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INSURANCE people are distressed at the increase in fire-losses for this year over those of the corresponding period in 1898 and 1897. The losses in April were about a million dollars greater than in April of last year, and, since the first of January, fifty million dollars' worth of property has been destroyed in the United States and Canada, or nearly one-third more than the loss in the first four months of 1898. It is interesting to see that, according to the list compiled by the New York *Journal of Commerce*, nearly all the large losses in April were from fires in country or suburban towns, where there are no fire-regulations, or, at least, none of any value. Boston lost a fire-department storehouse, and several buildings in the tinder-box district, which, it must be remembered, is, in Boston, of immense extent; and New York lost two costly dwellings; but the greater part of the damage occurred in the third-rate towns, where the habit of piling up masses of goods in buildings which strike an insurance-man or an architect with alarm at first sight is rapidly growing. Until general laws are made applicable to all buildings, and enforced by an inspection which would be at present impracticable, it is useless to hope for any enforced improvement in rural construction; and, as villages grow into towns, and towns into cities, losses of this sort will increase, until the insurance companies protect themselves and the public by increasing country rates where certain conditions are not complied with. In the towns, the inspector of buildings, who is apt to be also the janitor of the town-hall, or to hold some other modest, but respectable position, could at least inform the insurance inspectors of the principal characteristics of the new buildings, and rates could be made accordingly; and it would not take long for owners to find out what style of construction suited the underwriters, and to calculate the advantage of making their buildings conform to it.

TWENTY architects, from different parts of the country, have been selected to compete for the new Custom-house building in New York, and nearly all have accepted the invitation. Under the terms of the invitation, the architect whose design is placed first is to be employed to carry it out at the regular commission of five per cent, for drawings and general superintendence, while no provision is made for second and third prizes, or for any compensation to other competitors than the one given first place. It is understood that the special Act of Congress authorizing the construction of the building does not forbid the payment of such compensation, or of second and third prizes, and the Government, in the case of less important buildings, has made such payment, but the New York

Custom-house was considered so attractive a commission that no such inducements need be offered in connection with it.

THE matter of raising money for the building of the New York Library seems to have been satisfactorily arranged, and work will begin at once on the removal of the old reservoir now on the site. The architects have made careful calculation of the time that will be required to take down, stone by stone, the reservoir walls, and remove the material, including the earth filling, so that the excavation for the foundations of the new building can be begun, and they estimate that six months will be required to clear the site, and eight months more to put in the new foundations, so that fourteen months will elapse before the Library reaches the level of the ground. To complete the superstructure will require from three to four years more, so that the building will hardly be ready for use before the year 1904.

THE Commissioners of the Chicago Drainage Canal have requested Professors Palmer and Burrill, of the University of Illinois, Dr. Jordan, of the University of Chicago, and Dr. Gehrman, of the Chicago municipal laboratory, to make a series of tests, chemical and bacteriological, of the waters of Lake Michigan, the Illinois River, and the Mississippi, between the mouth of the Illinois and the city of St. Louis. The tests will extend over an entire year, so as to study the water at different seasons, and ascertain its precise condition, in order to compare this with its condition after the opening of the Drainage Canal. Although the results of the tests will probably be stated with perfect fairness by the experts employed, it seems a little unfortunate that scientific men from St. Louis, and other cities on the Mississippi below the mouth of the Illinois should not be invited to coöperate in the experiments. It is said that the Mississippi water has already been thoroughly examined by chemists for the City of St. Louis, but, if the results of their examination should not happen to agree with those of the Illinois experts, the public would at once assume that each party colored its account of its observations to suit the interests of its employers; and, if this notion, whether justified or not, obtained a hold on the public mind, the tests would be useless for preventing disputes. It is possible that provision has been made for appeal, in case of disagreement, to independent experts, and, if this has not been done, it certainly should be.

THE Governor of New Jersey has appointed an excellent commission to study the whole subject of the pollution of the rivers of the State by sewage, and, naturally, the Passaic will first receive attention. The legal part of the question has been thoroughly settled by a decision of Chancellor McGill, who, in speaking of the discharge of the sewers of the city of Paterson into the river, said that the Paterson sewage "does not naturally flow to the stream. It is gathered 'by the municipality of Paterson in sewers from numerous 'buildings, cesspools, culverts and drains, over a large area of 'land, and by uniform, artificially-constructed grades is gravi-'tated to and discharged into the river. It is vastly more than 'the mere natural drainage of riparian owners. I cannot con-'ceive of any tenable ground upon which such drainage can be 'classed as either a natural or reasonable use of the river." The obvious consequence of this view is that the people of the city of Paterson, having no "right to pollute the waters of 'the Passaic by the discharge of its sewage into them," must either cease to do so, or pay damages to the people injured. In the suit in which this decision was given, an injunction was issued, restraining the inhabitants of Paterson from doing anything to increase the quantity of sewage discharged, with the understanding that means should at once be taken for devising some other way of disposing of the sewage, and that the decree excluding all the Paterson sewage from the Passaic should be held in suspense until a reasonable time had been allowed for establishing a different system.

THE stories about the fireproofing of wood, which is done, as it appears, substantially by injecting the wood under pressure with silicate of soda, followed by some chloride, which removes the soda in soluble form, leaving the silica in the pores of the wood, seem to have waked up the belated

inventors who try to profit from important discoveries, by "improvements" of their own. Not long ago, a "new process" for fireproofing wood was exhibited in public, and described in the newspapers, which, according to these descriptions, consisted in "coating" bits of wood with "a plaster composed of lime and vegetable fibre, to give the compound a body, and certain chemicals to resist the fire," one of these chemicals being, we are told, tungstate of soda. The bits of wood thus plastered over were exposed to a furnace or a blow-pipe flame for twenty minutes or more, and when they were taken out, and the covering "chipped off," the wood was found intact. The only extraordinary thing about this test is that "a number of experts" could have witnessed it seriously. Every plasterer, fireman, builder and architect has known for a thousand years that plastering-mortar, made with lime, or, still better, with plaster-of-Paris, is one of the best solid non-conductors known, without any admixture of "vegetable fibre," to give it a "body," and without any tungstate of soda or other extraneous chemicals. Probably most architects have cased smoke-pipes, or packed refrigerator partitions, with plaster-of-Paris, or, like ourselves, have walked about on the plank floor of a fire-testing building, protected by plastering the under side on wire, in which a cordwood fire had been burning for two hours, and do not need to be told that such materials, if they can be made to stay in place, will protect wood from a much fiercer trial than the heat of a furnace, or a blow-pipe flame, applied for a few minutes; but the difficulty which has prevented them from relying upon it as a fireproofing material over wood, and which no inventor has yet satisfactorily overcome, is that neither lime mortar nor plaster-of-Paris, with or without "vegetable fibre," tungstate of soda, or any other "chemicals," will adhere to wood so strongly as not to be thrown off by heating and subsequent wetting with cold water, or by the warping of the wood under the influence of heat, or even by the natural shrinkage of the timber, without the aid of heat. Of course, a fireproofing material which comes off when exposed to fire must be used with discretion, and American architects, who employ very extensively plastering on metal lath for protecting woodwork, have probably done all that can be done with it; but covering wood with three-quarters of an inch of mortar, with or without wire, is a very different thing from fireproofing the substance of the wood itself.

THE United States Department of Agriculture has taken a very unusual step in announcing that "a few well-qualified men may find positions as student-assistants in the Division of Forestry." These student-assistants will be assigned to practical field-work; their expenses will be paid by the Government, and they will receive in addition a salary of three hundred dollars a year. The qualifications that candidates for these positions must possess include botany, geology, mathematics, German or French, the history and geography of the United States, and a tolerable knowledge of economics. The *New York Evening Post* sees in this announcement the establishment of a rival to the new Schools of Forestry at Cornell University and at Biltmore, and regards it as, perhaps, a premonition of the coming of a national university at Washington. Fortunately, Mr. Pinchot, the head of the Forestry Department, is a man quite unlikely to use his position for furthering other people's wild schemes, or to try to injure, by competition, the other forestry schools which have, mainly through his influence, and that of his predecessor, been at last established; but as he has determined to make his Department as efficient as possible, and needs competent assistants to enable him to do so, he has taken the only course open to a sensible and intelligent man, trying to use a limited appropriation in the most effective way, and has called for candidates to whom the opportunity for gaining instruction will be a compensation for the smallness of the salary, and has adjusted his requirements, as it seems to us, with great discernment, so as to secure a sufficient number of the best-prepared men available, without demanding so much as to incur the risk of finding himself without any candidates, a mishap not unknown in the history of civil-service examinations. Later, when the new schools of forestry are fairly at work, and are beginning to turn out graduates far better qualified for the Government positions than the candidates now available, it is reasonable to suppose that Mr. Pinchot will raise his requirements, so as to secure the school graduates for Department assistants. In this way, he can be of very great assistance to the forestry schools in promoting the object which he and they have at heart, and they can be of equal assistance

to him; for, while they supply him with assistants qualified by long special training to understand and carry out his ideas, and eager to be permitted to do so in return for a nominal salary, he can hold out to the best students in the schools the prospect, the encouragement of which can be fully understood only by those who know the disheartening anxieties for the future which beset the university-man before his graduation, of some years of Government employment and practical experience of the most valuable kind, and, as a consequence of these, of a career substantially assured. No other professional schools in this country can offer such encouragement, and we are very much mistaken if Mr. Pinchot's plan, simple as it looks, does not result before many years in providing the country, not with a great "national university," steeped to the eyes in politics, and existing mainly for the purpose of getting appropriations, but with the best and most efficient forestry service in the world, carried on at the smallest expense.

A NEW idea in the way of testing the contamination of air has been put forth by Professor Dewar. Not long ago, in a lecture before the Royal Institution, he exhibited two samples of liquid air, in glass tubes. One of the samples was made by condensing air which had been washed, to purify it from dust, soot, carbonic acid and floating impurities. This, when condensed, was a perfectly clear, pale-blue liquid. The other sample was made by condensing the air of the lecture-room in which the audience was assembled, and was an opaque, blackish fluid, resembling soup in appearance. As there must be degrees of muddiness between perfect limpidity and the soup-like condition, it seems as if condensed samples of air might afford an easy means for comparing different varieties of contamination. Another interesting study would be to see how far contaminating substances and organisms would resist refrigeration. If soot, dust and miasms could be removed by condensing and then expanding air, it would not be very difficult to provide a novel, but highly efficient, kind of ventilation in military hospitals and other places where the natural supply is bad, and the necessity for a better one very pressing. As the process would also cool and dry the air, it might serve an additional purpose in tropical countries. Indeed, as it is said that liquid air can be made and sold at a profit at ten cents a gallon, it would not be wholly impracticable to ship to a yellow-fever hospital in Havana supplies of New Hampshire air, bottled, so to speak, on the spot, and delivered cool and fresh under the noses of the patients.

