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A FIRM of architects in New York, of high reputation in the profession, and exhibitors in the Fine-Art Section of the Paris Exposition, has received the following letter, which it forwards to us for the edification of our readers:—

"WASHINGTON, D. C., September 26, 1900.

MESSRS. A, B & C, ARCHITECTS, NEW YORK CITY:—

Gentlemen:—A member of our firm has just returned from Paris, and noticed with much interest your display there.

In our next issue we will devote some space to NOTABLE EXHIBITS AT THE PARIS EXPOSITION, and we have taken the liberty of preparing a reading article regarding your exhibit, which we respectfully submit for your approval. Same will be inserted under heading mentioned above, and copy sent you, for total cost of \$6.

Awaiting your prompt and favorable reply, we remain,

Very truly yours, THE ARMY AND NAVY MAGAZINE,
X. Y. Z., Editor.

You are at liberty to make such alterations in the article as you wish, and kindly return same to us promptly."

We give the name of the magazine concerned, as its editor seems to have no wish to conceal it, and it will be useful to architects to know how even a "Journal of Quality," as the *Army and Navy Magazine* calls itself, is induced to take part in the manufacture of professional reputations. Whether the reputation so made is of any value is a question about which architects are likely to have their own opinion, but it is certain that many, if not most of the non-professional periodicals consider their assistance in such matters of such importance as to justify them in demanding liberal compensation for it. Some years ago, a reporter from the *Boston Herald* came to us for information in regard to a certain public building just completed. After getting such details as he wanted, he inquired, "Now, how much will you pay to have your name mentioned in the article?" He went on to explain that the *Herald* never mentioned the architect's name without being paid; and, as the architect in question declined to pay anything for this favor, the description of the building was published without it.

THERE has been a time, perhaps, when the favorable notice of the daily papers, and of non-professional journals generally, would be of advantage to an architect's business, but what the editors of these periodicals call business energy, and other people call corruption, is so widespread and so well known, that almost all persons of intelligence, seeing an artist or professional man extolled in the lay press, ask themselves cynically how much he probably paid, directly or indirectly, for the favor. With the professional press the case is very different, and we think that it will be advantageous, both for the profession and the technical journals, to have the distinction made more clear. In the first place, for a professional journal, which depends for its support upon experts on the subjects of which it treats, to attempt to advance the reputation of any one in return for money, or through any other consideration

than that of its conviction of the merit of his work, would be suicidal. While architects do not always agree in taste, they all know good work from bad, and would be quick to resent any attempt to give fictitious lustre to the latter, so that the editor of a professional journal is too prudent to use anything but the best material that he can obtain, even if he had any desire to do so. Not only do professional men understand this, but the public understands it also. Taking as a parallel case, the profession of medicine, the supposition that any intelligent person, in search of a skilful physician, would look through the "special despatches," or the descriptions of "miraculous cures" in the *Boston Blower*, or the *New York Hustler*, is ridiculous. It is not among small newspaper reporters, whose pens have been lubricated by five-dollar bills, that physicians find reputation, but among their fellows, who can neither be deceived nor dazzled, but who are ready to give proper honor to one who has succeeded in doing what they have tried in vain to do; and the place where such reputations are won is in the medical journals, which disseminate through the whole world the real triumphs of medical science and skill. It is true that all laymen do not read medical journals, but many of them do, and physicians themselves are always ready to testify to the professional reputation of specialists, so that, in the end, it is the true man of learning who wins the confidence of the public. So in architecture; the intelligent public knows very well what men have the highest reputation among other architects, and does not need to study the columns of enterprising daily papers to find out where to place its confidence.

NOW, if this is so, and we think that all experienced architects will acknowledge that we have presented the case fairly, how are architects who would like to make a reputation of real value for themselves to set about doing so? The answer is so plain that it is surprising that it should need to be insisted upon. In every other profession, the men who have accomplished something in their calling are willing that their friends should know of it. The physicians have their society meetings, in which they discuss and criticise each others new ideas in the treatment of various ailments; the meetings are reported, and the reports published, and work of true merit is soon known throughout the profession. In the same way, an engineer who has successfully carried out a difficult undertaking is pleased to have the fact known; he willingly prepares a paper upon it for his Society, and the paper, properly illustrated, is soon known throughout the world. With architects, at present, the case is strangely different. All the older members of the profession can testify that the reputations now most firmly established were gained in coincidence with, if not in consequence of, the publication in the professional journals of the designs of the persons now holding such reputations, and a reference to the files of the *American Architect*, the oldest of these, will show that the persons whose work most frequently found admission to its pages of illustrations are precisely those whose names now stand, by universal consent, at the head of the profession. Twenty-five years have passed since the designs of H. H. Richardson, McKim, Mead & White, Peabody & Stearns, and others, all then young men, and all since arrived at eminence, began to appear in our pages, and it is time to think about those who are to succeed them; but here we are met with an extraordinary difficulty. In the years when these great and deserved reputations were being made, architects were glad to see their designs in print; drawings came in from all quarters, and the only difficulty was to make a proper selection. Now, instead of being embarrassed by the number of designs offered for publication, we find ourselves obliged to solicit work of which the interest is already known; and architects, instead of welcoming with curiosity and pleasure the new designs in each issue, and hastening to offer such of their own work as they would like to see beside that of others, have taken it into their heads to assume an attitude of coyness, as if they considered it an act of extraordinary clemency on their part to permit an architectural journal to show to the world what they have done. There are several architects who, as we know, can do as good work as was ever illustrated in these pages, who are content with such publicity for their designs as can be gained by means of a half-tone print, three inches square, from a pencil perspective, in an exhibition catalogue, with a varnish-maker's advertisement on the back of it,

and cuts of cement-factories and saw-mills for its nearest neighbors, and who seem unable to realize that when these illustrations of their genius have long been forgotten, and they themselves are beginning to count their gray hairs, a younger generation, with different views of the subject, will be claiming the attention of the community, and building up reputation and connection, by using the means which they have themselves affected to neglect.

THROUGH the enlightened public spirit of a few very rich men, seconded, after their quiet efforts had begun to attract attention, by the most influential newspapers, and by the able experts whom the Division of Forestry has been so fortunate as to secure, an impulse has been given to the movement for the conservation of the forests of the United States which promises to be of immense value to the country. The offer of the Government to give gratuitous advice to owners of forest lands in regard to their maintenance has brought in a great number of applications, while hundreds of candidates are awaiting a vacancy for appointment as "student assistants" in the Forestry Division, at a salary of three hundred dollars a year, for the sake of learning, in the field, a profession which, new as it is, seems to have a great attraction for our young men. It is curious that, while in Germany, where forests are among the most valued possessions, as well as the most steadily profitable investments, of the noble families, the trained foresters who manage them are often younger sons of the titled families who own them, our own neglected forests, ravaged by fire and pulp-mill cutters, seem to have called out the sympathy of a similar class of highly-educated and capable men, who are likely, within the next generation, to bring about a great change in the condition of the property which they will be called upon to care for.

THAT these young students of forestry will at once command high salaries is unlikely, but it is probable that a comfortable living will for many years await all the competent men whom our schools of forestry can turn out; and, for the few people who are born with the gift of money-making, and who can gain fortunes from the judicious use of the circumstances which surround them, forest management presents by no means an unpromising field. Dr. Schenck, now the forester to Mr. George W. Vanderbilt's estate at Biltmore, has published a pamphlet on the financial side of the matter. Supposing, for example, a State or town to undertake the acquisition and maintenance of a forest, he assumes that the operation is begun by the issue of bonds, to the amount of one million, four hundred and fifty thousand dollars, running at four per cent. Of the proceeds of these bonds, one million dollars is used for the purchase of one million acres of land suitable for forest growth; fifty thousand is set apart for legal and surveying expenses, one hundred and fifty thousand for building roads, and two hundred and fifty thousand dollars for salaries of foresters and rangers. He assumes that twelve years will be required to complete the roads, and that until then no income will be derived from the property; but that, when the roads are completed, the trees will be sufficiently advanced to yield an average income of ten cents per acre; and that, thenceforth, the average income may be considered as likely to increase at the rate of three per cent per annum. These certainly seem like moderate anticipations, but any one can repeat for himself Dr. Schenck's calculations, which show that at this rate, the bonds will be paid off, with interest, in fifty-five years from the time of the commencement of the operation, leaving the forest not only clear of encumbrance, but producing a net revenue of three hundred and fifty-six thousand dollars a year, with a prospect of its steady increase at the rate of three per cent per annum. The value of such a forest, considered as an investment, he estimates at thirty-five million dollars. The idea of such a profit in fifty-five years from an investment which pays an income continuously after the twelfth year, and about which there is little in the way of risk or contingency, seems almost incredible, but Dr. Schenck says that forest history has proved the correctness of his figures. In fact, they are, if anything, too conservative. A State or town loan secured by forest land under enlightened supervision, and increasing in value, according to recognized probabilities, at anything like this rate, could easily be floated in this country at three per cent, instead of four, making a difference, at simple interest, of nearly eight hundred thousand dollars in the amount to be paid in fifty-five years; or, if the payment of the bonds were provided for by a sinking-fund, and the interest on the fund com-

pounded, lessening, probably, by two million dollars the amount of interest to be paid, and shortening correspondingly the time before the complete discharge of the incumbrance. Again, Dr. Schenck assumes that a dollar an acre is paid for the land, before there are any trees on it, and the money borrowed to make the purchase forms the largest part of the loan. In point of fact, however, many millions of acres of land extremely suitable for such purposes already belong to States and municipalities, through abandonment and forfeiture for non-payment of taxes; so that unlimited opportunities are offered for trying the experiment without this initial outlay. Besides this, in the older States the tax-forfeited lands are, as a rule, already surveyed, the titles are judicial, and the roads are mostly built, and in good condition, so that another large part of the outlay which Dr. Schenck contemplates is saved; and, finally, a large proportion of this abandoned territory is already covered with second-growth timber, neglected, it is true, but capable, in the Eastern States, at least, of yielding an immediate revenue by thinning out for cord-wood.

THE idea of having a town or State attempt to utilize its tax-forfeited lands, or, still more, of buying other lands as an investment, is so strange to us that legislation would probably be necessary to make it possible; but in Europe, especially in Germany, it is familiar. Most travellers know the beautiful forests which cover the hills above the city of Heidelberg, and belong to the municipality, and the ownership of such income-producing property by towns or cantons is very common. Even, however, where our town corporations are too timid to undertake financial operations so profitable and so secure, they might, evidently, gain great advantage by a more enlightened system of taxation of land suitable for tree-growing, belonging to other people. Dr. Schenck calculates that, under the ordinary practice of taxing timber-land, the taxes on a forest will have consumed, by the time that the trees reach maturity, sixty per cent of the total value of the mature timber; and he considers that private owners are excusable for not wishing to engage in forestry operations under such circumstances; but he does not say all that could be said in regard to the advantages of a different system. Supposing the million-acre tract of which he treats to be held by a private corporation, and taxed by the community in which it is supposed to be situated, the revenue from it would be, at one per cent on the selling value, ten thousand dollars a year, until, as usually happens, the owners are unwilling to invest any more money in the property, with a certainty of increased taxation and interest and no prospect of any return for many years, and the land remains idle, until, tired of paying taxes, the owners abandon it altogether, and the income from it ceases. On the other hand, we may suppose it to be situated in a more enlightened district, the people of which are willing to take the sure path to fortune which lies through a small present sacrifice for the sake of later advantage. By vote of the town, the tract is exempted from taxation for fifty years, on condition of its being planted and maintained as a forest of a specified type. In the ensuing twelve years, according to Dr. Schenck's plan, one hundred and fifty thousand dollars is paid out, mainly in the form of wages to citizens of the town, for road-building; fifty thousand dollars, partly to citizens, for surveying and legal expenses, and two hundred and fifty thousand, also mainly to citizens, for salaries of foresters and rangers. Supposing the people actually employed by the forest corporation to pay an income tax of one per cent on their salaries, which would certainly not be exorbitant, with a poll-tax in addition, the total would amount to nearly as much as the tax on the land would have been, and it is obvious that a large number of other persons, not paid by the forest corporation, would be attracted to the town, and would earn their living by selling goods, or working in other ways, for the forest people and their families. All these would also pay their taxes, and swell the total revenue of the town, at the same time that the great forest provided comfort and prosperity for its citizens. But this would not be all. Supposing the town, like most towns in the lumber regions, to own large tracts of tax-forfeited land, the prosperity of its forest corporation, relieved of the heavy burden of taxes, would soon be known, and the town would find customers, at a good price, for lands on which the operation could be repeated, with similar results, the town at the same time coming into possession of a large sum, in cash or well-secured bonds, as payment for property which, under the present system, would never be of any value.

A CORNER OF OLD FRANCE.¹—III.

Semur: the Town from the River.

AVALLON, the next town, is one of those spots whose very situation and arrangement are a charm in themselves, apart from the contents of the town. For fame, it has the Roman origin claimed by most of the towns of the district and in point of illustrious inhabitants it boasts of Vauban, the great architect of fortifications, whose bronze effigy on a tall stone base gives the name to the principle place of the town, in which a double avenue of pollard-limes takes him for a centre-piece. It stands on a high hill, this happy little place, with ramparts, or one would rather say terraces, round three sides of it, and with walls which never turn a corner without throwing some projecting turret out upon the landscape. Almost every street ends in the surprise of a wide open-country view. We went to Avallon for the purpose of getting to Vézelay, but found that Avallon itself was not to be put off as a mere starting-place. Not only did the surrounding country look fair from Avallon, but whenever one crossed the ravines and got away to the thick woods in which the bugles played at night, one came upon ever-varying pictures of the town which kept the sketch-book busy. By night or by day, however one looked at it, the town seemed to re-group itself into something one could well wish to sketch and easily fail in sketching. The principal street narrows itself to pass under a very slim clock-tower, which from any point-of-view is a crown to the town, and near it stands the cathedral, another Cathedral of St. Ladre, a rather desolate but beautiful building, consecrated 1106, and almost free from restoration. Its west portal, which originally, no doubt, had three towers, has been rather gracefully mutilated by the tower, which, according to the guide-books, grew on to the building in the seventeenth century, but which has about it a look of the fifteenth. Within there is a strange effect, produced by the fact that the west end stands on the crown of a hill, while the east end is a good way below it—we have thus not the usual ascent to the altar, but a continual descent. The desired result of obtaining for every member of the congregation a view of the altar is as well effected as by the more usual method of ascent, and the reversal of the usual device is not altogether displeasing. On the south, forming, as it were, an aisle of the cathedral, is the Chapel of Our Lady, formerly the Church of St. Peter, roofed with a single vault and dating from the thirteenth century. The portals are very rich, though mutilated by the modern doorways, and one sees among the rather elaborate columns which form the supporting piers more than one example of the twisted shaft, so dear to certain Renaissance architects of later date.

