SPECIAL SCHOOL HOUSE NUMBER—ONE DOLLAR

THE AMERICAN ARCHITECT

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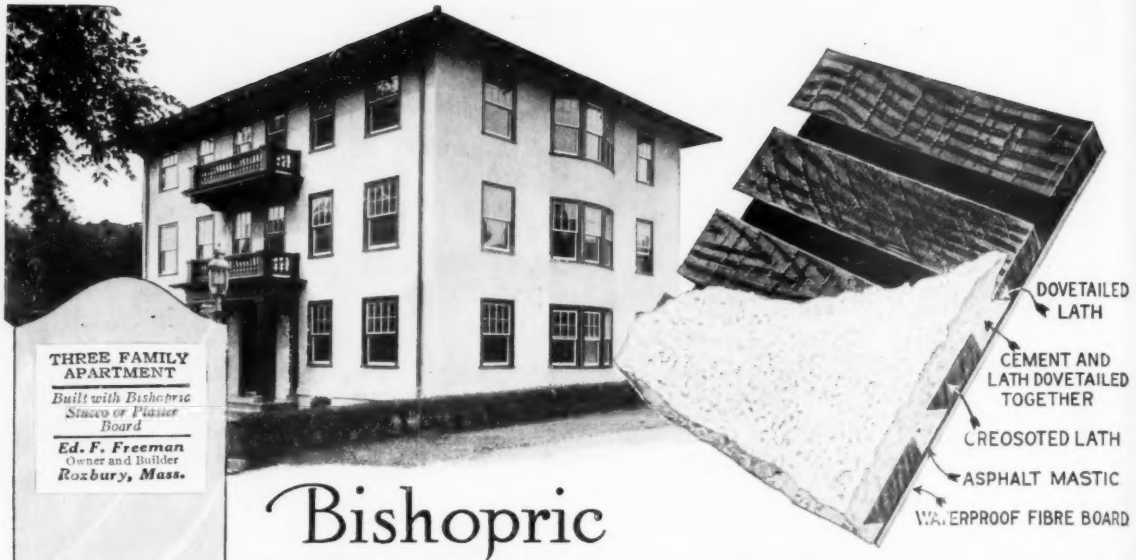
VOLUME CVIII SEPTEMBER 15, 1915 NUMBER 2073



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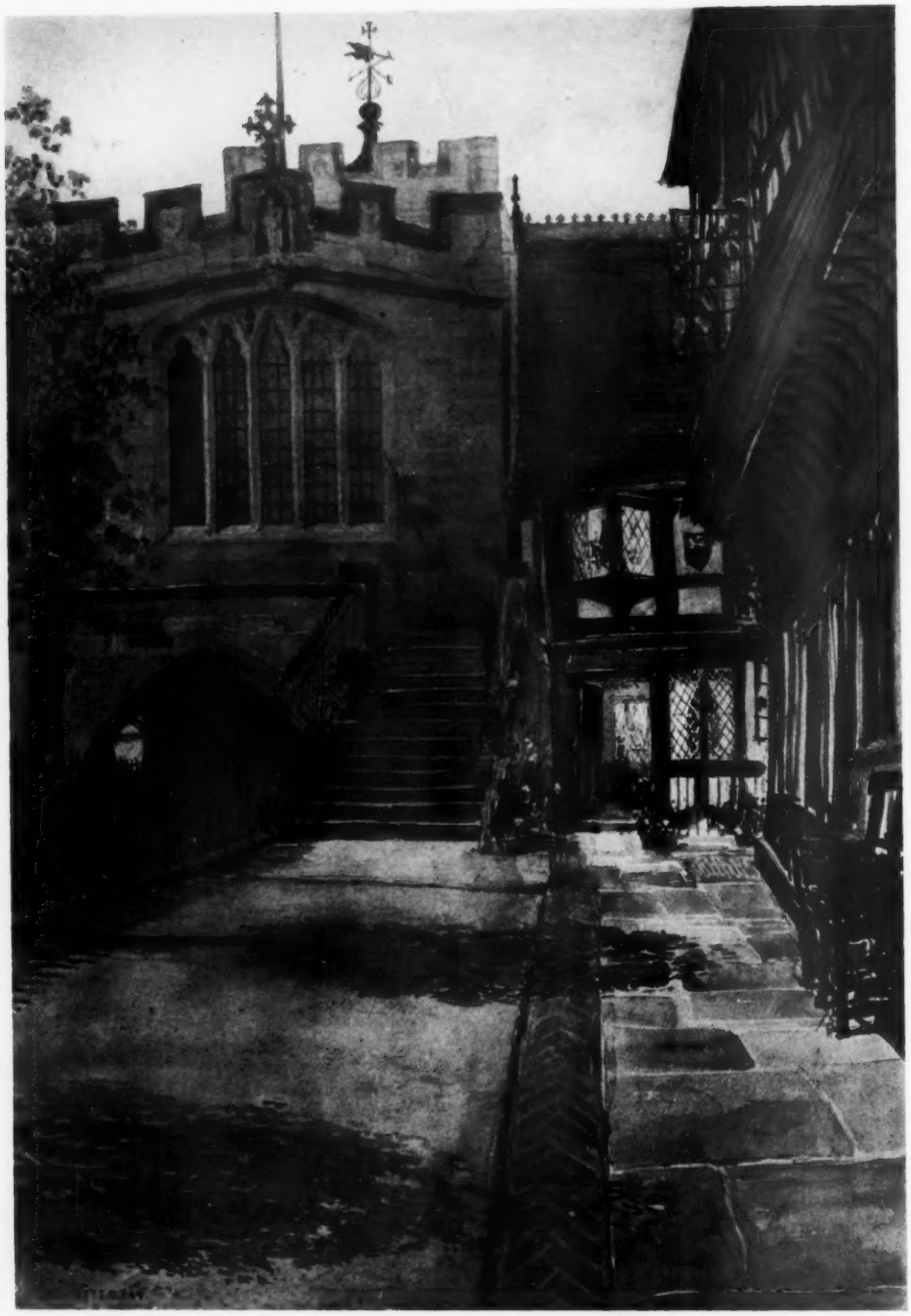

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OLD LEICESTER HOSPITAL, WARWICK, ENGLAND

From the Water-color sketch by Cass Gilbert

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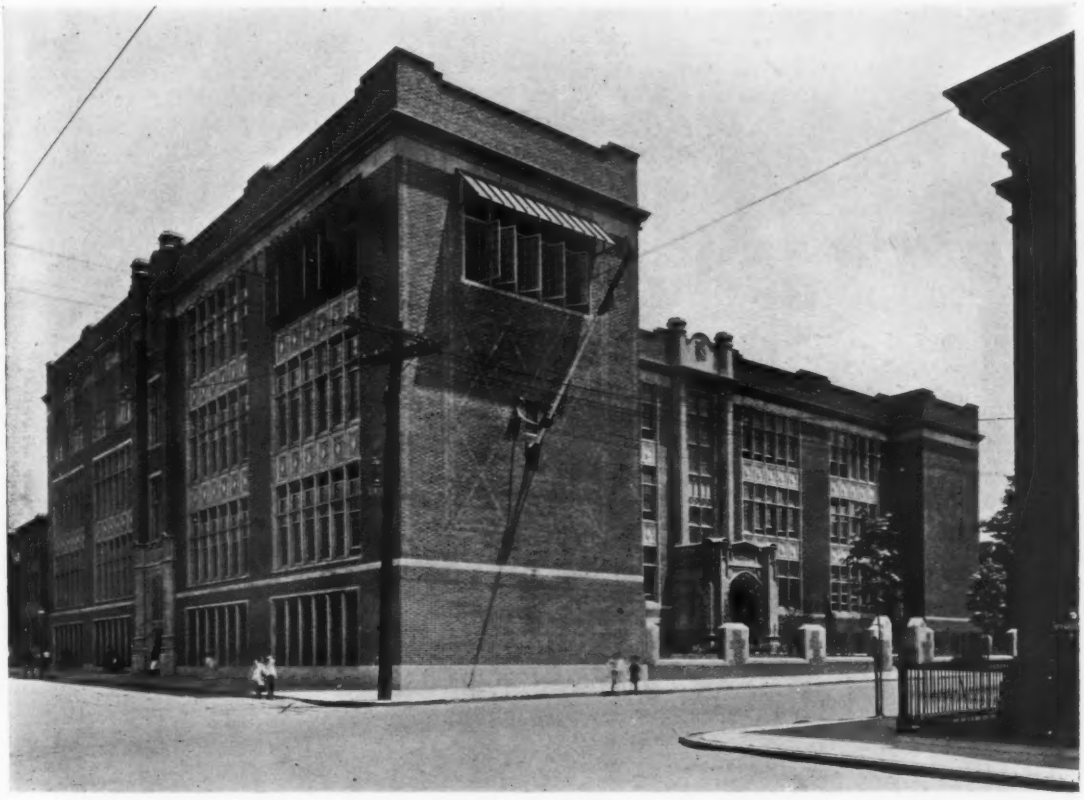


LAFAYETTE SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

Note the open casement windows on third floor with glass storm hood over. This is a fresh-air class room.

