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THE Commission on the Congressional Library, appointed some time ago, has, it is said, prepared a report which will be presented to Congress immediately. If we may judge by the accounts of it which have been made public in advance, the report is a very judicious one. A number of propositions, it will be remembered, were submitted to the Commission. Opinions were divided, in the first place, between an extension of the central part of the Capitol and a new building. For the new building a variety of sites was proposed. One was on new ground to be purchased on Capitol Hill; another was in Judiciary Square, — a reservation north of Pennsylvania Avenue, now left vacant by the removal of the District jail, — another on the avenue itself, opposite the Botanical Garden. The Commission rejects the proposal to extend the Capitol for the accommodation of the library, saying that it will be impossible to permanently provide for the library by this means; and in answer to the objection that a separate building will take the books out of reach of easy consultation by Congressmen, proposes to retain within the Capitol a working library of from fifty to seventy thousand volumes, which, as Mr. Spofford maintains (who as librarian is a member of the Commission), is twice as large as any parliamentary library now in use. The purchase of ground on Capitol Hill, where the Government has no reservation except that which is occupied by the Capitol itself, is rejected because, as things move, it would probably make a delay of two years, and there is need of immediate provision. The choice of the Commission is therefore Judiciary Square, and their report recommends an immediate appropriation of \$150,000, to begin work with. It recommends also that the Commission be continued, and empowered to procure and present to Congress plans for a new building, which they would set in the centre of the square so as to give it room to grow in all directions.

THERE can hardly be a doubt that the Commission has done well in refusing to indorse the extension of the Capitol for the use of the library. Our reasons for thinking so are implied in what we have said before (*American Architect*, March 16, 1878) on this subject. The choice of Judiciary Square seems on the whole the best that could be made. Capitol Hill is too remote from everything but the Capitol, and there is probably no place on Pennsylvania Avenue, unless it is the place at Seventh Street, where the new market has been lately built, in which a great public building could be set without ultimate injury both to itself and the avenue. A library is a building which, though it should be accessible, is most at home away from a great business thoroughfare; and for the sake of security, light, and air, it should be as widely as possible separated from other buildings. It needs isolation and quiet, in fact, almost as much as a hospital. In Judiciary Square it would be as effectively placed as anywhere that we think of, and at once isolated and accessible. The library of Congress really serves, and ought to serve, two purposes: it is a library of reference for Congressmen and of study for scholars from all parts of the country. Both these uses are important, though with all respect to

our legislators we think that the second is or will be the more important. Fortunately the two uses may be to a great degree independent of each other, as is provided for in Mr. Spofford's plan of dividing the books. For the general uses of the collection, as much as for its security, it is better that it should be removed from the Capitol, while its growth makes this imperative. Its greatest foe, we suspect, will really be the paternal fondness with which Congress has provided for its growth. The regulation which crams it with two copies of everything that is copyrighted in the United States is in the long run appalling, and must ultimately produce a dropy which can only be remedied by the knife. No design for architectural expansion can permanently keep pace with it. Unless this oppressive order for preserving in honor all the worthless literature of the country can be modified, we would venture to suggest that the Commissioners, if they are empowered to construct a building, should build it in two sections, one inflammable and one fire proof, and that the librarian should divide his collection accordingly.

THE agitation of the laboring men does not diminish, and, although we hear less of communists drilling and arming all over the country, the socialist organizations are kept in vigorous action, and meetings compounded in different proportions of workingmen and communists are as abundant as ever. It is true that these names, "communist" and "socialist" and many others, mean different things to those who claim them, and that among those who are thus commonly classed together are men of very different aims. But a general view shows such continuous gradations from the red anarchist at the one end, to the honest workingman on strike at the other, that there seem to be no points at which they can be marked off into classes. We notice, too, in the reports of workingmen's meetings a pretty steady infiltration into their platforms and speeches of the ideas of socialists, such as, for instance, that capital is the product of labor, by which is meant merely manual labor, and should therefore be its reward; and that it is the business of government to provide for the support of the working population. At a late meeting in Washington it was argued that capital was only overwork, and that if a man worked for two dollars a day he earned that in the first six hours, the balance of the time being the capital of the firm. It is an easy step from this to the claim, which we have heard before, that it is the workingmen who pay the taxes. Accordingly we learn from a meeting in Louisville, after being told that the laborer is worthy of his hire, and also is worthy of being hired — which does not rest on the same high authority — that "after all, the laborers and producers who work for small pay and cancel their just debts are the class upon which the great burdens of taxation, public defence, and general improvement fall." So in a meeting at Fall River, Mass., the resolutions demanded "an immediate return of the fifteen per cent [cut off by the employers], whether they are making a profit or not;" a resolution which was clinched by another that puts the Fall River magnates in a position of greater influence than they would probably claim for themselves, declaring that "The Fall River Manufacturing Board of Trade, through their influence in New England, in reducing wages, and encouraging an eleven and twelve hour system by their violation of the ten-hour law, are responsible for the present labor troubles, which are the direct result of New England cheap labor." It appears, nevertheless, and is a wholesome symptom, taken for what it is worth, that the workingmen are coming more or less to regard the name of communist as a reproach. We even find them occasionally flinging it back at their oppressors and declaring that the capitalists are the communists of the country.

MEANWHILE the Senate Committee on Education and Labor has reported against the resolve for enforcing the eight-hour law, saying that the purpose of the law is simply to limit the hours of work to eight, without meddling with their compensation, and they add that, —

"It is clear that the Government should employ its workingmen at the same rate as is paid for like labor outside of government establishments in the same locality. A system under which it would pay higher wages than private concerns pay for like work would result in establishing favoritism in labor, which would very naturally be offensive to all men outside government employ, and would ultimately lead to the abandonment of the

government workshops. It is well known that in these workshops men are often employed upon the recommendation of members of Congress, not always with reference to their qualifications. This system, of itself, is sufficiently distasteful to the workmen outside of the government establishments, and any regulation of law giving to these government employees the same wages for eight hours work which the same class of workmen outside get for ten hours work, would make it still more distasteful."

It is from Baltimore that that story of the latest building accident comes; and it looks like a *reductio ad absurdum* of the attempt to build with the minimum of material. A three-story brick house, which is described by one of the local papers, with perhaps unconscious irony, as a fine brick dwelling, had just been so far finished that the roof was going on, when it fell without warning and buried eight men in its ruins. One of these, the master bricklayer in charge of the building, died on his way home, three others are thought to be dangerously injured, and the rest were more or less seriously hurt. It appears that the house, which was exposed on one side, the adjoining lot not being occupied, had on that side only a four inch party wall. This wall, which was not even stayed or tied in its whole height, bowed under the weight upon it and brought the rest of the house with it into the cellar. We are assured that it is a not uncommon habit in Baltimore to build in this astonishing way. The chapter of the Institute there has been hard at work for two years to get passed a proper building law; but has thus far been defeated by the opposition of builders. It may be hoped that with this illustration before them the people of that city, who seem as unwilling as most people are to learn from the experience of others, may be led to see the error of their ways, and be brought into some agreement with the rest of the world as to their need to protect their citizens' lives against the recklessness of incompetent or unscrupulous builders. An unlucky custom of the city is said to be in the way of a proper inquiry into the case. It is a disadvantage which is common to most cities that at least one man must be killed in order to provoke a serious inquiry; but in Baltimore it is the rule that the inquiry should be held by the coroner of the district in which the man dies. The master bricklayer in this case lived in a suburban town and died just outside the city limits, and the question occurs whether the death of one of the other injured men will not be necessary before the Baltimoreans can gather due fruit from their disaster. It is to be hoped that they may dispense with this condition; such accidents are too full of instruction and too costly to be wasted.

SIMULTANEOUSLY we hear of the fall of a county bridge in Indiana between the matutinal towns of Aurora and Rising Sun. Happily, anticipating both godparents it fell at two o'clock in the morning, and so avoided injuring any body. Built nine years ago by the adjoining counties at a cost of \$45,000, it was, says the *Cincinnati Gazette*, "a combination of wood and iron, after what was then a new and untried pattern, and since its completion has always been considered unsafe by those who have had much experience in bridge-building." What the "pattern" was we have nowhere seen set forth. But every bridge that falls makes one wonder—and such testimony as we heard at the Ashtabula and Tariffville inquests makes the wonder grow—why people do not realize that the building of a good bridge in modern ways is a difficult feat of engineering, and that, however safe it may be to repeat what has been approved by experience, the introduction of new and untried patterns is only to be allowed to engineers who have qualified themselves by very thorough training to see exactly what they are doing.

THE promising success of the elevated railroads in New York has stimulated the authorities of Brooklyn to take advantage of the Act of the New York Legislature of 1875, which empowers each city to appoint commissioners with authority to report whether steam railways across its territory are necessary or desirable, and if so to propose the routes on which they shall be built. The commissioners, appointed in March, have just rendered their report, in accordance with the provision of the Act which required them to decide upon the necessity of the transit in one month, and in case they considered it desirable, to report a plan of routes for it in two months. They promptly decided that the city imperatively needed rapid transit, which in the language of the day seems to mean railways in the air, and

advertising for plans and suggestions of routes, have, they say, heard all those who chose to offer advice or plans. The problem of transit for Brooklyn, spread as the city is over the broad end of Long Island, is much less simple than for New York, which practically defeats the geometer's definition of surface by having its extension in only one direction. The commissioners naturally take the terminus of the East River bridge for what the Germans succinctly call their *knotenpunkt*. They have attacked their problem with vigor, with the conviction that a system of sixty miles of elevated road, covering pretty much all their thoroughfares, will ultimately be necessary, but limiting themselves for the present to about a third of this, providing for a semicircle of five miles radius about the end of the bridge. Within this they lay out lines diverging from their centre, of which the chief ones will occupy Fulton street from the ferry to the outer line of the city, and Washington street, with the whole of Myrtle Avenue to Broadway. Various branches diverge from these, and a cross line connects them. The people of Brooklyn are not alive to the real import of rapid transit, say the commissioners, and the report urges them to prompt action. It is hardly likely that such a scheme as that of the commission will be adopted without considerable discussion and resistance. People are not fond of delivering up their chief thoroughfares to be roofed over with steam railways; and in spite of the general convenience, and the fact that property is said to have lost nothing in value under the Sixth Avenue route in New York, it is not to be expected that the people over whose heads the transit is to be made will accept it with a very good grace. Myrtle Avenue, over which one of the main lines is to be carried, according to the new plan, was once before proposed for such a use, but the opposition was so strenuous that the city authorities forbade it. A single line of rails in a city is apt to prove a bitter apple of discord; but the Brooklyn commission has thrown out a whole basketful.

