15 for erecting a high school at Warren, Adams and Linden Sts. DONALD DEY, president of board. 1298

SCHOOL-HOUSE. [At Cincinnati, O.]

Sealed bids will be received November 19 for erecting a 12-room school at Edwards and Observatory Roads. JACOB E. CORMANY, chmn. com. on bldgs., bd. educ. 1298

COURT-HOUSE. [At Linton, N. D.]

The board of county commissioners will receive bids until January 10th for the erection of a court-house for Emmons County. EDWARD BRADDOCK, county auditor. 1298

STATE-HOUSE. [At Jackson, Miss.]

Sealed proposals will be received by the Capitol commission until December 8th for the construction of the proposed $1,000,000 state-house for the State of Mississippi. GOV. A. H. LARGINO, chairman. 1298

COURT-HOUSE FIXTURES. [At Spencer, Ia.]

Sealed bids will be received until November 13th for furnishing office fixtures and furniture for the new court-house. SUPERVISORS CLAY CO. 1296

COURT-HOUSE FURNITURE. [At Hutchinson, Kan.]

Bids will be received until November 14th for all wood furniture for court-room and offices, steel vault fixtures for fire vaults and electrical fixtures for court-room corridors and offices for Reno County Court-house. D. T. DE PRY, archt. 1296

THEATRE. [At Burlington, N. J.]

Bids will be received until December 1st for the construction of a brick, granite and iron theatre and hall. P. P. ELKINTON, archt., 211 S. 6th St., Philadelphia, Pa. 1296

Treasury Department, Office Supervising Architect, Washington, D. C., October 11, 1900. Sealed proposals will be received at this office until 2 o'clock P. M., on the 1st day of November, 1900, and then opened, for repairs, painting, decorating, etc., at the U. S. Court-house and Post-office Building at New York, N. Y., in accordance with the specification, copies of which may be had at this office or at the office of the Superintendent of Repairs, U. S. Public Buildings, New York, N. Y. JAMES KNOX TAYLOR, Supervising Architect. 1296

Treasury Department, Office Supervising Architect, Washington, D. C., October 16, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 30th day of October, 1900, and then opened, for the installation of a switchboard for the U. S. Immigrant Station, Ellis Island, N. Y. Harbor, in accordance with the drawing and specification, copies of which may be obtained at this office or at the office of the Superintendent of Construction at Ellis Island, New York Harbor, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1296

Professional Ethics.

The following . . .
. . . CODE OF ETHICS . . .
Prepared in Conformity with the Best Standards of Practice, and Recommended to its Members by the Boston Society of Architects, was . . . . . .

ADOPTED BY THE SOCIETY, FEBRUARY 1, . . 1895. . .

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 drawings 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 alterations of a building designed by another architect, 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, without 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 criticise 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 designs 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 drawings 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 Architects' "schedule of charges" represents minimum 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 architect 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 practice as to forward the cause of professional education and render all possible help to juniors, draughtsmen and students.

[*See Alphabetical Index on Cover 2 for Pagination.*]

CLASSIFIED ADVERTISEMENTS.

[Advertisers can be indexed only under a single head free of charge.]