WE are informed, on the best authority, that the construction of the dam across the Nile at Assouan will not, as has generally been asserted, submerge the temple at Philæ. The stories received here have varied, some claiming that the whole temple would be deep under water, while others said that the upper portions would show above the surface; but it appears that the actual level of the water behind the dam will, at Philæ, be a little above the present high-water mark; so that the floor of the temple will still be dry. There is, however, an interesting Roman pier, or landing-place, which is now visible at "low Nile," or even at "half Nile," but is covered at the time of flood. This will be permanently submerged. It is so great a satisfaction to think that the threatened destruction of the beautiful temple itself has been averted, that people will not, for the present, complain much about the Roman work, but there is so little Roman work in Egypt that no time should be lost in making a thorough study of this example, before it is lost to sight.

AN architect Mr. Henry Ives Cobb, of Chicago, happens to be a party to a suit of considerable practical interest. It seems that Mr. Cobb, in 1892, bought of Miss Ellen B. Young a tract of land on what is called the North Shore, giving, in part payment, notes to the amount of forty thousand dollars. Since then, the land has been washed away, wholly or in part, by the waves. Recently, a decision has been given by the Supreme Court, declaring that piers or breakwaters, to prevent the washing away of the shore in that region, cannot legally be built, so that there seems to be no way of preventing the land from disappearing altogether, if it has not already gone. Mr. Cobb has not paid his notes, and Miss Young has now sued him on them. Presumably, the defence will be that the land was sold under an implied warranty that it would be still in existence when the time came to pay for it, and the decision of the court will be looked for with much interest.

SANITATION IN RUSSIA.—I.



Escutcheon from the Monument to Alexander III, Moscow, Russia.

THE following notes and observations on sanitary conditions as they exist at the present day in Russia have been written by Army-Surgeon D. Wilke, of Dresden, Saxony, and were recently published in a weekly medical Journal of Munich.

A journey to Russia, which up to ten or twenty years ago was considered something rather uncommon, is not quite so rare at the present time, for the railroad communications have been much improved. The greater facilities now available to travellers have done much to expand our knowledge of this country of Eastern Europe, which up to within a recent period appeared to be surrounded with considerable mystery. The modern literature about Russia discusses,

as a rule, questions of a more general interest, and principally those of a geographical, political and military nature, while special information regarding its public-health systems and its hygienic conditions are rather scarce. There are several journals printed in the Russian language which devote considerable space to sanitary topics, but, owing to the difficulties of the Russian language, they are not much read by foreigners. The author has, therefore, endeavored to gather some facts and experiences during a journey, undertaken by him in the year 1896.

The trip embraced the larger part of the country of European Russia. He started from the Russian-German frontier, at Sosnowitz, near Bendin, and travelled by way of Warsaw, Siedlez, Brest-Litowsk, Rowno, and Kasatin to Odessa, on the shore of the Black Sea; from here he took a steamer and sailed along the picturesque coast of the Crimea and the grand landscape sceneries of the coast of the Caucasian Mountains to Batum, and thence, by land travel, to Tiflis. From here he made a visit to the mineral baths of Pjatigorsk, Kislowodsk, Jessentucki and Shelesnowodsk, situated in the northern part of the Caucasian Mountains, and went from there by way of Rostow, on the River Don, Charkow, Kursk and Tula, to Moscow. From this city he went to a little provincial town, Gshatsk, on the road from Smolensk to Moscow, where he made a stay of several weeks, in order to study the habits, customs and ways of living of the citizens of smaller towns, and of the peasants, and also to learn something of the sanitary conditions of a smaller provincial town. He finally visited Smolensk and Minsk, and being in the latter place taken for a German spy, he had some unpleasant experiences with the Russian *gendarmes* and police authorities which determined him to leave the country somewhat sooner than he had expected. He, however, found the time to visit a large number of small towns and villages and gained considerable knowledge regarding the interior arrangement of the Russian dwelling-houses, partly by opportunities arising through invitations, partly by looking up and hiring lodgings in preference to going to a traveller's inn.

Concerning travelling in general in Russia, the author states that since the development of the system of railways it is very comfortable, and since the introduction of the new mileage tariff, in December, 1894, it is exceedingly cheap. In 1892 European Russia, not including Finland and the region near the Caspian Sea, embraced 27,814 versts, or 18,357 miles (1 verst = 1.067 kilometres = 0.66 miles) of railroads. The railway-coaches of the first and second class are very comfortable and well fitted up. All railway-coaches are arranged with a longitudinal aisle, located on one side, and the separate compartments open up on this aisle. Comfortable car-platforms facilitate inter-communication between the cars of a train. The back of the seat is arranged so it can be swung upwards out of the way, and this enables passengers on night-trains to change the seats into comfortable lying-down places, though there are also special sleeping-cars. This arrangement of the seats offers advantages from a military point-of-view, inasmuch as it enables the quick transformation of a passenger-car into a car for the transport of sick or wounded soldiers, in time of war.

It is often assumed that in travelling in Russia one does not require a knowledge of the Russian language, because nearly all Russians are familiar with German or with French, or both. The writer of the article wishes to correct this erroneous view, for it is only in the highest social circles that one finds Russians able not only to read and write French and German but to converse in these languages. The people of the middle classes, as a rule, lack these acquirements, and the moment a traveller leaves the beaten tracks to study Russian country life it is imperative that he should be somewhat familiar with the Russian language.

Following these introductory general remarks, the author discusses the hygienic conditions of habitations.

As the physical characteristics and the traits of character of the Russians are alike everywhere, so his habitations and residences are generally built on one and the same type. In the villages there is always a wide main street, on each side of which are located, closely huddled together, the gloomy, gray cottages or huts, which are separated from one another by a very small, ill-kept vegetable-garden. As a rule, there are no cross-streets, and a narrow alley-way between the houses affords the only means of reaching the fields and meadows located back of the huts. The vegetable-garden, which is surrounded by a miserable board-fence or a low hedge of birch twigs, has, as a rule, a dreary, neglected appearance. Cabbages, onions, radishes, and perhaps a few potatoes, but principally thistles, growing to a height of four feet, and other weeds, cover the ground. One rarely sees a flower, except possibly the mallow and the tall sun-flower, the seeds of which form a delicacy for the village youths, and are likewise used to prepare the "fasting-oil," of which, owing to the great number of fasting-days, a large quantity is required. Trees in these gardens are the exception. Occasionally one finds a solitary birch or fir tree, a wild apple or pear tree, but these are not planted, and grow up only because the Russian peasant is too lazy to cut them down.

On the whole, Russian villages, with their weather-worn wooden huts and thatched roofs of uniform gray color, have a very monotonous, tedious, repulsive and inhospitable appearance, which latter is not lessened even by the usually bright-looking, white village church, with its green roof and its high, separate belfry-tower.

Let us examine more closely one of these village huts. A visit to a peasant hut is not a difficult undertaking, because the Russian peasant is good-natured, hospitable and talkative. In fact, hospitality to strangers is a prominent trait of character of the Russian people. Wherever the author visited peasants' cottages he never left them without having been offered some light refreshments, such as milk, eggs, tea and bread. The author relates how once an old, good and honest peasant-woman, sitting with some red-cheeked but squalid and dirty children in front of her hut, invited him to enter, and, not having anything better to offer him, handed him a large carrot, from which she had first taken a bite herself.

A peasant's hut or cottage consists of stout logs placed horizontally one over another, the joints being stuffed with oakum and straw for protection against the wind and the cold. As a rule, there is a wide hallway in the centre of the hut, with a doorway at the rear, which hall separates two living-rooms, one intended for winter, the other for summer use. The floor-level of the rooms is generally a little higher than that of the hallway, two or three ascending steps being provided. A sort of cellar under the living-rooms is used for the storage of vegetables and as a poultry-house. The dimensions of the living-rooms vary somewhat, but they are seldom larger than 3 or 3½ meters (10 to 11½ feet) on the square, while the height of the rooms averages 2½ to 3 meters (8 to 10 feet). In many of the huts visited by the author the living rooms were again subdivided by a board-partition which did not reach to the ceiling, and the single compartments were extremely narrow. This was particularly the case in the winter-room, where the immense brick stove, which answers also as a bake-oven, occupied about one-fourth to one-third of the floor-space of the two compartments. The floors and the ceilings are usually boarded, though in the smaller huts there is often no ceiling proper, the thatched roof answering as such.

The furniture usually consists of an oblong table of rough timber and a rather wide wooden bench running along the entire side of the room; chairs are nowhere to be seen, and bedsteads are likewise the exception. Instead of these, the top surface of the immense stove answers for a bed, and where there are too many occupants, those who cannot find room on the stove sleep on the wooden benches. The garments answer for a mattress, a "woilok" or horse-blanket and one or two pillows are also used, and the sheepskin fur is used as a cover. Of other furniture the author mentions the cradle, which, owing to the many children in Russian families, is never lacking. The cradle is a very queer piece of furniture, consisting essentially of a long springy branch of birch, about as thick as a man's arm, the thick end of which is fastened to a ceiling-beam, while the free end supports a small, square box which is filled with straw or hay and which is hung from it by four strings. In this "cradle" the youngest member of the household, wrapped in dirty linen, lies kicking; a second string, provided with a loop at its lower end, serves the purpose of rocking the cradle, which is done not by the usual side-swing motion but by an up-and-down movement.

The rooms contain a number of dirty vessels, old, half-broken and blackened clay pots, a rack with a few glasses or cups, an earthen wash-basin, a towel hung from the wall, which is usually very finely embroidered but indescribably soiled, and which the hospitable peasant uses to wipe out the ill-cleaned tea-glass which he intends for the visitor; a few milk and other vessels, and finally, in the corner opposite the door, the picture of a saint with the lamp constantly kept burning under it, which lamp is never lacking.