THERE is instruction for contractors—or for their bondsmen—in the experience of Mr. Mullins of Brooklyn: if the Schleicher bill should be passed by Congress, the lesson ought not to be lost on the hundreds of builders who will rush to offer doubtful bids on the buildings which it will put upon the market; for the lesson is the same although Mr. Mullins's tenders were for beef and mutton instead of for labor or building materials. The Board of Supervisors for King's County advertised for supplies for the public institutions of the county, requiring that each bid should be guaranteed by two bondsmen. Mr. Mullins put in his bid with proper sureties, and then attempted to withdraw it. The Supervisors, however, insisted on awarding him the unwelcome contract, and when he refused to perform it, they sued his bondsmen, against whom the city court has rendered judgment for some three hundred dollars. There are few greater annoyances in the administration of government work than the intrusion of insincere bids into competitions. If the system of letting public buildings by definite contract is to prevail, there will be a great deal of such annoyance, to which the Government is more exposed than private persons, both by reason of the greater importance and attractiveness of its contracts, and because it has less liberty of discrimination than private persons. It is therefore to be desired that such adventures as that of Mr. Mullins and his bondsmen, and the late quarrel of Mr. Martin with the Albany State House commissioners should be as widely known as possible, by way of caution to bondsmen, of warning to straw bidders, and as admonition to those who are charged with the letting out of public work.

THE CUSTODY OF AN ARCHITECT'S DRAWINGS.

THE communication on Sir Edmund Becket's book upon architects, which appeared in our paper some weeks ago, suggested one or two questions of architectural practice in such a way that we have wondered whether none of our correspondents would allude to them. The remarks we had occasion to make on Mr. Schleicher's bill the other day again brought up one of these, that is, the question to whom should belong the custody of the drawings which an architect prepares for the convenient execution of his work. We call this a question, because it is sometimes so presented. As a matter of fact there is in actual practice no such question, the ordinary and recognized usage being uniform,—that the architect's drawings and records are not only in his keeping, but his property. This is the basis of the custom recorded in the schedule published by the American Institute of Architects, which prevails wherever the practice of

architecture is well established, either in Europe or America, that drawings, "as instruments of service, are the property of the architect;" simply speaking, they are the tools of his trade. There still lingers, however, in the minds of some people, and in outlying communities where all professional usages are more or less nascent, a notion that a client pays for his plans, and therefore has a right to them. Whether because cases which involve it have been rarely tested, or because the bench has been negligent in inquiring into the actual facts, this usage has been slow of recognition in the courts, and is therefore supported by experience rather than by judicial record. At all events, it has been overlooked enough to make it worth while to examine the reasons for it, of which a man so acute as Sir Edmund Becket is yet so ignorant or disregarding as to recommend the express stipulation that "the plans and documents relating to the work shall be the property of the client, and the architect shall make at his own expense all copies of them necessary for the conduct of the works."

Of the objection that the client pays for the plans and is therefore entitled to them, we may say, briefly: No doubt the client is entitled to what he pays for, and if the architect chooses to sell his drawings to him this does entitle him to them. But no architect thinks of doing this, though we fancy that some may really do it without intending, by making out their clients' bills "for plans and specifications." This is easily avoided by using the more natural and comprehensive formula, "for professional services." The plans and specifications indeed are merely clerical records, and the architect's real work lies behind them. Nor, as a matter of fact, is there one case in twenty, perhaps not one in a hundred, at least where architectural practice is established in orderly form, in which the plans do actually pass from architect to client.

This leads one to consider what the architect's essential work is. It is not to make plans and specifications for his client, unless in certain unusual cases, but to contrive certain buildings, structures, or perhaps decorations, for him, and to see that they are properly executed. The drawings are technical contrivances which the architect employs, first in assisting himself to determine with exactness just what the work shall be, and second in directing mechanics as to how it shall be done. They serve also, more or less, as indications to the client of what his work is to be, but they are far too elaborate to be made directly for this purpose, which is generally met by special sketches and descriptions of a general character. What are called the working drawings are the architect's tools for carrying on his work. It is for this purpose only that he has them prepared; with a view to this, he decides how many and of what kind they shall be, a thing which is no concern of the client, provided only that the right result is attained in the end. If he could devise another sure and more convenient means of getting at this result, he might make no working drawings at all, and his client would have no cause for complaint. Made as they are, the client does not commonly know of the existence of most of them, nor could he understand them if he saw them. There is no more reason, then, in the nature of things, why the architect should turn them over to him than that the physician should give up the records he makes of his cases, or the lawyer his briefs and notes, or the minister present his parish with the manuscripts of his sermons; and it is no more the custom.

This view of the architect's function is one that deserves to be specially insisted on, for obvious as it is when it is clearly stated, and borne out as it is in its consequences in actual practice, it is very apt to be overlooked. The fact that there is not one case in twenty where the architect gives up his original drawings, is not from a mere negligence of clients in asserting their rights, but the natural working out of a principle whose results everywhere assert themselves, though the principle itself is often overlooked.

When plans and drawings have served their primary purpose as tools which the architect uses for carrying out his work, the value which remains to them is as records of it. These records may be of use to settle questions and disputes, if any arise afterwards, concerning the character of the work or the incidents of its execution, or as means of study, if alterations become necessary, or of reproducing it if it is destroyed. For all these uses the public is better served on the whole by the rule that the drawings should remain in the keeping of the architect. In most cases they are safer so, and more accessible. Only the most sedulous client takes any care to preserve his

drawings, even if he has insisted on being supplied with them. The architect who has been called on to alter another's work knows how impossible it usually is to find, when they are needed, the plans which the owner may have procured. When it comes to the working drawings prepared for work of any complexity, they are beyond the comprehension of any but an expert, and not only need the explanation of the architect who made them or of some other, before any testimony can be got from them, but are sure, if they are not in his possession, to meet the common fate of unintelligible rubbish. In point of fact experience shows that if drawings are to be of any use as records, the client is not a safe person to intrust them to, for they are difficult to take care of and are sure to go to ruin as soon as the first interest of novelty of possession is worn off. Especially in case of disputes, which often come up between owner and builder after the work is finished, there is clearly an advantage in having the plans safe in the possession of the architect, who knows better than anybody else the history of the building, and has been from the beginning the mediator and arbiter between his client and the workman.

To the architect himself his drawings have a value altogether apart from that which they may have for anybody else. They are the diary of his practice, his professional autobiography. They record his experience, his development, his aspirations, his failures, and his successes. The more he has put his heart into his work,—the more labor he has bestowed upon it, and the more completely he has identified himself with it,—the more will these records be invaluable to him. To the client the result alone, the finished building, is of importance. To the architect the process by which it was designed and administered is an essential part of his life; the story of it is his personal history. If this be thought a sentimental interest, it is a serious one to him, and it has its practical side. The record of the difficulties he has studied and the problems he has solved is there. The results are set down for his future use more clearly than they can be held in his memory. The traditions of his practice are recorded there for the use of his draughtsmen and assistants. The drawings contain an accumulation of information for their guidance which it would be extremely laborious for him to supply without such aid, and a guaranty against error and misunderstanding of his instructions which he can ill dispense with. To take away from the architect, whose working staff is likely to be constantly changing, the plans for his buildings as fast as they were finished, would be to cripple the working of his office to a degree that outsiders would hardly conceive.

A collateral advantage which the architect may in justice claim from the custody of his drawings is a reasonable assurance against the purloining of his designs. To give up the drawings means very often to see his work reproduced, without acknowledgment and without compensation, by some one into whose hands they have passed, and for the benefit of another with whom he has not even communication. This is a real injustice, though it is one which the world takes lightly, and for which no remedy is provided. The fact that the second use of them does not involve the labor on his part that the first did cannot lessen their value for the second use, nor invalidate his claim to compensation, any more than in the case of a patented invention. We do not propose, however, to stray into a discussion of the question of architectural copyright. We shall simply assume that so far as the usual course of practice gives the architect an opportunity to protect himself against the use of his ideas and inventions by persons who give him no return for them, it is just and reasonable that he should do so. The unauthorized appropriation of his designs is one of the chief of the minor annoyances to which he is exposed. So far indeed as this is mere imitation by others of the work that is before their eyes, it is probably impracticable to find a remedy for it. In fact, we doubt if it is desirable, in the interest of the whole community, that it should be remedied, if it could be. It is better that the architect should be content to make in this way his unpaid contribution to the public store, for it is of such contributions that the general habit of design is formed, and in this way not only do styles grow, but the individual architect gets here and there as much in return as he gives. Still, although he may be willing to give his fellows at large the opportunity to avail of his example as they see it in his executed work, to expect him to turn over to individuals without compensation the appliances which he has contrived for his personal use in carrying out this work is a very different thing, and it is asking too much.

Nevertheless, the client may fairly ask to be supplied with

such a record of the design and construction of his work as shall tell him how it is built, and direct him in case he needs to have additions or alterations made to it, or enable him to have it reproduced in its essentials, if it should be destroyed. No architect will object to furnishing such copies of the most important drawings as are necessary for this use. It should be done, however, with the full understanding that it is because the client desires special information, not because he has in justice or in usage any claim of ownership in the original drawings. And when this makes any considerable amount of additional work it is fair that the architect should be paid the cost of making these copies, for they are no part of the service he is by usage bound to render. Moreover, the client should understand that they are for his own personal use only, and if he subsequently has occasion, or prefers, to consult a new architect for alterations in his building, which under ordinary conditions of comity he is not likely to do, it should be a point of honor to him not to put into his hands the drawings of his predecessor, so long as that predecessor is in a position to set a value upon his rights in them.

The case of public buildings is somewhat different from that of private ones. They are usually more costly and expected to last longer. The public also, as master of the individual, assumes a right to be more exacting than a personal client, and there is less likelihood in case of subsequent alteration that it will have the opportunity of consulting a second time with the original architect. It is therefore desirable that in the case of public buildings a government should preserve on file sufficient plans of its buildings, even though they are built by private architects: in our opinion this ought always to be done. But this does not imply, be it remembered, that the government any more than an individual client is the owner of the original designs, nor should it be forgotten that the compensation which is allowed the architect for public work is usually small enough to make the furnishing of such plans a burdensome addition to his labors.

