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CONTENTS.

WE print in another column a portion of a paper in the *Architect*, by Mr. John Sparkes, head master of the National Art Training School, on the Art Schools of Germany. What principally concerns us is the system of instruction pursued in the Academy of Architects at Berlin, and its apparent results. As contrasted with the English system of apprenticeship, whereby a pupil is "articled" for a term of years to some distinguished practitioner, in whose office he gathers such instruction as he may by independent experience and observation of practice, the German method has all the advantage of academical precision in training, with exact scientific instruction in all the branches of construction and æsthetics, including the rigid classification and theory of the styles. It seems to us that this difference of systems explains much of the characteristic difference between the architecture of England and that of Germany, and opens the important question whether architecture as a fine art can really be developed like a science by encouraging exactness of definitions and correctness of archæology, and by establishing a uniform method of observation and analysis. What results from this system of education is apparently a certain quality of "coldness and uncompromising exactness" in modern German architecture, a want of freedom and ease of expression, which seem to be inconsistent with the health and natural development of a contemporaneous style. If this be so, if it is the German scientific spirit thus applied to architectural instruction which confers upon modern design in Germany this character of unimaginative precision and pedantry, the natural fruits of the English want of system in instruction are the frequent development of individualities in the profession, a freedom from restraint, a picturesqueness which borders upon license, the rapid formation of separate schools following men of decisive character and talents in the profession, sudden and phenomenal changes in style, together with the pursuit of fancies and fashions in design; so that the whole building interests of England, so far as they are presented to us in the professional papers, seem to be engaged in a grand architectural masquerade. In a word, through their several educational systems, Germany seems to have an architectural garment too classic and formal for adaptation to daily use, and England a fine old wardrobe of theatrical properties. In neither case do we behold the development of a distinctive style.

IN France, on the other hand, by virtue of four continuous centuries of academical discipline confined to classic forms, the classic Renaissance is at home, and in successive eras has adapted itself to the characteristics of the time by natural processes; so that for each reign there is a distinctive style or variation of style, not forced by individuals, but developed by historical conditions. This state of affairs seems to give to architecture its greatest function of furnishing to history a series of permanent and monumental records of the spirit of the epochs. It deprives the art of the picturesqueness which results from the English system of a *personal* architecture, subject more or less to the caprices of fashion, but it encourages refinement of invention in confining it to certain traditionary forms; it educates the eye to a greater degree of sensitiveness; it creates an atmosphere of art by its constant associations with the triumphs of masters working always with the same elements of expression, namely, the four orders of architecture, — elements which are understood by all, and are never "out of fashion;" finally, it seems that this academical system, in making the French architects as a class constant to a style, has made them subordinate to their architecture, and has made their architecture singularly impersonal without detracting from its flexibility and interest.

SUCH historical lessons must be taken to heart by all who are interested in our own architectural expressions. It is evident that for our use neither the German, the English, nor the French systems is such as can be transplanted to our soil with profit, but none of them can safely be neglected in the preparation of our own schemes of architectural education. A vernacular style, more or less sophisticated of course, as we have had frequent occasion to say, doubtless now exists, such as it is. How to develop it into grammatical forms, how to breathe into it the spirit of art, how to free our buildings from the dominion of individual caprice in order that they may the more faithfully illustrate our civilization — a duty which for the most part they do not perform, being, as these pages have often shown, rather fancies of individuals and faint reflections of the English fashions than expressions of the epoch, — these are the questions to be solved by our education in art. We have discovered that there is no virtue in the entire neglect of systems of education, and we can readily see that in establishing systems it is easier to go wrong than to go right. The committee on education in the American Institute of Architects is composed of intelligent men in the profession, but they have of late made no sign. We commend this subject and Mr. Sparkes's report in especial to their earnest consideration.

IT will be noticed that the judges who have had under consideration the designs sent in for our fifth competition have declined to award a first place to any one of them. The drawings, as may be seen, are not without many points of excellence, but, with scarcely an exception, they exhibit an incapacity or an unwillingness on the part of their authors thoroughly to work out the design. There are plenty of good ideas, and these are generally fairly brought out so as to show their merits and to give effect to the drawings, but the absence of intelligent study is obvious to the most casual inspection. Most of the competitors have seemed to imagine that grammatical excellence in design, a conformity, that is to say, to the most ordinary usages of style and to the obvious and universally recognized principles of composition, is too simple and easy, too commonplace in fact, to concern themselves about, and that a clever violation of usage is really the only interesting thing left to them to do. In this respect it is true that they follow a natural tendency of the time in the profession, and that a certain piquancy is sometimes thereby conferred upon design, as speech may gain a certain raciness through bad grammar, bad spelling, mispronunciation, and even slang. But this is not the sort of merit which these competitions are intended to encourage. To say what one has to say in the most striking and effective way practicable, without violating the proprieties of speech, is the way of speaking and writing approved among civilized peoples. Their architecture should follow a similar method. Moreover, the chief merit and chief interest in games of skill depend upon the players' strictly following the rules of the game.

WE had occasion lately to express the belief that, in this country at least, engineers are trusted by the public much more unquestioningly than are architects, and chiefly because engineering successes are more easily appreciated by the practical mind of the American than the artistic effect of a good piece of architectural design. That the English public, or any portion of it, should be similarly affected towards engineers, to the dishonor of architects, is somewhat remarkable in a country where our profession is in good repute, and where, thanks to the many notable buildings both ancient and modern which owe their being to architects, the public is better able to appreciate its achievements. Yet on the 13th ultimo a special meeting of the Northern Architectural Association was held at Newcastle to protest against the action of the town council in employing the borough engineer and his subordinates to design and carry out the projected architectural improvements of the town, which at present involve the expenditure of nearly a million dollars, as they include such buildings as a free library, a fish-market,

the public park buildings, etc.,—buildings of such importance to the town as to warrant making every exertion to secure their proper architectural treatment. The association adopted a resolution regretting the action of the town council and recommending that all public work be put to public competition, as was customary in other large towns in the kingdom.

The meetings of the International Health Congress, which have been held at Paris lately, appear to have had a really international character, for we find that active part in the discussions was taken by delegates from the United States, England, Belgium, Holland, Russia, Austria, Hungary, Sweden, Greece, Spain, Prussia, and even from Egypt and Japan. A striking incident of one of the sessions, where the matter of unwholesome dwellings was under consideration, was the speech made by Mrs. Bovett Sturge, M. D., of London, in which she controverted, as far at least as England is concerned, the conclusion reached in the leading paper upon the subject, that artisans' dwellings in which large numbers of persons are housed must be *ipso facto* unhealthy. Having obtained her degree as doctor of medicine at Paris, Mrs. Sturge was able to express herself with a fluency and correctness equalled by that of only one other English person present. She was able to show that in London, while the average death-rate is twenty-one per thousand, in the model artisans' dwellings, such as the Peabody buildings, which can accommodate ten thousand persons, the average mortality is only seventeen per thousand, while deaths from infectious diseases are in these buildings one third less in number than in other buildings in London. The discouraging statements made by the writers of the paper in question, MM. Trélat and Du Mesnil, may partly be accounted for by facts that came to light during the discussion; as, for instance, the fact that one block-building in Paris, which contains 1,800 working-men, women, and children, is wholly unsupplied with water. This, taken in connection with the statement of M. Durand-Claye, that the night-soil taken from the houses of the working class contains from seven to eight kilograms of nitrogen to the cubic meter, while that taken from the houses of the upper class, where there is a water supply, contains but fifty or sixty grams to the cubic meter, speaks volumes to those who know what provision is made in French houses of the lower grades in the way of water-closets, — perfectly untrapped chutes leading from the different floors into a hogshead in the cellar, emptied as occasion demands.

The delegates were fertile in suggestions as to what legislative enactments ought to be made to enforce a more general attention to laws of health. One of the most important of these was the suggestion by Mr. Edwin Chadwick, C. B., that in each country should be created a Minister of Public Health with legislative power to provide, and executive power to enforce, such conditions as science shall show to be most conducive to public health. The idea was received with approbation on all sides. M. Du Mesnil desired to have a law passed prohibiting the leasing of a furnished lodging, unless the same had been inspected and approved by sanitary authorities, and prescribing an allowance of fourteen cubic meters space to each bed. As instances of such legislation, Senator Crocq mentioned that in Belgium the communal authorities had power to give what orders they chose as to making a house wholesome, and if the proprietor did not comply with their orders the police closed his house. Mr. Adolph Smith said that an English landlord could be fined twenty pounds for letting, before it had been thoroughly disinfected, a room in which a fever patient had been ill. Finally, at the instance of Mr. Jäger, of Amsterdam, an international association has been formed, with Mr. Edwin Chadwick, C. B., as honorary president, for the purpose of urging upon each government the necessity of compelling the several local governments under its control to supply their several districts with pure drinking water.

The struggle between the miners and the farmers in California does not promise to be quickly decided; nor is it likely that any decision will be accepted till the whole legal ground has been fought over. There is no doubt that the farm lands in the valleys have been seriously injured, even if not so much as has been claimed, and that the damage will increase so long as the miners are allowed to empty into the streams the "tailings" washed down by the present system of hydraulic mining. The Sacramento *Record-Union*, which has argued the case of the farmers with moderation and without hostility to the miners, insists that it is a question of the ruin of the whole Sacramento Valley, and possibly of Suisun Bay and the harbor of San Francisco. However this may be, it has been made clear in the testimony of the Bear River case, to which we alluded a short time ago (*American Architect*, August 24), that the question is a vital one to the farmers. In the interest of the miners it is urged that they have for thirty years had the right of throwing their tailings into the streams, and that this right is part of the title of every mining claim; so that to take it away is to despoil the miners by wholesale, to destroy many millions of property, and to bankrupt whole counties. What the law of the case may be, the courts will decide; but as far as the permanent interests of the State are concerned, it can hardly be doubted that if it has come to a question between the two, agriculture is more important than mining. It is hard to believe that no way can be found of working the mines profitably without sending the tailings down stream, or that if this were the case the mines could be valuable enough to make their preservation a matter of vital importance. But in any case it is likely that another generation will exhaust the mines, and if in the mean while they are allowed to destroy the valleys below them, there will be nothing left worth preserving in the region in question. Under these circumstances few uninterested persons will doubt where the interest of the State lies. To an outsider, moreover, it would seem that in a State where society is still somewhat inchoate, as in California, it was of no small importance to establish clearly the principle that one industry must not be practised in such a way as to destroy another.

A very obvious mistake was allowed to pass uncorrected in a paragraph of last week's summary, where, in speaking of the elevator accident at Chicago, the word "lessor" is used in the last line, although the context clearly demands the word "lessee" in its place.

MODERN PLUMBING. VIII.

WATER CLOSETS. II.