ESSENTIALS OF HIGH SCHOOL PLANNING

By JAMES O. BETELLE

The illustrations accompanying this article are of the work of Mr. E. F. Guilbert and Messrs. Guilbert & Betelle, Architects

THE paternal tendency of education in our public schools, which has become so pronounced in recent years, has added many more complications to the architect's already complicated profession. While the ordinary grade school has not become much more complex, except for the introduction of open air classes, enlarged activities in the kindergarten and the occasional introduction of a gymnasium and swimming pool, the high schools have seen great progress. In the larger cities, where

MODEL DINING ROOM

there are several high schools, these have been separated into two general classes: the English High School and the Commercial and Manual Training High School, and New York City has made still further divisions. In the smaller cities all these various courses of study are necessarily included in one building, and it is the purpose of this article to call attention in a brief way to some of the essential features to be considered by the architect in designing a modern high school building.

Another feature which causes complications is the wider uses of the School Buildings by the general public. The organization and use of the buildings by Home and School Leagues, Parents' Associations, Boy Scouts, Summer Schools and for Polling Places, also the Auditorium for lectures and by Educational and Civic Organizations makes the school buildings a place of constant activity in marked contrast to the conditions a few years ago.

Great assistance is always rendered the architect in making his designs by the superintendent of schools, the principal and the heads of the various departments. The school board is, of course, in direct charge of the building operations, but they necessarily leave the details of arrangement to the educational specialists employed by them in the school system. It is naturally the architect's duty to consult with the educators, who have very definite ideas as to what they desire to accomplish, and to put into concrete form the suggestions they make.

The Class Rooms in a high school are not different from those in a grade school, except they usually accommodate fewer pupils and have no wardrobes. A teacher can satisfac-

A TYPICAL MUSIC ROOM

torily handle forty-two scholars in the lower grades, while in a high school there should not be more than thirty-five pupils in a class. The tendency is to even reduce this number where it can be afforded, and thus enable the teacher to give more time to each individual pupil.

Recitation Rooms to the extent of about one-half the number of standard class rooms are provided. These are, of course, of smaller size and accommodate around twenty scholars. These are for use in studies which

KINDERGARTEN

are left to the selection of the pupils, and there being several to select from, there are naturally less than a full class in each. These rooms are furnished with either tablet arm chairs or desks.

Locker Rooms are provided in high schools usually in the basement and near the pupils' entrances; in these are kept the pupils' wraps, books, etc. For the reason that the pupils change class rooms every forty-five minutes, or thereabouts, it has been found that locker rooms are to be preferred to cloak rooms adjoining class rooms, as the locker rooms are always accessible to the pupils without disturbing a class during recitation, if something is needed or forgotten. There are various methods, but the pupils in the morning, after leaving their cloaks, take with them the books or material for the first three or four periods, leaving the rest in the locker. Time is found during the day to revisit the locker, leave the books used and to take the others needed. For the sake of economy the lockers are usually placed in some part of the basement, insufficiently lighted for study purposes. Economy is the only recommendation this arrangement has. Another method is to distribute the lockers along the sides of the corridors on the various floors. This is not altogether satisfactory, on account of the untidy appearance it gives the corridors and the lack of privacy and convenient toilet accommodation. By far the most satisfactory arrangement, but not the cheapest, is to have well-lighted locker rooms off the corridor, for both sexes, and with a toilet room adjoining. This prevents the congregation of large groups of pupils in one place at the same time, and the accompanying confusion.

A Bicycle Room, especially in the smaller towns, is required, as a great many pupils come a distance and use bicycles, especially the boys. This room should have easy access from outside and handy for both boys and girls. If below grade, an incline should lead down to same. Racks, of course, should be provided along the walls to hold the wheels.

Gymnasiums, their accompanying locker rooms and swimming pools, have become

A HIGH SCHOOL GYMNASIUM

pretty well standardized on account of the many splendid Y. M. C. A.'s built throughout the country. Generally speaking, the physical training department in a high school is not so large or elaborate as in a Y. M. C. A. Swimming pools have been generally omitted, but their importance is becoming more and more realized and greater efforts made to include them. There is no rule as to their size, except to make them as large as possible up to 25′ x 75′.

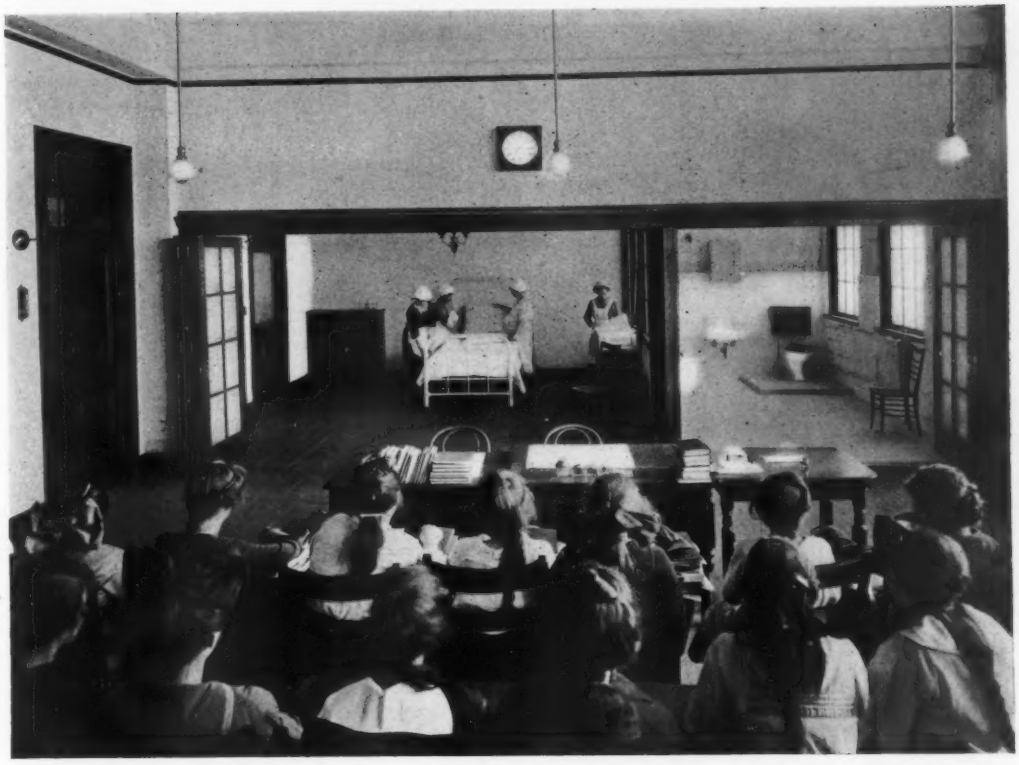
Gymnasiums are usually located either in the basement or on the top floor—the size being governed by various conditions, but a room 40′ x 70′ is the minimum size. In the largest buildings running tracks are sometimes installed, but in the majority of buildings these are omitted. A gallery should be provided for spectators, as the games between the various schools are well attended by the public, and they should be taken care of otherwise than on the main floor of the gymnasium.

The height of the room should be not less than 16′ nor need not be more than 22′. If lower than 16′ there is not sufficient swing for the flying rings, and if more than 22′ the hangers for these rings must be hung down to this level. A maple floor is practically always installed, but in some very good gymnasiums cork carpet has been used with very good results. It must be remembered, however, that if the room is ever to be used for dancing purposes, cork carpet should not be used. In a high school containing one thousand or more pupils there should be included two gymnasiums, or arrangement made for dividing one large gymnasium into two parts. This is on account of the boys' and girls' classes being held separately, and there being so many classes, it is necessary to have each working at the same time.

On the main floor of the room should be located the physical director's office, enclosed in a glazed sash partition with a good view of the floor. A drinking fountain should be installed in some isolated position, to prevent the necessity of pupils going out of the room for water. The boys' and girls' gymnasium locker rooms are more or less like the locker rooms in a good Y. M. C. A. or athletic club.

The Manual Training Rooms of an English high school are not usually more than two or three in number. They are usually equal to one and a half class rooms or more in area, with an adjoining stock room, instruc-

TYPICAL MACHINE SHOP IN NEWARK SCHOOLS



DOMESTIC SCIENCE DEPARTMENT—A MODEL APARTMENT

tor's office, tool room and a finishing room for the varnishing of wood pieces.

Two Drawing Rooms are usually provided—one for free-hand drawing and one for mechanical drawing, located convenient to the manual training rooms, as one of the manual training instructors very often looks after the mechanical drawing. The free-hand drawing does not need necessarily to adjoin the mechanical drawing, but may be on the top floor near the domestic science department. Needless to say that a north light is the best for these drawing rooms.

In laying out the various departments it is well to arrange them in groups, such as the Science Department, consisting of the physical laboratory, lecture room, chemical laboratory and biological laboratory, which is handled by the head of the science department. The Commercial Department, consisting of the bookkeeping room, typewriting room and smaller room for commercial arithmetic and stenography, handled by the head of the commercial department; and the domestic science department, consisting of the cooking laboratory, sewing room, with possibly an arts and crafts room. These various departments are usually placed on the top floor, unless some peculiar condition makes other arrangements advisable, and most of the room should be at least the area of 1½ class rooms.