Besides the baby, the housewife and the younger and older children—who surround the visitor with an air of curiosity—the grandmother and the kind head of the family, we notice as part of the living tenants a number of chickens; sometimes a sheep pokes its head through the door, for the hut answers in winter-time for a stable. In summer-time there are thousands of annoying flies, forming a

nuisance which, from a sanitary point-of-view, is not without some importance, because the flies may form the medium for the conveyance of all sorts of disease-germs, such as of the tuberculosis which is very frequent in Russia, of diphtheria, of typhoid fever, etc.¹

The interior of the huts is lighted in daytime by two small windows with glass panes which are seldom clear, and are never cleaned, but which are often broken, and repaired by means of paper pasted over the cracks or holes. In the evening the rooms are lighted only by tallow-candles, and the author states that he never came across even the simplest kind of lamp.

In the rear of the hut there is a small court, which is enclosed by the sheds and small stables intended for the domestic animals. The entire court, which with the hut covers a space generally square in shape, is covered over with a thatched roof, pitched to the four sides; the roof has a small, square hole in the centre, serving to light up and to ventilate the ill-kept court, which serves as a depository for all manner of filth.

The conditions of the habitations in the smaller provincial towns are not much better than those of the village-huts, and, like the inhabitants of the entire Empire, they are everywhere alike in appearance and arrangement.

The towns of Russia were generally arbitrarily created since the days of Catherine II, and their creation was largely the outcome of administrative requirements. The cities and towns are sub-divided into four classes, viz, 1, capital cities (*Stolizii*), St. Petersburg and Moscow; 2, governmental or provincial cities (*Gubernskije goroda*), or cities where the seat of the government of a province is located; 3, district towns (*Ujadsnije goroda*); and 4, cities without courts or local government (*Saschtatayje goroda*).

Every city or town has a Municipal Council, consisting of a Lower House composed of citizens of good standing and over twenty-five years old, an Upper Chamber (*duma*), composed of elected aldermen, and the mayor's office (*uprawa*), appointed by the aldermen, at the head of which is the mayor (*golowa*). The Municipal Council has general control of the affairs of the city, and also of the health-matters, hospitals, charitable institutions and schools.

The author gives the following description of the small town of Gshatsk, which may serve as a type of a provincial Russian town:—

The principal quarter of the town, which is situated in a very level country, surrounded by swamps, consists of two streets, planned in the shape of the letter T, at the intersection of which the large, well-laid-out market-place is located. The two main streets are partly paved and also have a paved sidewalk, but the stone-paving is miserably done, and the larger portion is macadamized. The market-square is not paved, and forms, after the market-days, which occur twice a week, an almost impassible pool, due to the numerous peasants' conveyances with small horses, and the large number of cows, sheep and pigs which have been kept there.

Around this centre part of the town, in which the houses are usually built in blocks, are grouped a number of wide side-streets, each up to 40 metres (130 feet) wide, and each forming, as it were, in itself a small village. These side-streets are not paved at all, but are simply dirt-roads, having in dry weather many deep ruts formed by the vehicles, while in the deeper places, particularly in rainy weather, the surface is so wet or damp as to resemble a swamp, on which walking can only be done with difficulty. The worst spots in the road are usually filled with planks or tree-branches, in order to afford some firmness to the feet. These tree-branches, however, which are about two inches thick, are laid irregularly, and the twigs are not cut off, but project in dry weather sometimes as much as two feet, and impede foot-traffic very seriously, and in wet weather the soft mud covers the twigs, which thus cause frequent stumbling. One or two planks laid side-by-side form a sort of sidewalk in the swampy portions of the road, but the wood is generally rotten and walking on these planks is rather difficult.

The cleaning of the streets was done only in front of a few of the better class of houses; even on market-days it is not considered worth while to remove the large masses of dung and scattered straw arising from the numerous horses and cattle. Dependence for cleaning is placed solely upon the rain and the wind, the latter blowing away the dry straw particles, while the rain changes the organic refuse into a homogeneous semi-liquid mass, a part of which is eventually carried by means of the gutters, where these latter exist, into the small river or creek which runs through the town. Garbage and compost-pits do not exist, and all household-refuse, meat-remnants, bones, particles of food left over, etc., are either stored in the courts or simply thrown upon the streets, and thereby increase the amount of street-refuse.

Wood is the common building-material for the houses of provincial towns, and stone houses are found only in exceptional cases along the main streets or on the market-square. The plan of the houses is usually a rectangle with the small side placed parallel to the street. The better houses are two stories high, having a ground-floor and one upper floor, and present quite a neat appearance, being painted blue, red, yellow or green, with red or green tin roofs and with wood-carving along the cornices and windows. On the other hand, the exteriors of the houses located on the side-streets are usually coarse, and, like the village dwellings, present, with their old, weather-worn wooden or thatched roofs, a very monotonous appearance.

The interior of the dwelling-houses is sub-divided by board-partitions into a number of smaller rooms, which are but moderately well furnished even when owned or tenanted by well-to-do citizens. The walls are left rough, or covered with a few cheap colored pictures either bought or torn from picture-books and pasted to the wall. A simple old lounge, a few rickety chairs, a table and the immense Dutch stove complete the list of interior furnishings. The room which the author rented was composed of a larger apartment and a smaller alcove furnished as described; it had a disagreeable odor of wood, bed-bugs and possibly dead mice.

In the houses of families of the better class the rooms are larger, more comfortable and arranged after European patterns, the walls are papered, and the furniture is of a better quality, though the general impression remains a rather poor one according to our notions of comfort, and the mode of living is certainly far inferior to that of similarly situated families in Germany.

In the rear of the dwelling is the rather narrow and long court, which is surrounded by a shed which has a roof but is open toward the court. The latter is not paved and serves as a depository for much of the house-refuse and filth, or at least for that part which is not thrown upon the street.

Even those cities of Russia which are the seat of the government of the provinces are, on the whole, not much better than the provincial towns of which one example has just been described. In their central portions they present a more European or civilized appearance; the houses form compact blocks, are generally built of stone and from two to three stories in height. Many of the houses have on the first floor elegant and well-appointed stores with large and wide show-windows. But monumental buildings, palace-like mansions and attractive apartment-houses with dignified façades, as they are seen in Germany in cities, where often entire streets or city-districts are lined with them, are but seldom found in Russia. The suburbs, which constitute the larger part of each city, have, even in the capital of Moscow, the same outer appearance as the smaller provincial towns, and the interior arrangement and furnishing do not differ much from them.

In a description of the larger cities of Russia mention should be made of an important matter which has for a long time occupied the attention of Russian Health Boards, namely, the constantly increasing overcrowding of dwellings, due to the growth of the cities, particularly those where the larger part of the population is composed of Hebrews.

In the town of Grodno a dwelling composed of three or four rooms often holds twelve families; the appearance of such habitations is generally extremely squalid. In Berditschew, a town on the eastern border of the province known as Old Poland, and having largely a Jewish population, there were in 1890 only 1,545 one-story dwellings for a total of 60,000 inhabitants, and here there is, in addition, a large floating population, particularly during the annual fairs.

The conditions are not much better in the ill-reputed Jewish quarters of Warsaw, in the Jewish quarter of Wilna, in Schilomir, Brest-Litowsk, in Bjalostock, which are towns largely inhabited by Jews, and in general in nearly all cities and towns of what was formerly Great Poland, the West Russia of to-day, and in particular the districts around the river Vistula.

But even in cities with other than a Jewish population the overcrowding and lack of habitations have increased enormously in the past twenty-five years. This was largely caused by the radical changes begun in 1861. The entire urban life underwent a transformation at that time. Large numbers of people emigrated from the country villages into the large cities. Many peasants without homes and farms, rural workmen, agricultural laborers, etc., went to the cities. The growth of manufacturing industries in large cities was likewise a cause of this overcrowding.

The condition of the streets and their maintenance in the larger cities and towns leave much to be desired. There are, of course, a few exceptions, notably the streets of Odessa, a city in Southern Russia, which in many other respects shows much municipal sanitary progress.

For general information upon this subject the author quotes the following statistical data from the official report for 1894 of the General Imperial Board of Health. At the end of the year there were, of all cities in Russia,

	Without any street pavements.	Less than half the streets paved.	More than half the streets paved.
In the Baltic Sea provinces.	4.3 per cent.	30.4 per cent.	65.2 per cent.
" " provinces along the Vistula.	39.3 " "	60.7 " "	
" " Government districts with Semstwo.	40.5 per cent.	52.6 " "	6.9 " "
" " Government districts without Semstwo.	43.5 " "	53.7 " "	2.8 " "
" " districts of the Cossacks along the River Don.	66.6 " "	33.3 " "	
" all of European Russia.	34.2 " "	49.8 " "	16.0 per cent.

More than one-third of all Russian cities have, according to these figures, no street-pavements whatever, and only in one-sixth of them was more than half the total street-surface paved, while the rest of the streets are simply dirt roads, as described above.

It should be mentioned, however, that during the past few years much has been done in the line of street improvement, and the total

¹ It is interesting to note that this was written in 1896, more than two years previous to the similar observations made in the camps of the United States Army in last year's war with Spain. W. P. G.

"Semstwo" signifies municipal councils or institutions.

area of the newly paved streets is each year increasing to a considerable extent. Due regard should also be had to the fact that in at least a part of the Russian Empire there is lack of good street-paving material, and street-paving and maintenance require a very large outlay of money. On the other hand, the northern part of Russia is richly wooded and thus affords opportunity for making use of the wood as a street-paving material; this is actually being done, principally in the Vistula provinces and in many towns of Western Russia. Asphalt pavements have also in recent years been laid, to a limited extent, in a few of the principal cities.

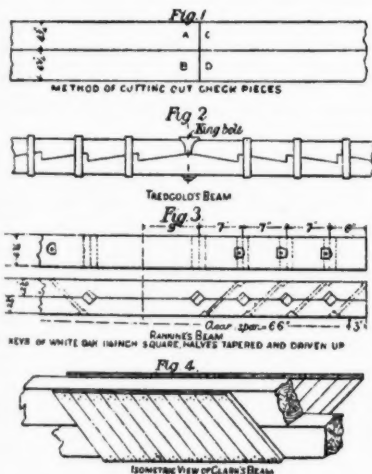
In provincial towns the cleaning of the streets is often accomplished very imperfectly. The cleaning of a street in Russia made a duty of the owners of buildings fronting upon the same, though the municipal government has the right to have it done at the expense of the city, and in most provincial towns the latter system is followed. In a few cities, like Odessa, for instance, sprinkling-carts drive through the streets all day, and the sweeping is done with painstaking accuracy. In other large and medium-sized cities, like Minsk, Smolensk, Tula and others, street-cleaning is restricted to a few main streets in the centre of the city, while the refuse in all other streets remains heaped up as described by the author when speaking of the provincial towns.