The pan-closet is the variety most extensively used, and there are many varieties, differing in workmanship and the mode of supplying the flushing water rather than in principle. A good pan-closet is strong and reliable; the water will not run out, even if the levers or valves are out of order, and if properly treated it is offensive only when the handle is lifted, instead of all the time, like the average hopper; but all the varieties have the grand defect that they empty their contents not directly down the drain, but into a large receiver, constantly smeared with decomposing filth, the gas from which, pent up by the trap on one side and the water in the pan on the other, finds its way through any joint, and rushes out in a volume when the pan is tilted after the closet is used. The inferior kinds have additional faults of their own: in many the pan is so small that the water held in the bowl is not sufficient to prevent the sides from being fouled, and the receiver is so small as barely to afford room for the working of the pan, so that paper and other matters get caught between the edge of the pan and the sides of the receiver; and in all the copper pan is subject to corrosion, which, in a period varying from two weeks to two years, according to the thickness of the metal and the virulence of the gases, eats holes, through which the water leaks out, and leaves the pan dry most of the time. It is not difficult to replace it by a new one, as it is only attached by a mass of solder to the spindle; but the usual practice is to leave it uncared for as long as it will hold a little water while in use, regardless of the streams of the foulest vapor which ascend through and around it as soon as the water has leaked away.

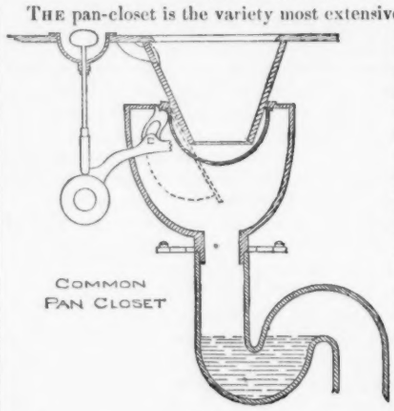


Fig. 1.

The pans would be made more durable by tinning on the bottom instead of only on the inside; but — perhaps because it would be bad for the trade, which finds considerable occupation in replacing worn-out pans — it has never been done until lately, when an English plumber took out a patent for this very obvious improvement.

In this country the most successful attempts to palliate some of the inherent faults of the pan-closet have been made in Boston, where

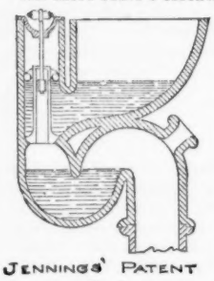
much use is made of receivers enamelled inside, and furnished with a vent at the top, behind the pan, with coupling for a pipe to be carried to a flue, or some better outlet. The receiver is large, so that the pan can work freely and the flushing water splash about in all parts, and the enamelled surface is washed by the water far more perfectly than the rusty iron of ordinary receivers, while the vent precludes any accumulation of gas, and if any draught can be had will prevent the discharge of vapor into the room when the pan is opened. The backward motion of the pan also helps to waft the foul air through the vent. These enamelled pan-closets with ventilated receivers are made by Lennon & Co., Ward, Curley & Co., and occasionally by William Mills & Co., all of Boston. The enamel, not being exposed to the action of hot water, is very durable, remaining perfect after fifteen years' use.

Where a good draught can be obtained, Albee's patent ventilating ring, referred to in treating of hopper-closets, is a useful addition to a pan-closet, answering some purposes for which the vent from the receiver alone is not sufficient. The supply should always be from a detached cistern, rather than by the common method of direct-acting valves.

Thus improved, with enamelled and ventilated receiver, ventilated trap, and cistern supply, a well-made pan-closet is easily managed and kept in order, and is comparatively inoffensive; for these reasons it is still, perhaps, the best apparatus for average use. The plunger-closets, or the Defiance valve-closet, give more perfect cleanliness, with equal or greater durability, but they demand more care, both in fitting up and in use, and the best hoppers with automatic supply, although superior both in simplicity and in effectiveness to any pan-closet, require too great an expenditure of water for ordinary cases.

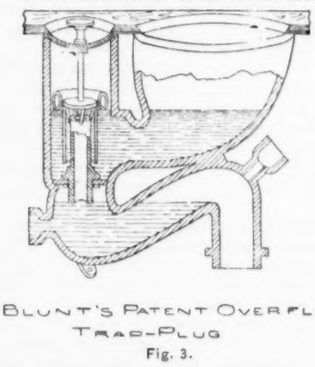
Where water is tolerably abundant, and the owner can exercise a little patience under the difficulties which often attend their first introduction, and a little care subsequently, no apparatus, unless the valve-closets of the Defiance class, can compare in cleanliness, durability, and efficiency with the plunger-closets, of which the well-known Jennings patent is one of the best examples.

All these consist essentially of a basin without pan or other moving parts, the outlet of which, descending first obliquely and then vertically, is closed by a plunger or plug. On lifting the plunger, which fits closely to its seat, the contents of the basin escape below it into the soil pipe, either directly or through a trap, and the plunger closes the outlet again. There is no harboring of filth in a receiver, as in the pan-closets, to give off fumes into the room in volumes when the handle is lifted, and more slowly at all times around the journals or through the holes in leaky pans, and the water held in the basin by the plunger prevents the fouling of its sides, which is inevitable with a hopper-closet; so that in their use the sanitarian's ideal mode of disposal of refuse is attained, all the filth being "cast instantly out of the house, and the doors closed behind it."

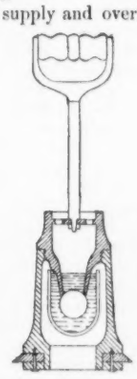


JENNINGS' PATENT
Fig. 2.

The various forms differ in the mode of supply and overflow. In the original Jennings closet the plunger is hollow, and as the water from the supply-pipe rises in the basin it rises also in the chamber in which the plunger works, which communicates with the basin, until it reaches the top of the plug, through which it overflows directly into the trap, as shown in the figure. The obvious defect of this arrangement is that any gas which may return through the trap ascends immediately through the hollow plug and escapes around the handle into the room, and several modes of avoiding this imperfection are in use. In the simplest of these, Blunt's siphon overflow plug, made by the Nason Manufacturing Company, New York, the original plunger is replaced by one somewhat similar, but having the upper orifice covered by a deep inverted cup, which forms a bell-trap in the water of the plunger chamber. D. P. Bower & Co., of Cleveland, Ohio, have also adapted their admirable rubber-ball trap to closing the bottom of the hollow plug, forming a plunger which leaves nothing to be desired. Either of these can be substituted in a few moments for the ordinary plunger, and at small expense give great additional security.



BLUNT'S PATENT OVERFLOW TRAP-PLUG
Fig. 3.



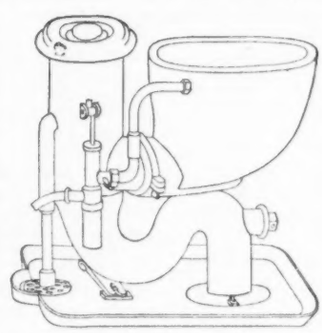
THE BOWER PATENT—PLUNGER
Fig. 4.

Besides these devices for improving the original Jennings closet, the managers of the Jennings Sanitary Depot in New York have introduced modified forms, in which the plunger is solid, and the overflow takes place through a tube connected to the side of the plunger-chamber at the proper height and to the soil-pipe below, with an independent trap at the bottom. This is the arrangement in their Safe-Pan Closet and Trapless Closet, described below.

The supply to the original Jennings apparatus is automatic: the lifting of the handle only raises the plunger to let the contents of the basin and plunger-chamber escape, but a float, consisting of a hollow rubber ring, rests on the water in the plunger-chamber, and as this runs out the float descends, thereby opening a valve connected with the float by a lever. This valve consists in substance of a rubber diaphragm, to both sides of which the water is admitted from the service-pipe, on the top by a small tube and at the bottom by a large tube, the pressure, however, being by hydrostatic law the same on each side, so long as both tubes are open, so that the diaphragm is balanced. The sinking of the lever closes the small tube, and the pressure being thus cut off above, the pressure below pushes up the diaphragm and thereby opens a passage through which it flows into the basin until the float rises again and restores the equilibrium by opening the upper tube.

This mechanism is very delicate. If the diaphragm is too stiff, the pressure will not raise it, and no water will flow; if too weak, the pressure when the valve is opened will burst it, and spoil the valve; so that diaphragms should be selected by the manufacturers to suit the pressure for each case, which they are always willing to do. Even with this precaution, however, the pressure in city water-works is often so variable that it is impossible to get a diaphragm which will not give trouble occasionally if connected directly with the street service. This can be remedied by supplying the closet through the intervention of a service-cistern or tank, which gives a head of water which remains always constant, and allows the diaphragm to be properly adjusted; or a new brass valve may be used, which is sold at the Jennings depot in New York, and works by the same float as the old valve, but does not depend upon a diaphragm, and is consequently more reliable.

Several varieties of the Jennings closet are made, of which the most expensive is the earliest form, all of earthenware, with closet and trap in one piece, the hollow plunger, and the diaphragm valve. An extra outlay of a few dollars is advisable for a Bower patent or Blunt siphon plunger, to put in place of the hollow plunger which comes with the closet. Next to this comes the same pattern, also with diaphragm valve and hollow plunger, but with an iron trap bolted to the earthenware basin and the joint made tight with cement. This costs less than the first form, and should also have the hollow plunger replaced. Next in price is a very convenient and excellent form, called the Jennings Safe-Pan Closet, with earthenware basin and iron trap and the new brass valve; and in addition a galvanized-iron safe-pan under the whole, with trapped outlet, an independent overflow from the plunger-chamber connected with the trap of the safe-pan, and a solid plunger. This, with all its advantages, costs less than the older forms. Still another form, called the Jennings Trapless Closet, has the independently trapped overflow and solid plunger of the last, but omits the trap under the bowl altogether, the necessity for it being supposed to be obviated by the complete closing of the outlet by the solid plunger, and the independent trap in the overflow. This has the new brass valve, and costs less than any of the others. But if the soil-pipe is not thoroughly ventilated, gas may come up through this closet when the plunger is raised, in spite of the opposing influence of the descending current of water, or if some obstruction should get under the plunger so as to hold it open, and therefore the protection of the trap should not be hastily abandoned.



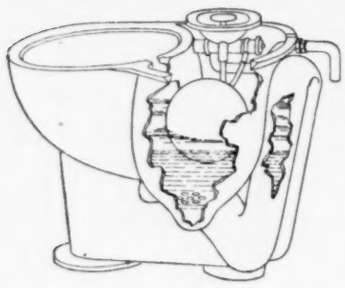
—THE JENNINGS PATENT— —WITH SAFE-PAN—
Fig. 5.

The Jennings Closet, as well as all the other closets with side outlet and plunger, is peculiarly liable to give trouble by catching grains of sand, pieces of paper, or, when the work is new, lead filings, between the plunger and its seat, which prevent the plug from fitting tightly, and allow the water to escape from the basin. Unlike the Defiance or the Bramah Closet, which when emptied by defective closing of the valve remain empty, the automatic supply of the plunger-closets comes into action as soon as the water begins to escape, and keeps a constant stream running through, thus causing a considerable waste of water, which most persons do not know how to prevent.

This may be guarded against, if the water is liable to impurities, by inserting in the pipe which supplies the closet a filter of brass wire gauze with a piece of flannel or bit of sponge, which can be fixed into an ordinary coupling, and when in use the handle should always be held up for several seconds, so that all paper may be well washed out. When this becomes habitual, there is not much danger of leakage from this cause; but if it should occur, the bottom of the plunger and its seat can be easily reached through the basin by the hand, and the obstruction brushed away. Even without leakage, the consumption of water with the plunger-closets is rather large, as the basin holds a considerable quantity of water, and the plunger-chamber has to be filled at the same time with the basin; but the Jennings is perhaps, on account of the comparatively small size of the plunger-chamber, less wasteful of water than the other kinds.