The Chemical Laboratory is usually fitted for a class of twenty-four pupils, consisting of three chemical tables with eight pupils at each table. It also contains fume hoods, chemical storage closets, gas connections to tables, and sinks both at tables and against wall. A preparation room and chemical stock room is necessary in connection with this laboratory.

The Physical Laboratory is usually fitted up for twenty-four pupils, using six tables with four pupils at each table; also ample storage cases for apparatus and a large sink. As each table has electric connections, a motor generator set and switchboard is usually installed, in order that current of any voltage may be supplied to the various tables, and at the same time becomes a part

AN OPEN AIR CLASS ROOM

of the apparatus used by the pupils in their electrical experiments. Gas connection is also necessary at each table. An apparatus and preparation room and also a dark room should adjoin the physical laboratory.

The Science Lecture Room is best located between the chemical and physical laboratories. This room is used by pupils of both classes at different times and should be fitted up with an instructor's table, fume hood and stock cabinet, and at least forty tablet arm chairs on raised seat platforms. At the rear of the room, on the highest seat platform, is to be located the stereopticon ladder, which projects pictures on a screen back of the instructor's table. This, of course, necessitates provisions for darkening the room during the daytime. The instructor's table is provided with water, gas and electric connections and behind same against wall a counter-balanced blackboard with the two parts sliding up and down past each other.

The Biological Laboratory may adjoin either the physical or chemical laboratory and is furnished with an instructor's table, with running water, aquarium, plant shelf in front of the windows and twenty desks, seating two pupils each. Exposure of this room should be south, if possible, or at least having the sun some portion of the day.

The Bookkeeping Room is furnished with 28 to 35 special bookkeeping desks. At one end a school bank is installed, and also an office for the head of the department. Ample closets should be available for the storage of quantities of stationery.

The Typewriting Room is fitted up with a similar number of typewriter desks to that of the bookkeeping room, and between the bookkeeping room and typewriting room is usually located the stenography and commercial arithmetic recitation room. Between the stenography and the typewriting room is a clear glass partition, which makes it possible for the instructor teaching stenography to also supervise the pupils practicing typewriting.

The Cooking Laboratory is furnished with twelve tables arranged in a hollow square, each having two small gas stoves on top and accommodating two pupils. In the centre of the hollow square is the instructor's table, and nearby the large-size coal and gas ranges. Adjoining the cooking laboratory is located a storage pantry, and possibly a model dining room, where the pupils are taught to set the dining table properly

LECTURE ROOM.

and to serve a meal. In the larger schools a Laundry is installed, but where space is not available two or three laundry tubs and an ironing board installed at one end of the cooking laboratory answers all practical purposes. Sinks are installed either at the corners of the hollow square formed by the cooking tables, or against the wall, or both. Dressers are provided for the storage of cooking utensils, and also a case for pupils' white aprons and caps.

Model Apartments, consisting of a living room, dining room, kitchen, bedroom and bathroom, are now being installed in many high schools in connection with the Domestic Science Department. In these rooms which are made to resemble actual conditions, the pupils take turns in managing affairs and learning the details of housekeeping.

The Sewing Room is furnished with large work tables, sewing machines and cabinets for storing incompleted work. A fitting room is required, which can either be a separate room or can be one corner of the large room curtained off. Running water should be provided in the dressmaking room, and also ironing boards and outlets for electric irons, in order that the necessary pressing may be properly done.

The Lunch Room may be located adjoining the domestic science room, but as this is a very valuable part of the building for class room uses, it is not usually found advisable to locate the lunch room, which is only used an hour or two a day, in so important a position; consequently, some available space in the basement is used for this purpose and a separate kitchen installed. On account of the number of pupils who have to be served quickly, the room can hardly be too large, and in many cases the pupils have to be accommodated in two sections. The usual arrangement of counters, tables, etc., is like the popular "Cafeteria" lunch rooms, where the pupils each take a tray and wait on themselves, paying as they leave the room.

A Study Hall seating 100 pupils, more or less, depending on the size of the school, is

KINDERGARTEN ROOM

necessary to take care of the pupils who have a study period. In place of the separate room to be used as a Library, a good arrangement is to have one end of the study hall fitted up for this purpose, which makes it possible for the teacher supervising the study hall to also take care of the library, and the pupils during the study period have convenient access to the library books.

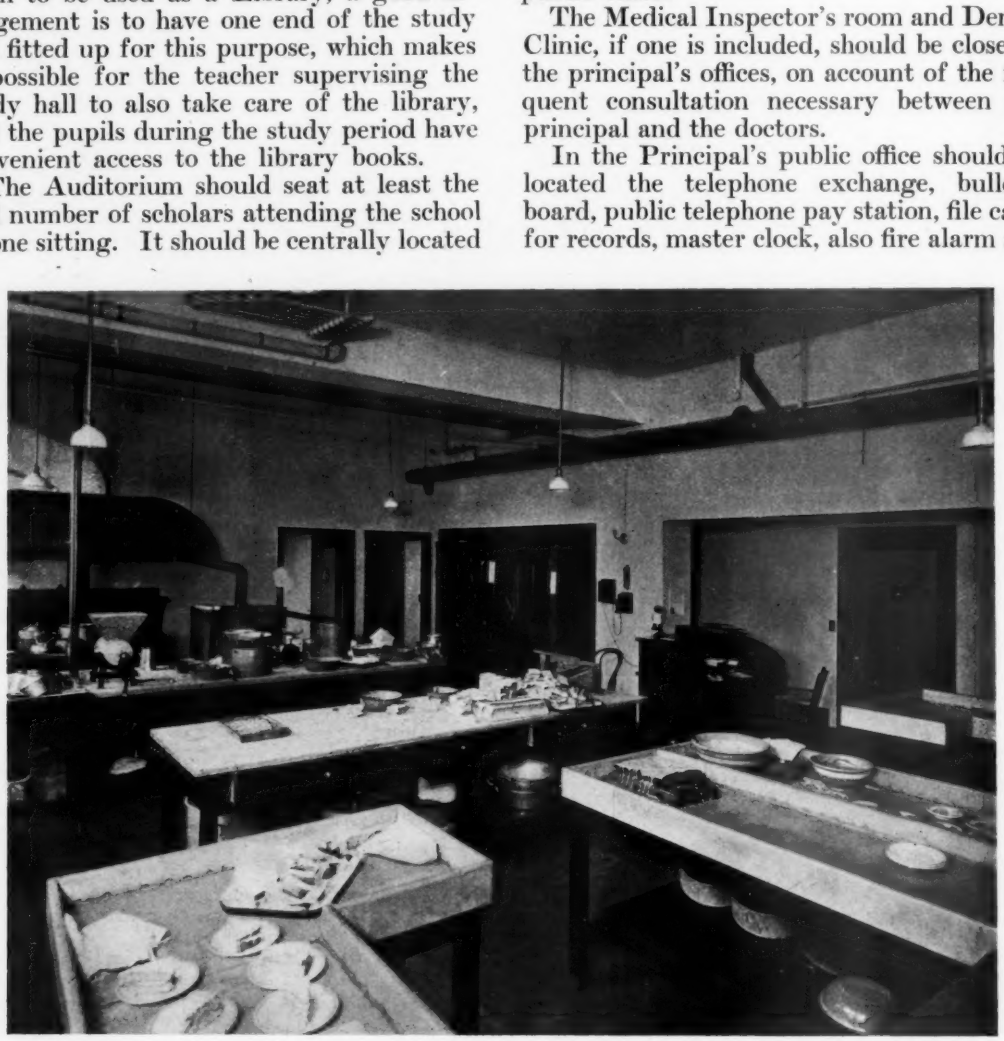
The Auditorium should seat at least the full number of scholars attending the school at one sitting. It should be centrally located and also easily accessible to the public for use in the evening or during school hours when necessary. The floor of the auditorium is made sloping, similar to a theatre. The stage should be large enough to accommodate a full graduating class and should be accessible from the rear through dressing rooms and not compel the speaker to pass through the audience to reach the stage.

The Principal's Offices should be located near the main entrance, and consist of an outer office for the clerks and an inner or private office for the principal, having access to the corridor without passing through the public office.

The Medical Inspector's room and Dental Clinic, if one is included, should be close by the principal's offices, on account of the frequent consultation necessary between the principal and the doctors.

In the Principal's public office should be located the telephone exchange, bulletin board, public telephone pay station, file cases for records, master clock, also fire alarm and program bell buttons. Both a Men Teachers' Room and Women Teachers' Room should be located convenient to the principal's office and main entrance, furnished with lockers, toilet facilities, cupboard for dishes and gas for a cook stove to prepare warm lunches. Also the usual table, couch, chairs, etc.

The Toilet Rooms in a high school should be distributed throughout the building, with both girls' and boys' toilets on each floor. This is on account of the toilets being used



LUNCH ROOM KITCHEN

particularly during the change in classes, and should be easily accessible. This is a somewhat different arrangement from the grade schools, where the principal toilets are in the basement and only emergency toilets on the various floors on account of the toilets being used principally during recess periods.