Town-sewerage, up to now, is scarcely known, and it cannot be expected as yet that it be carried out on a large scale, because a town water-supply by a central system or works, which is the chief condition upon which a sewer-system depends, is almost unknown. But even in those places which have water-works, and where logically the construction of a sewer-system should have followed, no sewers have as yet been built. Even in the capitals of Russia, St. Petersburg and Moscow the construction of sewers has only quite recently been begun.

W. P. G.

(To be continued.)

THE EFFICIENCY OF BUILT WOODEN BEAMS.



ENGINEERS in this country [England] have generally but little cause for making use of heavy wooden beams, and, should the need arise, fall back on the recommendations contained in Tredgold's famous work on "Carpentry," seldom troubling themselves to institute new researches. Tredgold's work has been accepted in a perfect spirit of trust, a condition of mind which some hold to be an actual virtue in theology, but in matters of construction is opposed to the higher precept of "trying all things, and holding fast to that which is good." There

was, it must be admitted, much justification for taking Tredgold on trust. Thomas Tredgold had a remarkable knowledge of practical carpentry, the various constructions in which are the result of accumulated centuries of experience, and it has been pretty generally acknowledged that though expensive, there is no more certain way of arriving at a correct design than by that of trial and error, extended over a long course of years. It would seem, however, from some very interesting experiments carried out by Prof. E. Kidwell, at the Michigan College of Mines, that in the case of built-up beams the constructions recommended by Tredgold are unworthy the confidence with which they have been received. In excuse, it should, nevertheless, be noted that certain of the devices adopted by carpenters are survivals from the time when screw-bolts and, indeed, iron fastenings of any kind, were expensive and difficult to obtain, so that a construction which may have been "a survival of the fittest" in these conditions has since ceased to be adapted to the new environment brought about by the development of our iron and steel manufactures.

The matter is not quite so easily settled as might be imagined at first sight. Provided the span is long enough, almost any method of constructing a compound beam seems capable of showing an apparent efficiency of over ninety per cent; that is to say, such a built beam is less than ten per cent weaker than a solid beam of the same dimensions and span. If, however, a beam of the same construction is tested on a shorter span, a much less favorable showing may be obtained.

The reason for this peculiarity is to be found in the fact that the shearing resistance of wood along the fibres is small as compared

with its tensile and compressive strengths. With iron and steel beams failure practically always occurs through the flange tensions and compressions. In fact, some care and skill is needed to determine the true strength of these materials in shear, as, unless suitable precautions are taken, the failure will occur, at least partially, by bending. With timber, precisely opposite conditions arise. On short spans a wooden beam invariably fails by longitudinal shear. The various methods of constructing compound beams should accordingly be designed to develop to its utmost this resistance to longitudinal shear. To test the adequacy of such a proposed joint it is, therefore, essential that the specimen beams shall have a span of not more than ten times their depth if the load is concentrated, or double this if it is uniformly distributed. When this is done the comparative merits of different arrangements quickly appear, and it is interesting to note that the constructions which, under modern conditions, are most expensive, are far from proving the most efficient.

Another difficulty in making a series of tests of this nature lies in the wide range of strength shown by different specimens of the same class of timber. Professor Kidwell's preliminary experiments brought this out very clearly, and showed the necessity of taking special precautions to secure uniformity if trustworthy comparative results were to be obtained. Finally, the following ingenious plan was devised: A plank was divided up as indicated in Figure 1. The built beam to be tested was made out of pieces A and D, while the strengths of the specimens B and C were separately ascertained. From the mean value of the breaking-load of the two specimens, it was possible to calculate the strength of a solid beam equivalent to the built beam, and, expressing the actual strength of the latter as determined by experiment as a percentage of this calculated strength, it was possible to form a satisfactory estimate of the merits of different types of construction. As a criterion of the value of this method of procedure a wide plank was cut up into eight pieces, and the breaking-strength ascertained. The mean strength of alternate pairs of these pieces proved very fairly constant.

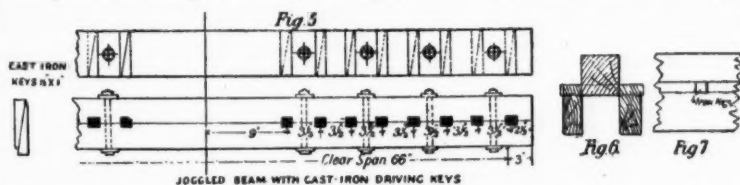
The usual method of constructing a compound beam is to insert keys of metal or hard wood between the two components of the beams, rotation of these keys being prevented by through bolts which should obviously be fitted as close to the keys as possible. Professor Kidwell notes in constructions of this class that iron keys should be used by preference, as the end fibres of a soft wood are quite capable of indenting the sides of a hard-wood key. The loss in ultimate strength thus arising is not serious, but the stiffness is considerably affected. In some designs keys are dispensed with, one component of the beam being notched into the other, so that end fibres bear on end fibres. Such arrangements have been shown by Professor Kidwell to be eminently unsatisfactory, as the fibres easily interpenetrate each other, allowing sliding to occur, and much diminishing the efficiency of the beam. Tredgold recommends a beam of this kind in which the upper component is made in two parts, each equal to half the span in length. A wedge between the two, held in place by a king-bolt, serves to jam together the faces of the indents, as shown in Figure 2; but the beam still suffers from the interpenetration of the fibres at the joint, and from the difficulty of accurately spacing the notches; so the efficiency, as compared with a solid beam, does not seem to be greater than fifty-three per cent.

Professor Kidwell also finds objectionable the construction shown in Figure 3, which has been suggested by Rankine; the average efficiency of two specimens tested was 63.3 per cent. The construction shown in Figure 4, which resembles a type much used by Brunel, gave much better results, and is also cheaper to construct. Here the bolts are vertical, in place of inclined, and the average efficiency of two tests rose to 80.6 per cent; but, nevertheless, experiment shows that still better results are obtained when the keys have the faces taking the pressure vertical instead of inclined. A very simple form of compound beam was designed by Mr. T. Clarke, the well-known American bridge-engineer, and is shown diagrammatically in Figure 4, where it will be seen that the shear is taken by battens of wood inclined at forty-five degrees, nailed along the sides of the beam. In some preliminary experiments made by its proposer this beam showed an efficiency of ninety-five per cent, but the span was so long that failure occurred by cross-breaking, and hence the figure given is utterly delusive. Professor Kidwell's tests on shorter spans show the construction if well made to have an efficiency of about 71½ per cent, but there was marked want of stiffness.

A common method of making compound beams is simply to bolt the two components together. Unless of excessive dimensions, however, the bolts bend, and to remedy this defect Professor Kidwell

tested a number of beams in which pieces of steam-pipe surrounded the bolts and largely increased the bearing-surface, and the stiffness of the connections. Very good results were obtained, the efficiency varying from 74½ up to over 88 per cent; but Professor Kidwell does

not recommend the construction, as the ordinary workman would be likely to bore the holes too large in order to save himself trouble in forcing the pipes home. In the end, nothing seems to be better than a simple joggled beam of the type shown in Figure 5, in which the keys, either of iron or hard wood, are wedge-shaped, are driven



tightly into their holes and have vertical bearing-faces. The ultimate strength is not greatly different whether iron or wooden keys are used, but with the former the beam will be stiffer, and, in fact, the deflection may not be greater than that of an equivalent solid beam, while with other constructions it may be as much as doubled. With oak keys Professor Kidwell concludes that the strength may be taken as seventy-five per cent that of an equivalent solid beam, while with cast-iron taper keys it will be some five per cent more.

Since Professor Kidwell's paper was written, but apparently independently of it, another form of built beam has been proposed by Mr. H. P. C. Ashworth, and has been tested at the engineering laboratory of the Melbourne University. In this case the beam consists of three components arranged as shown in Figures 6 and 7. The shear is taken by square or round keys of iron or steel passing through all three pieces. A compound beam of this design made out of red iron bark measuring 5.4 inches deep and tested on a 6 foot span showed an efficiency equal to ninety per cent that of an equivalent solid beam, while proving actually stiffer than the simple beam of the same wood tested as a control. This latter result is, no doubt, accidental, though it confirms Professor Kidwell in showing that with metal keys it is possible to build a compound beam quite as stiff as the equivalent solid one. Of course, the question will always remain as to whether it is cheaper to use a compound beam or a trussed one, and in situations where the metal keys which are needed to secure the best efficiency can be obtained it is probable that in many cases a rolled joist will prove better than either. — *Engineering*.

BOOKS AND PAPERS

EVERY appreciative lover of historic architecture will take a keen delight in a series of essays which Mr. W. P. P. Longfellow has combined in book form under the title of "*The Column and the Arch*."¹ It is not often that the balance of judgment between what is, so to speak, commercially available for modern wants and what is aesthetically a possible development, is sufficiently well preserved to make essays of this sort readable by the average practitioner. The influence of the Ruskin school of architectural criticism still lingers as a bias to the minds of many who undertake to view architecture as one of the fine-arts, but Mr. Longfellow appreciates so thoroughly the modern point-of-view of architecture that his work, while possessing all the contemplative enthusiasm which we would expect from so close a student of architecture of the past, has at the same time the element of practicability which is so lacking in the work of the Ruskin school. This book is not the sort of architectural writing which is most abundant in our technical journals. It is not the touch-and-go, sketchy style of so much of the writing which attempts to describe European architecture; in fact, it is not descriptive at all, but it is a logical statement of what the column and the arch have meant and still mean to us as the elements of efficient design, and in the rush and scurry of modern business methods, in the inevitable keen competition which every practising architect is urged into in spite of himself and often against his artistic judgment, a work of this kind comes as a balm to the feelings of those who would study and work with reason and who want to find more in the monuments and motives of the past than a mere aggregate of possibly usable units. In every one of the chapters of this book there is at least one concrete fact which the mind can retain, one clearly emphasized lesson which a feature of a design can embody, and it is the ever-recurring evidence of thought, of reflection and of ripened judgment which marks this book as one of the most satisfactory collections of essays upon architecture which it has been our good fortune to read. We can imagine, however, the feelings with which a critic of the Ruskin stamp would receive such a statement as that "the stern Egyptian builder, who would not admit the arch among the elements of his severely straight-lined monuments, and hid away his vaults in the interior of his pyramids, would have no entangling alliance between decoration and construction, but uncompromisingly insisted on his great capitals as mere ornaments." The slogan of allying the construction and the decoration in our buildings still echoes in our architectural criticism, and the idea that our decorative motives must necessarily be an outgrowth of some pre-historic trick of construction is one that dies hard. The innate incongruity of this idea, however, the absurdity of attempting to carry back all our decoration to masonry or brick, is one of the seeming interlineary lessons of this collection of essays. After all, decoration, *per se*, has its functions so independent from architectural construction that though it may sound logical and correct to undertake to trace an alliance between our ground-plan and the carving on the echinus, it is a great deal simpler, more natural, and historically certainly not contradictory to use our decoration purely as such. Certainly in modern practice when the column and the arch, the most fundamental elements of architectural design, are almost of necessity purely decorative factors, we would simply be hampered and reduced to illogical deductions by attempting to ally these decorative forms used in a purely decorative sense with our steel-construction.