It is from Avallon that we are to take the pilgrimage to the Abbey of Vézelay, but before considering this, let me devote a few words of description to the admirable little town of Semur, which can be reached by a short railway journey from the same starting-place. For picturesque disposition, Semur almost takes the palm amongst its rival towns. Standing, as it does, partly upon a low peninsula washed by the Armançon and partly on a granite crag whose steep flanks descend both on the north and south into the river and its tributary, it would command respect for its natural amenities, even if these had not been added to by mediæval towers and ramparts. The streets are winding and picturesque, and the long irregular place gives space for standing back to get a fair view of the narthex of the Church of Notre Dame, which crowns the summit of the town. The nave within is long, narrow and beautiful. There is here no trace of the interesting but rather heavy imitations of Roman work which we have noticed at Beaune and Autun: all is normal Gothic again—indeed, the church is looked upon by the French as a typically pure example of Burgundian thirteenth-century work. For one thing it is specially remarkable, the use, and successful use, of paint on the stonework. There are some traces high up in lantern and on the vaulting bosses of old painting, and the tones of this work have been imitated in the capitals of the lower parts of the church. Among the old painted work is a representation of the coronation of the Virgin; this is on the vaulting over the sanctuary, which dates

from 1235. The towers of the church are disappointing, but the narthex is fine, in spite of the wholesale mutilation which has taken place among the saints of the portals.

The town has other attractions and a good inn, which made my companions and me regret that we had only chosen to spend a short day in it.

The expedition to the Abbey of Vézelay naturally seems a parallel to the day at Pontigny—a parallel with a contrast, for Pontigny represents that simplicity of architecture which St. Bernard thought to be the proper mirror of the simple life, while Vézelay, in its richer intricacy, is thought to have been in the saint's mind when he preached and wrote against the undue luxuries of the churches' outward being. It was there in 1146 that St. Bernard preached the Second Crusade in the presence of Louis VII.

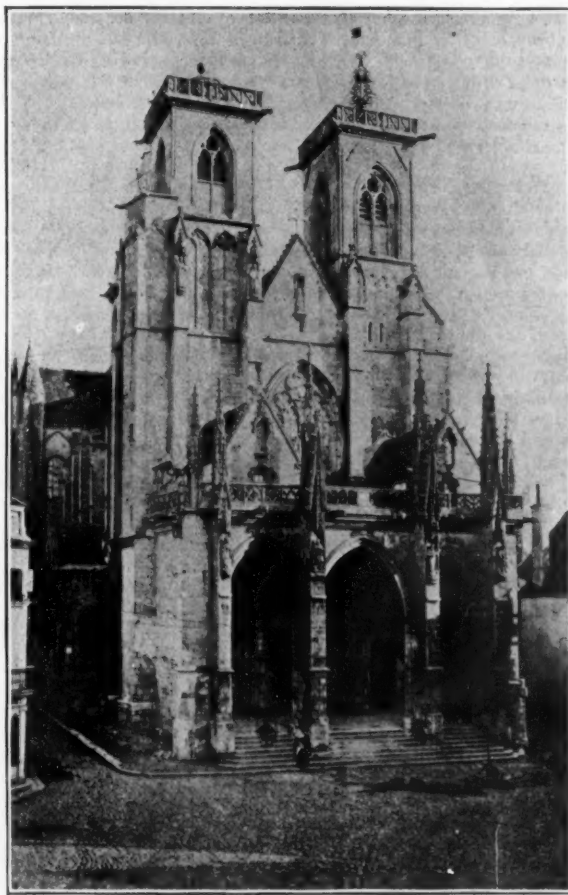
The way to Vézelay as compared with the way to Pontigny had about it something of the same contrast. The wide, eventless acres of vines and the austere, poplar-lined roads that we traversed on the Pontigny road gave way to a different aspect of country. We wound first through the really lovely gorge in which the river Consin flows between high wooded rocks and rich stream and meadows, reminding one of the English Lake country, and afterwards drove through an open pasture-tract with wide landscape views that again brought England (Southern England) into memory.

There is nothing English, however, in the first view of Vézelay as you catch sight of it standing perched on a rounded hill, at the foot of which nestles the village of St. Père-sous-Vézelay.

We circled up and up to the back of the hill, where stands the town, which before had been hidden by the Abbey Church, and reached the little inn, from which it is a steep and rather hot climb up the narrow street, which butts at the summit upon the west end of the great church.

Every one who has ever seen it would remember that west front. One west tower still stands—the other was "Huguenotted" off—and between the stump and the whole tower rises the unusual outline of the convex gable, which is filled with saints and angels.

The narthex, which is the great glory of the church, is an internal one, that is to say that when you have entered one of the west doors you find that though you are in a chamber of immense size, as big as a large parish church, you have still the portals before you. The narthex is kept locked up for reasons best known to the custodian,



West End and Narthex of the Cathedral, Semur.

a talkative working-mason who has himself labored upon many of the stones in the church. One cannot fail to think that the restorer has been too busy here. The almost perfect condition of many of the unrestored carvings in the narthex make it positively incredible that it should have been necessary to renew the grotesque capitals in the

¹ Continued from No. 1292, page 100.

nave in a stone as white as chalk and as soft as cheese. The mason keenly enjoyed recounting the fable illustrated by each capital, and made us think in a good-natured way (for we were not really bored) that St. Bernard may have had the good sense to object to the compression of three-volume stories into cubic yards of stone on other than merely æsthetic, or even moral, grounds. The parti-colored



Narthex of St. Père-sous-Vézelay, France.

voussours of the nave-arches are a striking note in the interior, and so are the rather later capitals of the choir and chevet, which are extremely beautiful in outline and in foliage. The change of style appears to have come about between the time of the building of the apse-chapels and the building of the apse itself, so that the immediate surroundings of the altar are graciously free from the insistent humor which really predominates, rather indecently, in the carvings of the nave. The abbatial buildings, which were wont to accommodate kings and their courts without inconveniencing the monastic inhabitants, are now almost non-existent, but the church is worth walking round, if only for the surprise that awaits you at the east end. You have left the west end standing in the street of a town—the east end rises from the houseless solitude of a clover field which must have been, one thinks, a quiet spot even in the stirring days when the steep and narrow streets rang with the cries of crowding Crusaders.

In descending from Vézelay you pass again what you will have hurried by in the morning, the Church of St. Père-sous-Vézelay. It has a fantastic and rather lace-like tower and a gay little narthex, in which stands a picturesque altar-tomb. The church was built by the monks of the hill-top, who labored with willing love in the fuller grace and richer opportunities of a rather later style, but with no less devotion. As a parish church, the interior is perfection. True, one does not necessarily ask for a chevet and chapels and a fully vaulted nave in a parish-church for a village of about a score of houses, but in the case of St. Père-sous-Vézelay, there was at hand a lady with a vow and a monastery of building monks, and so the tiny hamlet got its tiny cathedral. The monks erred in making a great fronton, or gable (in imitation, no doubt, of their own at the Abbey Church), too big for the modest roof, and ridiculous when seen from the hill-side behind the church, but they made no mistakes within, and whether it was they or some later hands who touched up the vaulting bosses with a background of pale gray-green, the effect is fresh and charming.

With farewell to Vézelay I bid farewell to Burgundy and to the truly admirable group of buildings which its towns contain. There must be, indeed there are, within easy reach of the route I have described hosts of other buildings to claim an architect's visit. I have but sketched a fortnight's rambling. He is happy who can give a longer spell of time to so fair a corner of the architectural world.

PAUL WATERHOUSE.

LONDON'S ELECTRIC UNDERGROUND RAILWAY.—United States Consul-General Osborne writes from London as follows: "The new electric underground railway in London has occupied four years to construct and cost £3,500,000 (\$17,032,850), the cost per mile having amounted to £580,000 (\$2,802,670). The line runs from the Bank of England, in the centre of the city proper, to Shepherd's Bush, a distance of six miles, and between those points there are 11 stations, making 13 in all. The fare for the whole or any distance is 2d. (4 cents). The diameter of the tunnels, or tubes, is 11 feet 6 inches, and at the stations 21 feet. The stations are all higher than the level in the tunnels, the object being to gain a natural aid in checking the speed upon entering the stations. The luxurious vestibule cars, of which the company has 190, cost £1,000 (\$4,806) each, and the 28 torpedo-shaped engines were built in the United States for £3,000 (\$14,599) apiece. The working expenses of the line are calculated at £150,000 (\$729,975) per annum, and it is estimated that if a fair dividend is to be earned, 40,000,000 passengers must travel on the railway in the year. That represents a daily average of 110,000. It is believed that this will be easily reached within the near future."—Exchange.

ALUMINIUM.¹

"AS light as air! As bright as silver! Impossible of tarnish! As strong as steel! Cheap as clay!"

"The great new white metal aluminium. Houses, bridges and locomotives to be built of it. Iron and steel, metals of the past; with the great 'Aluminium Age' drawing upon us."

Such picturesque and startling remarks were not at all uncommon ten years ago, and even more recently in the most prominent local papers and technical journals.

To the unthinking mind, it was, perhaps, quite unbelievable that aluminium, the laboratory curiosity costing dollars per ounce, should excite wild dreams of coming wonders when, almost over night, the discovery and successful application of the electrolytic methods of reduction put the price of this little known metal to almost as many cents per pound.

But nothing could have contributed more to its disadvantage and disaster of its industrial development. Years of time and tons of samples have not yet served to disillusionize the world of these disastrous notions, and hundreds of thousands of dollars have been ruthlessly wasted in trying to force the metal to perform impossible services, devoid of wisdom or foresight.

The purpose of this paper is to briefly enumerate those uses of aluminium that have proved satisfactory and extensive, with the view of encouraging further applications along kindred lines, and to speak a word of caution regarding improper uses of the metal, so that disaster may be avoided, and to save aluminium from further damage to its chemical and physical reputation. From the fact that the aluminium output is almost doubling from year to year, it is almost as impossible to cover the uses of the metal in detail as it would to trace the myriad uses or applications of any particular metal, such as silver, copper, brass, zinc, tin-plate or galvanized-iron.

A satisfactory classification is nearly impossible, hence the thousand and one uses of the metal will be jotted down in a running list as the suggestions come to mind.

Upon the use of aluminium in the metallurgy of steel we will not dwell, save to briefly remark that for this purpose many hundreds of tons of metal are annually consumed. The aluminium is added to molten steel in proportions of a few ounces to the ton of steel, in the making of ingots and billets. Larger tonnages are treated in the process of making steel castings by adding the aluminium to the molten mass before pouring. It has also been found of great advantage, to ensure the making of a perfect casting, to insert small scraps of aluminium in the mould at such places and corners and cores where difficulties threaten.

Many tons of aluminium are yearly used for the making of patterns. This is, indeed, a most correct use, to replace the old heavy brass gates of patterns with the light-weight aluminium, stiffened with about 5 per cent of zinc and a like amount of copper. The advantages of these light-weight patterns are manifest. The men at the benches can mould more forms in a given time and with less fatigue. The patterns, weighing but one-third as much as brass, can be handled and stored more readily and cheaply. The express-charges upon return of patterns are greatly reduced—an item of considerable magnitude in an active foundry.

Immediately the very large use of aluminium suggests itself for models and salesmen's samples. Particularly will the hardware traveller see the boon of this, and many of our largest houses have full lines of salesmen's samples, replacing the old line of ironwork or nickel-plated brass, at a reduction of 60 per cent of weight, and at no increase of cost.

Not long ago a large foundry in Wilmington, and, later, a Philadelphia foundry, had some large iron-castings to make, the yokes of cable-roads, great iron pieces spreading the full width of the track and supporting the rails, and carrying in their middle the conduit through which the cable ran. These castings were made from wooden patterns, which caused much trouble by chafing and wearing in the sand, and warping and springing out of alignment. At the suggestion of the writer these patterns were duplicated in aluminium, and all difficulties were thus transformed into unpleasant memories, and the work fell out good and sound and true.

Until recently aluminium has not been employed as an active competitor of brass and copper on account of its higher comparative price, but to-day aluminium is cheaper than copper, considered bulk for bulk. Copper is three-and-one-third times heavier than aluminium. Taking, therefore, copper at its present market price, and increasing by this factor, it will appear that aluminium is cheaper, a fact which should open many channels of new application for aluminium.

One thing that has figured seriously to the disadvantage of aluminium, and, indeed, has quite precluded it from many excellent fields of use, is the lack of a good, cheap, easily-worked and permanent solder. It is true that there is a most excellent solder upon the market, invented by Mr. Joseph Richards, of your Institute, but this solder is difficult to apply, and it is frequently beyond the ability of the ordinary tinsmith to secure a satisfactory joint. There are several reasons for this lack of success. Not keeping the work hot is the chief cause of the solder mashing and making a rough, dirty seam. It is very often true that the peculiar pattern or intricate design of the piece makes it impossible to keep the work hot at the

¹ A paper by Joseph A. Steinmetz, Member of the Institute, read before the members of the Franklin Institute and printed in the *Journal of the Institute*.

points to be soldered. Then, too, the quick formation of a film of oxide upon the aluminium, unless removed by scratching or filing, figures to the disadvantage of a solder by not permitting it to take a firm hold upon the parts to be joined.

Wherever possible, then, it is earnestly suggested to make joints by crimping or lock-seaming or by riveting, or, better yet, to avoid all joints by spinning or drawing up the shape to be made, whenever its contour will permit of such practice. The old saying that "the best joint is no joint at all" holds good here, conspicuously.