HOUSE DRAINAGE AND WATER SERVICE.¹

MR. BAYLES is the editor of *The Iron Age* and *The Metal Worker*, a position which has brought him into correspondence with plumbers throughout the country, and which has necessarily called his attention to the sanitary bearings of plumbing work. He has brought to its consideration more than ordinary intelligence and industry, and this book is the excellent result. It is confessedly not intended for the instruction of sanitary engineers, but he must be an accomplished engineer who can read its three hundred and fifty-one pages without adding to his store of information.

Practical plumbers, as well as "architects, builders, householders, and physicians interested in studying the mechanics of hygiene," to whom it is especially addressed, will find it a most valuable practical guide. We find here and there opinions in which we cannot fully concur, and omissions which we should have been glad to see supplied. At the same time, it is but simple justice to say that in the field which it is intended to occupy it has no rival. It is more practical, more sensible, and more trustworthy than the somewhat fantastic book of Mr. Hellyer, and it is of wider scope and better suited to American practice than Mr. Buchan's little manual.

Mr. Bayles cannot be said to be in any sense disrespectful to the profession of architecture, but he makes, and he need make, no apology for saying: "It is a fact which unfortunately does not admit of intelligent contradiction, that in the architectural practice of the time very little attention is paid to the laws of health." After alluding to the slight apparent difference between good and bad plumbing work, "usually so slight as to escape the notice of any but the trained expert," he reviews the various details of house plumbing, giving especial attention to the question of traps, concurring with all who have given attention to modern investigations on the subject in condemning the common water-seal trap as being in many ways objectionable, stating as follows the assertions on this subject of Dr. Andrew Fergus, president of the Faculty of Physicians and Surgeons at Glasgow: "He also asserted as the result of careful and intelligent observation that the usual method of depending upon water seals in traps allowed sewer gas to diffuse itself through a house 'by a process of soakage,' and that in from half an hour to two hours the foul gases of the sewer and house drain would have saturated a seal, and thenceforth be freely admitted into the house." "Water standing in the traps of unventilated waste-pipes is constantly absorbing more gas than it can hold. Long before the point of saturation is reached it begins to give off on one side the gases it takes in on the other. . . . Every waste-pipe, even when ventilated, should have enough water passed through it daily completely to replace the seal in its trap. When the pipes are unventilated it should be done very often."

¹ House Drainage and Water Service in Cities, Villages, and Rural Neighborhoods; with Incidental Consideration of Causes affecting the Healthfulness of Dwellings. By James C. Bayles. New York: David Williams, 83 Roale Street. Price \$3.00.

This is a clear statement of a well-known fact which is at last becoming recognized in our profession, and it suggests a serious question for the consideration not only of architects, but of householders as well. Even though we may by careful daily attention to all the traps keep them filled with reasonably fresh water, and so secure tolerable immunity from danger, so long as the house is occupied, we leave the house, its carpets, curtains, wall-papers, etc., subject to the constant presence of foul air from the sewer or drain during the months of its summer abandonment. We bring our children back from the country, with its open-air life, and shut them up in the presence of these impregnated stuffs, to wonder a few days later that they seem to be worse rather than better for their summer outing.

Another point to which our author calls attention is that the ordinary S-trap, being of large diameter as compared with the amount of water which passes through it, is washed by only a sluggish flow, which is insufficient to carry over the bend the solid matters delivered into it. The grease of the kitchen sink and the faeces of the water-closet lie festering in the trap until very considerably decomposed. While so lying they are adding their product of foul gases to that which passes through the seal from the drain. One important defect of many of the "improved" forms of trap Mr. Bayles seems not to have recognized; this is that where a large chamber is provided, as a security against emptying by suction, the velocity of the movement in this part of the channel is lessened, and the tendency to deposit grease and other matters is increased. This deposit goes on, until by its accumulation it reduces the water way to what is necessary to cause a cleansing flow. In this manner the old bottle-trap, the D-trap, and several of the patented traps, which depend for their only merit upon their capacity to hold a considerable volume of water, soon become in effect simple S-traps, — with more irregular channels than the simple pipe furnishes.

The chapter on Waste and Soil-Pipes is thoroughly practical, and merits the attention of all who have occasion to write plumbers' specifications. Indeed, it is the great merit of this book, from beginning to end, that it gives the architect specific information concerning technical points, and the details of construction in a simple form, with a well-considered arrangement, the like of which is not elsewhere to be found. Enough instances are cited of the fatal agency of imperfect plumbing and defective drainage to make us all shudder at the responsibility we assume in directing the construction of such works. He does not show that the average first-class work produces more serious illness and death than we are accustomed to; but he makes it clear that a great deal of the illness and death to which we are accustomed originates in drains which we are in the habit of regarding as perfectly good, and that it is entirely in the power of the architect to reduce the average death-rate very materially.

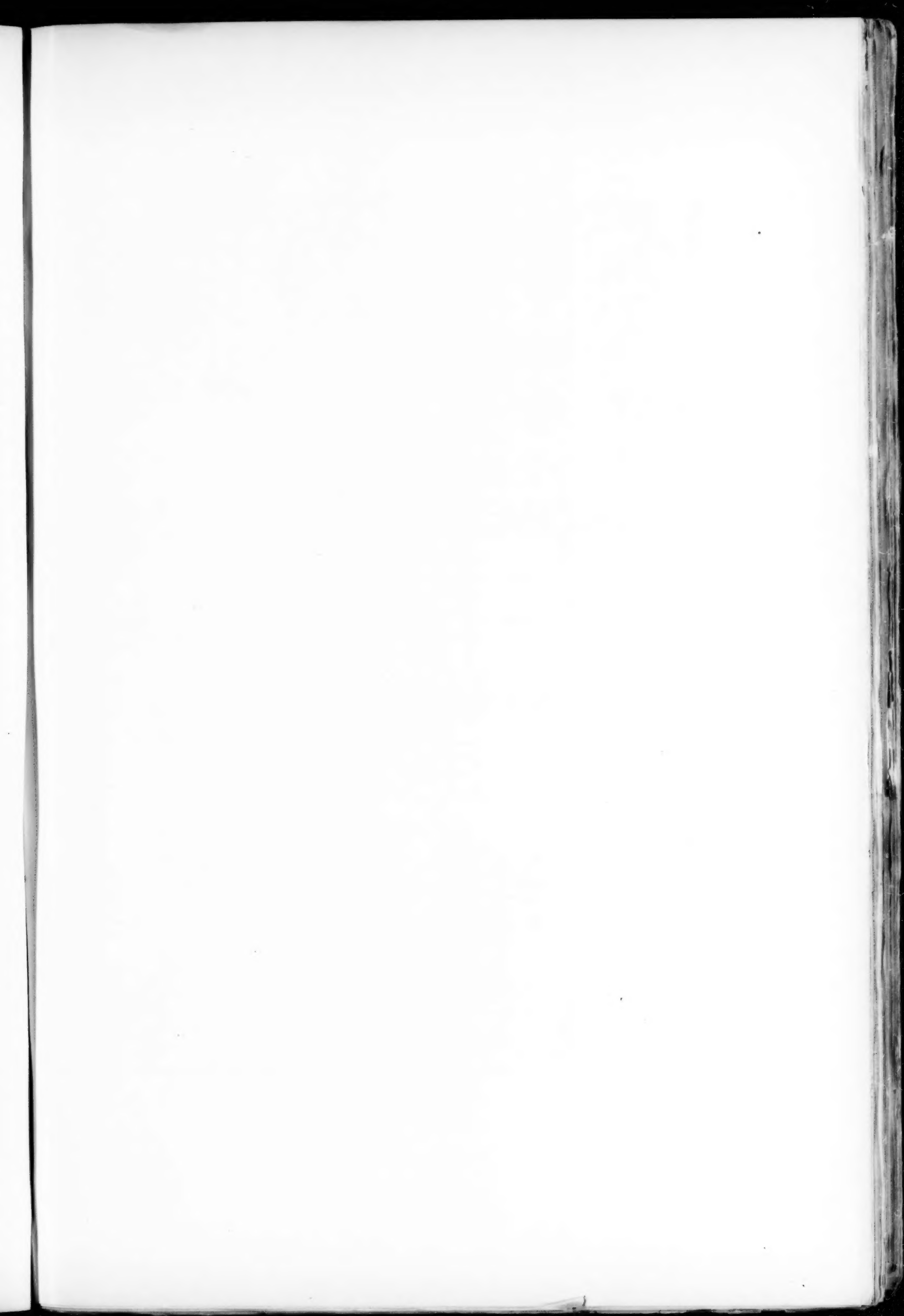
In the chapter on Water-Closets we find less to commend. This is the fault not so much of the author as of the subject. He founders, as we all do, against the stubborn fact that no water-closet with only the usual supply of water, has as yet been invented suitable for ordinary in-door use, which is free from grave defects. The badness is of very different degrees; but until something is devised possessing much more positive excellence than anything now in the market no writer can satisfy his public on this subject. Mr. Bayles would have come nearer to success had he given us Buchan's system of ventilating the iron receiver of the pan-closet by the use of two pipes instead of one, the second one bringing a supply of fresh air into the outlet pipe above the water-seal, to establish a circulation in the receiver. The single pipe occasionally used is a vent hole, not a ventilator.

The chapters on Service Pipes and Water Service and that on Tanks and Cisterns are sensible and good. Over one hundred pages are given to the Chemistry and Hydraulics of Plumbing. These are somewhat elementary in their character, but none the less welcome for that. There are chapters also on the sanitary care of premises and on the character and characteristics of the plumber, and a very long, suggestive chapter on Water Supply in Country Districts.

What interests us especially is Mr. Bayles's treatment of the question of draining country houses. Our readers may remember that in a lengthy discussion in these columns he stood out stoutly in favor of the use of the cesspool, and against the system of sub-soil irrigation as a means of sewage disposal, invented by the Rev. Henry Moule (the inventor of the earth-closet), and successfully introduced in this country some ten years ago. Further investigation seems to have modified his opinion, as the following quotation indicates:—

"I have no hesitation in expressing the opinion that under favorable conditions it will work satisfactorily, and be found an improvement on any other system which can be contained within the restricted limits of a village lot or villa site. There seems to be no reason why it should not work equally well on a larger scale, and in the case of Lenox I am informed that it does. English testimony is also strongly in its favor, and nowhere else has it been tested with equal thoroughness nor under so great a variety of conditions. When the conditions are unfavorable, or householders are unwilling to venture even so simple an experiment in sanitary engineering, I should recommend the tight, well-vented cesspool already described."