¹"*The Column and the Arch*." Essays on Architectural History, with illustrations. By William P. P. Longfellow. New York: Charles Scribner's Sons.

The author gives one entire chapter to Santa Maria Maggiore, which he characterizes as "an epitome of the architectural history of Christian Rome and which may serve to illustrate how little there is or ever was in Rome of architecture distinctively Christian, or of any architecture not essentially Classic. The arch emancipated from the entablature, which is the only unclassic feature that ever naturalized itself in Rome, found no place in this church." Another entire chapter is given to Saint Peter's, and presents an extremely interesting, critical summary of both the development of the church as an architectural design and an analysis of the successes and failures of the edifice as an architectural creation. Indeed, we know of no other one essay which so clearly and fairly presents the architectural history of this remarkable edifice. Michel Angelo's design of the dome "was his greatest achievement, perhaps the greatest achievement of the Renaissance. It is true that the final touch of grace was added by his successors, that they modified the outline of the dome and made it oval instead of hemispherical. The late M. Garnier went so far as to say that this improved outline was the one fine thing in the whole church — but this is going too far. The whole design of the dome is Michel Angelo's, and it is praise enough for his successors to say that they added the last touch of nobility to what was already noble."

In the chapter on the Renaissance Mr. Longfellow's measure of the relative positions of the great master architects of that period and their value as factors in the development are set forth in such shape as to be readily appreciated by the reader, while the epigrammatic summing-up in a few lines of the general historic characteristics of the style is well worth remembering. "The revival of architecture had had the familiar career of aspiration, achievement, and decadence. There had been the delicate, fugitive charm of the early Renaissance in the fifteenth century, the inspiring growth and mastery of what has been called the Neo-Classic in the first half of the sixteenth, the frigid and elegant formality of the Grand Style in the second half, the picturesque license of the Barocco in the seventeenth, and at the end the recklessness of the Rococo. There is no doubt that the Renaissance at its best was superior to that decaying form of Gothic which it displaced, as it was superior to the Roman, which it reverently imitated; but to it belongs the reproach that it first diverted architecture from the paths of orderly evolution that it had followed since building began, and sent it wandering in that self-conscious search after fashions which it has followed ever since."

THE life of William Morris² makes one philosophize. Is it necessary that a man should have a violent temper in order to achieve greatness in any particular line? Does the temper in childhood develop into the necessary energy in the man, which is required for success in life, whether in art, poetry, or trade? It seems as if such were the case when we read the life of William Morris, poet, artist, craftsman, socialist and business man. A schoolfellow records that he had a fearful temper; but he took little part in games, preferring to moon about the country, talking to himself, or he would relate stories to his companions about lords and ladies and knights. He never enjoyed any society so much as his own; loneliness was a fiction to him — as much so as the idea that artists and poets required inspiration. "That talk of inspiration," said Morris, "is sheer nonsense; there is no such thing; it is a mere matter of craftsmanship." How true this is! and what "nonsense" is the public and the fifth-rate artist's talk of genius! His idea of another fiction — the misery of loneliness — reminds us of J. H. Newman's lines: —

"Why should we faint, and fear to live alone,
Since all alone, so Heaven has will'd, we die?"

But probably most of us who live by brush or pen would fail to endorse the following sentiment: "If a chap can't compose an epic poem while he's weaving tapestry he had better shut up: he'll never do any good at all." Was Morris created without nerves? Think of the noise of the loom while composing! And yet, probably most head workers have found some manual occupations help to develop thought, or rather act as the stimulating power by which the seed of thought germinates — gardening, to wit.

Morris was not only strong in brain power but he was physically a veritable Samson. Offended once at dinner, when at Oxford, he "bit his fork — one of the common four-pronged fiddle-pattern kind — which was crushed and twisted about almost beyond recognition." At another period of his life one of his friends rejoiced that he had "only kicked one panel out of a door" for a twelvemonth or more. Imagine the man's uncontrollable anger who will fling a fifteenth-century folio at a man's head — a book which ordinarily "he would hardly have allowed any one but himself to touch." Sometimes he would drive his head against a plastered wall so as to make a deep dent in the plaster; or he would bite through the woodwork of a window-frame. "He could lift the heaviest weight in his teeth with apparent ease. Once when describing how he had seen passengers staggering off a Channel steamer loaded with luggage he illustrated his point to the amusement and horror of his audience by getting a chair under each arm, and then stooping, and lifting the coal-scuttle in his teeth."

It is generally supposed that the artistic hand is long and thin and delicate, and we may see this characteristic depicted in some portraits of painters and poets by the advanced school of impressionists,

²"*Life of William Morris*." By J. W. Mackail. Longmans & Co., 2 vols. 8vo, 32s, with 6 portraits and 16 illustrations.

M. Blanche, for example. But the writer has personally known a distinguished French engraver, a still more distinguished French painter (both *Prix de Rome*, and high up in their profession, the latter a Member of the French *Institut*), and English amateur who was an exquisite architectural draughtsman, all of whom had clumsy, short-fingered, pudgy hands — apparently those fitted for agricultural labor — and so, it appears, were William Morris's. They were "broad, fleshy, and rather short, with a look about them of clumsiness and ineffectiveness which was absolutely the reverse of truth. It was a perfect amazement to see those hands executing the most delicately minute work with a swiftness and precision that no one could equal."

Morris, like Burne-Jones, was intended for Holy Orders — and he seems to have had a tendency towards Rome at one period of his life. But Mr. Ruskin's influence guided both men into artistic walks and ways, and possibly, also, planted the germs of the socialism (somewhat impractical) which Morris later on professed. How curious it is that whereas the influence of Mr. Ruskin upon the other generation was so entirely artistic, the younger people scarcely know his early works, those exquisite poems in prose upon all things beautiful in nature and art, but look upon him solely as a prophet of socialism. Although Dante Rossetti also influenced Morris, the men "never throve together," probably from certain peculiarities of temperament and temper. Morris was a bookish man — Rossetti considered books of no use to a painter except to prop up models upon in difficult positions, and then they might be very useful. And yet both men were poets and artists. "If any man has any poetry in him, he should paint," said Rossetti; the wherefore being that everything has been written, but little has been painted — ideas and poems are naturally meant.

The name of Morris, of course, will mostly be remembered as the author (or one of them) of the crusade against ugliness, and yet one has seen wall-papers from the firm which have not been infallibly beautiful. Curiously, we read that Morris had a horror of some of the dull hues called by his name — the sage-green, to wit, which, we are told, was "one of his peculiar aversions." Then why did we suffer so many things from it, for so many years, if it were not that it represented "art" and "sweetness and light"? For his house — the famous Red House on Bexley Heath, built by Mr. Philip Webb — everything except the Persian carpets and blue china had to be made expressly, nothing was to be bought ready-made.

Why such a man, although ignoring society and society's ways, should have been untidy and slovenly in his clothes is hard to see. Was it the socialism? But surely there is no connection between untidiness and democratic principles? And does not perfect craftsmanship apply to the making and wearing of clothes, as well as to decorative art and poetry? Surely there is a certain amount of affection in this indifference to the world's ways, and possibly an unchristian indifference to the feelings of others. When a man wears long hair should he complain that people stare at him, or compel him to leave a little watering-place, where the presence of such a figure as that of the late Poet Laureate could not possibly be taken for an Italian brigand, or any Englishman but Lord Tennyson?

Morris's socialism was the socialism of Ruskin, more theoretic than practical — indeed it was mainly ideal; and his work as poet, decorator, designer, and founder of the Kelmscott Press will live years after his socialism is dead and buried. His life at the end was touching. He loved the older school of music, as of all things artistic, and to this taste Mr. Dolmetch contributed not a little, by taking down a pair of virginals, upon which he could play sixteenth-century music to the dying poet. Old fifteenth-century manuscripts with their rich illustrations were also a delight to this true artist, especially the "*Bible Historiée et Vies des Saints*," containing hundreds of pictures. He passed away on October 3, 1896, and the words of his namesake, Lewis Morris, might be applied to him, even if the moon shone not on that date, for love of art in its widest sense was certainly the mainspring of his life, and his consolation when the inevitable end came near: —

"The peaceful moonbeams kissed him as he lay, at midnight, dying in the arms of Love."
S. BEALE.



THE first joint annual dinner of the National Sculpture Society and the National Society of Mural Painters was held in the rooms of the elder society, in the American Fine-Arts Building in West 57th Street, last evening. It was a very enjoyable affair; not only the professional and lay members of both societies were largely represented, but also guests and ladies were present.

The Dinner Committee, Hon. J. DeWitt Warner, Chairman, had tastefully decorated the rooms with laurel and bay trees, and the tables with apple-blossoms and cut flowers, giving a decidedly spring-like effect, which was enhanced by the fact that, instead of the formal long tables usually seen, small round tables were used, so that groups of friends could be seated together.

The speakers were especially effective. The subject of discussion, "The Possibilities of the Beautification of our great City in both Form and Color," seemed to stimulate them to their best.

The President of the Sculpture Society, Mr. J. Q. A. Ward, presided, the opposite seat of honor being occupied by the President of the Mural Painters' Society, Mr. John La Farge.

When Mr. Ward arose he received an ovation of applause. After a few introductory remarks he introduced Mr. La Farge, who was equally warmly welcomed, and spoke practically for the Mural Painters' side of the work.

Mr. Charles R. Lamb, who was responsible for the idea of the joint dinner, was called upon by the chair to explain why it was held, and in a single word emphasized the central thought of the Dinner Committee — Opportunity — making the point that by the opportunities only which came to men in their lives was their record made important or not, and quite electrified his audience by making the simile that if the Spanish war, just ended, was to be fought next year instead of last, the name which springs voluntarily to our lips, when we think of the heroes of that war, would have been on the retired list of the navy, and Admiral George Dewey would not have gone down to posterity as he will, equal in rank with Farragut and Nelson, thus emphasizing the fact that the opportunity is necessary for the man to prove himself. He followed it by pertinent examples, noting the work of Augustus St. Gaudens, Mr. Daniel French, and both presidents, Mr. J. Q. A. Ward and Mr. John La Farge.