A few remarks relative to the growth of the aluminium industry, with comparative figures, will prove of interest.

The following table shows the aluminium production of the United States and of the world, expressed in metric tons (2,000 pounds):—

	United States.	World.	Per cent in United States.
1889	21.6	70.9	30
1890	27.9	165.3	17
1891	68.2	233.4	29
1892	118.1	487.2	24
1893	154.4	716.0	22
1894	250.0	1,240.9	21
1895	417.3	1,418.2	29
1896	590.9	1,659.7	36
1897	1,814.4	3,394.4	53
1898	2,358.7	4,500.0 (est.)	52
1899	2,948.4	6,000.0 (est.)	49
1900	4,000.0 (est.)	7,500.0 (est.)	53

Those returns marked estimated (est.) are the best which can be conjectured from available data. The aluminium industry is growing most rapidly in France and in the United States. Canada will enter the list of producing countries next year, with a plant of 5,000 horse-power, and will add 1,000 tons each year to the world's output.

Presuming that the total amount of aluminium produced last year was used for the specific purpose of electric-conductors, then the 6,000 tons of aluminium would displace 12,000 tons of copper, or a like amount of aluminium sheet would be equivalent to 20,000 tons of sheet-copper, were the specification for culinary and cooking utensils.

These comparative figures emphasize the important position that the metal has assumed.

Considering the United States alone, of the metals produced here in 1898, only pig-iron, copper, lead and zinc were produced in greater quantity than aluminium, and only these, with the addition of gold and silver, surpassed it in the value of the output.

If we desire to manufacture a given object of metal, we can make it cheaper in aluminium than in anything else, excepting iron, lead or zinc, to which might be added, among composite metals, tinned and galvanized iron.

These are the only metals left for aluminium to compete with, and its greatest struggle in the future will be against tinned and galvanized iron. Dr. Richards believes that when the market-price of aluminium reaches 15 cents per pound (probably in the next decade), it will compete actively with these common metals, and by 1925, when it will probably reach 10 cents per pound, its only practical rival will be steel.

The middle of the twentieth century will see steel and aluminium standing side by side as the most useful of the useful metals, aluminium having by that time developed many peculiar alloys enhancing its physical properties and largely increasing its field of application.

The plants now producing aluminium are those of the Pittsburgh Reduction Company, at New Kensington, Pa., and Niagara Falls, N. Y.; the British Aluminium Company, of England; the Aluminium Industrie Actien Gesellschaft, at Neuhausen, at the Falls of the Rhine, in Switzerland; the Société Electrometallurgique Française, at La Praz; the Société Industrielle de l'Aluminium, at St. Michel, in France.

There are also several large plants projected and in course of construction, notably upon the St. Lawrence River, in Canada, and at Rheinfelden and Salzburg, in Germany.

The Hall patents under which the Pittsburgh companies are producing expire in 1906, and by that time other competitors will be actively engaged in adding to the domestic tonnage.

Then, too, it is more than likely that attempts to repeal the import duty of eight cents per pound will soon be made, as this duty is no longer necessary for the protection of our infant industry, particularly in view of the fact that a large percentage of the aluminium produced in this country is exported to Europe, leaving the supply of metal at home quite inadequate for domestic needs.

Some years ago, when aluminium was thrice its present cost, the proprietor of a certain brass-foundry in Philadelphia had the courage to back up his convictions that the metal was ideally suited for bath-tub work. Some years even before this, a maker of bath-tubs had attempted its use in sheets for this purpose, by lining the old wood box-tub with aluminium sheets joined by crimping and soldering. They had to abandon the project after repeated failures to secure a tight seam and joint, lacking a solder that was easy to work, and that would readily run out a long seam. These same lines were unsuccessfully attempted by other bath-tub makers, who had met with some encouragement by avoiding the soldered seam by flanging the sheets and clamping the edges thus formed between an iron frame, which acted as the support to the basin body. The brass-foundry

previously mentioned followed radically different lines and made a single sand-casting of the complete tub with its roll rim, the same pattern as we now see in enamelled iron, upon which it is almost impossible to improve, unless perhaps by a stamped sheet-steel tub or one of moulded glass. This cast-tub weighed about 150 pounds, and the rough sand-casting was ground smooth upon the inside and around the rim by use of an emery-wheel upon a flexible shaft, after which the tub was polished bright upon a rag buffing-wheel. A perfect casting was difficult to obtain, because of blow-holes and shrinkage cracks and sinks, and the difficulty of this piece done in practically pure aluminium can well be appreciated by those familiar with foundry practice. The effect thus obtained was decidedly brilliant, and most pleasing, but the tub failed ignominiously under the test of time and use. The alkali of the soaps utterly destroyed the lustre of the finish, and ate deeply into the body of the metal, marring and pitting it beyond measure. Thus it came about that another use for aluminium became impossible of realization.

The same general observations apply to the large list of plumbing-fixtures of aluminium evolved at about this time, such as faucets, chains, handles, soap-dishes, basins, and many standard shapes in nickel-plated brass, which were quickly retired as brief experience proved their worthlessness.

A most excellent use for aluminium is found in the making of steam-jacketed kettles and cauldrons for boiling of syrups, fruit-juices, honey and wax, as well also as for certain acid-work for which the peculiar chemical properties of the metal specially adapt it. An example of this might be cited in Mr. Levy's nitric-acid atomizer for zinc etching, a great improvement over the old acid bath for obtaining quick action in making etched plates for printing. There has recently been completed by a coppersmith of Newark one of the largest aluminium kettles ever constructed: the hemispherical bottom, or bowl, measuring 51 inches across its diameter with its flanged edge, and 30 inches deep, was cold-hammered and formed-up out of a flat circle 68 inches in diameter, and the upper band, or tubular body, was curved around out of a flat sheet measuring 13 feet 8 inches long by 14 inches wide. The kettle was hammered out of $\frac{1}{4}$ -inch stock, and the bowl was much more readily shaped and more responsive to the tools than even copper. The purpose of these large boiling-kettles is for melting wax for the cylinders of the Edison Company's phonographs, as the wax-cylinder material seemed to attack iron and copper kettles, whereas the aluminium boilers are entirely unaffected.

In the electrical field aluminium is forging ahead rapidly into significant prominence.

It was singularly opportune for its introduction for electrical purposes that the price of copper advanced just at that time when the processes of making aluminium in increased quantities and at reduced figures of cost had been satisfactorily installed, and when new uses and new fields were being eagerly sought; for, immediately, many careful experiments were undertaken to determine the possibility of substituting aluminium for copper, and these investigations promise to produce most encouraging results. Comparative tests are now being made by the Chicago Fire-alarm Service between copper-wire and aluminium. Number 10 wire was used and the preliminary tests before erection showed that the tensile strength of the copper-wire was greater, size for size, but not so great, weight for weight. The copper-wire showed a greater elongation and endured without rupture a greater number of twists—in fact, twice as many as aluminium. To secure further data under the actual service-conditions, the Chicago line will be given a winter's test, and has been strung in the stormiest section of the city, and where it will also be subject to the smoke and gaseous fumes arising from the locomotives passing in that section. The results of this service-test will be made the subject of a report in the spring by City Electrician E. B. Ellicott, of Chicago, to his Board.

The Western Union Company has several miles of aluminium-wire in use now for over two years, and is carefully compiling the physical data necessary for a consideration as to its merits in comparison with copper and iron. A very interesting report relating to the "Tests and Calculations for a Forty-mile Aluminium-wire Transmission Line," by Mr. E. A. Perrine, as erected and conducted by the Standard Electric Company, of California, is printed at length in the *Aluminium World* of November, 1899.

General Greeley, chief of the Signal Branch of the United States Army, had several outfits of aluminium portable field-lines in use in Cuba during the recent war, and he reports that they were very satisfactory and particularly advantageous, owing to the light weight of the coils of aluminium-wire.

The main electric-conductors in use at the reduction-works at Niagara Falls are made of large aluminium bars many square inches in area, and have been giving satisfactory service for years.

To some extent aluminium has been used for commutator segments, but the difficulty in wiring-up due to the different metals in contact caused serious discouragements. Blades for switchboards have been successfully manufactured.

The advantages of aluminium for use in the making of culinary and cooking utensils were early recognized, and the new metal bids fair to excel copper in this line of development; in fact, many hundred tons are now consumed annually in the successful manufacture of such articles. The early exploitation of this field was most discouraging, owing to the fact that the manufacturers of cooking-utensils understood the peculiarities of the metal no better than the

consumers who purchased the articles for use, and the utensils were generally seriously abused, battered and neglected, the universal idea being that aluminium was quite indestructible, no matter how abominably treated. The utensils were allowed to take care of themselves; they were ground and scratched with sand-soap and often washed in lye, which, being one of the solvents of the metal, caused rapid disintegration. These early attempts to introduce aluminium cooking-utensils were made at a time, several years ago, when copper was less expensive, and when enamelled-iron and tinned and steel articles were infinitely cheaper. These adverse circumstances tended seriously to the retirement of aluminium from this field, but later developments, such as the fall in price of aluminium, and the heroic efforts of our pioneer-manufacturers quickly regained the ground thus lost, and forged rapidly ahead to well-merited success, for now aluminium cooking-utensils, household articles and culinary shapes, for home, institutions and hospitals; field-equipments for the army and outfits for the navy, and the innumerable uses heretofore supplied by copper, tin sheets and enamelled-iron are divided with aluminium, and the new metal bids fair to win first honors.

Among some of the advantages possessed by aluminium over the other metals might be cited its higher heat conductivity; its light weight, bulk for bulk; the fact that it creates no poisonous salts or oxides when used in the preparation of fruits and vegetables and other possible combinations dangerous with copper or tin.

A very large use of aluminium in forms of caps and covers, stamped out of sheet-metal for sealing catsup, mustard, fruit, jams and jellies, and various lines of such goods, has been lately developed, the advantage of price and absence of dangerous corrosion or acid action making aluminium an ideal metal for these purposes.

In Europe the peculiar advantages of aluminium have been recognized for a much longer time than in America, and a number of the largest manufacturers in England and on the Continent are making complete lines of utensils.

The recent South African war has created a tremendous demand for aluminium field cooking and messing outfits, thus spreading the fame of aluminium and knowledge of its advantages for portable gear among a class of men who will understand and appreciate them. A most interesting account of the British army equipment will be found in the March number of *Aluminium World* of the current year. The German army, as well as the field forces of other Continental powers, is thoroughly equipped with aluminium, and the dead-weight per man of superfluous ornamentation and equipment has been considerably reduced, tending greatly to increased efficiency as a fighting unit. In the recent Arctic explorations, in the gold-seeking expeditions into the Klondike and Alaska, in the journeys into the Dark Continent, aluminium equipment has played a prominent part; Mr. Wellman built aluminium sledges for transporting his supplies over the ice; the Alaskan gold-miners took in many light camping and cooking outfits, and Dr. Carl Peters had with his expedition an aluminium steam-launch in portable sections.

Five years ago the well-known shipbuilding firm of Yarrow & Co., of England, built the first aluminium torpedo-boat, and while a second craft of this description has not been since constructed so generally of aluminium, yet two of the latest additions to our navy, the torpedo-boats "*Craven*" and "*Dahlgren*" have their observation-towers, hatch-covers, galleys, cowls and many minor parts made of aluminium. These boats were built by the Bath Iron-works, of Maine, and the aluminium details of construction, embracing the use of rolled angles and structural shapes, plates and riveted work, were conceived with the approval of Chief Constructor Philip Hichborn, of the United States Navy, who looks forward with interest to the tests of time and the wear and tear of service to demonstrate the practicability and adaptability of aluminium for ship-construction and fittings.

The American sloop-yacht "*Defender*" was built of aluminium plates from water-line to deck-level, the submerged plating being of bronze, which arrangement tended to considerably lower her centre-of-gravity, ensuring increased stability. These aluminium plates, which were carefully and thoroughly painted, gave good satisfaction and are still in service. Certain plates in the stern had to be replaced, as well also as smaller parts and fittings, due to corrosion and electrolytic action and wear and tear. In general this application was highly satisfactory and encouraging.

Aluminium-powder and thin-beaten leaf are now largely used for securing decorative effects in the arts, as silver-paint, and for printing and bookbinding, having almost entirely replaced the silver-leaf formerly used. The powder is also mixed in the form of a paste for ink for printing coarse cotton-tinsel fabrics, in gaudy design for Oriental trade. A paint called in the trade pegamoid, aluminoid, or aluminium-bronze paint, is largely used for coating architectural ironwork, lamp-posts, letter-boxes, elevator-grilles, and cages, and kindred applications, and has proved highly satisfactory. Overtures have been made to the Public Building Commissioners to paint the outside of the Philadelphia City-hall Tower, to restore it to an aluminium lustre as originally intended, and far brighter and more durable than the dismal slate-blue of the unknown electro deposit now upon the ironwork.

Aluminium powder has found an excellent and successful use as a mixture for making photographic flash-lights, being cheaper than magnesium and devoid of the pungent odor or unpleasant smoke incident to the combustion of the old magnesium-powder.

A recently developed and tremendously successful application of

aluminium is in flat, smooth plates for use in lithographic printing. The thin aluminium plates make excellent impressions and are quickly replacing the old heavy lithographic stones, one of the great advantages of aluminium being due to the possibility of its application to the rotary press, as well, also, as to its lower cost.

Aluminium hair-pins are being made by the million, thus disposing of a goodly weight of wire. These hair-pins give excellent satisfaction, and have been well received by the trade, who report a steady and increasing demand. Thimbles by the thousands of gross are made by several concerns in the United States and abroad, and several tons of sheet aluminium are yearly thus employed. The metal, however, is rather soft for this purpose, as the hard steel needle soon perforates the thin aluminium shell. For ferrules and ornamental bands for canes and umbrellas, the metal has been successfully applied. A large use of aluminium has developed for making metal combs, brush-backs, mirror-frames, and a host of toilet and fancy articles, useful as well as ornamental.