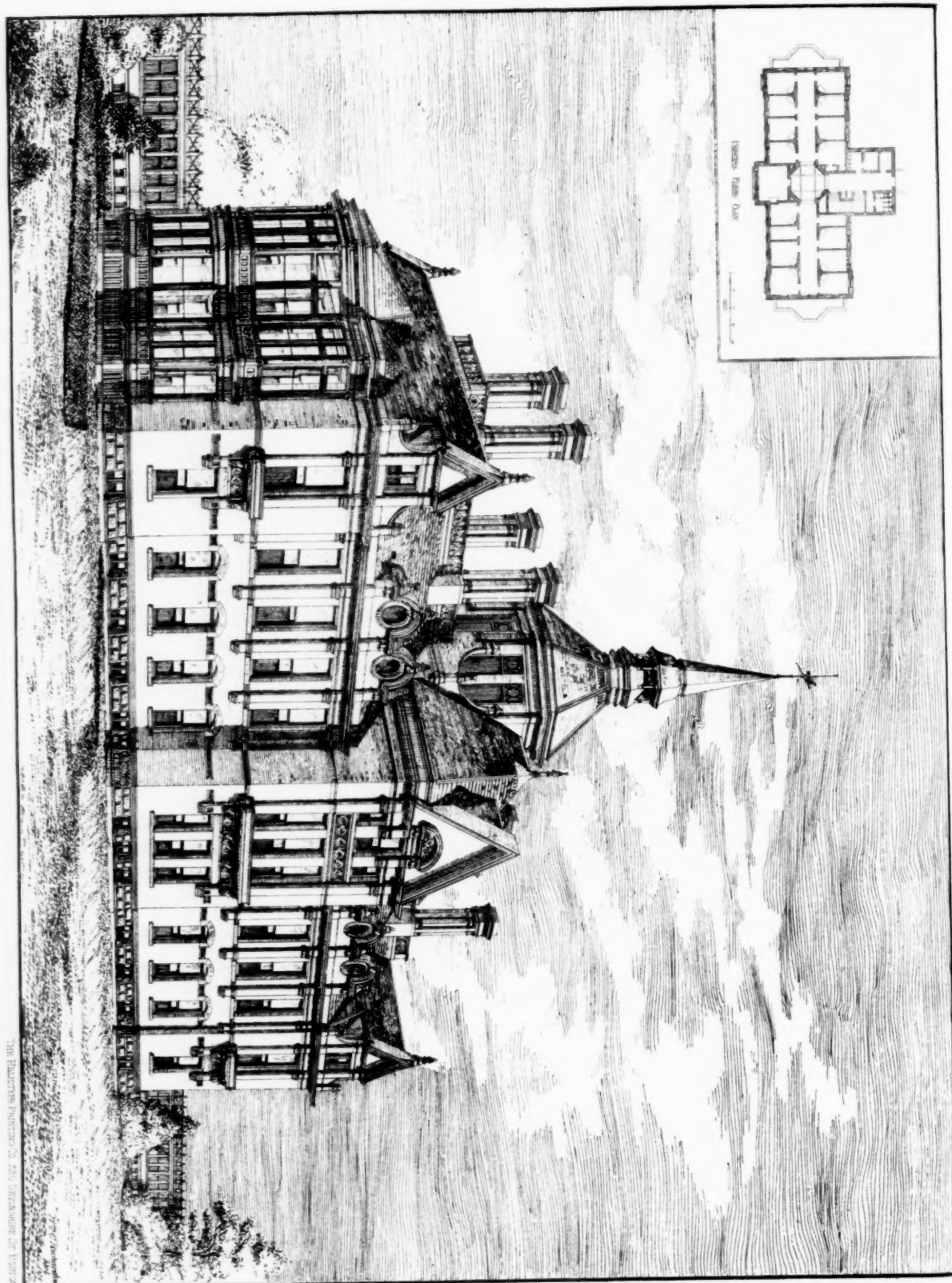
We venture the prediction that the foul-water earth filter, illustrated on page 286, will fall far short of sustaining the recommendation given to it; but there are very few of Mr. Bayles's suggestions concerning which we hold this opinion.