He was followed by the Hon. W. J. Coombs, of Brooklyn, who spoke of the tremendous strides made in the past few years on artistic lines, and emphasized what had been secured to New York through the park system of the Tweed ring, and to Washington through the corruption of the Shephard ring, and said if such things could be secured under political corruption, what might not be hoped under political morality, guided by the artistic thought of the country.

Following him, Mr. Brooks Adams made a most brilliant speech, in which he sketched rapidly the responsibilities of the artist in giving form and shape to the character of life of the people of their own times, and drew their attention to the possibilities caused by the onward movement of the American people in taking their place as one of the great nations of the world. He said that the opportunities referred to were coming, and said that the men should be able to fill them when they came.

He was followed by the Rev. T. R. Slicer, whose speech was quite up to the high level that all who heard him expected; witty and yet thoughtful, joke used merely to give emphasis to the central idea, which was that by the development of character only can great art be produced, and that the better the man the better his work. He raised the ideal to the artist's height when he said to them it was possible to convert money made by the great capitalists into things which were imperishable, and which they must fail to do in their search for wealth, and only as wealth was converted into the beautiful could it ever live for succeeding generations.

Mr. George B. Post spoke eloquently for the combined work that had already been done in the past few years, of the three professions, Architecture, Painting and Sculpture, and his belief and hopes of how great the work would be in the near future.

The speaking was closed by Mr. J. DeWitt Warner, the chairman of the Dinner Committee, with an enthusiastic address from the Philistine's point-of-view; how that he was waking up to the fact that heretofore he had not received the worth of his money in art, and that in future he was going to have it, and that nothing could be too good or too fine for him.

The dinner was a great success, and it is hoped what was an experiment will be continued as a definite policy, and both societies meet together at least once a year.

RESULTS OF THE ROTCH SCHOLARSHIP EXAMINATIONS.

FIVE competitors presented themselves this year for the Rotch Travelling Scholarship. Three failed to entirely pass the preliminary examinations in History of Architecture, Construction, French and Drawing from the East. The remaining three have been for the past two weeks engaged upon the elaboration of a design for a building for the Horticultural Society, to be located on Arlington Street, opposite the Common, the designs being prepared in accordance with the programme drawn up by the committee having the Scholarship affairs in charge. These drawings were handed in Monday morning, and were passed upon by the jury, consisting of Frank Miles Day, of Philadelphia, Francis H. Bacon, of Boston, and W. E. Chamberlin, of Cambridge. The recommendation of this jury was that the design submitted by Mr. L. W. Pulsifer should be placed first, and in accordance with this recommendation the Rotch Scholarship Committee has awarded Mr. Pulsifer the Scholarship. The second prize, of seventy-five dollars, offered by the Boston Society of Architects, was awarded to Mr. William L. Mowll. The Committee state that the competition this year has been one of the closest of any which have been held during the sixteen years the Scholarship has been in existence, and that all the designs show an unusual equality of merit. The designs placed first and second were very different in their view of the problem, but in their way each of them had very many points of value, and the choice was a very close one, while the drawings submitted by Mr. W. L. Welton, who was placed third, were of such high quality as to bring forth very warm praise from the committee.

Mr. Pulsifer, who takes the prize, under which he will travel and

study in Europe for the ensuing two years, will be the sixteenth holder of the Scholarship. He was born in Newtonville, December 2, 1869, graduated with the class of '90 at Harvard, and studied at the Massachusetts Institute of Technology during 1892 and 1894. He has also studied one year in the Atelier Daumet-Esquié, in the École des Beaux-Arts, Paris, and has spent between three and four years in some of the best offices in Boston and New York, being at present in the office of Howard, Cauldwell & Morgan, of the latter city. His training, no less than the work shown on the Scholarship, indicates that good work can be expected from him during the next two years.

ILLUSTRATIONS

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

DOORWAY TO HOUSE OF MISS SEARS, BEACON ST., BOSTON, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

[Gelatine Print, issued with the International and Imperial Editions only.]

THE GILMORE GYMNASIUM FOR THE CLARKE SCHOOL, NORTHAMPTON, MASS. MR. A. C. FERNALD, ARCHITECT, BOSTON, MASS.

ST. PAUL'S CHURCH, FLATBUSH, N. Y. MESSRS. DODGE & MORRISON, ARCHITECTS, NEW YORK, N. Y.

CHURCH OF STA. MARIA DELLA PACE, ROME, ITALY. PIETRO DA CORTONA, ARCHITECT.

TECHNICAL HIGH SCHOOL, KARLSRUHE, BADEN.

TECHNICAL HIGH SCHOOL, KARLSRUHE, BADEN: THE AULA, LOOKING WEST.

TECHNICAL HIGH SCHOOL, KARLSRUHE, BADEN: THE AULA, LOOKING EAST.

THIS and the two preceding illustrations are copied from the *Zeitschrift für Bauwesen*.

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

PALACE OF THE CITY OF BRUSSELS AT THE BRUSSELS INTERNATIONAL EXPOSITION, 1897: TWO VIEWS. PAUL SAINTENOY, ARCHITECT.

THIS plate is copied from *L'Emulation*.

THE "CONCOURS DE FACADES" FOR THE AVENUE D'ANTIN, PARIS, FRANCE. BUNEL & DUPUIS, ARCHITECTS.

THIS plate is copied from *La Construction Moderne*.

[Additional Illustrations in the International Edition.]

HOUSE OF MISS SEARS, BEACON ST., BOSTON, MASS. MESSRS. PEABODY & STEARNS, ARCHITECTS, BOSTON, MASS.

[Gelatine Print.]

ENTRANCE TO THE PALAZZO PROSPERO, FERRARA, ITALY.

[Gelatine Print.]

CHURCH OF ST. WILLIBRORD, WESEL, RHENISH PRUSSIA.

[Gelatine Print.]

THIS church, of which our plate shows the upper portions of the west-front and tower (the lower portions being hidden by buildings that, in the early future, are to be torn down to lay the west-front open), derives its name from St. Willibrord, Bishop of Utrecht, a precursor of St. Boniface, who, like the latter, had come over from England to convert the Frisian tribes to the Christian faith. It is said that St. Willibrord, about the year 700, dispensed the sacrament of baptism to the heathens in a little chapel on the spot where the choir of the present church stands. This chapel had to make room for a large Romanesque edifice, the gift of the Count of Cleves, which was erected A. D. 1181, by Philipp von Heinsberg, Archbishop of Cologne. From the old foundations, discovered in the ground, it was seen that this church consisted of a nave, flanked by single aisles and terminated by a semicircular apse. About the end of the thir-

teenth century this structure was altered and enlarged, in conformity with the Early Gothic style, then in vogue. However, while building-operations were in progress further enlargements and alterations of the plan were decided upon, resulting in the cathedral-like structure in Florid Gothic forms, erected principally between 1424 and 1540, which has stood to this day, although extensive repairs and restorations have somewhat altered its appearance. Owing to the unfortunate internecine strife, which, since the middle of the sixteenth century, did so much harm to the Lower Rhine districts, as well as other parts of Germany, St. Willibrord's Church had never been fully completed. This circumstance in connection with the historic associations surrounding the structure, together with the necessity of making extensive repairs to keep the building from total collapse, enlisted the efforts of a large circle of art-loving and religious people, who furnished the means to carry on the work, amounting to not less than \$350,000, not including the cost of removing the old buildings that crowd around the façades and for which \$140,000 additionally has been spent. A large share of the sum required was furnished by the munificence of the old emperor, William I, who, like his son, Frederick William, aided the enterprise in every possible way. The nave of the church is flanked by double side-aisles, continued on the opposite side of the transept, while one ambulatory aisle encircles the choir, terminating in a semi-octagonal apse. The total length is 225 feet, the width 140 feet. The height of the nave is 75 feet to the cornice, that of the aisles 36 feet. The great west-tower reaches a height of 286 feet (not including the metallic finial), of which height 148 feet belongs to the spire, measured from bottom of stone balustrade. This spire, consisting of a large octagonal stone pyramid, surrounded by four small ones, is the work of Herr Otter, who designed most of the exterior work, while the interior decorations were carried out after plans of Prof. F. Adler, of Berlin.

"ARKWRIGHT MANSIONS," FINCHLEY ROAD, LONDON, ENG. MESSRS. BOEHMER & GIBBS, ARCHITECTS.

THE ENGLISH CHURCH, LUCERNE, SWITZERLAND. MR. FREDERIC R. FARROW, ARCHITECT.

NOTES AND CLIPPINGS

MEMORIAL OF THE MARTYRS OF THE COMMUNE.—Some time ago the Paris Municipal Council decided to pull down La Roquette Prison and erect large dwelling-houses upon the site. No one objects to the disappearance of the building, but a movement is on foot to preserve at least the wall associated with the murder of the hostages by the Communists in 1871. These hostages were, as will be remembered, Monsignor Darboy, Archbishop of Paris; M. Bonjean, President of the Petitions Chamber of the Court of Cassation; the Abbé Deguerry of the Madeleine Church, and Fathers Allard and Ducoudray, two Jesuits. They were placed in front of the wall and shot by the Communists, as the Communists themselves were placed against a wall in Père Lachaise Cemetery, and shot by the Versailles troops. The relations and friends of the hostages, and a very large number of other French citizens, demand that this wall in La Roquette Prison, against which the innocent hostages were placed for execution, shall be preserved, as is the wall in Père Lachaise Cemetery, at the foot of which the Communists fell. Ever since the Commune, and especially after the amnesty granted to the Communists, the wall in the cemetery has been the rendezvous for revolutionary agitators, and many years ago a marble slab bearing the names of the Archbishop and the other hostages was affixed to the fatal wall of La Roquette Prison. On it is written, "Respect this spot, which witnessed the death of the noble victims of the 24th May, 1871." The movement to preserve the memento includes the sons of President Bonjean and many influential persons, and is expected to be successful. — *N. Y. Evening Post*.