There are two other forms of plunger-closets, which, instead of the delicate valve and float of the Jennings closets, use a ball-cock, working in a chamber attached to the bowl, like the Jennings, but much larger as the ball-cock requires a certain length of lever.

One of these, the Pearson closet, is an English pattern, but can be had of dealers in this country. The plunger is solid, and the overflow consists of a pipe carried from the bottom of the plunger-chamber in S-shape up to the level at which the water is to stand, and then down into the outlet pipe from the bowl. This traps the overflow effectually, but there is no trap under the bowl, the sole dependence for keeping gas out of the room being the tight fitting of the plunger. The basin, plunger cistern, and overflow pipe are in one piece of white earthenware. The ball-cock is much more reliable than a valve, and the whole forms a simple and neat apparatus, which with the addition of a trap would be safe in use, but is much more expensive than the Jennings closets, and consumes more water.



—The Pearson Patent—
—Twin-Basin—
Fig. 6.

Zane's closet, made by Joseph Zane & Co., Boston, is also trapless, and the ball-cock through which it is supplied works in a tank of considerable capacity. The plunger is solid, and the overflow consists of a little hopper at the proper height, closed by a pan, working in a receiver connected to the waste pipe like a miniature pan-closet. The pan, however, is counterbalanced, so that when the water runs in and fills it the weight tips it down, and when the flow stops it returns to its place, retaining water enough to trap the orifice of the little hopper. This is ingenious, but it would dry out in a few hours if the closet were left unused; and when the pan is tipped down and the water is overflowing there is nothing to prevent the ascent of gas but the attraction of the water running in the opposite direction, which is of little effect. This closet, like the preceding, is simple, but the overflow cannot be considered properly protected, and the consumption of water is enormous.

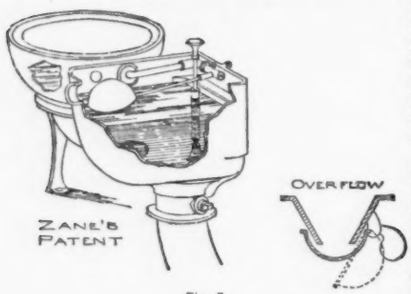


Fig. 7.

A better apparatus than either of these, and one which rivals the Jennings closet, is Demarest's Patent, made by the J. L. Mott Iron Works, New York. This is made only with iron plunger-chamber, which can be had enamelled inside, and the basin can be had either of earthenware or of enamelled iron. The trap forms the support of the basin, as in the Jennings closet; the plunger is hollow, and the overflow takes place through it, but the top is closed, and the water enters the plunger at the side, and has to rise to the top of a partition within it before overflowing, forming a water seal of the height of the partition. The supply is through a valve, adapted to any pressure, worked by a lever and ball; like a small ball-cock but not so simple. The consumption of water is about the same as with the Jennings closet, and the prices are nearly the same. Three qualities are made, (1.) with painted valve section and enamelled iron bowl, (2.) the same with porcelain bowl, and (3.) enamelled valve section and porcelain bowl.

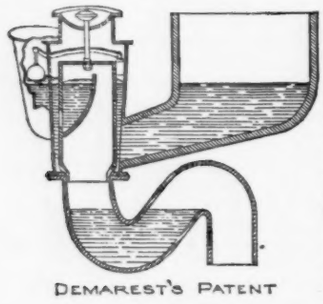


Fig. 8.

It is often convenient, in substituting these closets for an old pan or hopper closet, to set the new one into the trap which has served for the old closet, and for this purpose the Demarest closets are also made without the trap, but instead of it a horizontal offset is turned down at the end at the proper point to enter the mouth of the old trap, usually under the centre of the bowl, with flange for securing to the floor. This saves considerable trouble in making the change.

In adopting plunger-closets, it must be remembered that the large quantity of water they discharge is very likely to siphon out the trap, unless it is ventilated. The Jennings closets have formed on the trap a vent-hole, to connect with a pipe carried to the outer air, or into an open flue, which is the only sure protection. The Demarest closet has the bend of the trap flattened, on the supposition that by thus reducing the capacity of the trap below that of the waste-pipe beyond, it will be impossible for water to pass through it fast enough to fill the bore of the waste-pipe and thus cause a vacuum, a theory which may easily fail if the pitch of the waste-pipe is slight, or if its bore should be contracted by some temporary obstruction; so that in using them it is best to drill the trap and insert a brass nipple for connecting a ventilating pipe; and in all cases where a plunger-closet is set over an ordinary trap, a ventilating pipe should be connected.

Any of the plunger-closets may be, and the Jennings often is, supplied from a service-cistern, with lever, cranks, cistern-valve, and service-box, like that commonly used over pan-closets, but with a larger service-box, thus doing away with the floats and valves of the usual automatic supply. This is a different thing from the cistern placed over the closet only to equalize the pressure on the valve of the automatic supply, and has certain disadvantages, although its simplicity and freedom from leakage make it occasionally useful. With the float-valve, if water escapes from the basin under the plunger, a fresh supply immediately runs in, so that the basin remains full as long as any water is left in the pipes; but with a service-cistern if the basin is emptied, no more water flows in until the handle is pulled. If the outlet is trapped there is no danger to be apprehended, even if a slight leakage should drain the basin dry as soon as it is filled after use, and it may remain dry indefinitely without any further harm than the trouble of refilling it by pulling the handle before use as well as after; but this small inconvenience may be preferable to the loss of water occasioned by even a slight leakage with the automatic supply.

Water-closets with valves should have safes of sheet-lead under them, as the valves are very liable to leakage; and as most closets serve also for slops, the seat should be hinged, as well as the cover, and three-pound sheet lead put on beneath, turned up at the sides, and turned down into the bowl, to prevent the wood-work from getting saturated. The J. L. Mott Iron Works of New York make an enamelled iron slop-safe, fitted either to the Demarest or to the common closet bowls. It is not costly, and is much neater than the lead.

Two common shapes of closet basins are used; the oval bowl, which has an inlet normal to the curve of the bowl, and requires a fan to spread the water over the sides, and the French pattern, which has a side inlet, like an ordinary hopper, to direct the water spirally down the basin. The oval bowl and fan can be better adjusted, and are perhaps preferable to the other.

In setting a pan-closet over a trap the lead trap is placed between the floor beams, the mouth projecting half an inch to an inch above the floor. The lead is then enlarged and beaten down flat upon the floor, the mouth of the closet inserted, and the expanded ring of lead is covered by the flange cast just above the mouth of the closet, which is screwed down to the floor. Putty is spread between the flange and the lead, and a mass of putty is put over the joint after the flange is screwed down.

The best plumbers, before setting the lead trap, reinforce it by scraping the bottom and wiping on a mass of solder outside of it, so as to make the metal at that point half an inch thick or more, in order to protect it against the efforts of amateur sanitarians, who, when there is any trouble with the closet, generally try to remedy it by punching a stick down the trap. The trap should always be connected to the branch of the soil-pipe by a brass ferrule, soldered to the lead and caulked into the iron pipe. Nothing short of this will make a proper joint.

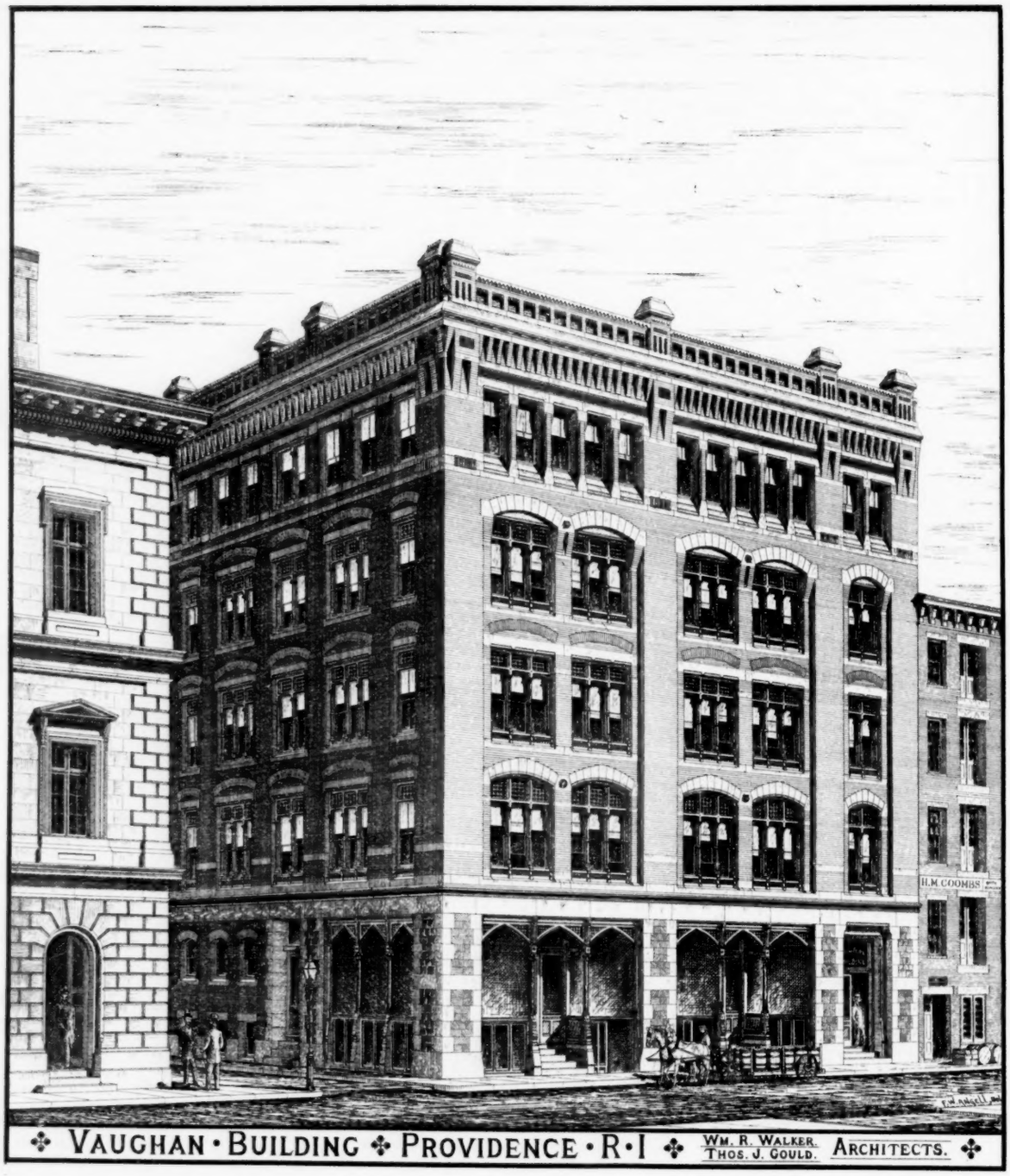
To connect the earthenware arm of a pan-closet or hopper-basin to the supply-pipe, putty seems to be the only resource. A mass of it is put on and tied up with a cloth and strings, and red lead should be mixed with it, as well as with that put over the junction with the trap, to prevent rats from eating it.

The plunger-closets have a copper tube cemented into the basin, with a coupling for attaching the supply-pipe, which is much better than the putty joint.