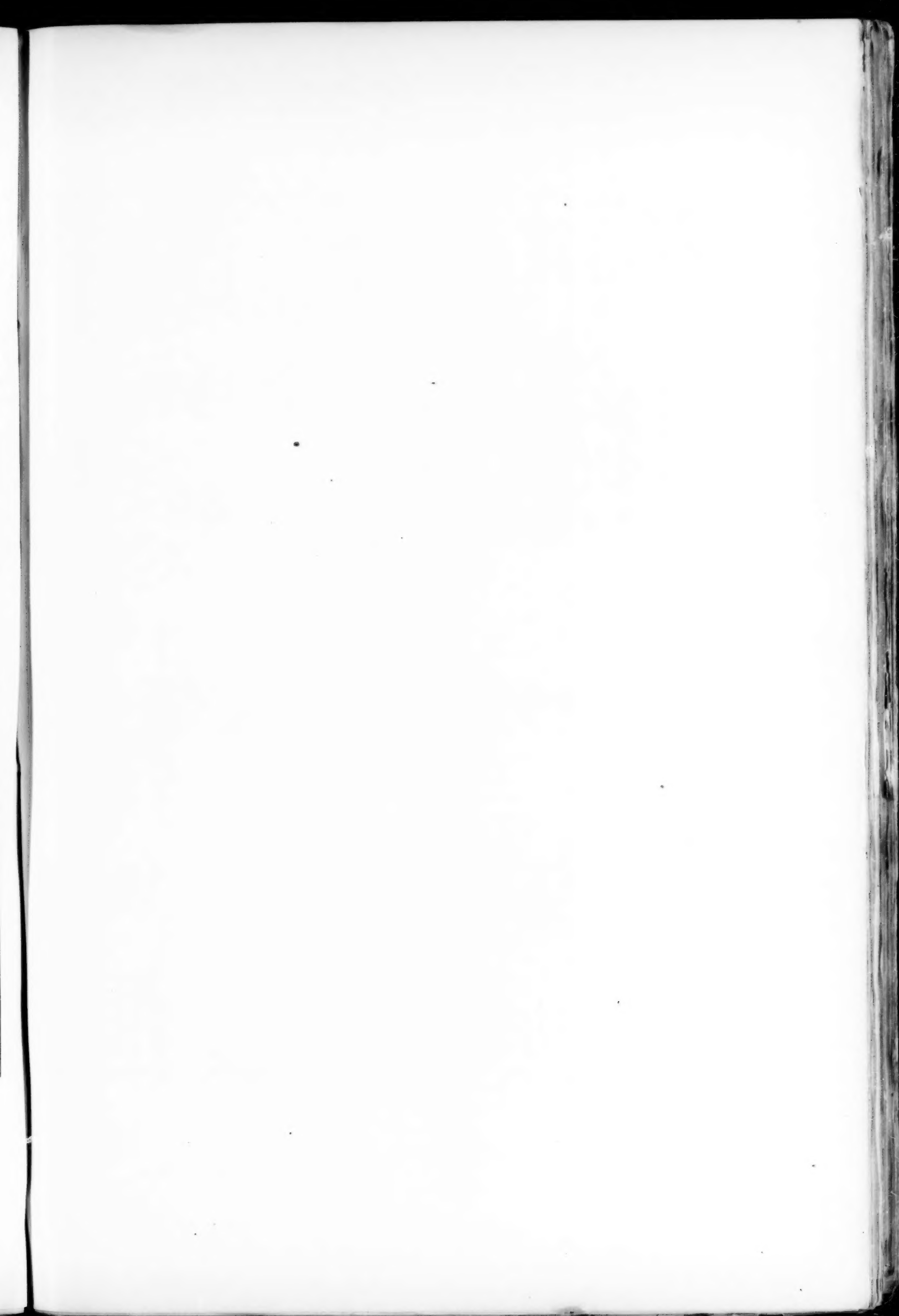


CABOT AND CHANDLER ARCHT'S.
BOSTON

JOHN HOPKINS HOSPITAL
PAY WARD

JOHN R. NIENISE CONSULTING ARCHT.
BALTIMORE



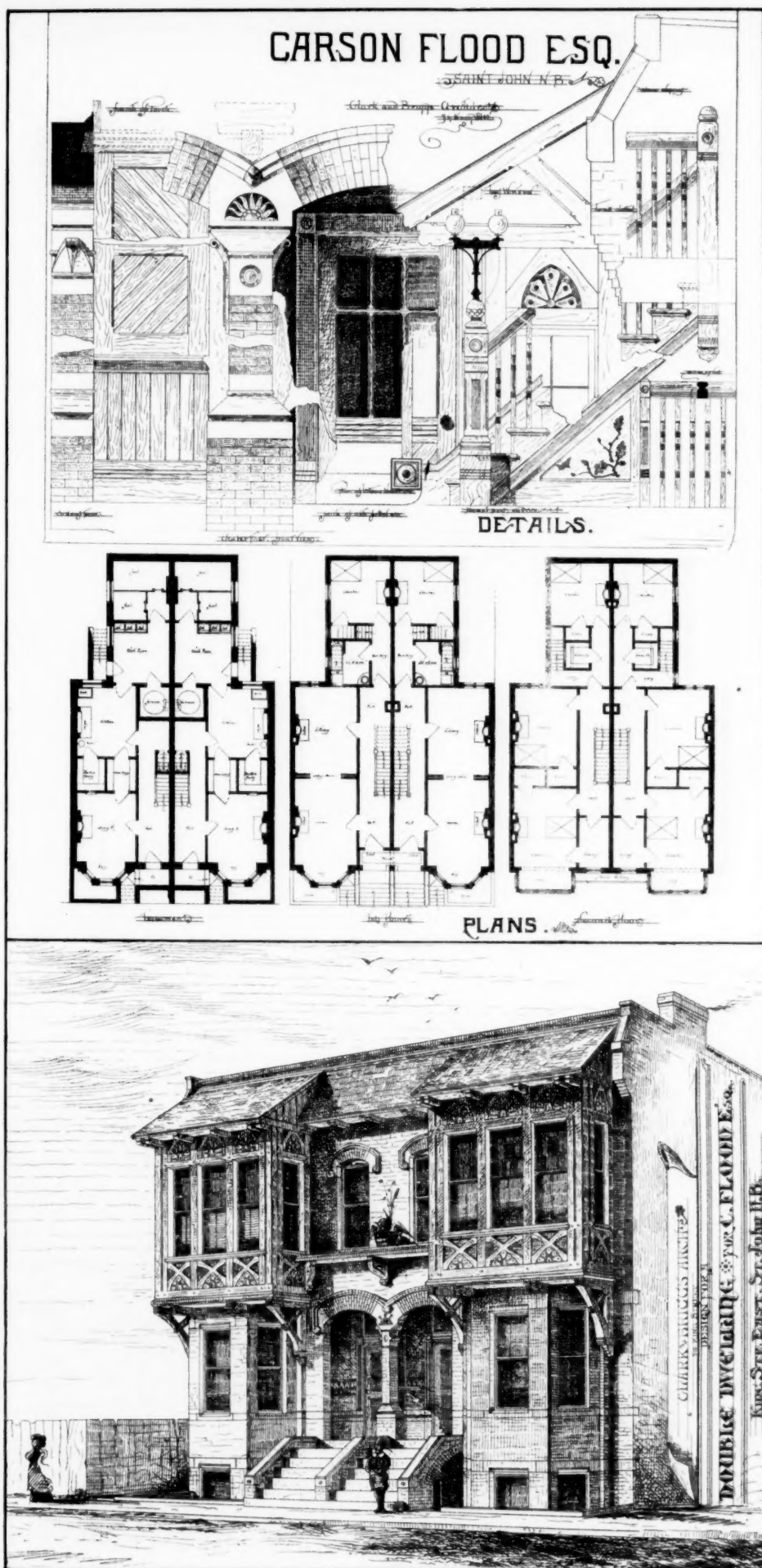


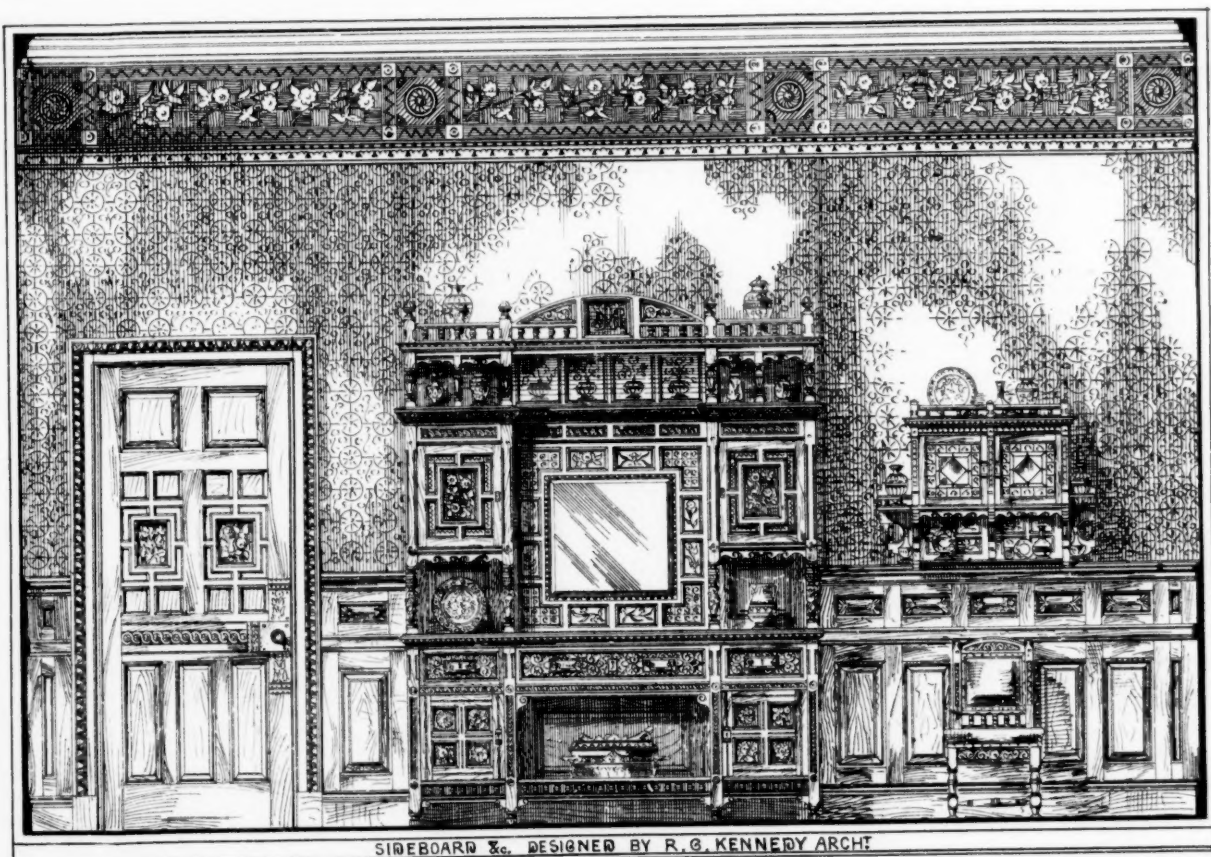


THE RELIABLE PRINTING CO.

SIXTH AVENUE FRONT OF THE PROPOSED COURT-HOUSE FOR THE THIRD JUDICIAL DISTRICT OF THE CITY OF NEW YORK.

FRANCIS C. WYBARS
 ARCHT.
 CALVERT PLACE.





THE ILLUSTRATIONS.

THE THIRD DISTRICT COURT-HOUSE, BELL TOWER, AND PRISON, NEW YORK. MESSRS. F. C. WITHERS AND C. VAUX, ARCHITECTS.

THESE buildings, commenced in 1874, were completed during the past year, and are located on a triangular plot of ground, formed by Sixth Avenue, Tenth Street, and Greenwich Avenue. The entrance to the court-house is on Sixth Avenue, through a large ornamental archway, into a porch 16 feet square, from thence on the left through a vestibule of the same size to the police court, and on the



right by a circular stone staircase to the civil court above; each of these rooms is about 61 feet by 37 feet. An examination room, 37 feet by 24 feet, adjoins the police court, with a room for officers in charge of those awaiting trial, for whom separate rooms are provided in the prison building. The police magistrate's entrance is on Tenth Street, where offices for himself and his clerks are arranged. The rooms for the judge of the civil court are on the second floor adjoining the court room, with an entrance to them through the small tower on Sixth Avenue, in which is a staircase leading also to the rooms of the janitor on the third floor. The clerks of the civil court reach the offices provided for them by the principal staircase in the tower, and the third floor over these offices, and connected with them by a small turret staircase is a fire and burglar-proof room for the records of the court. The tower for the fire-bell is at the acute angle formed by the junction of Sixth Avenue and Tenth Street. The room for the look-out is reached by a separate, spiral stone staircase, with a private entrance from the street; the floor of this room is 98 feet from the sidewalk and above the ridges of all the surrounding roofs, so that an uninterrupted view of the neighborhood is obtained. Between the buildings occupied by the courts and the prison is an enclosed yard with an entrance into the latter, so that prisoners may be conveyed to and from without publicity. The entrance to the prison is on Tenth Street, and leads directly from the porch into a guard-room 24 feet by 14 feet, adjoining which is a small bedroom for the keeper. On this floor are two large waiting or lodging rooms, for male and female prisoners. Accommodation in separate cells is provided on the second floor for 29 female prisoners, and on the floor above, and entirely separated, for 58 male prisoners. Each cell is 8 feet by 5½ feet and 9½ feet high. A steam elevator is arranged near the staircase to convey prisoners to their respective quarters, as well as to carry up the supplies from the kitchen which is in the basement. Rooms for the keepers are arranged at the entrance to the male and female prisons, and in connection with each; there are two larger cells for the detention of such persons as it may be considered advisable to separate from the ordinary class of prisoners. A small airing court 30 feet by 20 feet is provided in the roof, and reached only by the elevator, so that those prisoners who are detained any length of time may be able to take air and exercise without any possibility of escape.

The buildings are of brick, those of the court-house and bell tower being faced with Philadelphia brick, and those of the prison with Croton fronts. The stone used is from Berlin, Ohio, and its color contrasts well with the red brick. The carving, which forms an important element of the design, was done under the direction of Mr. William Simon. The interior walls of the main halls and staircase are lined with stone, with ornamental arches over the doorways, windows, etc., and enriched with a large amount of carved foliage. The interior of the court-rooms and offices are trimmed with black-walnut and cherry-wood wainscoting, doors, etc., and the floors of the vestibules and halls laid with ornamental tiles. The buildings are heated by steam throughout.

The total cost of the buildings, exclusive of architects' fees, amounts to rather less than \$360,000.

HOUSE FOR G. GERKE, ESQ., CINCINNATI, O. MR. E. ANDERSON, ARCHITECT.

DESIGN FOR A DOUBLE DWELLING FOR CARSON FLOOD, ESQ. MESSRS. HENRY PASTON CLARK AND JOHN L. BRIGGS, ARCHITECTS, ST. JOHN, N. B.

The building is to be built on a lot having a frontage on King Street, East, of forty feet and a depth of one hundred feet. The main building will be thirty-eight feet in depth with an L of twenty-six feet in depth. The front will be laid up with Philadelphia face brick, with steps, belts, sills and skew-backs of Budror freestone. The square bays are to be built of wood and painted a dark olive color. The slating of the roof will be of the New York red slate.

SIDEBOARD DESIGNED BY MR. R. G. KENNEDY, ARCHITECT, PHILADELPHIA.

JOHNS HOPKINS HOSPITAL, BALTIMORE, MD. MESSRS. CABOT AND CHANDLER, ARCHITECTS, BOSTON; MR. JOHN R. NIERNSEE, CONSULTING ARCHITECT, BALTIMORE.

The perspective shows one of the two Pay-Wards which will be built of same material as the Administration Building, which was described in the *American Architect* of May 11.