In fact, it is quite impossible to enumerate the myriad articles now being made of aluminium. One might as well make up a list of everything so far manufactured out of sheet or wire in brass, copper or nickel, tin sheets, steel and iron, and such combinations thereof, as form the materials out of which all known metal devices have thus far been manufactured, for aluminium is quietly, steadily and surely encroaching upon the domain of the metals mentioned, and with the development of its special alloys this march of conquest will proceed with ever-increasing acceleration.

The metal lends itself readily to working in the minting-dies, and many very pleasing and durable effects have been obtained. Many tons of metal are yearly used in the making of coins, medals, cheeks, tags, religious and commemorative medallions and insignia. Artistic and permanent effects have been obtained in die-work and minting by our American pressmen.

In conclusion, a few words quoted from a recent private letter to the writer, from Dr. Joseph W. Richards, who is to-day one of the best authorities on the subject of the aluminium industry, will be interesting. In reviewing the wonderful growth of the industry and the success of aluminium, he says: "Is not the prospect gratifying to us who have befriended the metal, so to speak, in its infancy, have mothered it, fathered it, and even wet-nursed the struggling infant with our own substance (i. e., with money out of our own pockets)?"

The brief remarks embodied in this paper and the casual facts herein set forth answer this query heartily in the affirmative.

BOOKS AND PAPERS

THE last published of Bell's Cathedral Series¹ is based upon a somewhat different plan to its forerunners. The idea of the publisher appears to have been to give the ordinary visitor to our great churches an historical and trustworthy record of their foundation, and a clear and concise description of the architecture of the buildings. But this volume goes farther. In "*Canterbury*," "*Salisbury*," "*Wells*," "*Lincoln*," etc., we had just enough technical information for the ordinary visitor; but in "*St. Paul's*" we find architectural terms and individual opinion upon the beauties and failings of the structure, which, without proper illustrations must be not only dry, but unintelligible to the general reader. The illustrations are mostly reproductions of effective photographs of the church as a whole; the old sectional woodcut of the dome which we all know so well, and one or two others, being the only attempts at architectural drawings explanatory of the text. The author gives many quotations from Wren's "*Parentalia*," and a few from Fergusson's "*Architecture*," adding as a comment to the latter: "I give this quotation at length, not because I by any means agree with one-half of the fault-finding, but because it helps to explain the architecture." In a note the author explains the "*attic order*," which surely must be unnecessary in a book which discourses so learnedly upon architecture; either the text is too elaborate for the general reader, or the note is unnecessary for the student.

Mr. Dimock also gives an illustration of Wren's first design, which most of us must regret not having been successful, the great architect himself preferring it to the "*Warrant*" design, which was carried out with, happily, so many alterations that we cannot trace any likeness between it and the completed church.

The author renders some homage to the beauty of the stalls, carved by Grinling Gibbons and the wrought-iron work by Tijou, but he only half-heartedly questions Ruskin's severity in objecting to Wren's wreaths of foliage and attendant birds and cherubs, those graceful, but, according to Ruskin, "ugly excrescences" which "disturb" the architecture of the rest of the building. Still, even the great art-critic allowed that the festoons are "as perfect flower-sculpture as could be produced at the time."

As to the recent decorations in mosaic, Mr. Dimock contents himself with descriptions rather than opinions; and it is because the art of Correggio is principally decorative that we have coupled Mr. Brinton's book² with "*St. Paul's*," as the older painter's work seems

¹ "*St. Paul's Cathedral and See*." By Rev. A. Dimock. London: Bell & Sons, 1s. 6d.

² "*Correggio*" (Antonio Allegri da Correggio). By Selwyn Brinton. Same publishers. 6s.

to form a test upon which to build some criticisms of the latest embellishment of Wren's great church. As a colorist, most people will endorse the author's estimate of Correggio: "To him belongs the great praise of having attained the highest point of perfection in coloring, whether his works were executed in oil or in fresco." And besides the coloring, what grace and charm of form we find in such works as the "Madonna of St. Francis" at Dresden, and in the innumerable little *putti* who figure in that and in all Correggio's pictures. That some of his later saints were sprawling figures, that he carried his masterly foreshortening power to an irritating point, and that many of his subjects were far from suiting the sanctity of a church or the simplicity and modesty appropriate to conventual life, may be true, and may detract somewhat from our admiration; but we know of nothing in his manner of life to account for this occasional lapse into a semi-sensuous style, and we may therefore attribute the want of strict asceticism and religious fervor in the subjects treated by him in the convent of St. Paolo, at Parma, to the secular tastes of the Abbess Giovanna Piacenza, who commissioned the artist to decorate her house. According to Signor Ricci, the abbess did not want the paintings to be of a severely devotional character; "age and infirmities were creeping upon her," so let her see "a troop of merry children smiling at her through the woven trellis of her bower! Show her the jocund huntress Diana, and Apollo, Minerva, and the Graces!" Certainly there is no doubt about the beauty of the children in the lunettes of the cupola; they may be conceived in a secular spirit; they may be of the nature of cupids rather than of angels, but Correggio was only carrying on a style of decoration commenced by Araldi, and it must be remembered that, in the sixteenth century, many of the inmates of the convents were simply worldlings who retired to them because the possibility of living in peace and quiet elsewhere was very vague.

Antonio Allegri was but twenty-four when he undertook the decorations of the convent, and two years later he was engaged by the Benedictines of Parma to decorate their great church of S. Giovanni Evangelista, the first payments for the same being made in 1520. In these frescos, Correggio proved himself a master of composition, and Mr. Brinton suggests that a visit to Rome, for which there appears to be no other evidence, may have given the painter his inspiration. The author traces a similarity between the composition of the "Disputa" of Raphael and the arrangement of the figures of the Apostles in the cupola of S. Giovanni. But we might as well attribute the composition of Raphael's great works simply to the inspiration he received from his predecessors. Every artist borrows from his forerunners, and we know that Perugino's influence upon Raphael was considerable; but to invent a visit to Rome (Ricci considers the evidence quite unreliable) because the "treatment of the aged apostle seated like an antique god," is similar in both painters' compositions, is argument based purely upon imagination. There is great beauty and grace in Correggio's frescos, but they have not the quiet dignity of the greater master's work; and even Allegri's *putti* are more exaggerated in movement and less refined than those of Raphael—they display, as the author says, "a certain gleeful exuberance of radiant, almost riotous, life." Still, in some of the groups of Apostles and child-angels, there is a grandeur of treatment that few artists have attained in wall-painting.

In the decoration of the Duomo, Correggio's fancy seems to have run riot. His love of, and skill in, foreshortening led him into extravagance, and obtained for his work in the cupola the criticism that it is a "hash of frogs." Whether he fell out with the authorities, or whether the death of his wife caused him to abandon the work, we know not; but in 1530 Allegri left Parma and returned to his native place, Correggio. Whatever may be said against these frescos it is well to remember that they are now so managed that we are obliged to take the copies by Caracci and Mezzola-Bedoli as poor evidence of their grandeur. On the other hand, we have Titian's estimate of them as follows: "Turn it [the cupola] upside down and fill it with gold; even so, you will not have paid its price." This is no mean praise coming from so great a master, who had the power of judging the frescos before time had affected their beauty; but yet, we cannot help feeling that Correggio was wanting in severe and austere conception of religious art, even at his best. The attitude of the Blessed Virgin in the lunette in the Biblioteca Reale, at Parma, which fragment was saved from destruction when the Benedictines enlarged their church, is that of an affected woman of the world posing for admiration, not such as we imagine appropriate to the handmaid of the Lord, even when crowned in glory. Some few of the great artists of the world have been able to invest their subjects with religious sentiment without falling into the errors of the Renaissance—the secularity and tendency towards affectation and exaggeration of anatomical forms and attitudes. Luini stands out as one of the few who struck the true chord of religious decorative art without remaining archaic; Perugino also in a less degree, because more conventional. Michel-Angelo and Raphael, being giants, are forgiven for their frequent non-religious feeling, and amongst the moderns we have Mr. Watts, who belongs to the school of the last two Italians, and Burne-Jones, who remains himself, but with an archaism of his own.

Now, if all the objectors to the St. Paul's mosaics will consider the question of design only, they may find themselves more in sympathy with Sir W. Richmond's work than they profess to be. Of the beauty of the color and the brilliancy of the particular kind of mosaic as compared with the earlier work by Salviani, there cannot be two

opinions. But when we consider the designs, we may wish that the work were of a less archaic description, and that they were simpler in treatment. Much of the beauty of the saucer-domes and panels is lost by reason of their distance from the eye. Whether this matters much may be questioned; for a church being a place intended for worship and prayer, it is not necessary to unravel the designs on the roof—a rich mass of brilliant color is the essential part of church decoration; hence the failure, as altar-pieces, of Rubens's magnificent masterpieces. At the same time, some design must be employed, and supposing such compositions as those of Correggio had been available, would they not have suited the London cathedral better than imitations of the mosaics of Byzantine churches? Still, having seen the Ravenna basilicas, it is difficult to admit that Sir William's mosaics are purely Byzantine, although they, of course, antedate the style of the cathedral by some centuries, which may be logically questionable; but we have a precedent in the decoration of modern Greek churches, which retain the conventional style employed in the early centuries of Christianity, although the buildings themselves are modern. The ideal decorator of St. Paul's in our own time would be Mr. Watts, but such a large undertaking would probably have been beyond his power, as he has other work to carry out. We know that the painter of the "White Horse of the Revelation" and the designer of the spandrel of St. Paul's would have given us exactly the right thing in the right style. But much modern religious art has a tendency to be sentimental, and we might have had to lament designs of the sprawling character by British Carlo Dolci or Caracci. That, at all events, we are saved. The Renaissance was a grand period for artists who treated Classic subjects and painted the charms of secular life, but their religious feeling was mostly affectation. The true sentiment had died out, even in Correggio's time, and had given place to a forced and exaggerated sentimentality.

One of the noisiest objections to Sir William's designs was the lettering round the arches supporting the dome, but not only do we find this with the Parma frescos, and in many other churches, but at Arne, Dorset, there is (or was) a linen cloth, dated 1661, giving an emblem of the Holy Trinity, and lettered exactly as the legend in St. Paul's; i. e., some letters being combined in order to make a word fit the space it fills, instead of being divided. Thus we find FE FAFER, ONE, THREE, showing that the lettering at St. Paul's is, according to date, exactly correct.

It is a pity that publishers cannot always place the illustrations opposite the letter-press of their books. In "Correggio" we have had to turn over leaves and hunt to and fro, and in one case the illustration described is some forty pages away from the letter-press. This is irritating alike to the critic and the ordinary reader.



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

THE RIVER FRONT: HOUSE OF HON. G. T. FULFORD, BROCKVILLE, ONTARIO. MESSRS. A. W. FULLER AND W. B. PITCHER, ARCHITECTS, ALBANY, N. Y.

THE building, which is nearly completed, is very fortunate as to its location, the site being on the north bank of the St. Lawrence River, commanding a most delightful view.

The exterior is built of white St. Lawrence marble with a roof of reddish-brown color. The floor of the basement, of which no plan is here given, is level with the south grade and contains the billiard and lounging rooms and the kitchen and laundry appointments. In the third story are sleeping-rooms for the servants.

The principal rooms are elaborately treated and decorated in the following styles:—Hall, Italian Renaissance; dining-room, Elizabethan; drawing-room, Louis XV; library, Francis I; billiard-room, German Renaissance; chambers, French Renaissance.

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GRAND PRIX DE ROME DESIGNS: UN ÉTABLISSEMENT THERMAL. This plate is copied from *La Construction Moderne*.

PLANS OF THE SAME.

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

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NAVE, FROM THE NARTHEX: ÉGLISE DE LA MADELEINE, VÉZÉLAY, YONNE, FRANCE.

SEE article, "A Corner of Old France," elsewhere in this issue.

A DESIGN FOR THE NEW SESSIONS HOUSE: OLD BAILLY, LONDON, ENG. MR. H. L. FLORENCE, ARCHITECT.



A SINKING BRIDGE-PIER.—An unyielding foundation is generally considered a prime essential to the successful operation of a swing-bridge; but in a paper which has recently appeared in the "Proceedings of the Institution of Civil Engineers of Great Britain" John A. Saner, engineer of the Weaver Navigation, at Northwich, England, describes a swing-bridge design which seems to overcome successfully the usual difficulties attendant upon a yielding foundation. In the district surrounding the town of Northwich, where the bridges described are located, the ground is undermined by salt-mine workings, and is subject to a gradual subsidence due to causes which Mr. Saner describes in his paper. At the locality of the bridge this subsidence has averaged for a long period about four and one-half inches each year. It is plainly evident that, under these conditions, a swing-bridge with the usual pivot pier-construction would endure a material decrease in its clear headway above the water-level after a few years, even if more serious troubles were not encountered. In the two swing-bridges at Northwich, Mr. Saner decided to meet the problem of subsidence by doing away entirely with a masonry pivot-pier and substituting in place of it to support the swing-span a circular steel pontoon floating in the water. To steady the bridge, or to keep the pontoon upon an even keel, if we may properly so term it, and to maintain the turning-point or pivot of the span in a constant position, a circular roller-girder carried by screw-piles sunk at intervals around the pontoon-chamber is provided. As this girder will, of course, settle with the screw-piles as the ground subsides, the piles were provided at their tops with an arrangement by which their length is increased as the ground settles. The whole arrangement is a very simple one, and so far as the evidence now in hand goes seems to be a very successful one for the purpose intended. Instances will occur in the practice of many bridge-engineers where the conditions of securing a stable pivot-pier foundation are very onerous, and it will repay them to make a mental note for future use of the structure described. — *Engineering News*.