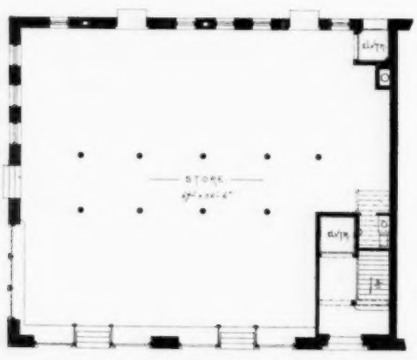
THE ILLUSTRATIONS.

THE VAUGHAN BUILDING, PROVIDENCE, R. I. MESSRS. WALKER AND GOULD, ARCHITECTS, PROVIDENCE.

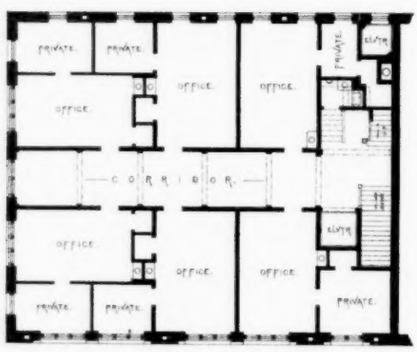
This building (the exterior of which is nearly completed) is being built for Mr. B. F. Vaughan, and occupies the site of one destroyed



VAUGHAN · BUILDING · PROVIDENCE · R·I · WM. R. WALKER. THOS. J. GOULD. ARCHITECTS.



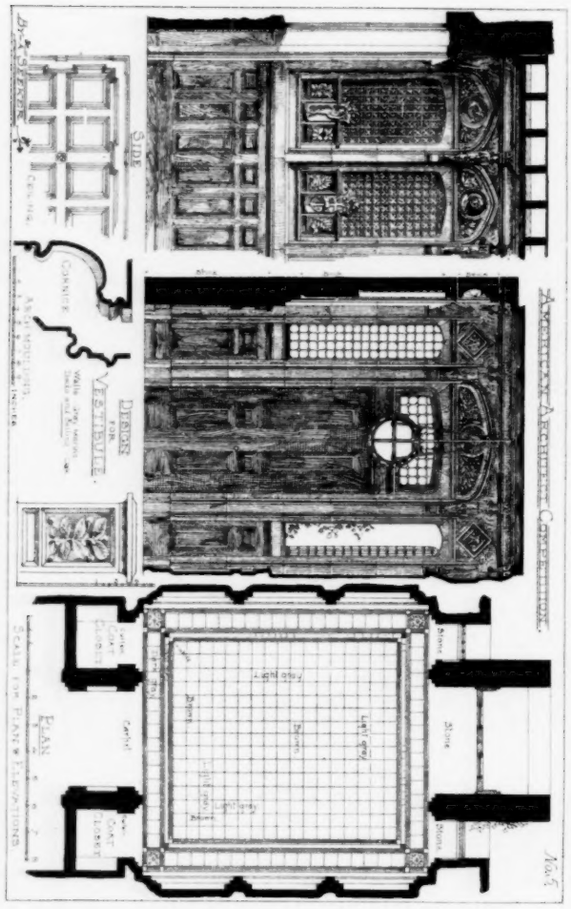
FIRST FLOOR.

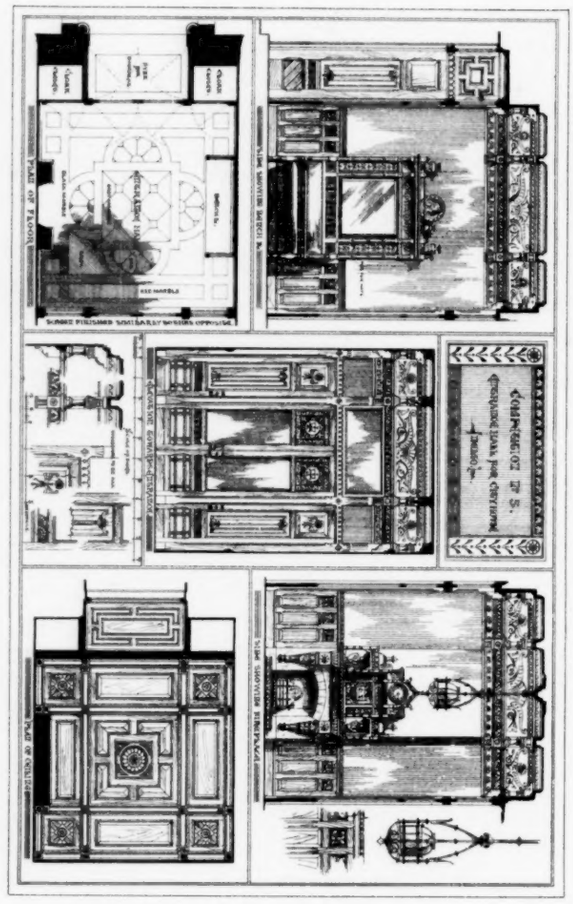


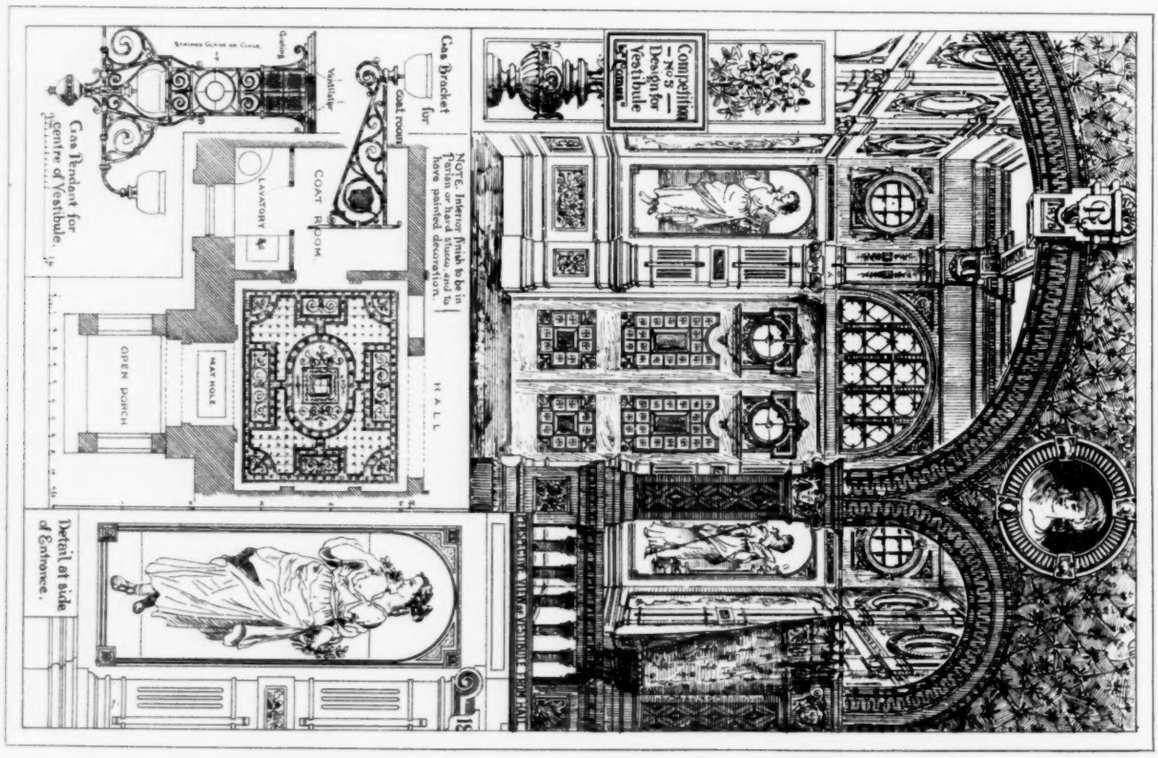
SECOND FLOOR.

THE HELIOTYPE PRINTING CO. 220 DEVONSHIRE ST BOSTON.