CORRESPONDENCE.

ANOTHER CHAPTER IN THE HISTORY OF A REMARKABLE STRUCTURE.—ALLEGED CONSPIRACY AND FRAUD IN CONNECTION WITH CONTRACTS FOR STONE-CUTTING ON THE NEW CUSTOM HOUSE AND POST OFFICE.

CHICAGO.

THE Chicago Custom House and Post Office seems to be fruitful of more "investigations" than any other building of modern times. This time Wm. Henry Smith, Collector of Customs and disbursing agent, the fiduciary representative of the Secretary of the Treasury, has taken a hand in the business.

The history of this remarkable building and the "investigations" with which it is chronic have been pretty fully given in these pages. At the present writing the stonework, which is the only matter referred to in Collector Smith's inquiry, has all been set for some months, with the exception of some exterior steps which are not even cut. The roof structure is up, and is now being tiled and slated. Contracts have just been let for the fire-proof filling between beams. Very little work is being done, for want of appropriations. The cost of land and building has thus far been \$4,600,000. The land cost \$1,200,000, leaving the amount thus far expended on the building \$3,400,000. One million dollars judiciously expended would finish it. The amount already paid Mueller, the contractor for stone and cutting, is, for stock \$615,425, for labor \$1,261,600, for commissions \$164,566, for sawing stone \$124,381, for carting \$37,839; total, \$2,203,811. After this enormous expenditure and little or no work remaining to be done, it does not look as if there were much prospect of anything being saved. But the publicity hereby given to the results of the fifteen per cent contract system applied to stone-cutting will enable those not heretofore versed in the mysteries of government contracting to realize how the money goes in this department. It will be noted that the stone-cutting on this building is to the present time two thirds of its cost, and will be one half when it is completed. But this is only one of half a dozen government buildings still unfinished and of equal size, on all of which the fifteen per cent system prevailed until some time in 1877. Why it was not changed in this building is stated by Supervising Architect Hill in his reply to Mr. Smith: "For the reason that the work was reported to be nearly completed, and for the further reason that stone for most of that remaining to be done had been supplied, and had been more or less cut after the Potter designs;" that it would have been attended with great delay and expense, and perhaps a stoppage of the work; and that possibly the contractor and the Government could not have come to terms, for the contractor's voluntary assent was essential.

An outline of Collector Smith's report to the Secretary of the Treasury was given in the *American Architect* for June 1 (p. 189). The Collector's report consisted mainly of comments on a detailed report to him by H. W. Thompson, Assistant U. S. District Attorney at Chicago. The object in placing the matter in the hands of the District Attorney seems to have been to enable him to ascertain if sufficient evidence of collusion or fraud could be adduced to warrant bringing the matter before the grand jury. The main points in Mr. Thompson's report are:—

1. That the contract for stock, made September 2, 1872, was not made according to advertisement, an allowance of half an inch being made on finished schedule sizes, while the advertisement for bids stated that proposals would be received for neat sizes. This occurred under the administrations of Mr. A. B. Mullett as supervising architect, and J. C. Rankin as superintendent.
2. That the stone was not furnished of uniform color and quality as per agreement.
3. That the making of a fifteen per cent labor contract without competition set a premium on rascality. This was done by Mr. Mullett.
4. That "the entire payment on the sawing contract upon a proper construction was illegal." This seems to strike at Mr. Smith, as well as all the supervising architects and superintendents.

5. That the work was systematically delayed to stretch the job out and increase the commissions.

6. That all these things are evidences of collusion on the part of all the parties concerned, and that the whole matter should be laid before the grand jury.

In a supplementary report dated May 8th Mr. Thompson says that the supplemental contract for hauling the cut stone from the Twelfth Street yards to the building for the sum of fifteen cents per foot was illegal. This contract, according to Mr. Hill's statement, was negotiated by Mr. Potter, and signed by Mr. Hill a few days after he succeeded to the office of Supervising Architect on the 14th of August, 1876. All the other contracts with Mueller had been made by Mr. Mullett. The facts in relation to this cartage contract are, as nearly as can be ascertained, as follows: The stock contract of September 2, 1872, required that all the stone should be delivered at the building site. This was done for two years or more, and the work was cut in sheds built around the building. These occupying more room than could be spared, Mr. Rankin, then Superintendent, ordered Mueller to find some other place to cut the stone. He accordingly fitted up the yard at Twelfth Street, in which a switch was run by the Illinois Central Railroad Company over whose track the stone was brought from Buena Vista, on the Ohio River. He must have been working there and carting the stone to the building two years before anything was said about a supplementary contract. Mr. Hill gives the history of this contract in his reply to Mr. Smith. He says: "The subject of this contract has been several times presented to the Department by the contractor, but was rejected without consideration, on the ground that the cutting contract was supplemental to the stock contract, and that the two must be construed as a single instrument; under which construction it was held that the contractor was bound to deliver the cut stone at the site of the building." Mr. Hill then quotes from an opinion given by the Attorney General of the United States in January 1876, upon the request of the Treasury Department, which Mr. Thompson does not seem to have heard of. This opinion is to the effect that the "two contracts are not merged into one by the fact that Mueller is contractor in both." Consequently the delivery of the stone at the place when cut became a fulfilment of the contract for stock. When he dumped it in his yard to be cut he delivered it to the Government to be cut by the other Mueller, whoever he might be. Consequently, after considerable negotiation between Mr. Potter and Mr. Mueller, and a great deal of consultation with the Secretary of the Treasury and Solicitor of the Treasury, the contract was got ready just about the time that Mr. Potter resigned, and was signed by his successor, Mr. Hill. The point made by Mr. Thompson, that no deduction has been made from Mueller's contract to deliver rough stone at the building, on account of its delivery at the railroad switch, seems to be well taken, according to the precedents of architectural practice. Mr. Thompson also avers that the first payment of \$27,000 for cartage was made before the contract was signed, but Mr. Hill shows that this could not have been so. The voucher, however, was all ready in anticipation of the signing of the contract, and that there was some hurry about it is shown by the fact that Acting Supervising Architect Jacobs telegraphed to Superintendent Burling to make out the voucher on the same day that the Assistant Secretary authorized it. The contract must have been retrospective, covering work for which Mueller had no real authority before, and had done voluntarily, because the whole additional amount paid for cartage for a year and a half afterwards was only \$10,839.

The replies of Supervising Architect Hill, Superintendent Burling, Contractor Mueller, and Assistant Superintendent Prussing have all been published at length in the Chicago papers, and profusely garnished with interviews of Messrs. Burling, Prussing, Smith, and Thompson. The statements in interviews with Messrs. Smith and Thompson are practically rejoinders, and seem to be given with much care and elaboration. All the parties concur in admitting the extravagance and laying the blame upon "the system" originated by Mr. Mullett. It is extremely difficult to condense these statements with justice to all the parties. Mr. Hill goes over the whole history of his administration. He shows that Mr. Mullett was brought into the department again only two months after his own term of office commenced, and was appointed superintendent of six buildings, under Mr. Hill. The Chicago building was one of them. The first thing he did was to advise an alteration of Potter's new design for the fourth story and roof of this building, the stone-cutting of which was then being done. These changes were made by Mr. Hill, and the complications which they introduced prevented the abrogation of Mueller's percentage contract. He then recites all the Mueller contracts, and gives a history of the operations of the three examining commissions and of the fifteen per cent business. The reasons why he did not change this contract have been stated above. The continuance of the original contract was further backed up by an opinion of the Attorney General, given April 27, 1877. The only thing he says in mitigation of the fifteen per cent agreement is that under it the work on this building has not been relatively more expensive than on that of other government buildings built under his direction under similar contracts. Here is suggested an opening for other public-spirited disbursing agents. Mr. Hill confesses to "the inability of the office to satisfactorily control" the cost of work under this system, and Messrs. Burling and Prussing both concur with him. He admits the great extravagance in urns and chimney-

tops, but says that he had no opportunity to know of it until the reports came in from month to month. The blame is thereby thrown back upon the superintendents.

In connection with the selection of the assistant superintendent Mr. Hill indulges in considerable personality toward Mr. Smith, which is not a matter of public interest, but he shows that he took every effort possible to see that the assistant superintendent and time-keepers performed their several duties properly, having laid down very stringent rules for their guidance.

The sawing contract is shown to have been submitted to and approved by all the Treasury authorities. There is a great deal of talk about the half-inch allowance in all the documents, especially as to whether or not it should be allowed on sawed stone. This is too intricate a subject to go into at length just here. It involves some fine mathematical distinctions, and the sum presumably wasted being \$30,000 bears a small ratio to the *great leak*, which was the excessive amount paid for labor all through, and most of which went into the hands of the well-paid and easy-worked stone-cutters and the lazy carvers.

Mr. Hill then reiterates the assured validity of the contracts, which seem to have been sanctioned by the highest authorities, and states that his only duty was to see that they were carried out good or bad. The sawing question is then gone into in full and he claims that in the long run the sawing saved money, though the experts consulted by Mr. Thompson thought differently.

Mr. Hill concludes with a general defence against all the accusations which could be considered as aimed at his office, including some which are only inferred. There is nothing in the document which seems to show any desire to screen the contractor, though it is so charged by the Chicago press. The worst faults, those which resulted in the waste of money, are freely admitted, but are claimed to have been beyond the power of correction.

In a postscript Mr. Hill refers to a letter of Assistant Superintendent Prussing in which it is stated that he resigned his position before the work was completed, because he would not make himself responsible for its extraordinary cost. He says that "Mr. Prussing's services were dispensed with on the 31st of October 1877, by orders from this office, and the work from that date was placed under the immediate charge of the superintendent."

Mr. Mueller's defence is a remarkable document, covering, as the Chicago reporters say, fifty pages of foolscap. The defence commences by showing how Mueller was oppressed and persecuted by Mr. Mullett after the contract had been awarded, by severe exactions on the contracts. He says he is the only contractor for government work against whom Mr. Mullett discriminated. He says that as a contractor his principles are to make all the money he can, and that the fifteen per cent contract yielded him less profit than he had been accustomed to make from private corporations and individuals. He claims that he did better for the Government than other fifteen per cent contractors. Here is another hint to disbursing agents generally. He claims that the Government was benefited by the sawing contract and that for much of the work done under it the superintendents gave him no pay. He answers the charges in relation to the hauling contract in substantially the same manner as the Supervising Architect. He has a very poor opinion of the architects employed as experts by Mr. Smith. In one respect his reply differs from those of the Government employees. He utterly denies that any effort was made to delay the progress of the work, or increase its cost so as to swell the commissions. He admits that the men played ball, went yachting, and carved sleeve buttons and paper weights, but denies that these things were done during the time paid for. What could be more natural than that these petted workmen on long pay and short hours should indulge in gentlemen's amusements? The sequence seems natural and Mueller and the workmen are vindicated.