THE GORING OF A GOVERNOR'S OX.—The discussion of arbitration as a means of settling labor disputes lends especial interest to all cases where attempts have been made to carry out the principle. The Michigan Legislature once passed a law establishing a State Court of Mediation and Arbitration, but it remained a dead letter on its statute-books for many years. At last Governor Pingree undertook to revive the law and make the court effective. He recently had occasion, as senior member of the Detroit shoe firm of Pingree & Smith, to appeal to the court for arbitration between himself and his employés. The decision of the court was not to his firm's liking, but instead of accepting it, Pingree and his partners asked for a rehearing, which was refused. The firm then appealed to the Supreme Court, on the ground that the law establishing the court was unconstitutional. The Supreme Court has just declared the law constitutional, and in so doing has justified the action of Pingree the governor, to the great confusion of Pingree the shoe manufacturer. Incidentally, the Supreme Court declares that, inasmuch as the Court of Mediation and Arbitration exists for the speedy settlement of differences, no rehearings can be granted. — *N. Y. Evening Post*.

"LENGTH OF RESIDENCE."—Many humorous features were developed in the taking of the Census of 1900, not the least of which grew out of a misunderstanding by enumerators of the questions they were to answer. One of these questions was indicated by the remark "length of residence," which was expected to show how long the people living in various localities at the time of the census had been there. When the reports came in it was found that many of these queries were answered in figures in this way, 20 x 40, 15 x 30, etc. The enumerators had gone around with a foot rule and had measured the length of residences of the people they counted. This is what is called a "consistent error"; that is, it occurs from the beginning to the end of the reports of certain enumerators. — *Washington Star*.

PROGRESS ON THE THEATRE FRANÇAIS.—There is at last an outward and visible sign, patent to all beholders, that the rebuilding of the Théâtre Français is making progress. Two tricolor flags, brand new and of imposing size, as befits the importance of the occasion, were hoisted recently on the roof of the theatre. This signal is full of meaning. It is the practice of French masons when they have finished their share of a building to crown it with flags, so that the appearance of bunting on the summit of the Théâtre Français indicates that the heavy work is finished and that the field is now clear for the carpenters and joiners. Nor is this the only sign that the theatre is nearing completion. M. Claretie was able to inform the members of his company that the reconstruction of the dressing-rooms is now so far advanced that they can proceed to choose the rooms they will occupy for the future and arrange with the architect the final details of their design and ornamentation. The *sociétaires* will make their choice in the order in which they were admitted to the Comédie, the oldest members, of course, choosing first. This taking possession of their private rooms will be a sort of forecast of their definite reinstatement in their theatre, and will help to revive the flagging patience of the *sociétaires*. — *Pall Mall Gazette*.

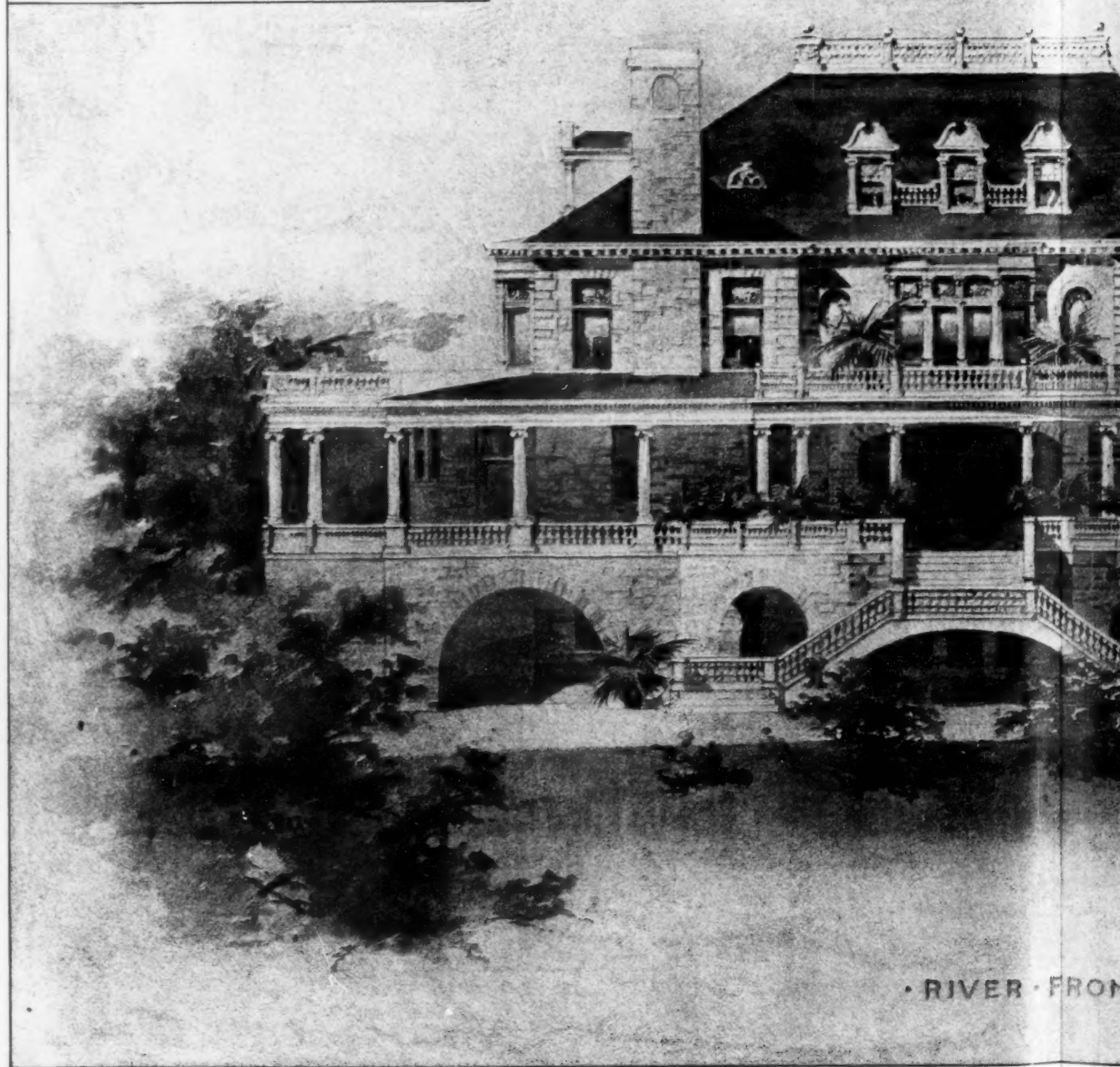
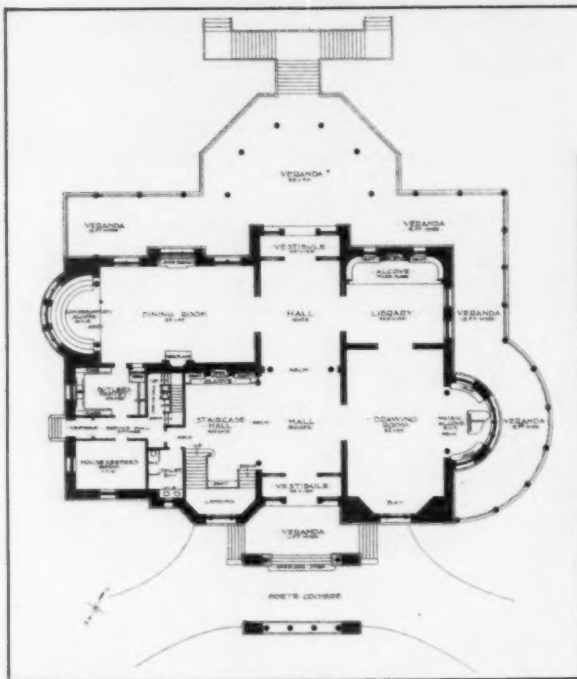
THE WORLD'S LARGE TELESCOPES.—In his Presidential Address to the Department of Astronomy of the British Association, at Bradford, Dr. A. A. Common, F. R. S., the chairman of the department, gave the following list of large telescopes in existence in 1900. He enumerates 28 refractors of 15 inches and upwards: Paris (Exhibition), 50 inches; Yerkes, 40 inches; Lick, 36 inches; Pulkowa, 30 inches; Nice, 29.9 inches; Paris, 28.9 inches; Greenwich, 28 inches; Vienna, 27 inches; Washington, U. S., 26 inches; Leander, McCormick Observatory, Virginia, 26 inches; Greenwich, 26 inches; Newall's, Cambridge, 25 inches; Cape of Good Hope, 24 inches; Harvard, 24 inches; Princeton, N. J., 23 inches; Mount Etna, 21.8 inches; Strassburg, 19.1 inches; Milan, 19.1 inches; Dearborn, Chicago, 18.5 inches; Warner Observatory, Rochester, N. Y., 16 inches; Washburn Observatory, Madison, Wis., 15.5 inches; Edinburgh, 15.1 inches; Brussels, 15.1 inches; Madrid, 15 inches; Rio Janeiro, 15 inches; Sir William Huggins, 15 inches; Paris, 15 inches. There are nine reflectors of 2 feet 6 inches and upwards: Lord Rosse, 6 feet; Dr. Common, 5 feet; Melbourne, 4 feet; Paris, 4 feet; Meudon, 3 feet 3 inches; South Kensington, 3 feet; Crossley (Lick), 3 feet; Greenwich, 2 feet 6 inches; South Kensington, 2 feet 6 inches. — *Journal of the Society of Arts*.

SPONTANEOUS COMBUSTION OF HAY.—The question of the spontaneous combustion of hay has recently been investigated by one of the officials of the United States Weather Bureau, who states that fermentation within moist hay may raise the temperature to 374 degrees Fahr., at which temperature clover-hay will ignite. Spontaneous combustion, whether of hay, cotton, oil, and waste, or any other substance, depends upon certain atmospheric conditions. The heat is caused by oxidation of the oil in cotton waste or rags, or by fermentation in the case of moist hay or other substances, but unless the temperature of the whole mass is above a certain limit, not at all well known, it will not break into flames. In general, says the *Weather Review*, spontaneous combustion is not to be feared if the fresh supply of oxygen from the atmosphere is cut off. If the inflammable substance is confined within a non-conducting enclosure, such as the interior of a bale of cotton, or a tight room, or a closed box, its temperature may attain a point surpassing the point of ignition, but danger does not occur until the enclosure is opened, and a fresh supply of oxygen is suddenly admitted, when, of course, everything breaks out in flame. The best preventive of spontaneous combustion is a rapid and complete ventilation, by which the oxidizing and fermenting substances are kept cooled down below the point of ignition.

A MUSEUM CUSTODIAN RUNS AMUCK.—An irreparable act of vandalism has destroyed one of the most interesting objects of art that have come down from antiquity. The famous "François" vase at Florence has been smashed to bits by an infuriated custodian. The man had been reproved by the director of the museum for neglecting his duties; he drew a knife and stabbed the director three times, then turned to the collection and destroyed what he could before he was overpowered. The vase was the finest piece of black-on-red Greek pottery in existence and a perfect repository of archaeological information. On it were pictured the Caledonian hunt, the burial of Patroclus, the wedding of Peleus and Thetis, Dionysus and Hephaestus in Olympus, and other legends. It was made in the sixth century before Christ and was discovered at Poggio Garella, near Chiusi, in 1844 by the archaeologist François. The value set on it by the museum authorities was \$100,000. — *Boston Transcript*.

UTILIZING EXHAUST-STEAM.—Heating large buildings by exhaust-steam has been brought to such a state of efficiency in Toledo, O., that an electrical company there actually makes its returns from heat pay the cost of the generation of electricity. The exhaust-steam heaters receive the steam as it leaves the engines and heat up circulating water to any desired temperature. This hot water is either passed directly to the consumers of heat, or else is delivered into a storage-tank, to be used during those portions of the day when the electric-light load is very small, and consequently when the exhaust-steam is insufficient for the heating load. The loss of heat in the pipes by radiation and conduction is only about 15 per cent. This heating system is in use for seven months of the year. Arrangements are now being made to introduce a refrigerating system to be operated during the other five months. It is proposed to distribute brine chilled below the freezing-point to the houses for cooling them in summer, just as the hot water is distributed for heating in winter. The engineer in charge of the plant estimates that when this is done all the charges for running the station, including the fixed and interest items, will be provided by the heating and refrigerating load, leaving the electrical load clear as a source of revenue. — *N. Y. Evening Post*.