— COMPETITION IN INTERIOR DECORATION. —
— №V DESIGNS FOR A VESTIBULE —



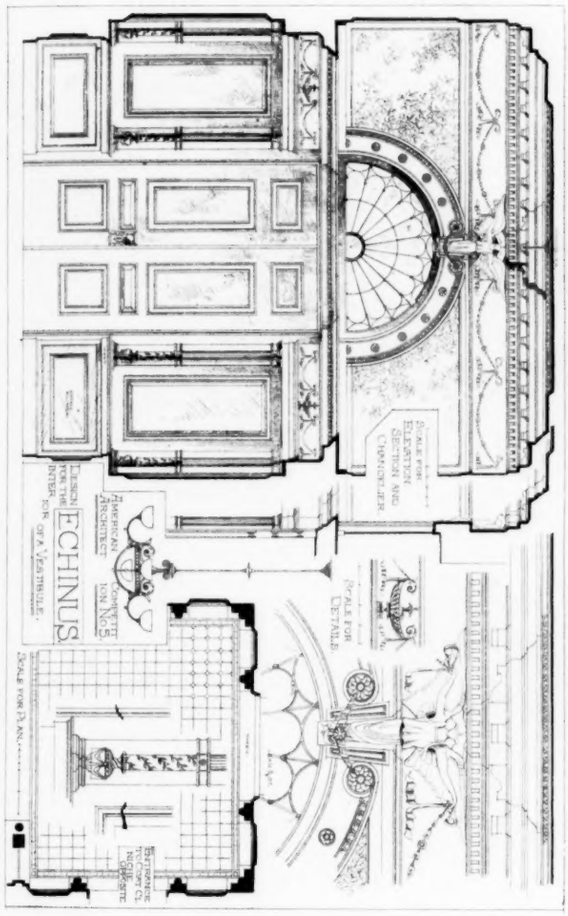


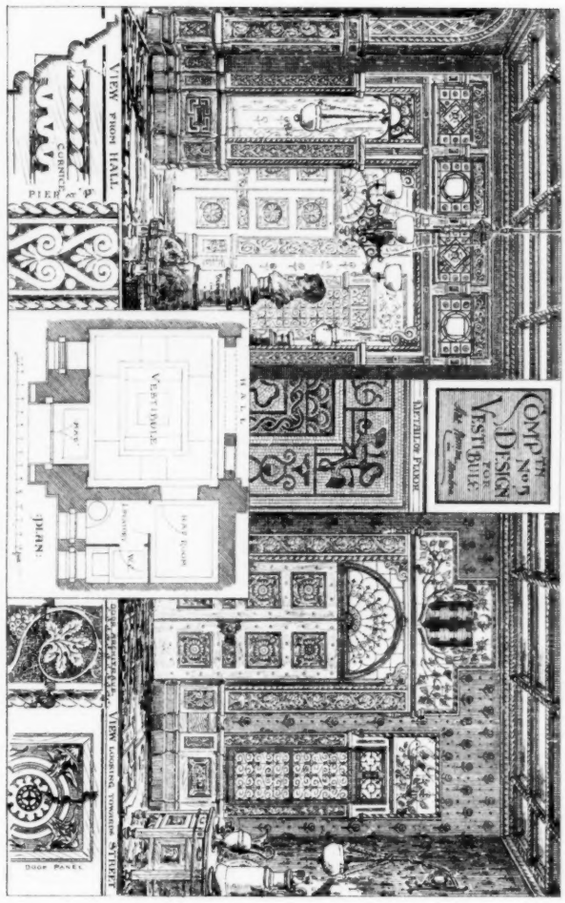


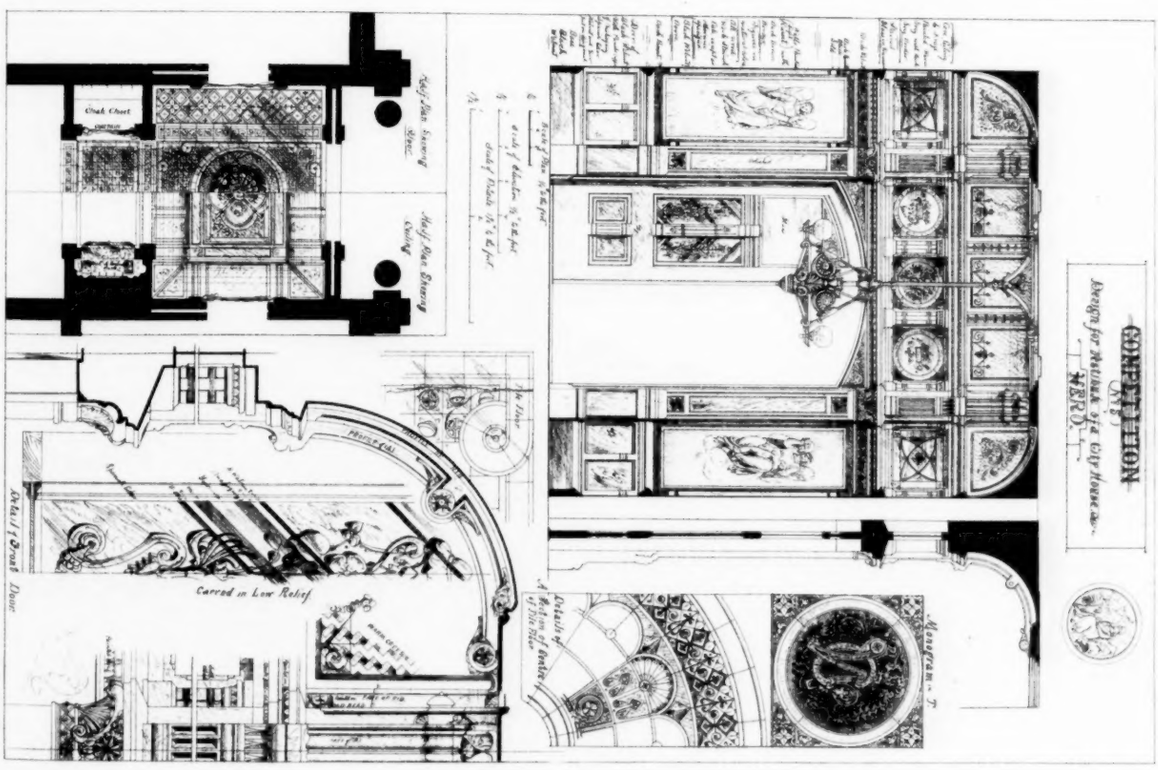
THE HELIOTYPE PRINTING CO. 240 DEVONSHIRE ST. BOSTON

— COMPETITION IN INTERIOR DECORATION. —

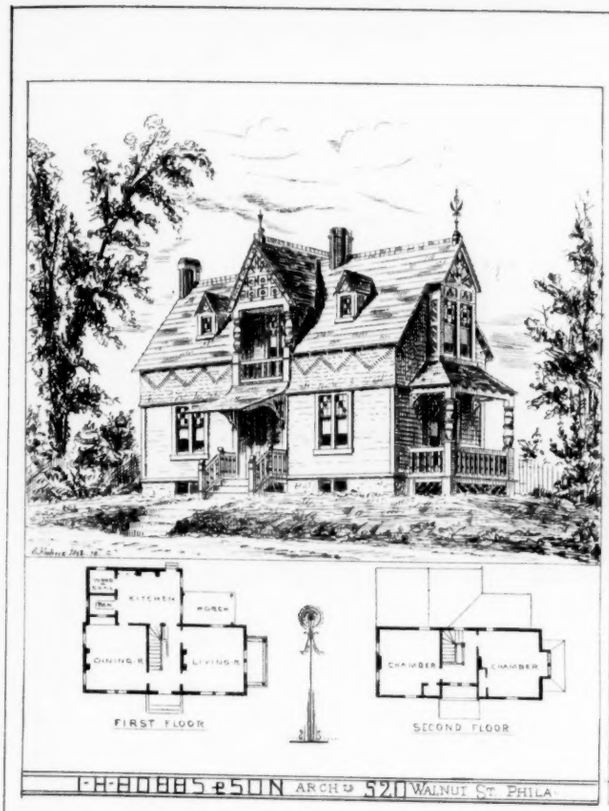
— No. V. DESIGNS FOR A VESTIBULE —

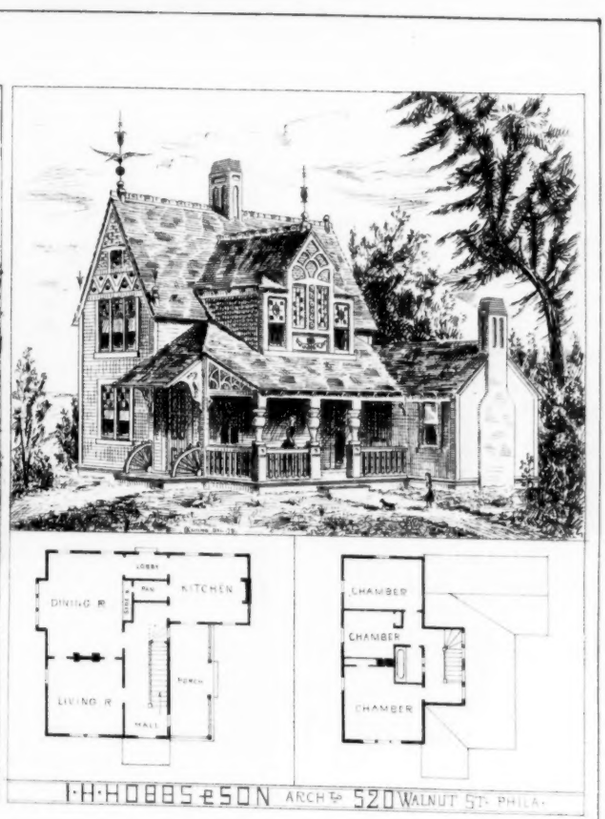


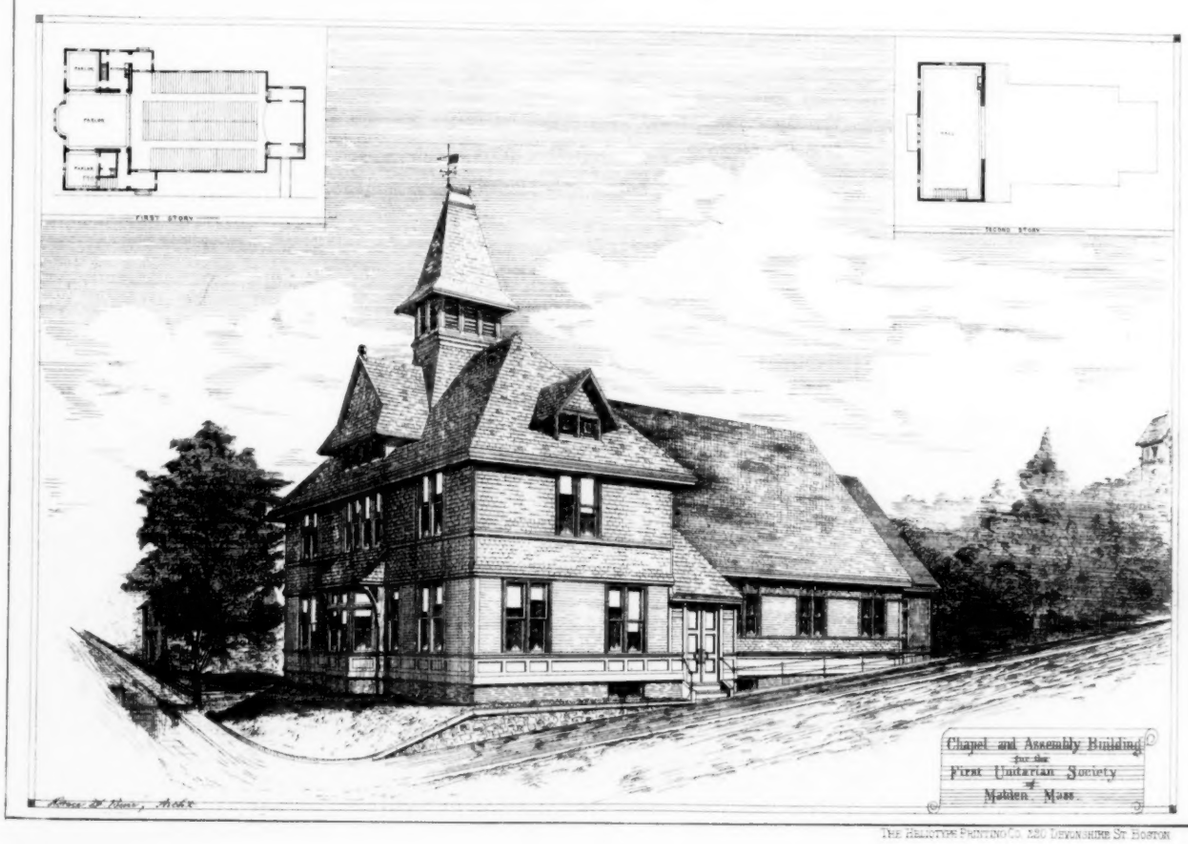




THE HELIOTYPE PRINTING CO. 330 DEVONSHIRE ST. BOSTON







THE HELIOTYPE PRINTING CO. 120 DEVONSHIRE ST. BOSTON

by the fire of September 27, 1877. The fronts are of dark Philadelphia pressed brick, laid in black mortar, with finish of brown stone from Belleville, New Jersey. The piers of the first story are of brown stone, with quoins and bond-stones of granite. The store fronts are of iron. Moulded brick is used in the frieze and panels of the cornice, and brown brick in the relieving arches. The building has two elevators (freight and passenger), and is to be heated by steam. The finish of the corridors and offices is to be of ash. The transom lights of the windows are to be filled with lead sashes glazed with small squares of straw-colored cathedral glass.

DESIGNS FOR COTTAGES. MESSRS. I. H. HOBBS AND SON, ARCHITECTS, PHILADELPHIA.

DESIGNS FOR THE INTERIOR OF A VESTIBULE. — COMPETITION NO. V.

The members of the jury have thought it best not to award a prize to any of the designs submitted to their inspection. They consider, however, that the designs by "*Hero*," "*Stat nomen in umbra*," "*Nemo*," and "*Echinus*," are worthy of honorable mention. See Summary and the following article.

CHAPEL AT MALDEN, MASS. MR. F. S. BURR, ARCHITECT.

NOTICE OF THE FIFTH COMPETITION IN INTERIOR DECORATION.