There is some choice rhetoric and keen logic in the latter part of the defence. He hits back hard at Mr. Smith. He accuses him of keeping short hours and drawing \$5,000 a year from the Associated Press for doing other work that did not belong to the Government. He then takes it upon himself to defend the Supervising Architect, a duty from which Mr. Hill might well have excused him. But his hardest hit at Mr. Smith is that he continued to pay out the very money which he charged was paid on fraudulent contracts, and on which he received a commission; and that this money was paid for the chimneys, dormers, urns, sawing and hauling which form the main subject of his investigation. Mr. Mueller says magnanimously that he does not accuse Mr. Smith of conspiring with any one to defraud the Government, and as a clincher adds that Mr. Smith demanded and examined the contracts which he now says are fraudulent in their nature, before he paid any money at all. He then gives a parting blast to Attorney Thompson and accuses him of conspiring with the Chicago press to defame the character of everybody concerned before any report had been made, and to Mr. Smith for serving his employers of the Associated Press by dealing out to the reporters all the information which might be damaging to the parties against whom the investigation was instituted.

Mr. Burling explains that he has had no immediate control of the stone-cutting during most of the time when the alleged fraudulent work was done. He however admits the extravagance throughout, which he confesses was beyond his control, and ascribes it to the pernicious "system" under which the contract were made. He kept the Department fully informed of the progress of the work in

every detail by monthly reports, as was his duty. He says that he has resisted many of Mueller's extraordinary claims, that the stone-cutting has always been a source of vexation and anxiety to him, and a subject of frequent protest, as a most outrageous and wasteful manner of doing work. He says further that a large amount of the sawed work on beds was not cut over as alleged.

Mr. Prussing says that the amount of work done on the stone-cutting under his superintendence was fully equal to that done under similar contracts for other work. That they were very exacting in the quality of work required from the men, and that he tried to devise means for getting more work out of them without avail. Finding the undertaking a hopeless one he felt disappointed and galled and resigned his position before the work was done because of this fact.

The supplementary report of Mr. Thompson recites some of the correspondence between Mr. Potter and Mr. Burling, which shows that both were aware of the difficulty of managing the work under the contracts and that Mr. Potter tried to devise some method to prevent the waste of money.

Mr. Smith and Mr. Thompson have both replied to the several denences through reporters of the Chicago papers.

The last statement made by Mr. Thompson is to the effect that the Department has returned to Collector Smith the books containing material portions of the testimony. He construes this to be an instruction to proceed against all the parties, and says he will proceed unless he receives orders to the contrary.

THE UNCONSIDERED USES OF TIMBER.

It is usual to refer the consumption of wood to such causes as the demand for building and engineering purposes, and also such minor ones as the lucifer-match and road-making industries, make. It is true that these are the principal means by which wood is consumed in this and other countries, but there are countless other ways which go to swell the sum total in no insignificant degree, and yet which are left in comparative security, for few persons think of them. As, for instance, in America tulip-wood is much used for wooden bowls, and for the heads of hair brooms or sweeping brushes, for eating and drinking-troughs of cattle, and no inconsiderable portion furnishes wood for Indian canoes. One of the principal uses of the holly, dyed black, is to be substituted for ebony, in the handles of teapots, etc., and the strong, straight shoots, deprived of their bark, are made into whip-handles and walking-sticks. The lime-tree forms the best planks for shoemakers and glovers upon which to cut their leather, and is extensively used in the manufacture of toys and Tunbridge ware, and by the turner, for pill-boxes, etc., and the inner bark is made into ropes and matting. The sycamore furnishes wood for cheese and cider presses, mangles, etc., and when the wooden dishes and spoons were in common use they were mostly made of this wood. It is used now in printing and bleaching works, for beetling beams, and in cast-iron foundries for making patterns. The yew is used by the turner, and made into vases, snuff-boxes, and musical instruments, and it is a common saying among the inhabitants of New Forest, that "a post of yew will outlast a post of iron." Where it is found in sufficient quantities to be employed for works under ground, such as water-pipes, pumps, etc., the yew will last longer than any other wood. Gate-posts and stakes of yew are admirable in wear, and in France the wood makes the strongest of all wooden axle-trees. Of the beech are made planes, screws, wooden shovels, and common fowling-pieces and muskets are also stocked with it, and beech staves for herring barrels are not unknown. The sweet or Spanish chestnut furnishes gate and other posts, railing and barrel staves, hop-poles, and other such matters, as strong and good charcoal, though scarcely equal to that of oak for domestic purposes, but considered superior to that of any other for forges, for which purpose it is much used in Spain, and also in Switzerland. Horn-beam is the best wood that can be used for cogs of wheels, excelling either the crab or the yew, but its application in this manner is about at an end. As a fuel it stands in the highest rank, emitting much heat, burning long, and with a bright, clear flame. In charcoal it is also highly prized, not only for culinary purposes and the forge, but also for the manufacture of gunpowder, into which, on the Continent, it enters in large proportion. In Russia, many of the roads are formed of the trunks of the Scotch pine, trees from six inches to a foot in diameter at the larger end being selected for the purpose. These are laid down side by side across the intended road, the thick end of one alternating with the narrow end of the other, the branches being left at the end to form a sort of hedge on each side of the road. When thus laid the hollows are filled up with earth, and the road is finished, being analogous to the corduroy roads of North America. In Germany, casks are made of larch, which is almost indestructible, and allows of no evaporation of the spirituous particles of the wine contained in them. In Switzerland it is much used for wine props, which are never taken up, and which see crop after crop of vines spring up, bear their fruit, and perish at their feet, without showing symptoms of decay. The uninjured state in which it remains when buried in the earth or immersed in water renders it an excellent material for water-pipes, to which purpose it is largely applied in many parts of France. The butternut is esteemed for the posts and rails of rural fences in America, for troughs for the use of cattle, for corn-shovels, and wooden

dishes. Shell-bark hickory provides baskets, whip-handles, and the backbows of Windsor chairs. The pignut hickory is preferred to any other for axle-trees and axe-handles. The sugar-maple is used by wheelwrights for axle-trees and spokes, and for lining the runners of common sleds. Dogwood is used for the handles of light tools, such as mallets, small vices, etc. In the country it furnishes harrow teeth to the American farmer, and supplies the hames of horses' collars, etc., also lining for the runners of sledges. The mountain laurel is selected for the handles of light tools, for small screws, boxes, etc. It most resembles boxwood, and is most proper to supply its place. Bowls and trays are made of red birch, and when saplings of hickory or white oak are not to be found, hoops, particularly those of rice casks, are made of the young stocks and of branches not exceeding one inch in diameter. Its twigs are exclusively chosen for the brooms with which the streets and court-yards are swept. The twigs of the other species of birch, being less supple and more brittle, are not proper for this use. Shoe lasts are made from black birch, but they are less esteemed than those of beech. Immense quantities of wooden shoes are made in France from the wood of the common European alder, which are seasoned by fire before they are sold. The wood of the locust is substituted for box by the turners in many species of light work, such as salt-cellar, sugar-bowls, candlesticks, spoons and forks for salad, boxes, and many other trifling objects, which are carefully wrought into pleasant shapes, and sold at low prices. The olive is used to form light ornamental articles, such as dressing-cases, tobacco-boxes, etc. The wood of the roots, which is more agreeably marbled, is preferred, and for inlaying it is invaluable. Of persimmon turners make large screws, and timmen mallets. Also shoemakers' lasts are made of it equal to beech, and for the shafts of chaises it has been found preferable to ash, and to every species of wood except lance-wood. The common European elm is used for the carriages of cannon, and for the gunwale, the blocks, etc., of ships. It is everywhere preferred by wheelwrights for the naves and felloes of wheels, and for other objects. White cedar serves many subsidiary purposes. From it are fabricated pails, wash-tubs, and churns of different forms. The ware is cheap, light, and neatly made, and instead of becoming dull, like that of other wood, it grows whiter and smoother by use. The hoops are made of young cedars stripped of the bark, and split into two parts. The wood also supplies good charcoal. The red cedar furnishes staves, stopcocks, stakes, and is also used for coffins.

A few others may be briefly named, separating into trades as follows, applying to the American manufacture:—

Sieves, usually of black or water ash for the bottom, and oak or hickory for the circle; whip-stocks, white oak and shell-bark hickory; picture-frames, white pine and sweet gum; saddle trees, red maple and sugar maple; screws of bookbinders' presses, hickory and dogwood; hatters' blocks, corn shovels, butternut; shoe lasts, beech and black or yellow birch, etc.

This slight sketch, which is by no means complete, will serve to give an idea of some of the ways in which timber is consumed, besides being wasted and put to its legitimate purposes in other manners. The items may seem beneath notice, but the aggregate must be something important. — *London (Eng.) Timber Trades Journal.*

THE QUALIFYING OF ARCHITECTS.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir,—In an "editorial" under the above heading in your Journal of July 7th, 1877, you take ground in favor of some sort of certificate of professional qualification of a nature to be determined in the future, and you refer particularly to the "Prussian System," and the customs which prevail in the practice of law and medicine.

In the same article you admit that the French and English require no standard and that the eminent architect M. Viollet-le-Duc is not even a graduate of the École des Beaux-Arts. No mention is made of what I believe to be the fact, that civil engineers who deal more fully and on a larger scale with intricate problems of construction, which clearly concern the personal safety of large numbers of people, and who are continually tempted by their employers to push their calculations to the very verge of safety, are allowed to practice without let or hindrance.

I would not be understood for a moment to be an opponent of the fullest education; and I most heartily desire the time when we may have a great national school of science and art. At present the facilities for such school education are very limited, and much individual effort must supplement what can be obtained in them.

I am credibly informed that "by common law an unskilful person representing himself as a skilful one becomes liable for damages resulting from want of skill."