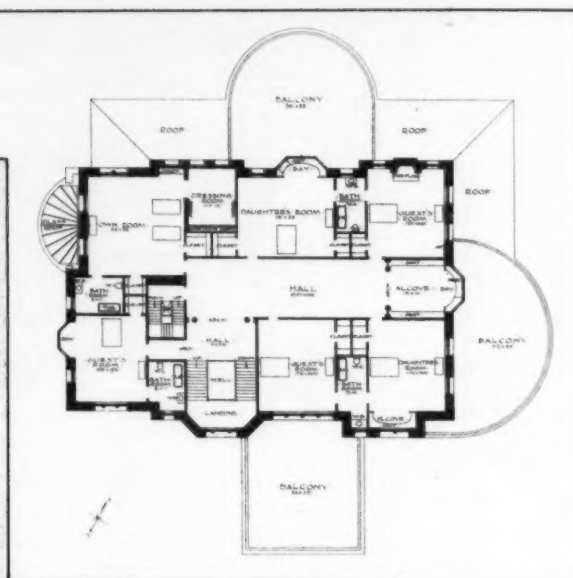
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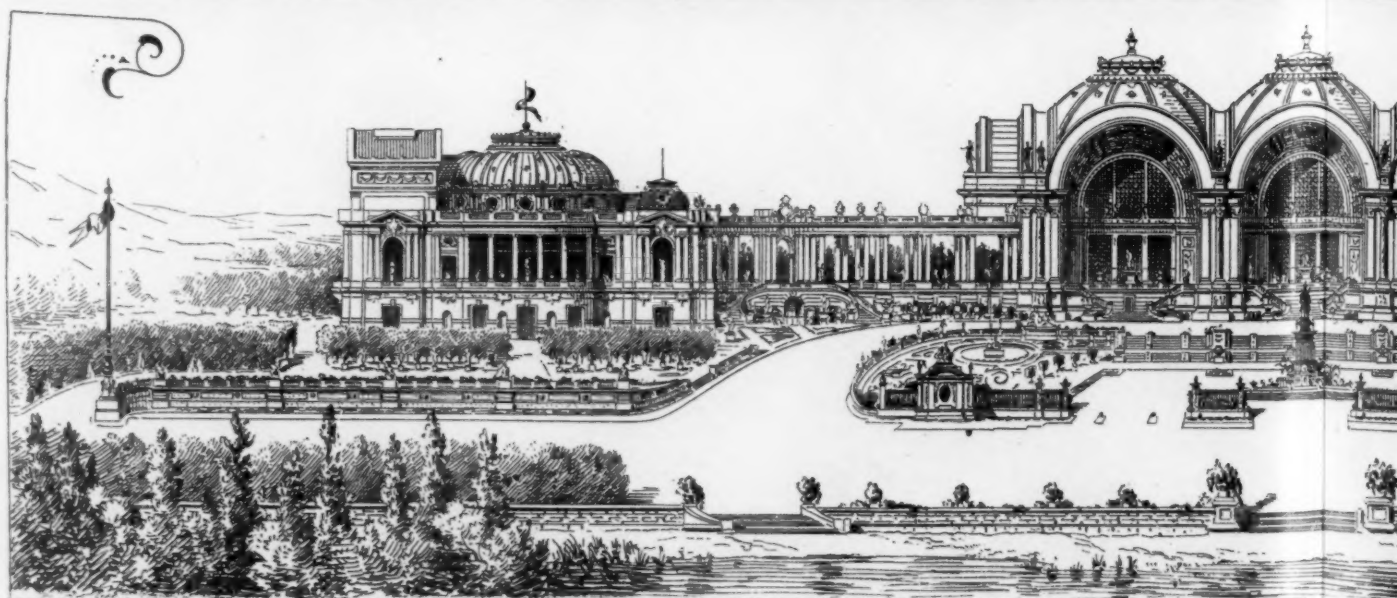
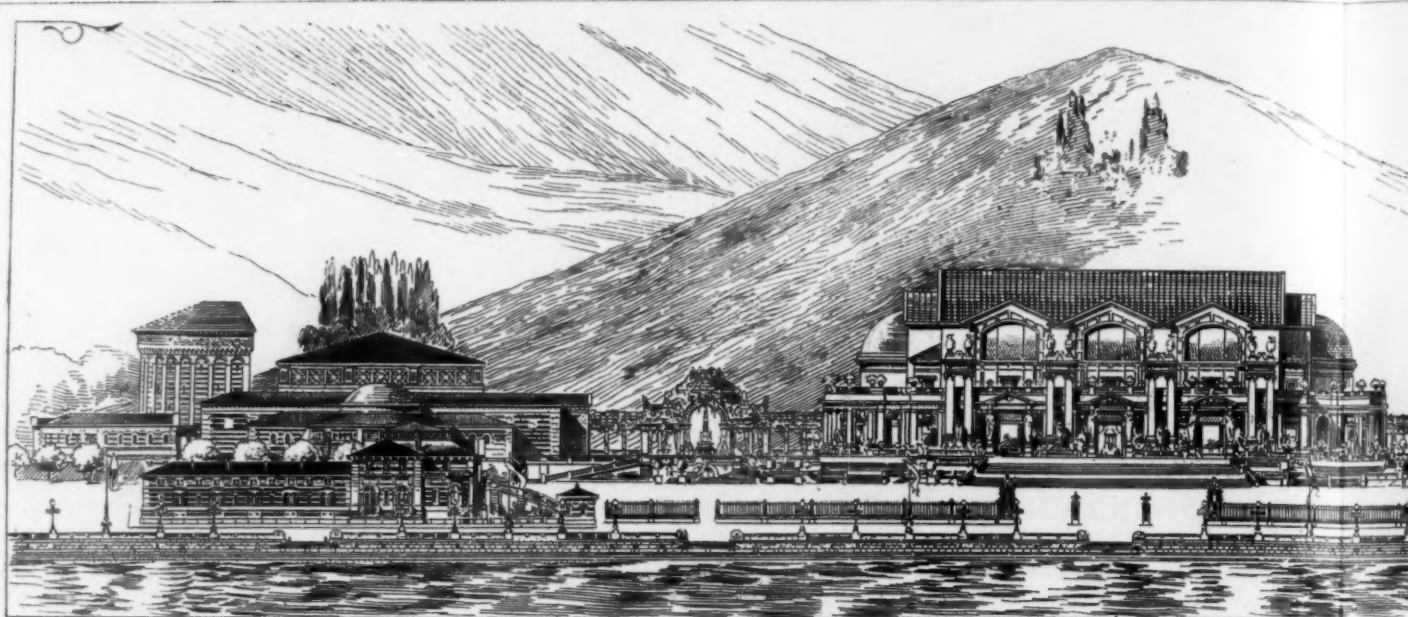
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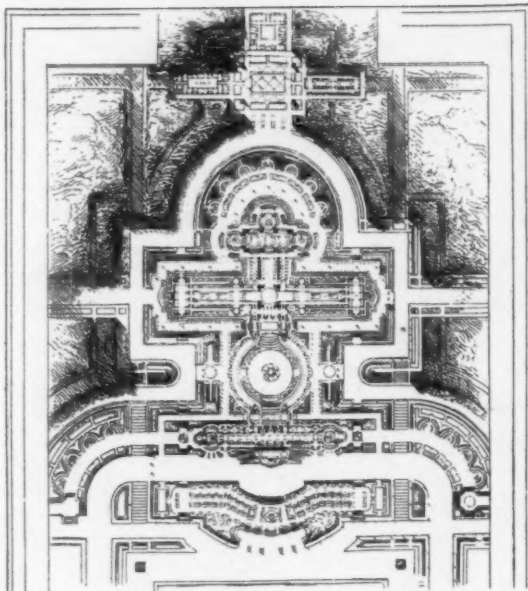


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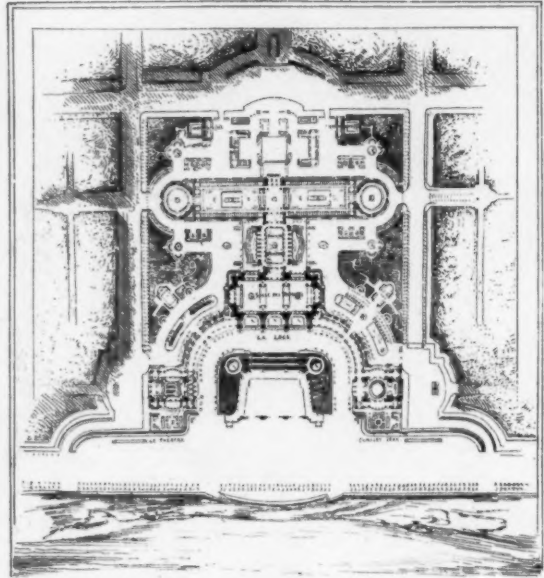


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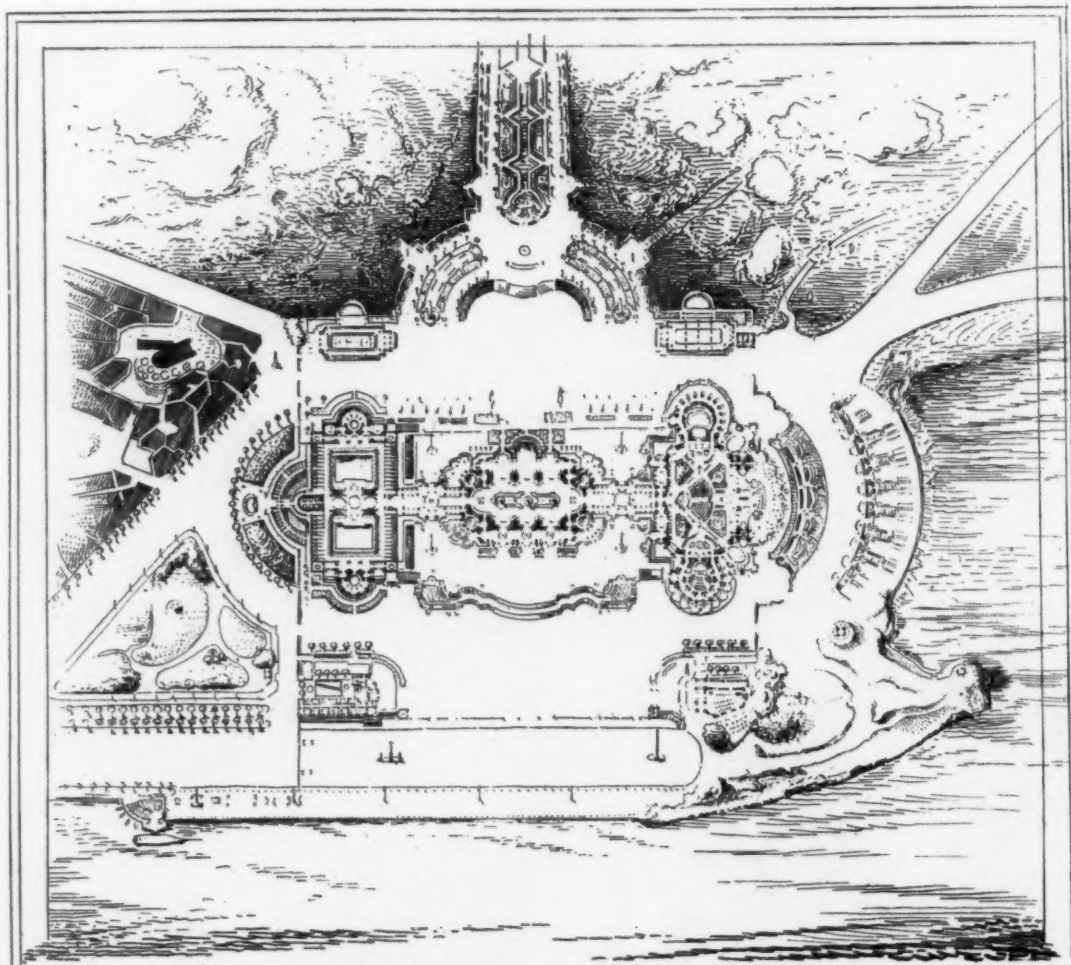




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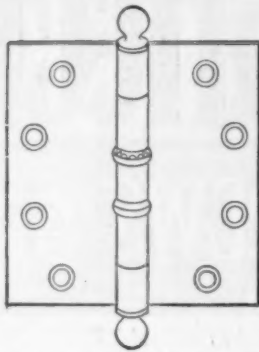
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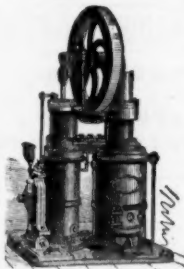
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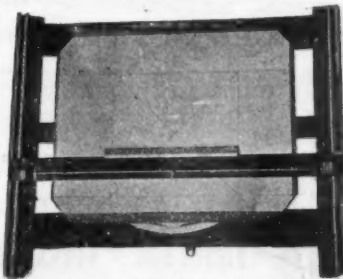
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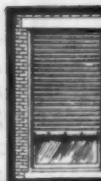
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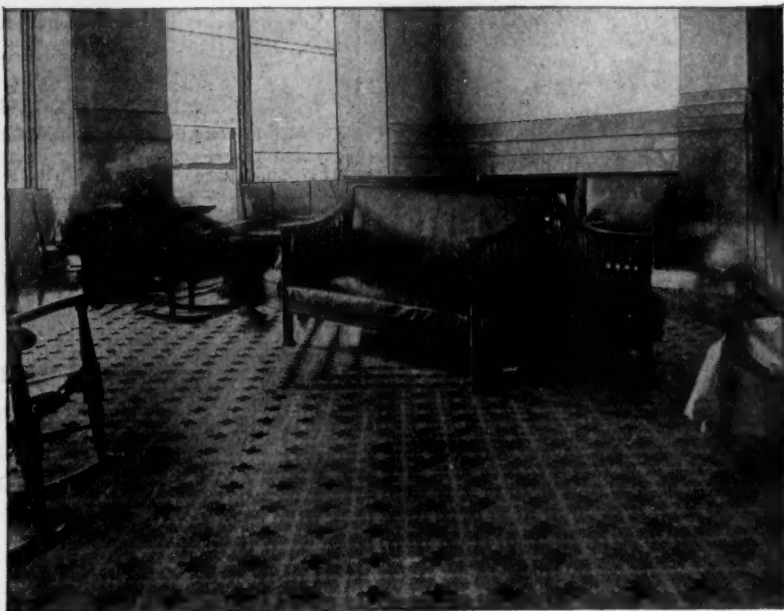
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(Advance Rumors Continued.)

Society, Gen. W. H. Davis, pres., is having plans prepared by Architect Addison Hutton, Philadelphia, for an assembly building.

Elizabeth, N. J.—The Young Men's Christian Association is forming plans for an association building to be erected within a year. A person interested in the work has offered to share one-quarter of the cost of any structure that the association may erect.

Fall River, Mass.—Prominent capitalists contemplate erecting a large factory building here soon for the manufacture of fine yarn.

Georgetown, Mass.—Cooper & Bailey, architects, Boston, are drawing plans for extensive alterations and an addition to the frame and stone residence of James Watson; cost, about \$10,000.

Highland Park, Ill.—W. G. Louderback will build a residence after plans by W. C. Zimmerman. It will be of frame construction, 34' x 48', and will cost \$6,000.

Indianapolis, Ind.—F. M. Andrews, Dayton, O., has completed plans for the hotel to be erected by the Indiana Hotel Co., incorporated with a capital stock of \$250,000. The proposed structure will be nine stories high, 165' x 195', and will be built of stone, brick and terra-cotta.

Louisville, Ky.—Clark & Loomis are preparing plans for the wing to be built to the Norton Memorial Infirmary; cost, \$50,000.

Milford, Mass.—Architect W. H. Harvey is preparing plans for a dwelling for A. L. Morrill. It will be a two-story structure, 25' x 47', built of wood.

Milwaukee, Wis.—The Cream City Brewery will build a brick and steel cold-storage plant to cost \$45,000. Plans by Architect Frank W. Andree.

Newark, N. J.—The Sherwin-Williams Co., of Cleveland, O., will build a paint-factory here to cost \$100,000. Plans by Architects Meade & Garfield, Cleveland, O.