THE programme of this competition, as printed in the *American Architect and Building News* of July 6, is as follows: — "The subject of the fifth competition will be the interior of the entrance-vestibule of a city house. In plan it will be ten feet by twelve, and it will be fourteen feet high. By day it is to be well lighted by transom or side-lights; and as it must be lighted at night, special attention must be paid to the chandelier, gas-brackets, or other attributes of artificial lighting. Required: A plan showing the arrangement of coat-closets, and the design of the floor-tiling; an elevation looking towards the street, a section, and details to a larger scale. Or instead of this, a plan, a perspective view of the interior and details, will be accepted."

Twelve competitive designs have been submitted under this programme, and their relative merits naturally largely depend upon the manner in which the formidable difficulty of the great height of the vestibule, as compared with its width and breadth, has been encountered and solved. The other conditions are more commonplace, and the competitors have met them with ingenuity and knowledge in various degrees of excellence.

"*Comus*," "*Stat nomen in umbra*," "*Nemo*," "*Echinus*," and "*Night*," each in a different way, have recognized the main point of design in the problem, and, all other things being equal, their rank in the competition should depend upon the character of the architectural devices engendered and developed by such recognition.

"*Comus*," in a drawing rendered with decision and force, gives us a free Renaissance design, excuses the height of the small vestibule as compared with its area by opening it into the house with a screen of arches, — a wide and narrow one side by side, — bold in its absence of symmetry, but wanting in essential relations with the rest of the composition. The columns and pilasters of this screen are not equal in height to those which decorate the walls of the vestibule, and the important line which separates the attic from the order in the sides of the vestibule is not recognized on the side occupied by the screen. Moreover, although the ceiling is not shown in plan, the perspective suggests four beams crossing from the two pilasters on each side, but, the two pilasters being wanting on the screen side, the relation of the beams to the screen becomes entirely accidental, and the unity of the design is interrupted in this respect also, — a fatal defect, not countenanced by the *bravura* style of execution, which is effective and imposing, and by the detail, which shows experience and training. The gas pendant is ingenious and has more than the elements of good design.

"*Stat nomen in umbra*" also has an open screen defying conventionalities of symmetry, but it is square at the top and treated with quarries of glass above a transom, thus opening the vestibule into the house more completely than "*Comus*," and enabling him the better to dispense with an attic, or broad frieze or great cove, devices which all the rest of the competitors (with the possible exception of "*A Seeker*") have employed to lessen the effect of height. He employs no horizontal wall features except a dado, thus giving to the vestibule rather the treatment of a habitable apartment than an architectural compromise between the formality of the exterior façade and the freedom and comfort of the interior. In this respect we consider that he has lost an opportunity in his design. But what he has attempted has been carried out with a confidence and a certain audacity which command respect, although we do not like to see the essential conditions of style and design violated even by such a dashing character of drawing as both "*Comus*" and the present competi have seen fit to adopt. The interior treatment of the outside door and the window alongside has ingenuity and some good details, and the decorated panels over the transoms, apparently filled with designs upon light tiles, though eccentric in form over the door, are allowable expedients of decoration. The treatment of the deep reveals is not explained in the perspective, which in this respect does not conform to the plan. The Roman mosaic in the floor does not suggest a proper contrast of lines in treatment of borders and centre, and is too archaic in design, — in other words, the design does not justify the cost. The ceiling ribs are of similar design in vestibule and hall; but they have no relation whatever with the walls. The discrepancy is apparently capricious, and this is an offence in architecture. The subordinate rooms are well arranged.

"*Nemo's*" is a more practicable and less eccentric composition than the others. The four walls and the ceiling "hang together" well. The place is well lighted, and the detail temperate and well composed. Opposite the door is a glass screen similar in treatment to the entrance wall, and there is an outer and inner door between the vestibule and the street. The walls are harmoniously divided into dado, screen, and frieze, the dado, frieze, and ceiling being of oak and the screen of plaster, without any surface ornament and presumably treated with a plain dark tint. There are also a chimney-piece and a settle on the opposite sides, but entirely out of scale with the architectural features of the cornice. This arrangement, combined with the absence of vertical pilasters on the sides and the extension of the whole by the glazed screen into the hall beyond, satisfactorily meets and conquers the difficulty of height in a small space. But for all this the design fails to interest because the *motif* of it has become commonplace.

"*Echinus*" divides his wall space into four parts by an order resting on a dado and supporting an entablature of bold projection; above this are a flat wall-space and another entablature with a broad frieze and a cornice introducing the ceiling. The first entablature is an impost to the full arch with its fan-light over the door. The plan has indications of an open screen separating vestibule from hall, but its treatment in connection with the architectural features above noted is not easy to explain and is not attempted. The main *motif* is correct. It is not a bad idea to emphasize the projection of the impost so as more effectually to separate the upper part of the narrow vestibule from the lower, thus concealing a part of the wall-space above, and decreasing the apparent height. But this impost, which is a full entablature, should not be so entirely disproportionate in height to the pilasters which support it, — a disproportion fatally increased by the device of engaging light colonnettes on the faces of the pilasters, thus causing the heavy entablature to overhang the pilasters and rest its weight upon the colonnettes, the bases of which, by the bye, are, unhappily, in the form of delicate vases, quite unfitted for the function of bearing weight. The figure decorating the key of the arch and holding the ends of the garlands, which are festooned along the upper frieze, is a modern French device of the Second Empire, out of scale with the rest of the design, and far too light to do the work of supporting the cornice, which is cruelly blocked up upon her head. A master, however, at the elbow of "*Echinus*" could easily have told him how to make the idea of this design more correct and academic, and this with only a few slight changes of proportion. The orders, except in the hands of a skilled workman, are dangerous things to take liberties with.

"*Night*" has attempted to solve the problem of height with a great coved ceiling, which is almost in the form of a dome. This is an excellent architectural expedient, and the walls support it in good academical Gothic fashion; everything, front doors, vestibule doors, closet doors, in width and height, falls into place by itself, as it were, and the skeleton of the composition is quite correct. The detail, however, is bald and wants study; the outside door especially being distinguished by a lamentable absence of thoughtful design; also the decorations of the wall-panels do not decorate; they are rather Egyptian than Gothic, and as such are inconsistent and out of keeping. The carved caps of the octagonal piers should have coincided with the height of the frieze; then, accepting his "dark cherry" for the wood-work and his "dull yellow bronze" color for the walls, the frieze might have been in dark olive green and the dome in warm tones with black outlines upon a gold ground. This would have made a combination of color and form sufficiently deep and serious in effect not to prejudice the eye and render it unfit to enjoy the domestic brightness within. The "crimson on gold," as proposed in the scheme for the dome, would have made sad discord with the cherry.

"*Hero*" gives us a fine line drawing, very carefully executed, the free-hand parts having a little tendency to scratchiness; but the main lines of the composition are simple, and the details conscientiously and laboriously studied. Eight pilasters, equally spaced from the corners, carry four flat ceiling-beams adjusted to a coved cornice. Under the cove is a broad frieze of five square panels on the long sides and four on the short sides, those over the entrance door being filled with stained glass. The doors are well designed and the principal panels are filled with various woods glued together diagonally and carved in low relief: a capricious fancy. The details, if not actually the best presented by any of the competitors, are the most carefully and delicately composed. A more vigorous drawing and a coarser scale with a more marked accentuation of lights and darks would have presented them more acceptably and done greater credit to the good qualities of the design. As a whole it is refined and happily free from eccentricities, and exhibits moreover not a little unity of composition. But the detail is too fine and too delicate for the space and the place, and promises more than can be fulfilled in the apartments to which this is really the vestibule. As regards material and color, the wood-work is oak and black walnut, the wall colors are in russet and brown, the frieze and ceiling in warm grays, with fine de-

tails of gold and black, — all excellent for my lady's boudoir, but a little out of place where her footmen wait. The gas pendant and the floor tiling are also designed in an intelligent and painstaking manner.

"*Alpha*" presents his scheme in a perspective showing abundance of light with panelled wainscoting, a frieze above treated with balusters, and a simple coffered ceiling supported by brackets, all very cleverly arranged for a long hall, but not adapted to the small space allotted, which space his treatment of plan has made smaller still, the floor and ceiling being only $10' \times 7'$. One does not naturally look up in such a hall, and therefore an architectural arrangement which does not correct the disproportion and apparently bring down the ceiling is not adapted to the conditions. Moreover, the design suggests the entrance of a country house rather than of a city house. One difficulty of inordinate height he has to a certain extent remedied by suggesting that the treatment here is extended into the hall beyond, but this is only a partial extenuation for a fundamental oversight in design. But unlike the designs of most of his competitors, this looks like a vestibule hall, and, except for the defect of height not being remedied, is worthy of high rank. The detail is sensible and simple. The sketch of the exterior, although showing a porch wanting in some of the essentials of architectural character, notably in respect to the pilasters, which are badly composed, gives a reason for the lower ceiling over the entrance end of the vestibule and explains but does not excuse the double frieze. The treatment of the gas-fixture is bad. Nevertheless "*Alpha*" makes an excellent contribution and is a dangerous competitor.

"*A Seeker*" gives us a monumental Gothic design in stone, of fair detail but with a greater predominance of vertical over horizontal lines than elsewhere occurs, thus failing to recognize and provide for the main difficulty as regards height. A panelled wooden dado improperly covers the stone-work, the weaker being used to protect the stronger material. There is an outside door in two folds, constructed with carpenter's panellings and only $3' 8''$ wide between jambs.

There is another monumental vestibule signed "3 *A. M. Aug.* 20," without scale to the plan, and conceived in classic forms not well understood. It is a long entrance-hall divided into bays on the long side by engaged Doric columns with *round* abaci, and divided by two open screens of the same order; the outers creen, which is removed from the doorway only by the width of one narrow bay, has apparently no *raison d'être* except perhaps partially to cover the two open recesses on either side of the porch, which are used as closets. The conception and detail are crude and the absence of invention is not palliated by academical correctness. The tiling is a confused mosaic of small geometrical forms not decorative in character. If the author of this design will study that of "*Alpha*," he will learn how an effect equally simple, but far more correct and domestic, is to be obtained by the use of the same order properly carried out.

"*D. P. F.'s*" composition is not necessarily a vestibule, judging from its treatment, but rather a small room of unusual height. It is not sufficiently architectural to meet the conditions, and is wanting in boldness and invention. The caprice of the broken panelling is too often repeated and fatigues the eye; and the apartment has not sufficient light. The study of color in the tiling does not assist its general geometrical idea.

"*Walpurgis*" presents us with the outside as well as the inside of the front door, and the former takes unwarrantable liberties with the architectural alphabet, giving us coupled, stunted, engaged mediæval shafts to support a pedimental form of debased classic. The vestibule has no architectural character and presents but little to criticise. The panelling of the door, however, is considered with some care, but it is not well composed, and is crude and capricious in its ornament.

Finally one who signs himself with indescribable hieroglyphics offers a design which is not architectural, although it is not wanting in indications of a certain inventive faculty: thus there are several curious mechanical devices set forth with painful minuteness, such as a revolving coat closet, an ornamental box for a curtain-spring, a gas-bracket combined with a bell-pull, decorated with purple cloth and supporting a naked creature on a trapeze. The constructive and decorative forms we do not understand and will not attempt to describe. We would remind this competitor that our business is with architecture, which is a serious matter, and if he proposes to compete he must observe some of the conditions of design. If a man would write a sonnet he must use the language of civilized people. To invent a new language, as this hieroglyphist attempts, is painful and ridiculous.