SPEAKING STATUES.—M. Gaston Maspéro, the well-known French Egyptologist, has recently written an interesting article on the "speaking statues" of ancient Egypt. He says the statues of some of the gods were made of jointed parts and were supposed to communicate with the faithful by speech, signs and other movements. They were made of wood, painted or gilded. Their hands could be raised and lowered and their heads moved, but it is not known whether their feet could be put in motion. When one of the faithful asked for advice their god answered either by signs or words. Occasionally long speeches were made, and at other times the answer was simply an inclination of the head. "Every temple had priests whose special duty it was to assist the statues to make these communications. The priests did not make any mystery of their part in the proceedings. It was believed that the priests were intermediary between the gods and mortals, and the priests themselves had a very exalted idea of their calling. They firmly believed that the souls of divinities inhabited the statues, and they always approached them with religious fear and reverence. These priests would stand behind the statues and move their heads or hands or speak for them, never doubting that at that moment their movements and words were inspired by the divine spirit dwelling in the statues. The statues were regarded as so very much alive that in war they shared the fate of those people whose deities they were. They were taken prisoners, condemned to death or given into slavery—in other words, placed in the temples of the conquering gods. If they were returned to their own temples they bore inscriptions testifying to their defeat and imprisonment." — *Philadelphia Press*.

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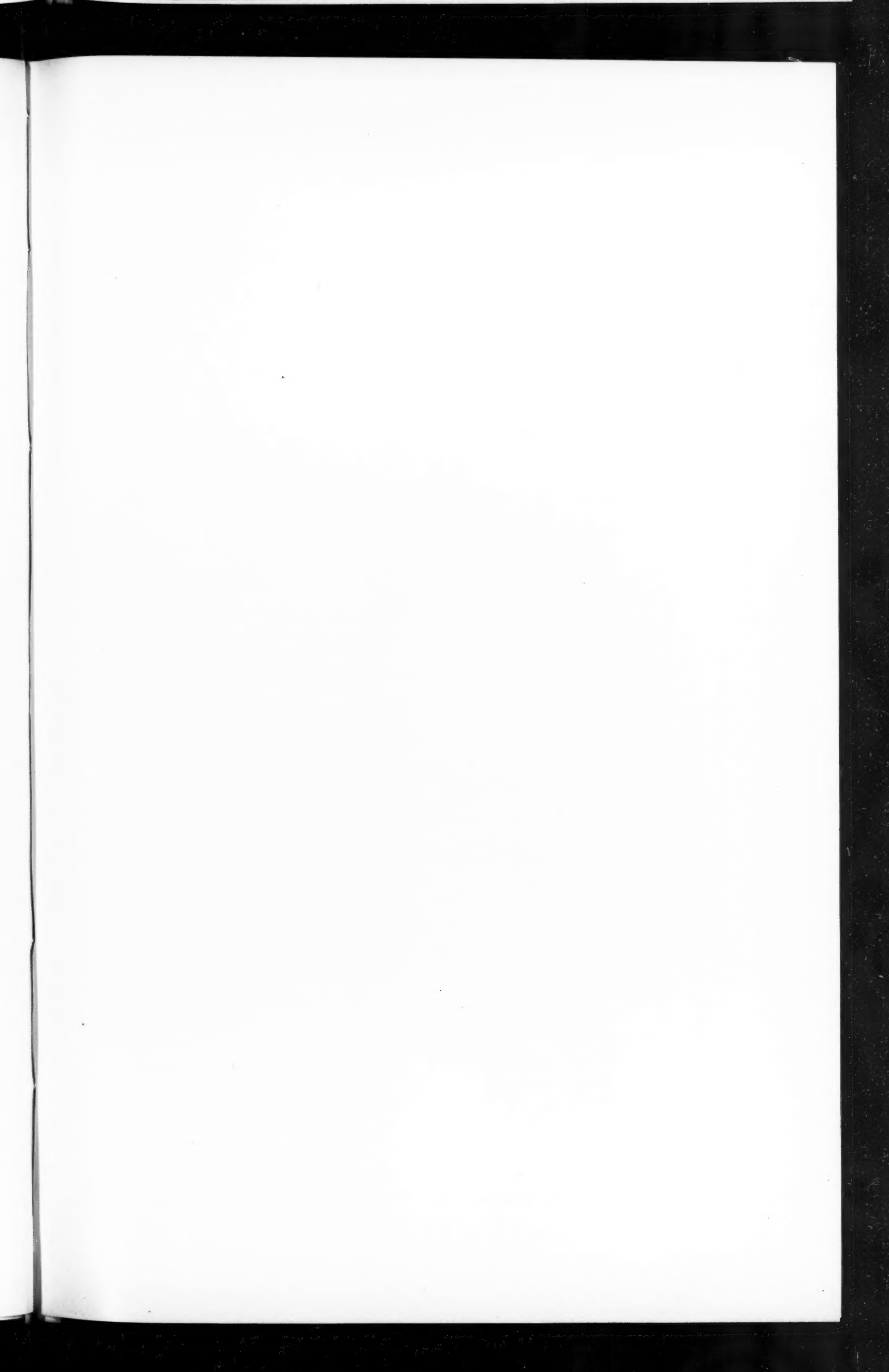
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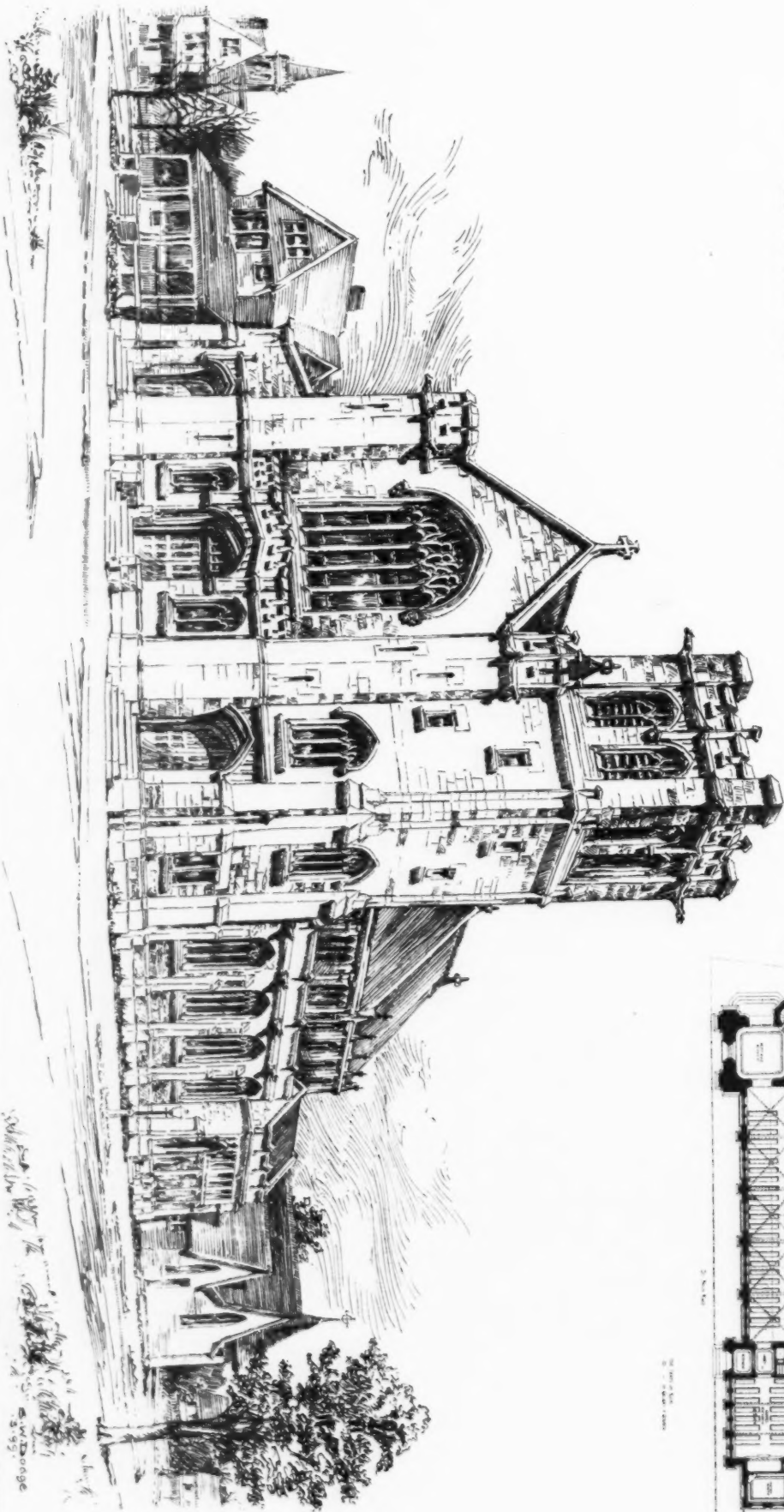
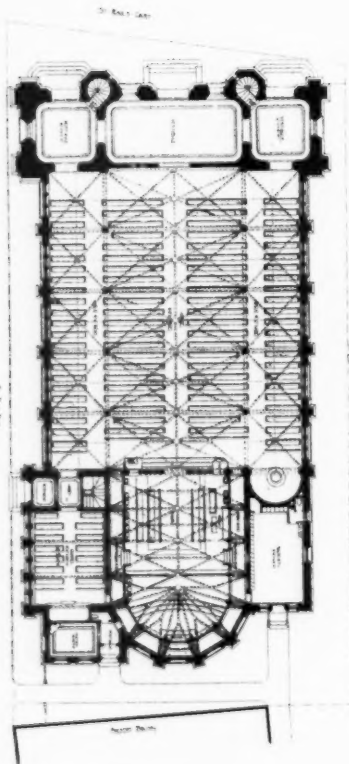


CHURCH OF STA. MARIA DELLA PACE: ROME, ITALY.
PIETRO DA CORTON.



ST. PAUL'S CHURCH. FLATBUSH... N. Y.

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GILMORE GYMNASIUM FOR THE CLARKE SCHOOL NORTHAMPTON MASS..

A. C. FERNALD, ARCHITECT.



THE AULA, LOOKING WEST.



From *Zeitschrift für Bauwesen*.

TECHNICAL HIGH SCHOOL, KARLSRUHE: THE AULA, LOOKING EAST.