The Corridors should be nine feet or more wide, and if a staircase be located at one end, these are usually at least 11′ wide. A very good arrangement is to make narrow side corridors and a very wide front corridor 16′ to 18′ wide. This gives a spacious impression on entering the building, and these wide corridors are useful for exhibitions and many other purposes and can be very attractively decorated with plaster casts, pictures, etc.

The Corridor Walls should be wainscoted with some material, as the ordinary plaster soon becomes disfigured and abused. The cheapest and most effective wall covering is a painted burlap, which will stand a great deal of wear and abuse without showing it. The use of glazed tile and buff brick is also very good, but too costly for anything but the most expensive buildings. In these corridors are located on each floor one or more drinking fountains, fire bells, fire hose and stand pipes, and vacuum cleaner outlets.

The number of pupils accommodated in any school is always a question of controversy, as no two authorities seem to agree on just which room should be counted as pupil capacity. In many of the large cities, where schools are congested, every class room, laboratory, etc., is used every period from the beginning of the school session. The usual method of calculating pupil capacity is as follows:

Each class room, recitation room, study hall, bookkeeping, typewriting and stenography room can be counted as pupil capacity, but not any of the laboratories, manual training rooms, lecture rooms, etc., as these rooms do not provide supervision or seats where scholars can assemble in the morning or at dismissal. These laboratories could be used, if absolutely necessary, for pupils, the same as is usually done in colleges, but it is not advisable to count them as pupil capacity, especially in designing the building.

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MR. C. B. J. SNYDER, *ARCHITECT*

THE LIGHTING OF SCHOOL ROOMS

By C. B. J. Snyder, F.A.I.A.

Superintendent of Buildings, Board of Education, New York

PARAMOUNT in any discussion of school house interiors comes the question of lighting, both natural and artificial. Questions of heating and sanitation, important as they are, after all concern only indirectly the pupils' capacity for study in comparison with lighting, which is related directly to the sense of sight and as such is of fundamental importance.

The German standard of school room dimensions, viz, 9 meters or 29½ feet in length, 6 meters or 19½ feet in width, 5 meters or 16½ feet in height, is approximately followed in New York schools, a variation being made only because of limited ground area. These dimensions are: Length, 30 feet; width, 22 to 24 feet (which allows for the inclusion of the wardrobe on the inner wall of the room); height, 14 feet 3 inches.

It will be seen that the German standard of height has been modified and reduced more than two feet. If this standard were followed absolutely, the distance from floor to floor would be increased to 17 feet 8½ inches, adding almost another story to the higher buildings without gaining any additional space. With the reduced height the rule for lighting still holds good, namely, that effective lighting can be obtained on the innermost row of desks if they are not at a greater distance from the source of light than one and one-half times the height of the top of the window from the floor.

The source of natural light should be at right angles to the longer axis of the class room in order to secure the best distribution of light. If the area of the window openings is fixed at not less than twenty-five per cent of the floor surface, a net free illuminating surface of not less than twenty per cent is obtained, due allowance having been made for frames and mullions. Grouping of the windows at the left side of the pupil is to be favored, the vertical divisions between the sash being reduced to a minimum. Where at all possible the use of masonry piers between the windows is largely avoided even at the risk of a great similarity in the architectural design of the exterior.

Unlike the practice in many cities, corner rooms are all planned with windows on two sides, the sittings being so arranged that the light is received from the side and rear. The

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(This high school group cost, including equipment and sanitary work, exclusive of site, $0.2895 per cubic foot.)

advantage thus afforded for the free circulation of air, at times when the windows can readily remain open, more than offsets the possibility of confusion or discomfort, due to the presence of two sources of light which may not properly be controlled by the teacher.

Very extensive experiments have been carried out in the public school buildings of New York City for the purpose of determining the most satisfactory colors for walls, ceilings and woodwork. Green has been tried in all its varying tones for walls, but the only tints that seemed to be at all satisfactory were so deep as to absorb a very great percentage of the light. Green has also been tried for the woodwork, including the desk tops. An insurmountable difficulty arises from the fact that the desk tops must be finished smooth for writing purposes, and this necessitates staining, filling, varnishing and rubbing. The ordinary dull finish as used on oak furniture produces an unpleasant effect upon the eyes, while the presence of the green is constantly felt. Even by dulling the finishes as much as possible, consistent with a smooth surface, the trouble cannot be avoided. There is always a sharp and trying contrast between the color of the desk tops and any books, papers or other articles lying upon them. At this point the experiments were abandoned and we reverted to finishing the oak in such a way that the bright yellow tones were killed and a smooth, non-reflecting surface was obtained. From a sanitary standpoint a smooth finished surface is essential for all woodwork. If this were not true the difficulty would be avoided and a simple dull stain could be used to produce the desired effect. In our New York public school rooms, the tones of tan which are very prevalent in oak when properly stained are utilized for the side walls up to a height of about seven feet, at which point, at the top level of the blackboards, a molding is introduced. From this up to the ceiling there is a light tone of buff, while the ceiling itself is almost white.

There are numerous methods for excluding the direct rays of the sun from the class room. Shades accomplish it, but at the expense of the admission of fresh air; Venetian blinds overcome this, but are most unsani-

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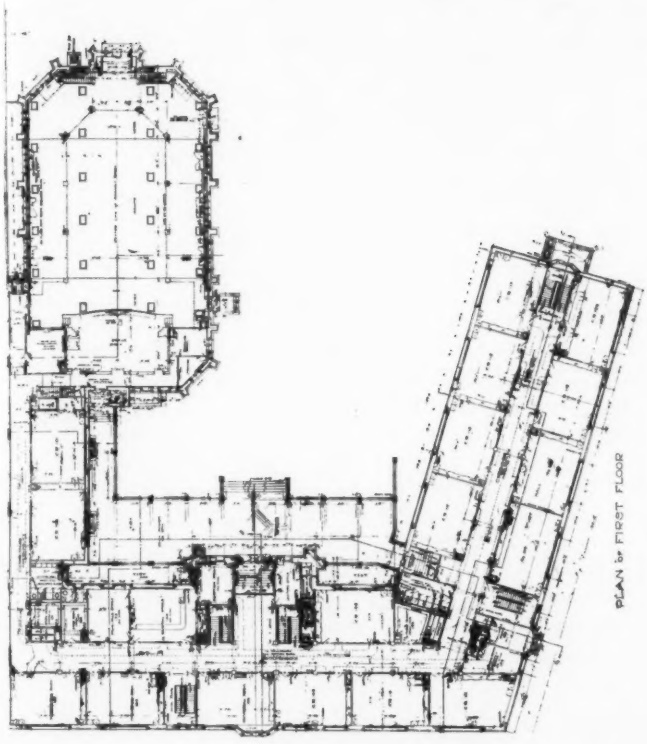

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tary. The orientation of the room, or the presence of surrounding objects such as trees or buildings, makes necessary the need of adjustability of the screen at one point or another of the sash. To meet this rollers are fixed at various locations and also in slides so that they can be readily hoisted or lowered to the precise point needed. All top location should be avoided, as there is greater obstruction to light and air, under all conditions, than at any other point. Adjustable sliding fixtures are unreliable; only under the most careful handling is it possible to maintain them so that they are usable at all times. Teachers are ordinarily too busy with their regular work to supervise the handling of the shades every time it is desired to raise or lower them.

The best results have been obtained by securing the shade rollers to a narrow board that is in turn secured to the window casings at the level of the meeting rails of the sash, one shade being arranged so as to pull up and the other down, and to be fixed in any desired position. It is very seldom that this adjustment will not permit of a part of the window being uncovered for the free admission of fresh air. Each shade is controlled at the corners by firmly secured pulleys, through which the operating cord runs. This affords a free movement vertically and overcomes slatting or flapping of the shades when the windows are open. The practical side of the shade problem is more readily illustrated by the first cost of the shades, their probable durability and freedom from repairs; these conditions are most readily met by the scheme outlined above.

In the choice of materials, Hollands should be eliminated because of their disagreeable reflection of light. The most satisfactory material is oiled shade cloth of a slightly roughened surface, finished in a sage green. This is fairly translucent when exposed to the direct rays of the sun, but is without an unpleasant effect.