ART SCHOOLS IN GERMANY.[1]

THE GEWERBE SCHULE IN BERLIN.

The Gewerbe Museum, under Director Grunow, is a large institution which was instituted but a few years ago by private enterprise, on the plan and after the example of the Museum of South Kensington. It is now practically supported by a grant from the government. The museum is arranged for the use of the students and others who are working at any special industrial subject; that is to say, it has no regard to chronology or geography, but is planned so that all the glass, or wood carving, or enamels, or of whatever other class the objects may be, are placed together, the technical craft being the basis of the arrangement. Schools under the management of Director Ernest Ewald, of considerable size and importance, have now grown around this central museum, and the directors are anxious to establish branch or district schools in various parts of Berlin, as affiliated classes, all to work with the main aim of improving the taste and handicraft of the artisans engaged in art industries, but at the same time to educate any other persons who may submit to the training. These schools are mixed, that is, both men and women work together in the same class-rooms; this is somewhat unusual in Germany.

There are six hundred students, and fifteen professors; ten per cent of the whole number are free students, the rest pay about six shillings per month, and to some a money scholarship is granted to enable them to develop their gifts, and to allow them to study by day at original composition in design. The elementary classes draw from the large copies in Jacobsthal's "Grammatik der Ornamente" the full size of the originals. A few of these copies are tinted with two or three flat washes; these are copied by the students in sepia or indigo, or other simple tint, with the view of giving them dexterity in the laying on of flat tints exactly in the right place. A large number of Greek frets are among the copies above mentioned; these are used for the same purpose and answer well, inasmuch as the various changes of direction of the forms in which the tints are to be placed give ample exercise to the student to combat difficulties in flat washing. Precision of touch and entire absence of retouching, stippling, or repairing are insisted on.

The application of this practice to higher work is made when the student imitates the cast in light and shade in tempera; the benefit of exact thoughtful imitation of tints is then seen. The outfit of the student consists of a small wooden box in which are six pots of mixed color, graduated in tone from the lightest to the darkest tint that will be needed to imitate the cast. This color is used on a palette, and the work proceeds step by step from beginning to end in the most straightforward manner. It is an excellent exercise, and one that it would be well to encourage in our schools. Its advantages are those that belong to distemper painting. They are valuable in giving exactness in the estimate of tones and graduations; in the directness of the work itself, as each tint is put down in its right place at once, without requiring any retouching or mending; and the German method of teaching dispenses with softened edges, but insists on the regions of tints being marked distinctly with precision; the true effect of the soft edge of a shadow is given by three or more changes in the tone as it passes from light to dark. The effect of block-printing is a result of this teaching, but this is not disadvantageous, inasmuch as the majority of students who work in this material are designers who are engaged in designing for prints of various textures, or those who are being prepared for this occupation. In general it is assumed that tempera is the material in which designers should work in preference to water-color or even oil. It has not been found necessary to develop the still-life section, not even for decorators.

The modelling section is excellent, and has a large and beneficial influence on the arts of the town. Berlin, like London, is a town of brick construction; the bricks are covered either with stucco, or relieved with stone carving, or decorated with terra-cotta. The excellence of the ornamental designs is remarkable all over the town and its suburbs, and I supppose some recent buildings in brick and terra-cotta are the finest ever constructed of this material. The character of fitness is found everywhere in these applications of the decorating material, and gives evidence of sound principles in teaching. These principles are first, no doubt, given to the architects who design the buildings, but a considerable amount of the credit is due to the modellers and carvers who carry out the artist's design.

In the Gewerbe Schule it is not surprising to find that one hundred students out of a total of six hundred are modellers; the care taken in their education is very great. They are taught to model from photographs of Italian ornament, never from lithographs nor drawings; and are further so instructed that they alter the relief from that shown in the original. This work goes on until the student has all forms of Italian ornament at his command, and has further an intimate knowledge of the principles on which it is constructed. Then he composes and carries out subjects under his teacher's eye; this brings him into the practical region of his artistic life, as he can sell his design if it is a practicable one. Men and women work together to their mutual advantage.

Another section is that of majolica painting, a revival by an Italian artist with students under him, which is being done entirely by the ancient methods, in rooms set apart in the Gewerbe Schule. The result when good, that is to say, when body, enamel, glaze, and colors are successfully applied and well fired, is excellent, but the failures are so many that this happy result is not frequently attained, and it is to be doubted if a commercial success will be the result of the adventure.

A principle of this school seems to be that no professor should be a teacher only; the directors therefore seek for men in various professions, such as architects, designers, etc., who can give a part of their day or evening to the classes; the tendencies to pedagogic degeneracy, often said to characterize men who give all their time to teaching, is justly feared.

THE ACADEMY OF ARCHITECTS.

A very useful institution has been founded by the architects of the

[1] From a paper by John Sparkes, Head Master of the National Art Training School, published in the *Architect*.

town. They have a house of meeting, with which is joined a club for social purposes. A large hall or exhibition room in the building is set apart for the public display of all products that the architect is concerned in using or producing, other than those required in the mere construction of a building. There are marqueterie floors, stoves, curtains, furniture, glass, china, various applications of hand-rails, staircases, wall-decorations, etc.; also vessels of metal and pottery as ornament. These are constantly added to and changed, and the exhibition forms a gauge of the advancing taste in the decorative arts. The textile reproductions of Byzantine and Gothic tissues are remarkably picturesque. In furniture the best objects are copies from the Renaissance period, and a certain pseudo-French style which is not objectionable. The designers in this section are behind our own, both in simplicity of construction and taste. Some of the most beautiful imitations or revivals were seen in the tarsia panels of proper wood inlays for doors and other parts of a room requiring decoration. They are growing into extensive use, and are interesting as being the direct product of the Gewerbe Schule. Some of the textile reproductions are excellent, especially those of Byzantine origin, where a flat treatment with interwoven threads of gold is a principle of the design. Others of commoner material in wool, and even in hemp and cotton, were quiet and unobtrusive in tone and color, and often in excellent taste.

The iron work is remarkably good. There seems to be quite a school for smiths' work in Berlin; the cast-iron work is of world-wide renown for its fineness and mechanical perfection. In every quarter of the town the iron designs, and execution of the same, are alike excellent, and the very general use of grilles to the basement windows, sometimes to the ground-floor windows, and almost always to those of the hall door and fanlight, in the best class of houses, keeps up a substantial demand for designs of good quality which are remarkably well worked out.

The stove commonly used is a construction of tiles, made of suitable size and shape to be useful as to the dimensions of the flues and for the purposes of the bond; it is usually white, and gives a large field for the ingenuity of the designer. A modern demand for a fire that shall be visible has necessitated various modifications of the German stove of the past generations, and has resulted in ingenious, and on the whole good, architectural designs for fire-places. The material of which the tiles are made is of ordinary character, but the enamel with which it is covered is really perfect in whiteness and texture.

It is worth mentioning that the architects are almost always the designers of these house-fittings, and that designers not educated as architects are almost unknown. This is perhaps a point that might be dwelt on at length when we consider that training in the construction, proportion, and details of the different styles of building and use of mouldings is one of the most needful points in the education of a designer.

The Academy for Architects in Berlin is a peculiar institution that will shortly disappear. At the present time Berlin is the only large town in Germany without a polytechnic school, and the various arts taught in such an institution are now found badly housed in separate buildings, with separate organizations of directors and professors. But a recent Act of Parliament has ordered that a polytechnic school capable of accommodating from 2,000 to 4,000 students shall be erected, in which the present divided schools for architecture, engineering, and industries shall be united. The English system of apprenticing or articling of pupils to eminent men who are engineers or architects is practically unknown in Germany, and the State takes almost the whole expense and responsibility of educating students in these professions, and even to some extent of providing them with work after they are educated. It is clear that nothing analogous to this exists in our own country, and that the thorough education secured by the German plan is not easily gained in this country. The bases on which the whole architectural education is founded are twofold, — one the artistic, and one the constructive. On the one side, mechanical construction in its widest sense — that is to say, as applied to all known materials from stone to iron and wood — is thoroughly undertaken; and on the other side, the artistic, the full meaning and effect of antique proportions, mouldings, and the æsthetic conditions of all the great historic styles, are elaborately analyzed and understood. The work in the building academy is done under great inconveniences on the score of space. The Schenkel Museum, in which the work is carried on, was designed by the architect whose name it bears, for the accommodation of from 150 to 200 students; this number has been recently raised to above 1,000, with obvious inconvenience and loss of comfort to the students and teachers.

A four-years' course is provided for young men who give satisfactory proof of having received a good general education. In their progress they take first the simple Greek proportions, and their constructive and æsthetic meaning, and work out, first, studies based on Böttcher's principles; then they design some specified building, such as a tomb, a town gate, or some other simple construction. Later, Italian, Romanesque, and Gothic are taken up in the same manner. This branch of their education is to serve the one end of artistic effect and the true principles of the different styles. But at the same time the proper knowledge of the builder is carefully kept in view, and is treated as a separate study from that part of the course which develops the artist. The examinations are frequent and very searching. Measuring actual buildings is given as an examination exercise, and not as a part of the instruction, as with us.

The private and public buildings in Berlin and other German towns give ample evidence of the thorough training of German architects under this system; but at the same time there is a certain coldness or uncompromising exactness about the whole that seems somewhat as if the classic lines by which the architect's education is so rigidly circumscribed had cramped the picturesque element in his art, and had decided the exact form and proportion of everything, to the smallest moulding. In the practice of Gothic architecture the result of this plan of education is indisputably one that gives great prominence to the advantages of our own system, or absence of system, in the education of the architect.

In the section of design, however, the Berlin school has many advantages over similar institutions. The professor, Herr Jacobsthal, the author of a very practical work on the "Grammar of Ornament," is a most accomplished teacher. The result is that German architects are found capable of dealing with details of ornament in a degree far surpassing that of the average professional designer here. Hence, no doubt, the superiority of the iron work, terra-cotta panels, and classical or Italian details, which truly ornament and do not overload their buildings.

CORRESPONDENCE.

FALL OF A HOUSE ON FIFTY-THIRD STREET.

NEW YORK.