Norristown, Pa.—The Second Baptist Society is having plans drawn for a two-story stone church by Architect Samuel Roberts; cost, \$30,000.

Ottumwa, Ia.—The city has voted to furnish a site and \$5,000 annually for the maintenance of a public library, for the establishment of which Andrew Carnegie will donate \$50,000.

Philadelphia, Pa.—The Germantown Cricket Club will erect a two-story stone club-house at Manheim to cost \$70,000. Plans by McKim, Mead & White, New York City.

Architect Jacob Herold has drawn plans for the Henry Miller estate for a stable and riding academy to be built on 31st St., near Jefferson St. The proposed structure will be two stories in height, 86' x 200'; it will be constructed of steel, brick and terra-cotta.

Doyle & Doak, builders, have been awarded the contract to erect the proposed twelve-story office-building at 1416-18 S. Penn Sq. Plans by Carl P. Berger.

Pittsburgh, Pa.—Alden & Harlow, architects, are

BUILDING INTELLIGENCE.

(Advance Rumors Continued.)

preparing plans for improvements to the Farmers' National Bank Building to cost \$175,000.

Alexander K. Peacock, vice-president of the Carnegie Steel Co. will erect a residence to cost \$300,000. Plans by Architects Peabody & Stearns, Boston, Mass.

Richmond, Ind.—The Prague Miller Hardware Co. has had plans prepared by Architect John A. Hase-caster for a business building to cost \$12,000.

San Antonio, Tex.—Architect James Wahren-berger has furnished plans for the proposed Carnegie Library; cost, \$50,000.

San Francisco, Cal.—The congregation of Calvary Church is having plans prepared by McDougall Bros. for a church and chapel to be erected at Jackson and Fillmore Sts. The proposed structure will be built of sandstone, costing \$140,000.

San Jose, Cal.—Dr. L. F. Terry contemplates erecting a hotel in Alum Rock Park to cost \$25,000.

Scranton, Pa.—The Commissioners of Luzerne County contemplate the erection of a county court-house to cost about \$450,000.

Southington, Conn.—Architect Wilson Potter, 3 Union Sq., New York City, has completed plans for the proposed public library building. It will be a brick and stone structure, 32' x 40', and one story in height; cost, \$10,000.

Tampa, Fla.—The Hyde Park M. E. Society will erect a new church to cost about \$10,000.

Waukegon, Ill.—J. W. Bardwell will build a three-story brick factory, 50' x 113', after plans by I. A. Worsfold; cost, \$7,500.

Worcester, Mass.—H. C. Fisher will build six modern houses on Institute Road to cost about \$21,000. Plans by D. M. Waterman.

Architect J. W. Paton has made plans for a three-family dwelling to be built on Harrison St., for Gerald Fitzgerald. It will be a three-story, 28' x 61', frame structure, with slate roof and modern improvements; cost, \$5,000.

ALTERATIONS AND ADDITIONS.

Brooklyn, N. Y.—Franklin Ave., nr. Montgomery one-sty' bk. extension, 56' x 59' 8"; \$7,000; o. Flat-bush Hygienic Ice Co., 980 Franklin Ave.; b. C. Schreider, 415 Grove St.

Cambridge, Mass.—Bet. Second and Third Sts., 24-st'y bk. addition to factory, 71' x 92', steam; \$10,000; o. Am. Net & Twine Co.; b. B. F. Smith & Co., Pawtucket, R. I.; a. Lockwood, Greene & Co.

New York, N. Y.—Pleasant Ave., No. 353, three-st'y extension, 5' 4" x 15' x 11' 8" x 168'; \$7,000; o. Antoinette Altieri; a. C. A. Millner, 30 W. 116th St.; b. P. Altieri, 353 Pleasant Ave.

Second St., Nos. 252-254, two-st'y extension, 35' 11" x 44' 0"; \$6,000; o. Gross & Eisler, 81 Columbia St.; a. Horenburger & Straub, 122 Bowersy.

Fourth St., No. 232, five-st'y extension, 20' x 72' 3"; \$10,000; o. Wm. A. Rees, 232 E. 40th St.; a. Frank A. Rooke, 489 Fifth Ave.

Third Ave., nr. 169th St., four-st'y & base, extension, 62' x 63'; \$45,000; o. City of New York; a. C. B. J. Snyder, Park Ave. & 59th St.

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Gainsboro St., nr. Hemmenway St., bk. aparts., 40' x 44' x 46', flat roof, steam; \$25,000; o. Washington B. Thomas; b. E. W. Clark; a. A. H. Vinal.

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Brooklyn, N. Y.—Prospect Ave., nr. 9th Ave., also Seventeenth St., n. s. 150' w. 9th Ave., 16 four-st'y bk. flats, 19' x 72' x 27' x 72'; \$182,000; o. Doscher & Minderman, 293 Atlantic Ave.; a. A. De Salden, 130 Broadway, N. Y.; b. A. E. Kleinhart, 307 Baltic St.

First St., nr. W. Prospect Park, 3 four-st'y bk. flats, 27' 6" x 67' 6", steam; \$36,000; o. Jere J. Gilligan, 741 Carroll St.; a. T. Bennett, 198 Fifty-third St.

Twelfth St., nr. W. Prospect Park, four-st'y bk. flat, 25' x 63', steam; \$15,000; o. T. C. Van Pel, 410 Fifth St.; a. T. Bennett, 198 Fifty-third St.

Chicago, Ill.—Fifty-fourth St., No. 156, three-st'y bk. flats, 20' x 67'; \$9,000; o. John R. Taylor; a. S. M. Seator, 630, 225 Dearborn St.; b. W. S. Joslyn & Co., 5323 Dearborn St.

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BUILDING INTELLIGENCE.

EDUCATIONAL.

Boston, Mass.—*Norfolk St.*, cor. Martin St., three-sty bk. school, 90' x 120', pitch roof, steam; \$125,000; o., City; b., Cabot, Everett & Mead; a., F. G. Coburn & Co.

Chicago, Ill.—*Calumet Ave.*, Nos. 4111-23, three-sty school, 90' x 173'; \$120,000; o., Board of Education, Schiller Building; a., W. B. Mundie; b., E. W. Sprout, 312 Chamber of Commerce.

Thirty-third Pl., Nos. 934-936, three-sty school, 82' x 154'; \$80,000; o., Board of Education; a., W. B. Mundie; b., Siebold & Neunkirchen, 1739 Diversey Ave.

Philadelphia, Pa.—*E. York St.*, cor. Sepoiva St., three-sty st. school, 90' 4' x 125'; \$75,000; o., City; b., Charles O'Neill; a., J. Horace Cook.

FACTORIES.

Brooklyn, N. Y.—*Atlantic Ave.*, nr. Schenectady Ave., five-sty bk. factory, 60' x 140'; \$60,000; o., Wichert & Gardner, 839 Prospect Pl.; a., C. H. Richter, 621 McDonough St.

Chicago, Ill.—*Thirty-ninth St. and Stewart Ave.*, one-sty bk. machine-shop, 86' x 165'; \$10,000; o. & b., Kenwood Bridge Co., 417 First National Bank Building; a., Peabody & Beaulieu, 1649 Monadnock Block.

New York, N. Y.—*W. Twenty-seventh St.*, No. 527, and *W. Twenty-eighth St.*, Nos. 526-532, four-sty bk. factory, 50' x 100' on 28th St., 20' x 98' 9" on 27th St., tar & gravel roof; \$30,000; o., E. R. Merrill, 361 W. 19th St.; a., Wm. Higginson, 21 Park Row.

W. Twenty-sixth St., Nos. 549-553, six-sty bk.

BUILDING INTELLIGENCE.

(Factories Continued.)

factory, 82' x 98', plastic slate roof; \$40,000; o., Jno. W. Williams, 556 W. 27th St.; a., C. H. Caldwell, 160 Fifth Ave.

HOUSES.

Big Stone Gap, Va.—*2½-sty fr. dwell.*, 30' x 50'; \$25,000; o., H. L. Moore; a., Child & De Goll, 62 New St., New York City.

Boston, Mass.—*Poplar St.*, nr. Florence St., fr. dwell., 30' x 50', gambrel roof, furnace; \$6,000; o., Ann Mahoney; b., Irving Bros.; a., J. G. Hutchinson.

Bainbridge St., nr. Mayfair St., 3 fr. dwells., 25' x 55', pitch roofs, furnaces; \$17,000; o., a. & b., John J. Johnston.

Newcastle Road, nr. Faneuil St., 2½-sty fr. dwell., 26' x 45', pitch roof, furnace; \$6,000; o., Walter Brooks; a., G. E. Parsons; not let.

Claybourne St., nr. Bowdoin St., 2½-sty fr. dwell., 37' x 38', pitch roof, furnace; \$6,000; o., Wm. D. Sheen, Lynn; a. & b., D. J. McKay.

Bay State Road, nr. Sherburne St., three-sty bk. dwell., 25' x 70', flat roof, hot water; \$30,000; o., Wm. Y. Peters; b., F. L. Whitcomb; a., Peters & Rice.

Shawmut Ave., No. 732, three-sty bk. dwell., 34' x 36' x 37', flat roof, stoves; \$8,000; o. & b., William White; a., G. H. Smith.

Bennington St., Nos. 295-97, fr. dwell. & store, 23' x 55', flat roof, hot water; \$5,500; o., John McClellan; b., J. Tiesland; a., A. N. Rogers.

Brooklyn, N. Y.—*Manhattan Ave.*, nr. Neptune Ave., 2 two-sty & attic fr. dwells., 30' x 49', shingle

BUILDING INTELLIGENCE.

(Houses Continued.)

roofs; \$13,000; o., J. W. Mack, 92 Liberty Ave.; a., A. H. Taylor, 20 W. 34th St., N. Y.

E. Fourteenth St., nr. Avenue D, two-sty & attic fr. dwell., 26' x 30' 6", shingle roof; \$5,000; o., G. F. Beatty, 750 Sterling Pl.; a., J. C. Walsh, 923 Belmont Ave.

Webster Ave., nr. Avenue D, 10 two-sty fr. dwells., 17' x 30', shingle roofs; \$50,000; o., E. R. Bennett, Ocean Parkway & Franklin Ave.; a., W. B. Cole, 17th Ave. & 50th St.

Avenue H, cor. E. 12th St., two-sty & attic fr. dwell., 27' x 37', shingle roof; \$5,000; o., W. E. Harmon, 256 Broadway, N. Y.; a., Isaac A. Dodd, 154 Montague St.

Jerome Ave., cor. E. 24th St., two-sty & attic fr. dwell., 34' x 36' 8", shingle roof, steam heat; \$9,000; o., A. S. Astel, E. 21st St. & Jerome Ave.; a., B. Driesler, 1432 Flatbush Ave.

Surf Ave., nr. Neptune Ave., two-sty & attic fr. dwell., 44' x 47' 4"; \$14,000; o., Mary A. Smith, 204 Berkeley Pl.; b., Ferguson & Brown, 1315 Rogers Ave.

Eighty-fifth St., nr. 2d Ave., two-sty & attic fr. dwell., 29' x 45'; \$7,000; o., M. Wanderer, 86 Delancey St., N. Y.; a., B. Driesler, 1432 Flatbush Ave.

Chicago, Ill.—*Sheridan Road*, No. 1731, three-sty bk. dwell., 51' x 53'; \$25,000; o. & a., Wilson & Marshall, 218 La Salle St.; b., S. J. Nihlean, 3629 Forest Ave.

Freeport, L. I., N. Y.—*2½-sty fr. dwell.*; \$7,000; o., D. E. Mackey, 106 Franklin St., New York City; a., J. J. Pettit, 186 Remsen St., Brooklyn.

Jersey City, N. J.—*Griffith St.*, nr. Boulevard, three-sty fr. dwell., 26' x 54'; \$5,500; o., Anna Ruppel; a., Philip Wellbacher.

Newton, Mass.—*Berwick Road*, Ward 4, two-sty fr. dwell., 41' x 43', furnace; \$12,000; o., F. H. Searles, 209 Washington St., Boston; a. & b., I. H. Davidson.

New York, N. Y.—*Arthur Ave.*, cor. 180th St., three-sty fr. dwell. & store, 20' 2" x 56' 6"; \$6,000; o., Nellie Rice, 660 E. 144th St.; a., W. C. Dickerson, 3d Ave. & 149th St.

Catherine St., nr. De Milt Ave., two 2½-sty fr. dwells., 21' x 38'; \$7,000; o., Conrad Trede, Wakefield; a., Thos. Mapes, Wakefield.

Beek St., nr. 156th St., 20 two-sty bk. dwells., 20' x 50' & 20' x 55'; \$120,000; o., Geo. F. Johnson & Sons, 156th & Dawson Sts.; a., W. C. Dickerson.

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No. 661,276, May 25, 1897
No. 588,276, May 25, 1897
No. 591,538, Oct. 12, 1897

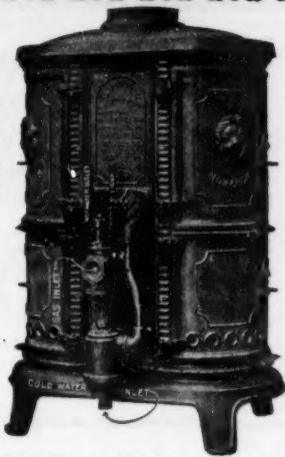
No. 620,888, Mar. 14, 1899
No. 601,435, Mar. 20, 1898
No. 608,540, Aug. 2, 1898
No. 608,972, Aug. 9, 1898

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BUILDING INTELLIGENCE.

(Houses Continued.)

Riverside Drive, No. 295, four-sty st. dwell., 25' x 83' 9"; \$25,000; o., Wm. Baumgarten, 1259 Washington Ave.; a., Schickel & Ditmars, 111 Fifth Ave.
Forty-first St., nr. 10th Ave., five-sty & base, bk. & st. dwell., 27' x 59' 10"; \$25,000; o., St. Raphael's Roman Catholic Church, 505 W. 40th St.; a., Geo. H. Streton, 289 Fourth Ave.