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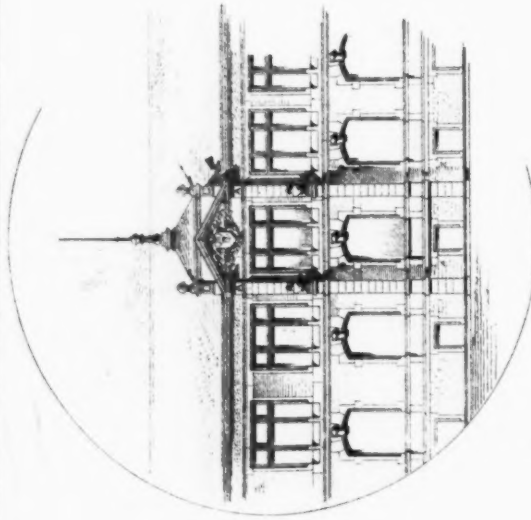


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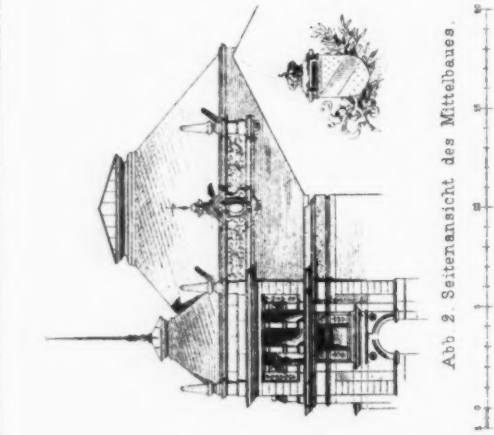


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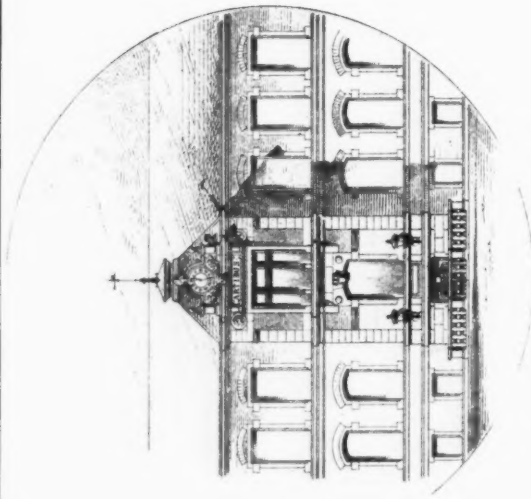


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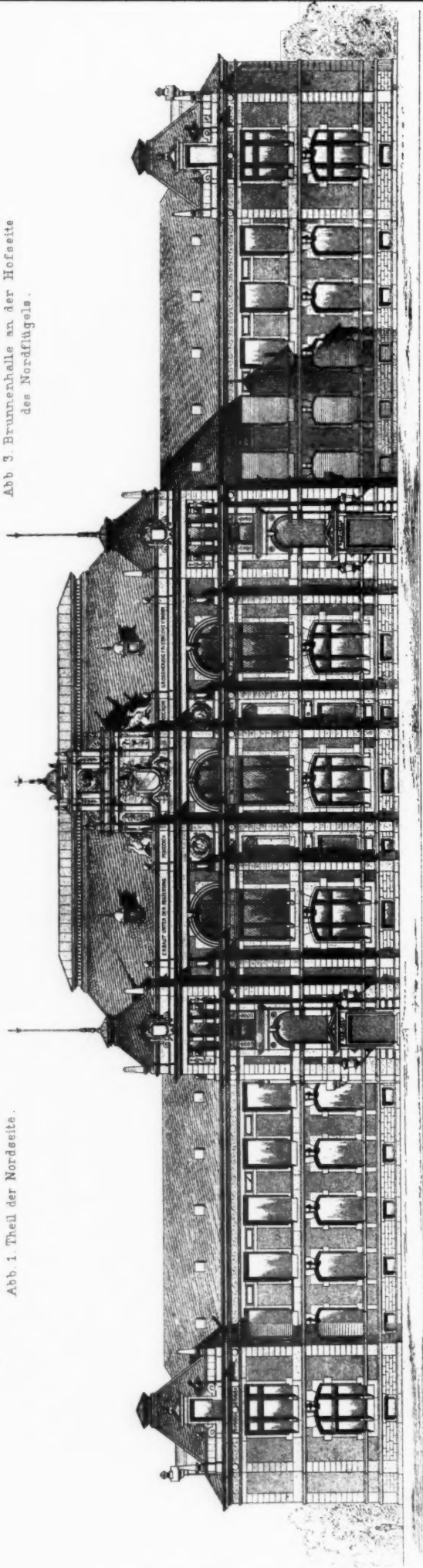
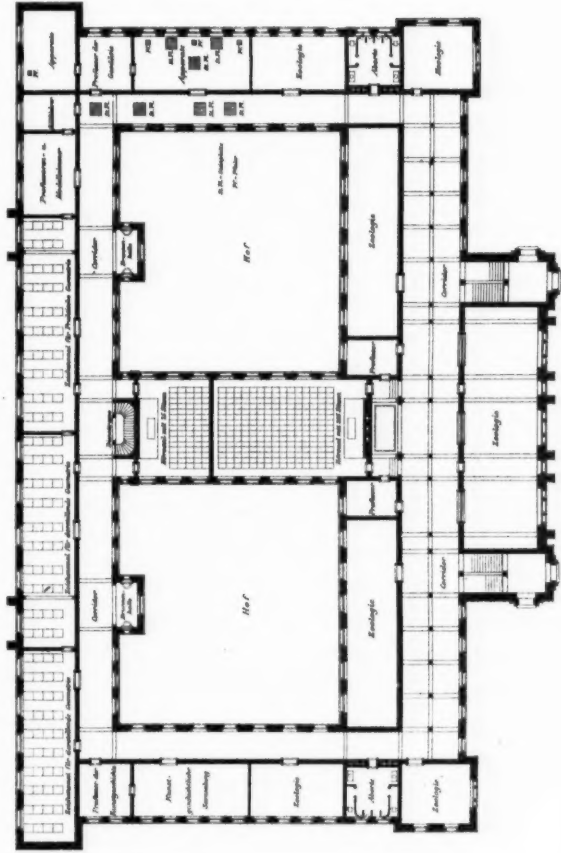
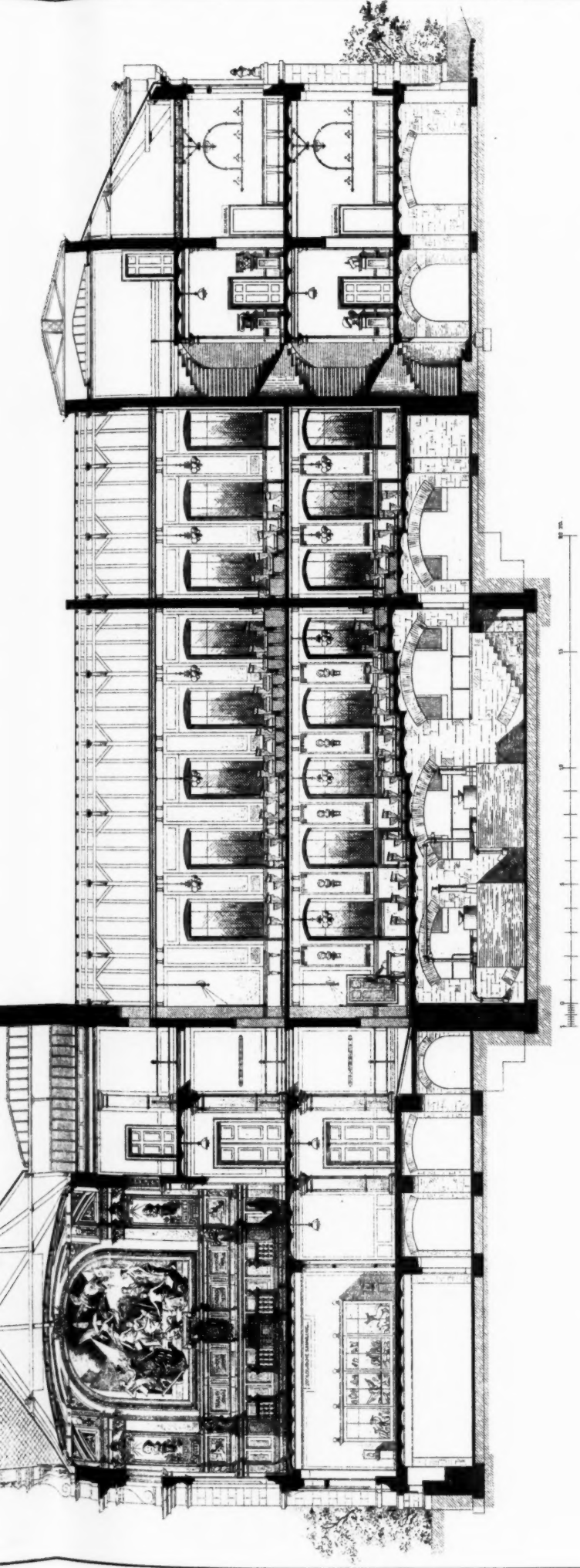
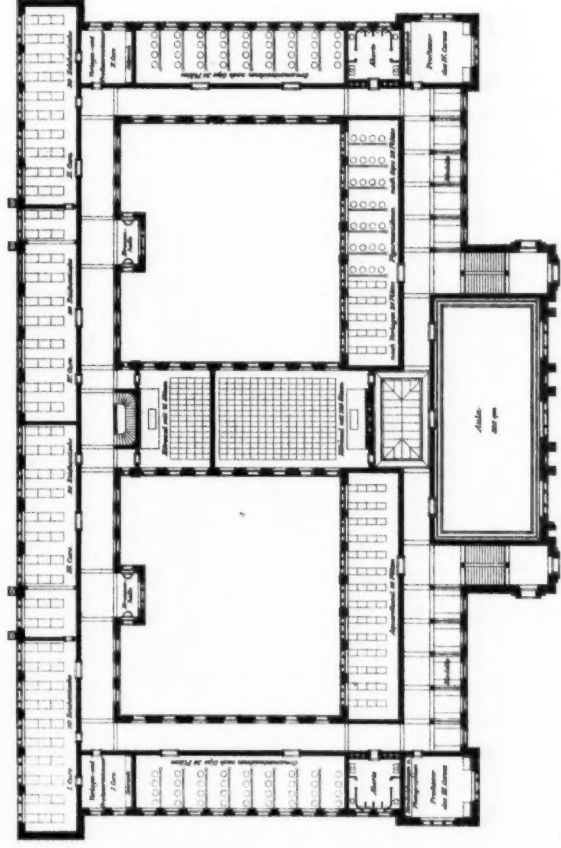


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