SATURDAY afternoon last after the workmen had quit work upon a building on the corner of Fifty-third Street and Broadway, the structure quietly collapsed, and came down a heap of rubbish. Nobody was injured or killed and the excitement soon passed away. The building was four stories high, having a frontage of forty-three feet six inches on Broadway, and a depth of twenty feet on Fifty-third Street. This last front was of brown stone ashlar, while the side showed a wall of face-brick, and on the first or ground floor a row of supporting iron columns. The property was bought as a speculation by Mr. E. Livermore, a banker of 19 Nassau Street, who had already built a row of houses along Fifty-third Street, and was completing the covering of his land by putting up the corner house. It is said that the work was going on by "days'-work," but in any case it was as poor a piece of construction as could possibly come within the usual specification clause of having things done "in a workmanlike manner." It fell within the law, but it was nevertheless a "skin job," — work where economy has first and stability a second consideration. The work had progressed past the "brown-coat" with the plasterers, and the carpenters were just about to begin the "trim" when the collapse occurred. The rear wall is of common brick twelve inches thick throughout its height, a plain bulk-head wall without openings of any kind, to which a chimney gives some additional strength. The Broadway wall was a twelve-inch one too, but the facing of four inches virtually left only an eight-inch wall to carry the beams. The joints were wide and the mortar rather inclined to crumble, though the square pier columns on the first floor looked of ample strength. What the character of the footings is could not be ascertained under the mass of *débris;* but here, no doubt, the fault will be found to lie. The plumbers had been carrying in pipes from the street, and had dug below the area bottom. The heavy rain of a night or two before had soaked the walls, and the cellar had in it a large amount of water, which it is thought had worked under the pier foundations and caused them to either settle or slip. The break extends from the cellar to the roof, leaving only the end walls standing and exposing the entire interior. Had it been properly shored and the windows put in soon enough, no doubt the building would have housed for a long time the four families it was intended to accommodate. The only wonder is that a greater number of our cheap dwellings do not topple over when they get to the stage where this one came down. It is simply ridiculous to expect a brick wall nominally twelve inches thick, but with the bond used virtually but eight inches thick, to carry four tiers of beams and such weight as may be put into the building, in which not an extra foot of timber was used in bracing. Proper inspection might detect these cases before they get to the falling point. Somebody should have noted the plumbers at their work or have known that it was necessary to have a dry soil when the foundation was so poor. As it was, non-inspection or stupid workmen brought on the fall. Since no one is killed, whatever of investigation there is will develop nothing, as it is to be conducted by the Building Department into what is really its own misconduct. W.

HUMORS OF COMPETITION.

BOSTON, August 30, 1878.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — As "they laugh that win," we have no occasion for sadness. Yet it is only fair toward other gentlemen of the profession that we should warn them against the latest trick in competition of which we have knowledge.

Having accepted the invitation of a committee from the Congregational Society in Holbrook, Mass., to submit sketches in competition with three other architects, — whose names were given, — for the rebuilding of the church edifice destroyed last season by fire, we

sent in our contribution, and, as is usually best under such circumstances, dismissed the subject from our minds.

In due time the various sketches were presented by the committee to the parish for consideration and possible selection. At this meeting, a private one called for the purpose, appeared, piloted by a friend who is a member of the parish though not of the committee, *one of the competing architects*, who "had not been able to get his sketches ready in time for the express, and so had brought them down."

Being there, the gentleman was granted permission to explain his design, which he did, taking occasion to let it be understood that he was prepared to contribute a portion of his commission to the treasury of the Society, could he but have the opportunity. Notwithstanding this, the parish voted to adopt the design of the authors of this communication, — upon which the gentleman accompanying our competitor moved that, inasmuch as the plan did not give the exact number of six hundred sittings, the vote be reconsidered, and our sketch, along with that of the gentleman who had got himself smuggled into the meeting, be returned to their authors for modification; the parish, groping somewhat in the dark, as all such bodies do for a time, took the proposed action. Monday evening last having been assigned for final action, our competitor again entered upon the meeting, notwithstanding he had been informed such a proceeding would be considered out of place; and, obtaining consent, proceeded to explain additional drawings which he had brought, and to read a considerable specification of materials and labor.

However, the result (the very quick result, as we are told) of all this was not such as to encourage its repetition, but went to show that at least one body of gentlemen were capable of holding at their proper value such enterprises and their authors.

We are tempted to give you the name of the architect, but think finally we will keep it for the private information of such of our friends as may be invited to compete hereafter in Norfolk County.

H. and T.

BLACK MORTAR.

York, Pa.

To the Editor of the American Architect:

Dear Sir, — Will you please inform me what proportions are generally used to produce good black mortar for brick work. I have for several years past used lamp-black ground in water, and mineral black mixed with a small proportion of cement, together with lime and sand. Comparing the joints made with this mortar with some in your city a few weeks ago, I find mine rather dull and weak in effect; my brick-layers also complain of its setting too fast. Any information regarding the above will be duly appreciated or gladly remunerated by

Truly yours, J. A. Dempwolf.

NOTES AND CLIPPINGS.

We desire to draw attention to the following page, where will be found a list of churches now building in this country and Canada, which, incomplete as it is, cannot but be interesting to professional men and laymen alike, as it betokens an activity which is not confined to any one section of the country.

A Reminder of Old Customs. — During the repairs going on in an old building in Plymouth, Mass., last week, a large section of the plastering gave way and broke two large lights of glass in one of the windows of the store beneath. The cause of the fall was found to be a large accumulation of beach sand, which, in old times, before the days of carpets, was sprinkled on floors and drawn with a broom into fantastic shapes. This sand had sifted through holes and cracks in the boards until several bushels had accumulated above the plastering, and its weight at last caused the fall. The building was built in 1698.

The Eros of Praxiteles. — According to ancient writers, that one of the statues of Praxiteles which approached most nearly in sensuous beauty the famous Aphrodite, of which the Venus de Medicis is generally supposed to be a copy, was the statue of Eros, which, it is said, was presented to the town of Thespiæ by the notorious Phryne. The story goes that she, doubting her ability to select the best of the works of Praxiteles, and being determined to have none but the best, caused an alarm of fire to be raised while she was in the studio; and when she saw that he was most anxious that the figure of Eros should be saved, selected that as her gift to her native town.

Chinese Labor. — A company has been formed in Algeria for the introduction of Chinese laborers, on account of the scarcity of hands for timber-cutting and mining operations. It is asking to be secured in a monopoly of the business, but question is now raised as to the policy of promoting its progress at all.

Gas-Heating. — It is said that one of the church edifices in Berlin, the cubical contents of which are 2,780 meters, is heated by two gas-stoves, 1.40 m. high, 1.10 m. long, and 65 centimeters in width, each having seven brass gratings sixteen inches by two, equal to two fifths of an inch square per cubic meter of the contents of the building; the annual consumption of gas, for warming three times a week, is 1,485 cubic meters, or at the rate of 410 liters of gas per cubic meter of contents. At Hamburg, an edifice with cubic contents of nearly 40,000 meters is heated by eight gas-stoves, each having thirty two brass gratings, twelve inches long by about one and a half wide; three liters of gas are required per cubic meter of capacity.

Besieging a Cement Quarry. — The political history of the past decade has familiarized us with the spectacle of men resorting to violence in support of political offices to which they had claims, more or less impeachable on the ground of fraud. Sieges of barricaded State-houses, insurgent legislatures, and riots calling for the intervention of federal authority, have added fresh blots to the history of Louisiana and South Carolina, blots which have had their lesser reflections mirrored in the riots at East St. Louis this summer, where for a time a dual mayoralty, its representatives supported by rival constabulary forces, put the life of the ordinary citizen into no slight jeopardy by street fights. It is not often, however, that in every-day life resort is had to arms to decide questions of disputed ownership in real property, except, perchance, in the lower walks of life, where the constable has to enforce his writ of ejectment with the aid of a *posse comitatus*. Legal processes are usually efficient to determine ordinary business troubles, but in the town of Rosendale, N. Y., last week, occurred a siege of a fortified place, which was conducted with much of the circumstance of war. For some time past the New York Cement Company's quarry at Rock Lock has been the subject of litigation, which resulted lately in the election of a new board of directors, who declared that the contract of the present lessee was null and void. As this conclusion was not agreeable to the lessee he prepared to defend his claim by force of arms, and building up a breastwork of stone at the quarry's mouth, he entrenched himself behind it with his supporters. To make the defeat of his enemies certain several kegs of powder were placed under this barricade, and were connected with the wires of a galvanic battery. For three days and nights was the siege sustained, till at length the besiegers, sixty strong, advanced to the assault. The besieged, who numbered forty men, under the command of the "Honorable" Isaac Becker, although much better armed than the attacking party, were driven from the quarry, which is now worked under the orders of the new board of directors. Fortunately the crowning outrage of this strange incident was not committed, for owing to some unexplained chance the mine was not exploded.

Accidents. — At Louisville, Ky., a portion of a dilapidated and uninhabited building fell during the night of August 26 without causing injury. Accidents of similar character have happened recently at the Chicago Custom House and at the Hartford Capitol in the falling of large derricks; in the case of the Custom House from the top of the walls into the street below, where it only destroyed a hack, and in the Hartford case from the base of the dome into the building. A two-story frame building on Plymouth Street, New York, fell in the evening of September 5. A family living in the upper part of the building, which was used for the storage of sand, escaped without hurt. The unfinished spire of the new Catholic Church at Bradford, Penn., fell on the afternoon of September 6, and inflicted fatal injuries on three workmen, who were carried with the wreck to the ground, nearly one hundred and thirty feet below.

The Metric System. — The International Congress on Weights, Measures, and Coins unanimously adopted, at its session recently held at Paris, a resolution deploring the fact that England, Russia, and the United States had not yet adopted a metric system. The American and English delegates afterward adopted a resolution petitioning the English and American governments to appoint a mixed commission to consider the adoption of a metric system by both countries.

Tenement. — The Sanitary Code of the city of Brooklyn gives the following definition of a tenement house: "That a tenement house shall be taken to mean and include every house, building, or portion thereof which is rented, leased, let, or hired out to be occupied, or is occupied as the house, home, or residence of more than three families living independent of one another, and doing their cooking upon the premises, or by more than two families upon a floor so living and cooking, but having a common right in the halls, stairways, yards, water-closets or privies, or some of them."

Memorial Cathedral to Queen Mercedes. — The Paris *Figaro* states that it is the intention of King Alfonso to build a cathedral as a mausoleum for Queen Mercedes. The building fund will be obtained by subtracting yearly from the king's civil-list the sum of forty thousand dollars, while the Duc de Montpensier and the Princess of the Asturias will make a yearly contribution of twenty thousand dollars. Besides this, it is said that Queen Isabella has authorized, for the same purpose, the sale of certain jewels which were deposited in the Cathedral of Atocha. These jewels are said to be worth six hundred thousand dollars.

Discovery at Newbattle Abbey. — The Edinburgh *Scotsman* says: "While preparing some additions that are being made to Newbattle Abbey the workmen recently came upon what has proved to be the foundation and base of a chapel in an excellent state of preservation. The basement of the building is two hundred and sixty feet long and about sixty-seven feet broad, and there are numerous massive pillars which are believed to have supported a groined arched roof similar to that of the crypt at present in course of restoration in the abbey, and which is supposed to have been built about the year 1140. Many elaborately carved stones have been found, and these, with the beautiful moulded work to be seen on fragments of the groined arches and pillars, proved that the mason-work must have been of a very superior nature, and in style akin to that of Melrose and Kelso abbeys."

The Gratitude of Corporate Bodies. — The New York *Tribune* says that the Roman corporation keeps Prince Torlonia, the aged millionaire, whose charities have been regal, in a state of prickly worriment. He had a palace in the Piazza Venezia and a little palace or palazzetto adjoining it. In order to make way for the Via Nazionale the palazzetto was cut off and knocked to pieces. But the civic authorities were not satisfied. The beauty of the new street was disfigured by an awkward corner of the larger palace, which had been exposed to view; and the prince has now been told that he must sacrifice for the sake of public taste that portion of his property. He will be deprived of two rooms in which he has passed a great part of every day for many years, and for which he has a particular affection.