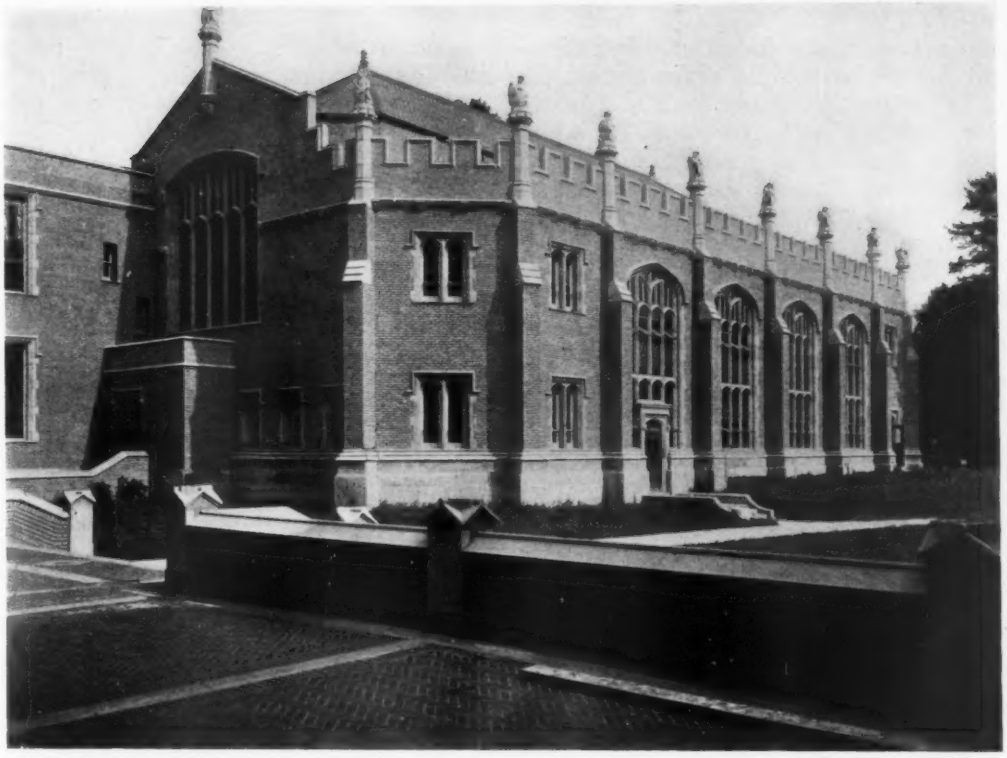
The complete revolution that has taken place in artificial illumination within the past few years makes this phase of the subject highly interesting. A thorough study of the problem has been made under my direction from the scientific and technical standpoint by Mr. S. A. Thomas, chief of the electrical division of this bureau, whose report embodies all the features which are employed at present in New York schools.

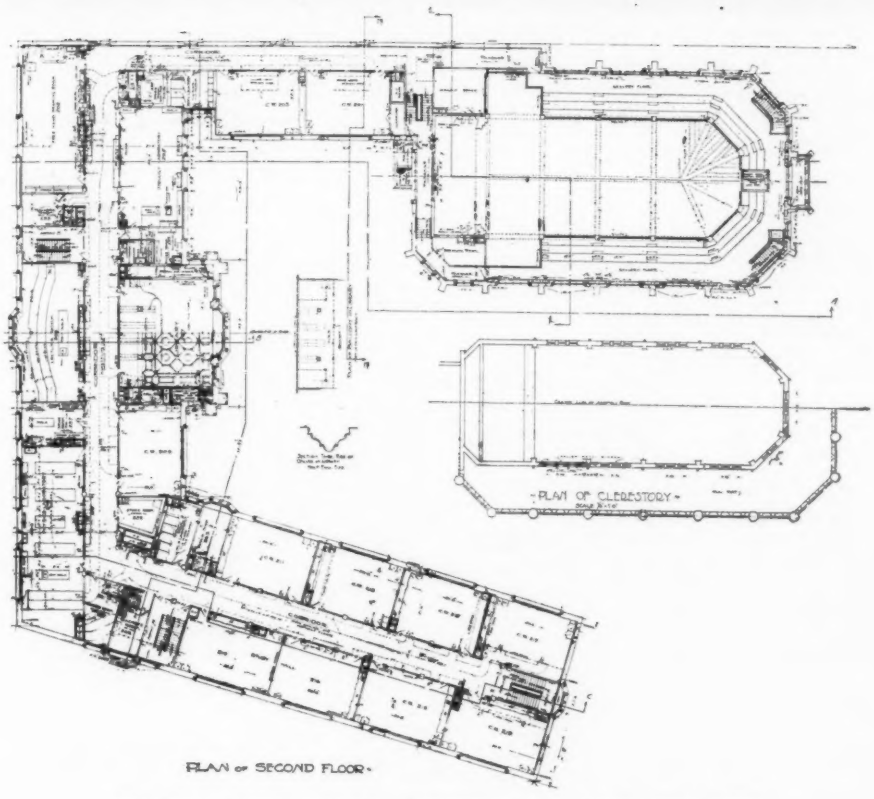
"In approaching the subject of relighting the public schools of New York in the latter part of 1908, we started off with the assumption, with quite substantial premises, that the lighting systems then employed (five clusters of four 50-watt carbon lamps, each placed at a height of about seven feet from the floor) were inadequate and unsatisfactory. They had been laid out with the best results consistent with paraphernalia then available. However, the last few years have witnessed such wonderful improvements in lighting design that the then present effects suffered relatively by comparison.

"As the first step in the investigation, the writer collected all available lighting equipment, *i. e.*, lamps and reflectors—that seemed to bear upon the problem, and from each lamp and its reflector there was obtained a photometric curve, which was carefully studied as to its probable effect upon the illumination desired. When the lighting units had been carefully studied and classified, those that seemed to assure the best results were used in conducting a series of tests to determine illumination values obtained at the level of the tops of the desks of a typical school room.

"A ready, effective and economical means was found to be by the stretching horizontally of a number of wires from wall to wall in the room under test, and from these supports a number of various types of units were suspended and illumination readings made. This arrangement of equipment permitted movement of units to any point either in vertical or horizontal planes in the room. Such arrangement, together with various types and sizes of lighting units, permitted the attainment of various intensities and distribution of illuminating effects. These tests were made after sundown and were conducted over a period of a number of weeks.

"From our tests we arrived at the conclusion that nine units placed in a symmetrical location were best for our purpose. Fixtures consisting of a stem supporting deep bowl, dense opal reflector, with depolished inner or reflecting surface, and 100-watt bowl, frosted, metallized filament lamp, the bottom of which comes to a point nine feet above the floor, were so arranged that the greater amount of the light came from a point a little to the left and forward of the





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students' desks. In that way whatever shadow was created was delivered in a direction such as to be received under the pupil's hand in writing, there being an absence of shadow forward of the pencil which would tend to confuse. The average illumination obtained at the time of the tests with new equipment was 3.20.

"After we determined to our satisfaction the location and height of the indicated equipment, we courted expressions of opinion from the principal of the school, teachers and pupils, also the Committee on Buildings of the Board of Education and the Superintendent of School Buildings, all of whom visited the building in which the tests were conducted, and, after careful observation of the system formerly employed and that recommended and herein referred to, were unanimous in the opinion that the new system was far superior in every respect to the old style.

"Another test of a practical nature was conducted to ascertain the value of the new system and was as follows: only one room in the building in which the test was conducted was equipped with the modern type of illumination, and classes from other parts of the building were brought into this room and allowed to stay for the period of one evening's session. After all of the classes in the building had been permitted to spend a session in the room in which the new lighting equipment was installed, a vote was taken to ascertain whether to the pupils' mind the modern illumination was superior to that under which they had previously been working. The opinion was unanimous in favor of the new equipment.

"Owing to the nature of the glassware and the bowl frosted lamps employed, together with the height of such units above the plane of illumination, the glare factor formerly so conspicuous has been reduced almost to a minimum. As has been stated, the average footcandle intensity obtained from this nine-outlet arrangement when all the equipment was new and clean was 3.20. After this type of equipment had been in use about one year, the original lamps still being used, the equipment was again tested, showing a depreciation of about 42 per cent. Similar tests were conducted in other rooms similarly equipped where the depreciation ran about 20 per cent, which may be considered as more nearly what we would get in average practice. During the year in which this equipment was used it had been not too carefully cleaned, and when the tests to determine depreciation were conducted there was a thin film of dust over lamps and reflectors. The nine-outlet arrangement just described is standard and consequently is being employed in all buildings subject to remodeling and all buildings being constructed or to be erected."

BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK

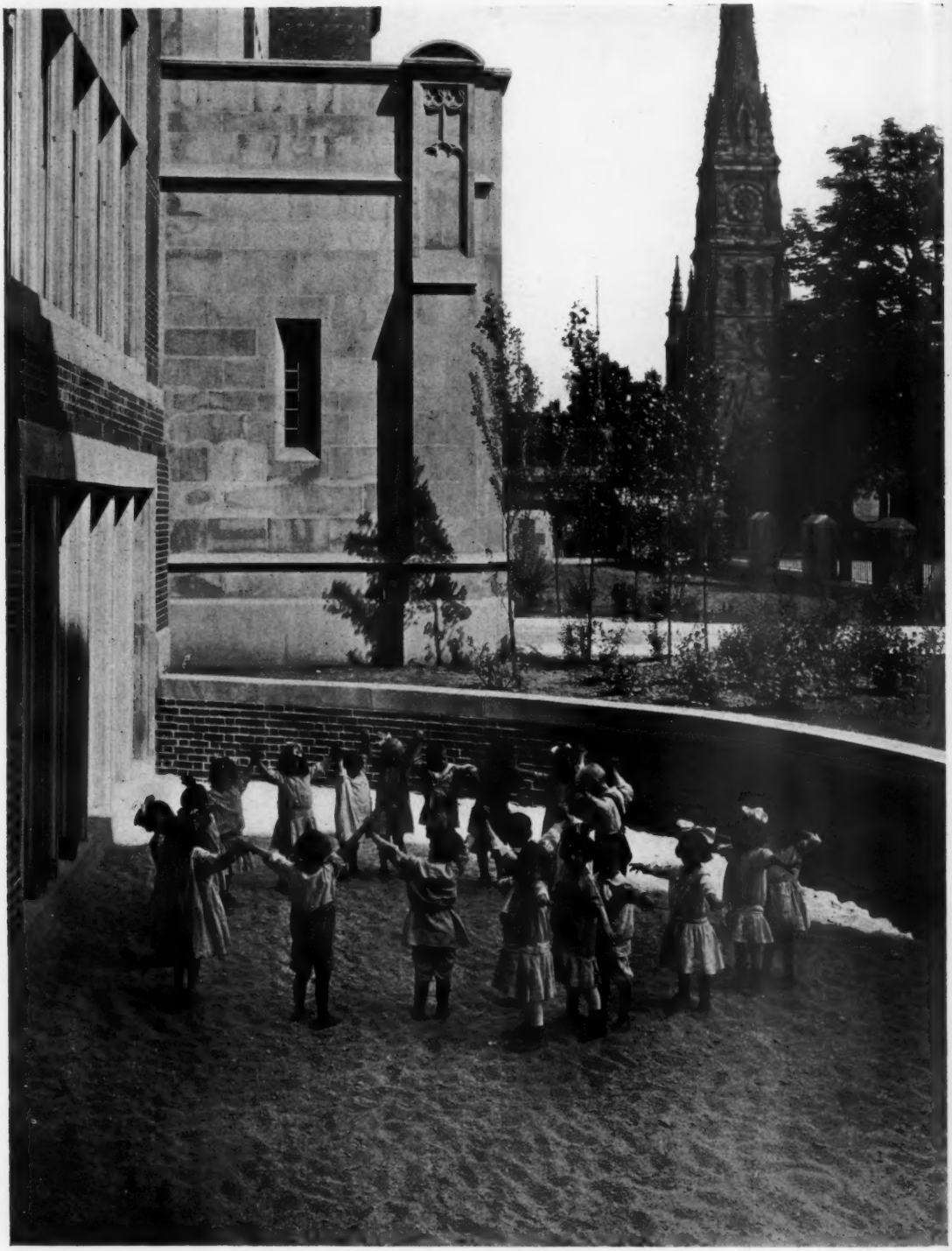
MR. C. B. J. SNYDER, *ARCHITECT*

(For details and plans of this school, see plate section. Cost of building, including equipment and sanitary work, exclusive of site, $0.2707 per cubic foot.)

LAFAYETTE SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

(This school building cost 21½ cents per cubic foot)



KINDERGARTEN PLAY YARD

LAFAYETTE SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

MASTEN PARK HIGH SCHOOL, BUFFALO, N. Y.

MESSRS. ESENWEIN & JOHNSON, *ARCHITECTS*

GUILFORD SCHOOL, CINCINNATI, O.

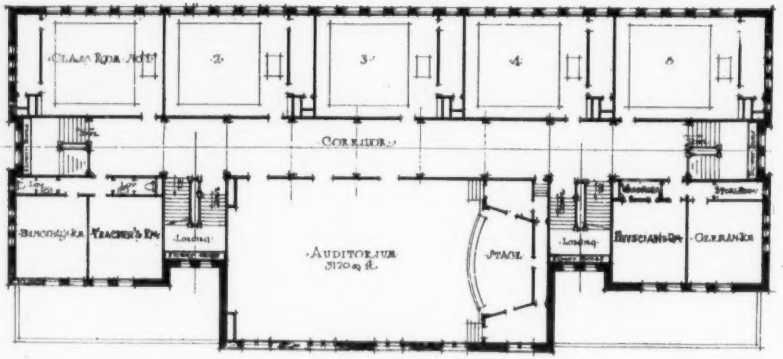
MESSRS. GARBER & WOODWARD, *ARCHITECTS*

(This school building cost 14 cents per cubic foot)

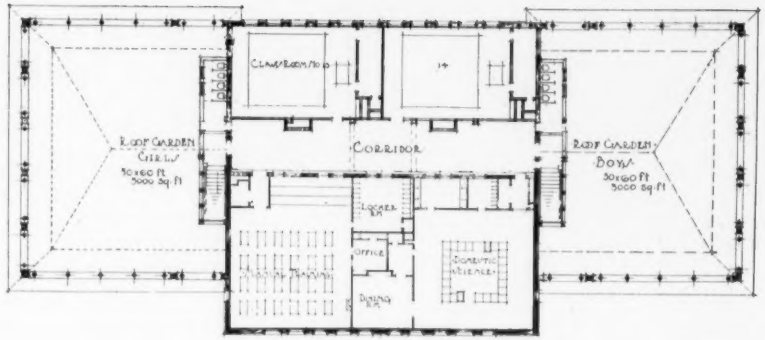
GUILFORD SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*

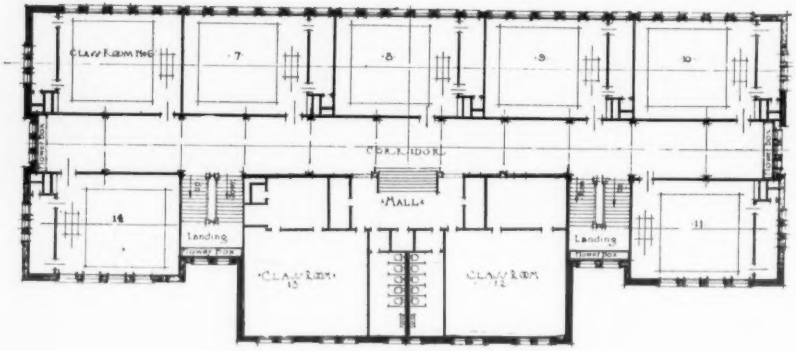
(This school building cost 44 cents per cubic foot.)