Every architect, engineer, or other person should be held responsible, life for life and dollar for dollar, for the safety of his work whenever and so far as he is allowed to control it, but it seems entirely unwise and undesirable, and tending toward some of the worst phases of "trades-unionism," to attempt to divide our profession by any arbitrary standard of text-book examination, either forced or voluntary, especially by one founded on the "Prussian System."

If we follow any precedents in such matters they would naturally be French or English; and it seems most absurd to precede these nations in this particular matter when we blindly follow them in

ancient abuses, such as that bane of our calling, unpaid competition.

The "so called architects" of this country are of all degrees of fitness. They include in their ranks many half educated men who never make a disastrous failure, and some clever artists and "school-men" who, at least, never erect a successful building. Put the schools on the right track and the standard will gradually advance. A conscientious man of moderate abilities and attainments can safely be trusted by the public with their work if he be held to strict accountability. What he does not know he can learn, or he can do what the best have been forced to do, call in the expert advice of an unqualified engineer. If the schools succeed in turning out men who can successfully compete in all ways with the older occupants of the field, the latter will of course have to give place. It will be, as it is to-day, a question of "the survival of the fittest."

JOHN A. FOX.

MR. HOLLY'S MODERN DWELLINGS.

TO THE EDITOR OF THE AMERICAN ARCHITECT:

Dear Sir, — How can we, as Americans, expect any development of artistic talent at home when we find those to whom we should look for originality coolly contenting themselves with either shamefacedly copying or very apparently adapting the designs of our more cultivated, if not more gifted, cousins across the water.

In Mr. H. Hudson Holly's book, entitled "Modern Dwellings in Town and Country, adapted to American Wants and Climate, in a series of One Hundred Original Designs, comprising Cottages, Villas, and Mansions, with a Treatise on Furniture and Decoration," recently published by Messrs. Harper & Bros., instead of finding, as we have every reason to expect, something new, we are quite disappointed by a reproduction of designs which have become familiar to us through years of intimate acquaintance. It is true that there is in some of the illustrations a conglomeration of good ideas, in which "Talbert's Examples," the *London Building News*, and Cox & Sons' Catalogues each play their respective parts; but we look in vain for something by Mr. Holly himself.

I should have thought he could have at least introduced some original suggestions in decoration, but his remarks are as hackneyed as his designs.

Mr. Holly's book, however, has one improvement over his magazine articles: he has, I see, taken particular pains, in some instances, to acknowledge his sources of information and illustration, but a few more inverted commas, and these lines of Montaigne on the title-page, would, I think, have been a still greater improvement: "I have gathered a posie of other men's flowers, and nothing but the thread that binds them is my own."

W. S. C.

NOTES AND CLIPPINGS.

THE WASHINGTON MONUMENT. — The adoption, by both houses of Congress, of the Conference Report, will cause the Washington Monument to be completed in accordance with the modified design of Mr. Larkin G. Mead. We do not know what about Mr. Mead's design has been modified, but it will be remembered his original proposition was to place upon the uncompleted obelisk a statue of General Washington eighty-five feet high, and made out of thin hammered metal.

THE MISSISSIPPI JETTIES. — On June 8th the Senate passed by a vote of 55 to 2 a bill which authorizes the Secretary of the Treasury to advance half a million dollars to Captain Eads on account of his next payment. This would allow certain outstanding accounts to be settled for whose payment much pressure has been brought to bear. The bill, moreover, provides for the payment of another half million dollars in monthly installments as the work proceeds. As the bill was reported on favorably in the House, there is small doubt that it will be enacted and the success of the enterprise assured.

WATER-SUPPLY IN ENGLAND. — For some time past the English papers have been discussing the water supply of the great city of Manchester, and Mr. John Ruskin has been particularly loud in his reprobation of the scheme for tapping Lake Thirlmere. But the foulness of the water-supply of Manchester is only a type of many similar cases which have long demanded investigation and, if possible, remedy. During the past month a conference was held under the auspices of the Society of Arts, to consider the question of a national water-supply system; to this conference was presented in pamphlet form a statement of what had already been done in investigating water-supply, and reports from those qualified to make them on what remained to be done to remedy the increasing difficulty; with these was incorporated a mass of returns from medical and sanitary authorities throughout the kingdom. The discussion was active and interesting, but full reports of it have not yet reached us. The chief result seems to have been a recommendation that a small permanent commission be appointed, which shall "collect facts connected with water-supply in the various districts throughout the United Kingdom, in order to facilitate the utilization of the national sources of water-supply, for the benefit of the country as a whole." This recommendation seems to have been in pursuance of a wish expressed by the Prince of Wales in a letter addressed by him in January last to the Society of Arts, of which he is the president. The hints of the real intention of this proposition which reach us show that it is most comprehensive in its scope, embracing artesian-wells, aqueducts, and rivers, and a systematic tapping of remote lakes, where the water is as yet uncontaminated. Sir Henry Cole, who presided at the conference, avowed that the scheme was not only practicable but could be made to pay, even should it cost five hundred million or even a billion dollars.

THE CINCINNATI SCHOOLS. — The forty-eighth and last annual report of the common schools of Cincinnati has just been issued, and we glean from its pages some facts that may be of interest to the readers of the *American Architect*: The president, Mr. A. C. Sands, states in his annual report that the total number of pupils enrolled is 30,049, an increase of 1,127 over last year; that the average daily attendance is 24,073.7. The estimated number of children in this city between the ages of 6 and 14 is 59,939, and of this number 46,632 are receiving daily instruction at public, church, or private schools; there are altogether 34 school-buildings of all kinds with a total of 487 rooms. The usual size at these rooms is 28' x 33'. In these 34 buildings there is a total floor space of 356,156 square feet, or 10,457 square feet average per building, or 731.59 square feet average per room. This would give an average of nearly 12 square feet to each scholar. There is 5,023,787 cubic feet space in all these rooms, or an average of 10,317 for each room, which would give an average of 167.6 cubic feet for each scholar. The greatest number of cubic feet of air per scholar in any one school is 342 4, and the least 125.4.

There is a total of 110,599 square yards of play ground, an average per house of 3,253, per scholar of 3.2 square yards.

Prof. J. B. Hough, M. D., of the Miami Medical College, was employed by the Board last year to establish clearly and fully by surveys and chemical analysis the sanitary condition of the Cincinnati school-houses. The out-door atmosphere of the city was taken as a standard of comparison and the average air of the densely populated parts of the city was found to contain in 100,000 parts: —

	By Volume.	By Weight.
Nitrogen	78,031	76,365
Oxygen	20,509	22,677
Vapor of water	1,399	870
Carbonic acid	5	35
Ammonia	4	3
Other Vapors	1	3
Total	100,000	100,000

"A number of school-rooms were found to contain considerable more than one tenth per cent of carbonic acid; and even in the best ventilated rooms of the newer houses the per cent is quite materially above the average outdoor quantity." "In a large majority of cases the ventilation of our school-rooms is injuriously defective. Most of the pupils are breathing, for several hours each day, an atmosphere containing more than one tenth per cent carbonic acid. In many cases the vitiation reaching nearly double that amount."

Farther in his report he recommends mechanical or forced ventilation.

THE ST. GOTHARD TUNNEL. — There seems to be a very great chance that it will prove as difficult a thing to complete the St. Gothard tunnel as it was in Massachusetts to finish the Hoosac tunnel. Begun in 1871 for the purpose of making the route to Italy by the St. Gothard pass as attractive as it formerly was, by reason of the famous diligence road, which was built in 1830 at a cost of \$375,000, and which had made this the favorite road until the Mt. Cenis Tunnel diverted both travel and traffic from this part of Switzerland, its estimated cost was \$37,400,000, and the time for its building was limited to ten years. To build this tunnel, which would be nine and a quarter miles long, together with the railway, Germany and Italy agreed to subscribe \$17,000,000, while the balance was to be raised by the Forest Cantons and the Federal Council. As the work has gone on it has been found that the estimated cost would be probably about half as much as the real cost, and as Switzerland has suffered as much from hard times as other countries, it is found that the work must be abandoned for a time at least. Not long ago an endeavor was made to obtain a supplementary grant from the Canton of Zurich in aid of the enterprise, but when it was submitted to the popular vote its defeat was so decisive that the present prosecution of the work seems impossible; for the Canton of Zurich is at once the richest canton, and the one which would most benefit by the new route.

THE NATIONAL STATUES AT THE EXHIBITION. — *La Semaine* finds good words to say of but few among the twenty-two statues which, representing the nations that take part in the Exhibition, decorate the river façade of the building on the Champ de Mars. The statue of Hungary by Lafrance seems to be the most successful of these female figures of more than heroic size. Perhaps, although professional sculptors were engaged upon the work, many of them, too, of acknowledged merit, not much was to be expected, since only eight hundred dollars were appropriated for each statue, which were to pay for model, moulding, and the installation of the figure in its appointed place.

THE AQUARIUM. — It is said that the aquarium is likely to be a failure, because some substance used in the construction of the tanks, and of which it is impossible to get rid, poisons all the fishes.

M. GIFFARD'S BALLOON. — The captive balloon, which will be able to raise about fifty persons some sixteen hundred feet above the level of the ground, will be secured by a rope which is calculated to withstand a strain of fifty-five tons, although it is not intended to use the balloon when the strain exceeds thirteen tons. The covering is made of alternate layers of linen and India-rubber, upon which for weeks past some hundred girls have been busy stitching the cloths together in a large building built for this purpose. The weight of the netting is said to be enormous. The balloon is to be filled with pure hydrogen, made on the spot by treating iron filings with sulphuric acid. It will be about one hundred and twenty feet in diameter, and will have a displacement at the level of the earth of about 31,750 cubic yards, which will increase to 32,500 cubic yards when it reaches the highest elevation allowed.

THE ROOFS OF THE MAIN BUILDING. — It was at first intended to cover the roofs of the galleries in the Champ de Mars with zinc; but as this proved too expensive galvanized iron was used, which was not bought out-and-out, but is rented of a large firm for a year at a cost of \$90,000, thus effecting a saving of some \$140,000.

STATUE OF THE FRENCH REPUBLIC. — M. Clessinger's colossal statue of the Republic has been approved by the Fine Art Commission, and is to be set up in the grounds of the Champ de Mars, opposite M. Bartholdi's statue of Liberty.