Norbeck, Md.—2½-sty fr. dwell., 30' x 56'; \$8,500; o., Edw. Bowen Prescott; a., Child & De Goll, 62 New St., New York City.

Philadelphia, Pa.—Sixty-ninth St., nr. Layton Ave., 2½-sty st. dwell., 40' x 44'; \$5,800; o., J. R. White.

Locust St., nr. 22d St., four-sty & base, bk. & st. & terra-cotta dwell., 22' x 62', flat roof, furnace; \$28,000; o., Mrs. Ruth Boyer Davis; b., Stacy Reeves & Sons; a., H. M. Stephenson.

Somerville, Mass.—Browning Road, nr. Central St., two-sty dwell., 28' x 38', pitch roof, furnace; \$5,300; o., A. E. Hatch; b., Robert Bennett, Medford; a., Clark & Spaulding.

Taunton, Mass.—Spring St., 2½-sty fr. dwell., 35' x 57', pitch roof; \$15,000; o., Col. Fred'k Mason; b., Franklin D. Williams; a., Swazey & Stephenson, 171 Tremont St., Boston.

Worcester, Mass.—Harrison St., three-sty fr. dwell., 27' x 62'; \$5,000; o. & b., Carl Anderson; a., James Romberg.

OFFICE-BUILDINGS.

Brooklyn, N. Y.—Forty-first St., nr. 3d Ave., three-sty bk. office, 20' 6" x 62' 4"; gravel roof, steam; \$13,000; o., E. Denamore, 84th St. & 11th Ave.; a., C. Werner, 26 Court St.

STABLES.

Brooklyn, N. Y.—Eighteenth Ave., nr. 86th St., fr. stable, 15' x 22', shingle roof; \$450; o., D. Almond, 18th Ave., nr. Benson Ave.; a., C. Schubert, 1832 Bath Ave.

W. Thirtieth St., nr. Avenue Q., 1½-sty fr. stable, 16' x 20', shingle roof; \$600; o., P. Rehrens, W. 13th St. & Avenue Q.; a., W. H. Wirth, 358 Seventeenth St.

Chicago, Ill.—N. Clark St., Nos. 4443-53, one-sty bk. car-barn, 127' x 1,059'; \$100,000; o., Chicago Union Traction Co.; a., F. T. C. Brydges, 2117 Wilcox Ave.; b., Angus & Glendle Co., 1401, 188 Madison St.

Commercial Ave., No. 8812, two-sty bk. barn, 25' x 138'; \$6,000; o., Mrs. S. Lederer; a., Fred Ahlschlagler, 70 La Salle St.; b., John Zalewski, 5845 Drexel Ave.

Newark, N. J.—Mt. Prospect Ave., nr. 6th Ave., three-sty bk. stable & apart., 34' x 62'; \$6,000; o., Frank Arundo; a., R. Bottelli.

New York, N. Y.—One Hundred and Forty-fifth St., nr. Wales Ave., one-sty bk. stable, 15' x 25'; \$300; o., C. H. Zuck, 422 Wales Ave.; a., C. F. Lohse, 631 Eagle Ave.

One Hundred and Forty-ninth St., nr. Morris Ave., two-sty bk. stable & loft, 25' x 42'; \$1,500; o., Amanda Buttner, Westchester; a., Louis Falk, 2785 Third Ave.

W. Forty-fourth St., No. 314, three-sty bk. stable & shop, 16' x 27' & 30' 7"; \$500; o., Peter J. Ryan, 307 W. 44th St.; a., S. B. Ogden & Co., 954 Lexington Ave.

Philadelphia, Pa.—Allegheny Ave., nr. 17th St., three-sty bk. stable, 82' 8" x 88'; \$12,000; o., Geo. V. Cresson Co.; b., Wm. Steele & Sons.

STORES.

New York, N. Y.—Macdougal St., No. 106, six-sty bk. flat & store, 25' x 37' 9"; \$19,000; o., Jos. A. Lowe, North Branch, N. J.; a., Chas. Reutz, 153 Fourth Ave.

Hudson St., No. 6154, six-sty bk. flat & stores, 24' 1" x 69' 9"; \$25,000; o., Katz & Wimpie, 242 Clinton St.; a., M. Bernstein, 245 Broadway.

Liberty St., Nos. 114-118, and Cedar St., Nos. 119-121, twelve-sty bk. & st. lofts & stores, 70' 0" x 112', asphalt, felt & gravel roof; \$350,000; o., Jno. T. Williams, 27 William St.; a., John T. Williams, Jr., 27 William St.

Tenth Ave., No. 687, six-sty bk. flat & store, 25' x 85' 0"; \$28,000; o., Chas. Englehardt, 830 Gerard Ave.; a., R. Graff, 830 Gerard Ave.

TENEMENT-HOUSES.

Brooklyn, N. Y.—Malbone St., nr. New York Ave., three-sty bk. tenement, 20' x 50'; \$6,000; o., Michael Caylo; a., F. S. Lowe, 186 Remsen St.

New York, N. Y.—Barretto St., nr. 169th St., 8 three-sty fr. flats, 20' x 63' & 67'; \$68,000; o., Jacob Wirth, 1010 E. 162d St.; a., John Hauser, 1961 Seventh Ave.

Prospect Ave., cor. 169th St., four-sty bk. tenement & store, 25' 9" x 95'; \$35,000; o., Timothy Flood, 1012 E. 162d St.; a., Moore & Landsiedel, 148th St. & 3d Ave.

Home St., cor. Forest Ave., five-sty bk. tenement & store, 24' 2" x 92'; \$25,000; o., Chas. Hohl, 1168

BUILDING INTELLIGENCE.

(Tenement-Houses Continued.)

Forest Ave.; a., W. H. Schwanewede, 1115 Forest Ave.

WAREHOUSES.

Boston, Mass.—New St., nr. Summer St., bk. warehouse, 74' x 82' x 83', flat roof; \$40,000; o., Wm. & Edwin Sheafe; b., F. B. Glibreth; a., Edw. A. Tucker.

Albany St., No. 520, storage & office building, 15' x 75', flat roof, steam; \$18,000; o., C. W. Leatherbee; b., Morrison Bros.; a., Bacon & H'l.

MISCELLANEOUS.

Philadelphia, Pa.—W. Park Drive, Fairmont Park, one-sty bk., iron & terra-cotta pumping-station, 73' x 166'; \$74,000; o., City; b., Geo. C. Dietrich.

COMPETITIONS.

LIBRARY.

[At Davenport, Ia.]
The library trustees will receive competitive plans until November 15th for a library building. S. F. SMITH, pres. 1295

JAIL.

[At Shreveport, La.]
Plans and specifications will be received until October 23d for a parish jail. J. M. FOSTER, pres. 1294

PROPOSALS.

SCHOOL-HOUSE.

[At Akron, O.]
Sealed proposals will be received until October 26th for the construction of the Miller School. F. W. SHERER, clk. 1295

SCHOOL-HOUSE.

[At Colony, Okla.]
Sealed proposals addressed to the commissioner of Indian Affairs, Washington, D. C., will be received until October 16, 1900, for furnishing and delivering the necessary materials and labor for the construction of a brick school-building at Seger School, Colony, Okla. W. A. JONES, commissioner. 1294

FIREFPROOF FLOOR.

[At Washington, D. C.]
Sealed proposals will be received at the bureau of yards and docks, Navy Department, Washington, until October 20, 1900, for furnishing and erecting a fireproof floor for pattern-shop building at the navy yard, Washington, D. C. MORDECAI T. ENDCOTT, chief of bureau. 1294

ADMINISTRATION BUILDING.

[At New York, N. Y.]
Sealed bids will be received at the office of the department of correction until October 18 for erecting the administration building at the penitentiary, Blackwell's Island. FRANCIS J. LANGTRY, commissioner. 1294

SCHOOL-HOUSE.

[At New York, N. Y.]
Sealed proposals will be received by the board of education, Park Ave. and 59th St., until October 15 for completing the erection of new public school 120, Borough of Brooklyn. R. H. ADAMS, et al., committee on buildings. 1294

ENGINE-HOUSE.

[At Pittsburgh, Pa.]
Sealed proposals are invited for the erection of an engine-house to cost \$70,000. W. Y. BRADY, archt. 1294

COURT-HOUSE ALTERATIONS.

[At Atlanta, Ga.]
Sealed bids are wanted December 5th for furnishing materials and labor for additions and alterations to Fulton County court-house. H. M. WOOD, clk. roads and revenues com. 1294

Treasury Department, Office Supervising Architect, Washington, D. C., October 4th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 5th day of November, 1900, and then opened, for the construction of the basement of the U. S. Public Building at Helena, Montana, in accordance with the drawings and specification, copies of which may be had at this office, or at the office of the Custodian of the site, Helena, Montana, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1295

Treasury Department, Office of the Supervising Architect, Washington, D. C., October 3d, 1900. Sealed proposals will be received at this office until 2 o'clock P. M., on the 25th day of October, 1900, and then

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PROPOSALS.

opened, for the extension of vault (issue division) office of the Comptroller of Currency, Treasury Department Building, Washington, D. C., in accordance with drawing and specifications, copies of which may be had at this office at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1295

Treasury Department, Office Supervising Architect, Washington, D. C., October 6th, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 19th day of November, 1900, and then opened, for the construction (except heating apparatus, electric wiring and conduits) of the U. S. Post office building at Salem, Oregon, in accordance with drawings and specification, copies of which may be had at this office, or at the office of the Postmaster at Salem, Oregon, at the discretion of the Supervising Architect. JAMES KNOX TAYLOR, Supervising Architect. 1295

Treasury Department, Office Supervising Architect, Washington, D. C., October 6, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 22d day of October, 1900, and then opened, for the electric-work for the hospital main building, hospital out-building, surgeon's house, bath and laundry building, kitchen and restaurant building, boiler house, connecting corridor and covered way (including ferry-house) outdoor lighting at the U. S. Immigrant Station, Ellis Island, New York Harbor, in accordance with the drawings and specification, copies of which may be had at this office or the office of Messrs. Roring & Tilton, architects, 82 Broadway, New York, N. Y. JAMES KNOX TAYLOR, Supervising Architect. 1295

Treasury Department, Office Supervising Architect, Washington, D. C., September 29, 1900. Sealed proposals will be received at this office until 2 o'clock P. M. on the 6th day of November, 1900, and then opened, for the plumbing and finish of toilet-rooms for the U. S. Custom-house building at Portland, Oregon, in accordance with drawings and specification, which will be furnished at the discretion of the Supervising Architect at this office, or at the office of the Superintendent of the building at Portland, Oregon. JAMES KNOX TAYLOR, Supervising Architect. 1294

LIBRARY.

[At Lincoln, Neb.]
Sealed proposals will be received until October 17th for the erection of the Carnegie Library. S. L. GEISTHARDT, chmn. com. on plans. 1294

HOTEL.

[At Birmingham, Ala.]
Sealed proposals will be received until October 15th for the erection of a hotel. HOTEL HILLMAN CO. 1294

DORMITORY.

[At Umatilla, Ore.]
Sealed proposals will be received until October 23 for furnishing the materials and labor required in the construction, at the agency school, of a frame or brick dormitory, for remodeling and improving the present boys' dormitory of the agency. W. A. JONES United States Indian warehouse, 233 Johnson St., Chicago, Ill. 1294

STABLE.

[At Fort Yellowstone, Wyo.]
Sealed proposals, in triplicate, will be received until October 17th for the erection of a quarter-master's stable, wagon-shed, teamster's quarters, shops and an addition to the commissary storehouse. GEO. E. POND, C. L. M., St. Paul, Minn. 1294

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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 draw-
ings or other services "on approval" and
without adequate pecuniary compensation.

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

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

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

SECTION 9. It is unprofessional for a Member
to 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 de-
signs in competition for private work or for
public work, unless for proper compensation,
and unless a competent professional adviser
is employed to draw up the "conditions" and
assist in the award.

SECTION 11. No Member should submit draw-
ings except as an original contributor in any
duly instituted competition, or attempt to
secure any work for which such a competition
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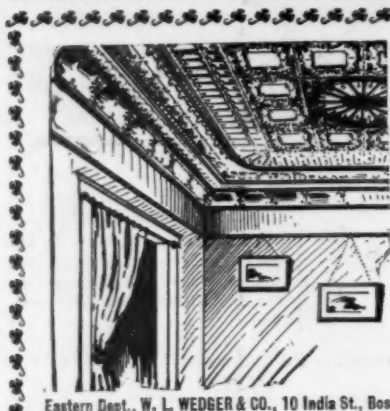
SECTION 12. The American Institute of Archi-
tects' "schedule of charges" represents mini-
mum rates for full, faithful and competent
service. It is the duty of every architect to
charge higher rates whenever the demand for
his services will justify the increase, rather
than to accept work to which he cannot give
proper personal attention.

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

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

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

SECTION 16. A Member should so conduct his
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sional education and render all possible help
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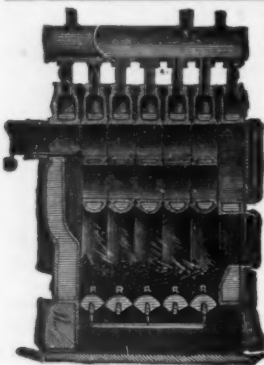
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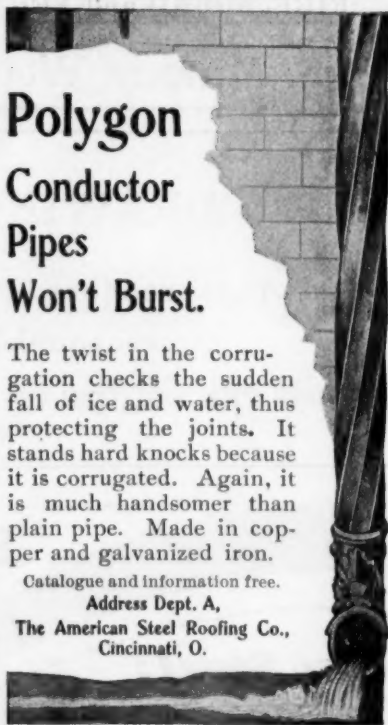
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