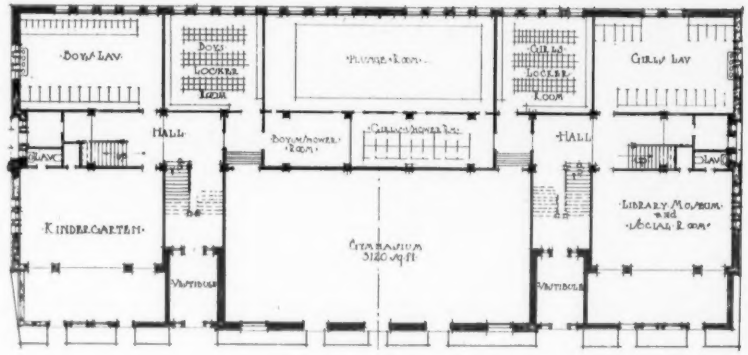
FIRST FLOOR PLAN



THIRD FLOOR PLAN



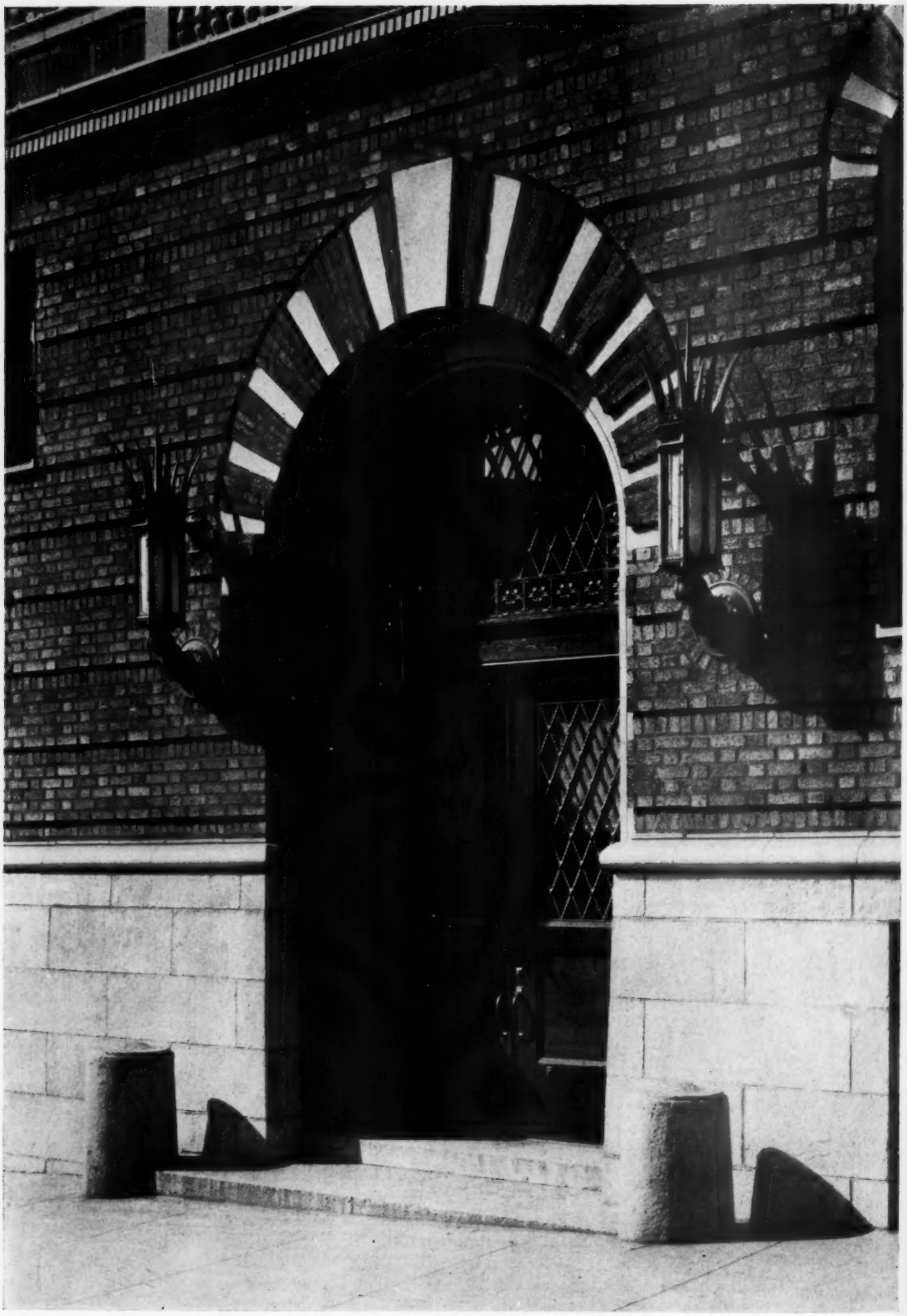
SECOND FLOOR PLAN



GROUND FLOOR PLAN

GUILFORD SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*



GUILFORD SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*

CLEVELAND SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

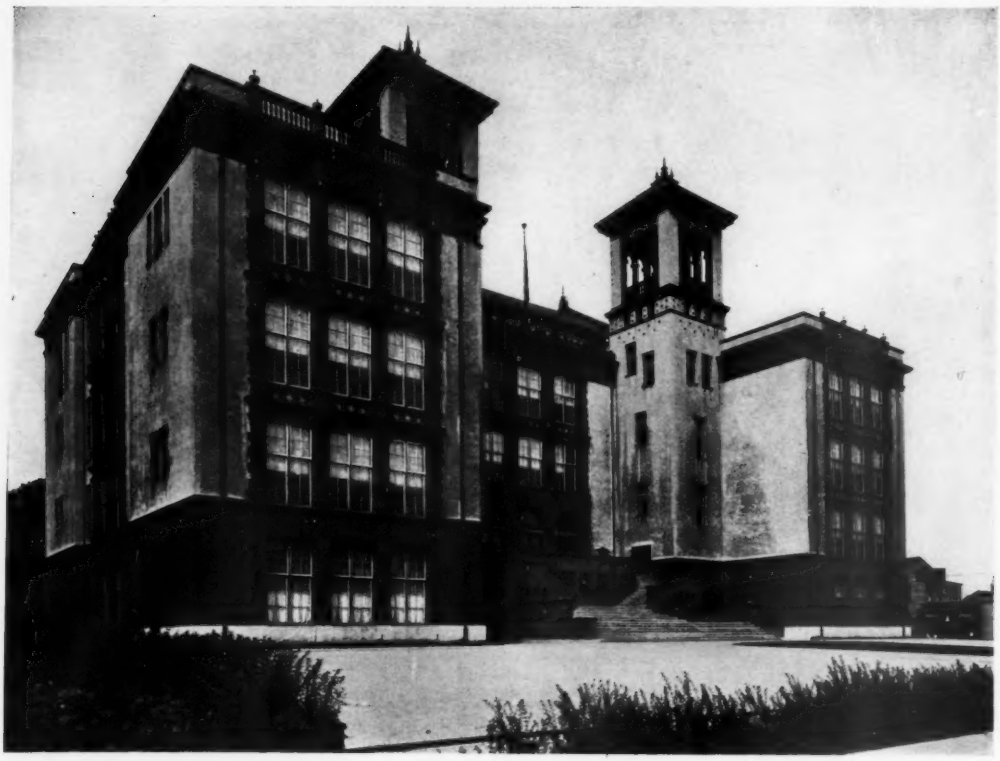
(This school building cost 30 cents per cubic foot)

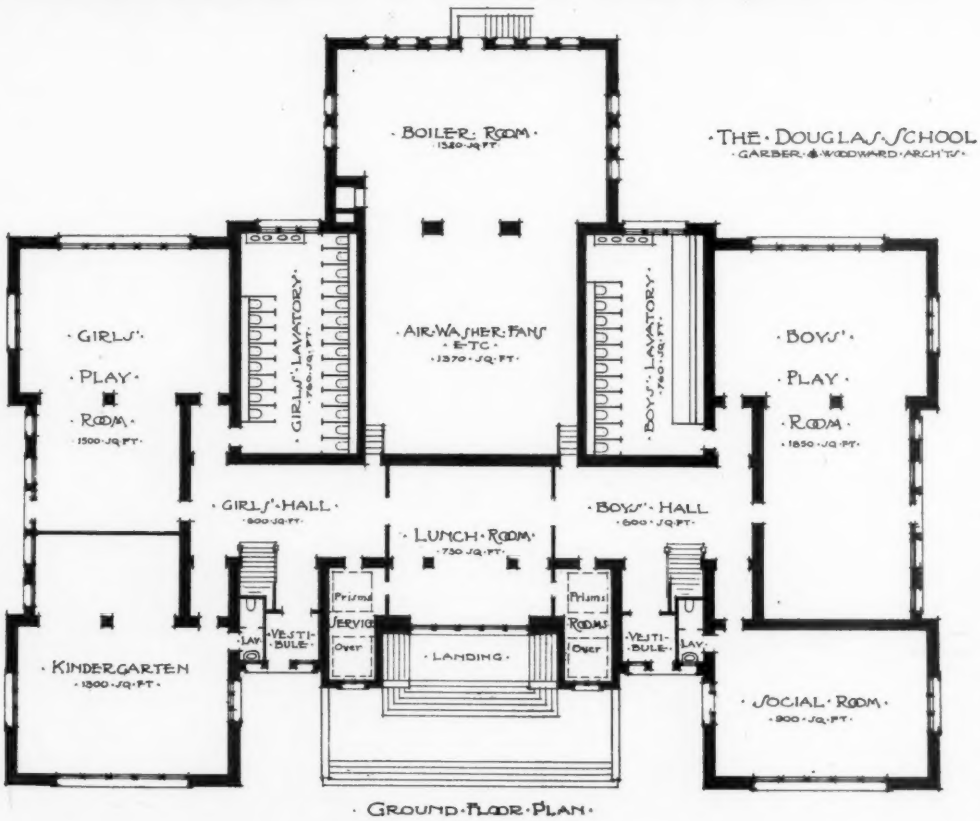
MR. E. F. GUILBERT, *ARCHITECT*

(This school building cost 20 cents per cubic foot)

CLEVELAND SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

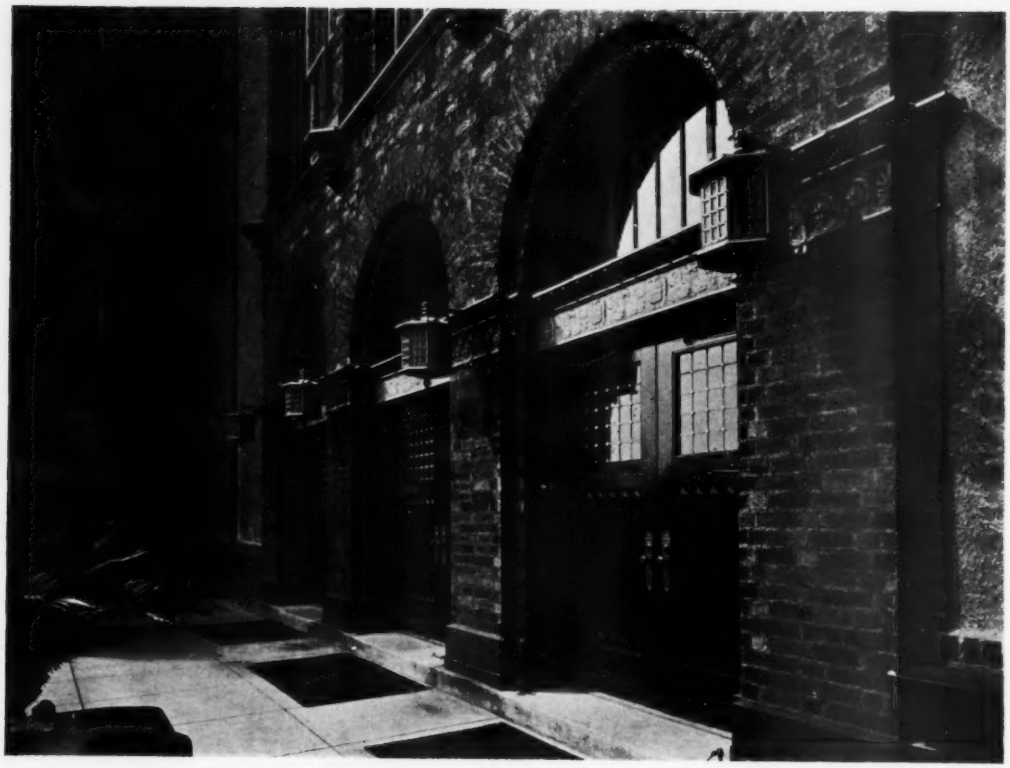


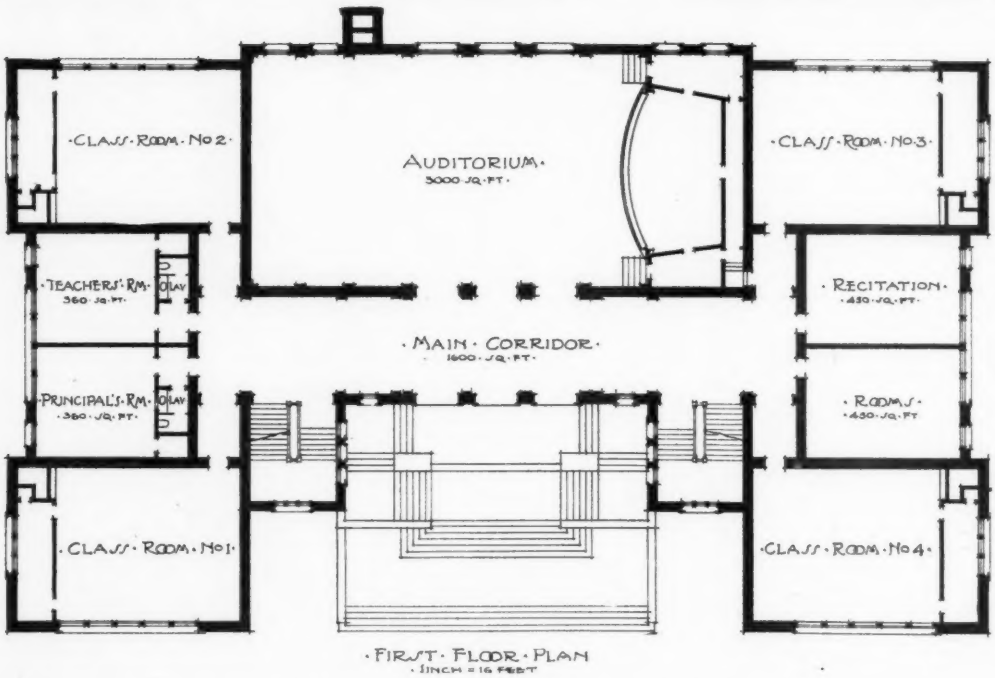


DOUGLAS SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*

(This school building cost 15.9 cents per cubic foot)

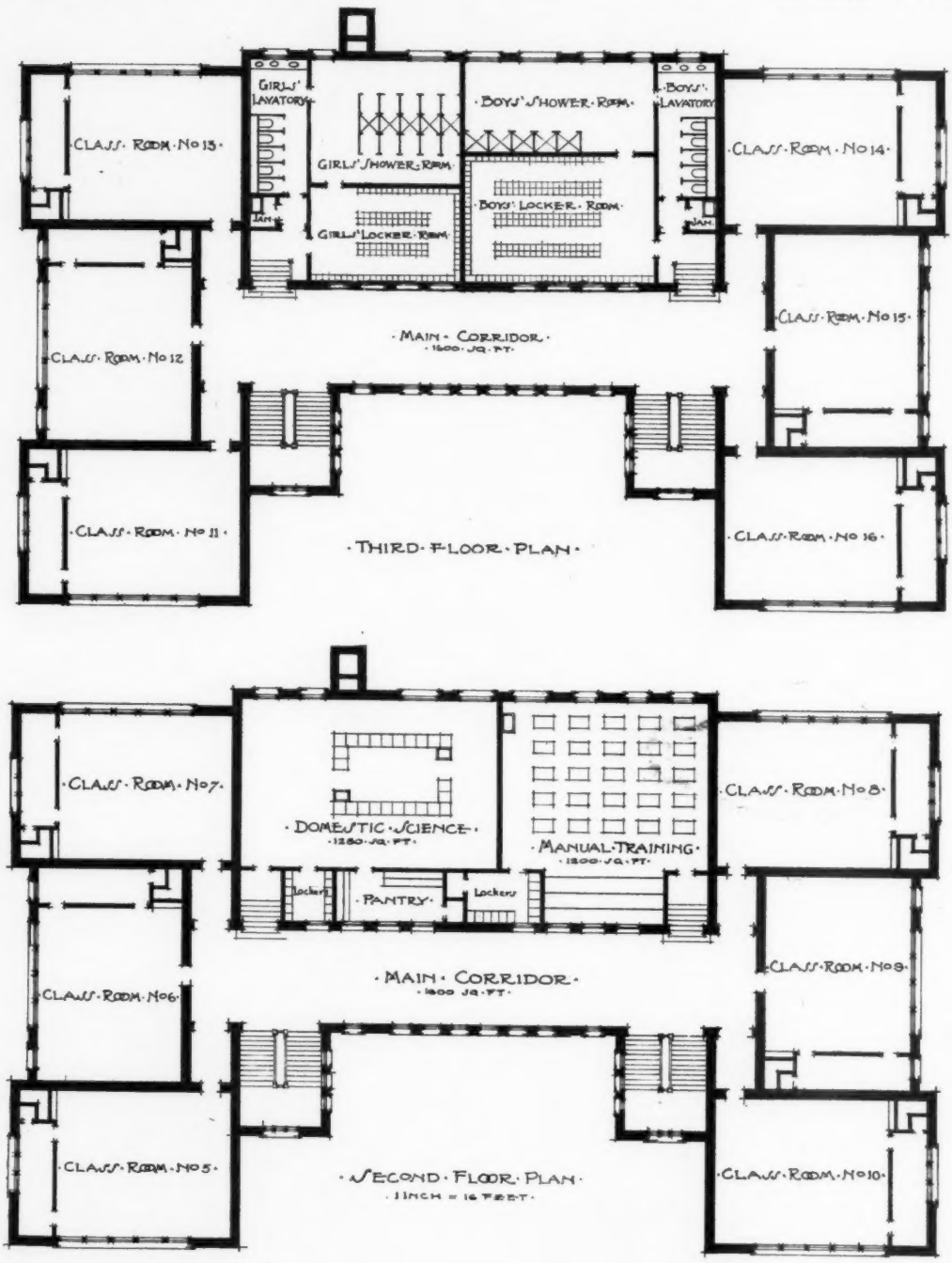




FIRST FLOOR PLAN
1 INCH = 16 FEET

DOUGLAS SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*



DOUGLAS SCHOOL, CINCINNATI, O.

MESSRS. GARBER & WOODWARD, *ARCHITECTS*

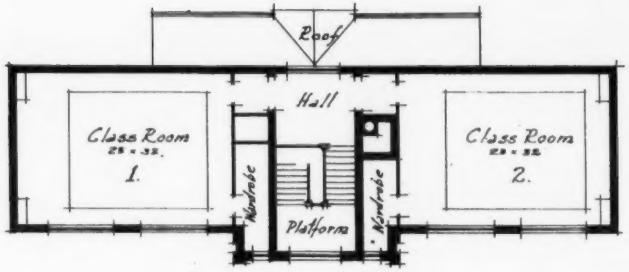
GLENDALE SCHOOL, GLENDALE, MO.

MR. WILLIAM B. ITTNER. *ARCHITECT*

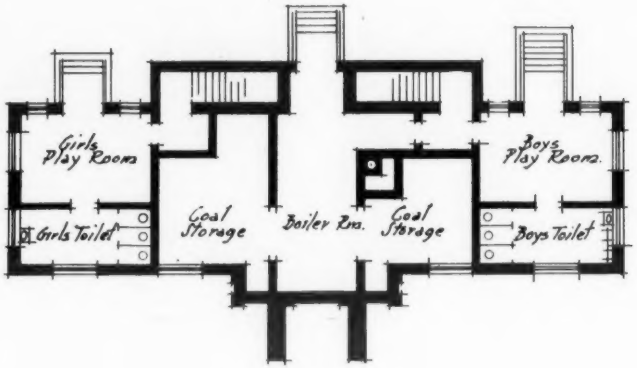
(The corridors and stairways and ceiling over boiler and coal room are fireproof construction. Balance of the building joist construction. Basement story 9 feet in the clear, first and second floors 11. The class room windows are carried directly to the ceiling, giving ample unilateral light. The foundation is faced with rubble masonry; inside of basement being finished brick walls, with enameled brick in the toilets. Above the wash course, the building is faced with ordinary hard and red brick, mixed haphazard as to color. The main entrance trimmed with stone. The roof is covered with Bangor slate. The inside finish, bookcases, etc., is of oak, the floors of maple. The building contains 153,400 cubic feet. Total cost, exclusive of equipment, $15,321.20.)

(The corridors and stairways and ceiling over boiler and coal room are fireproof construction. Balance of the building joist construction. Basement story 9 feet in the clear, first and second floors 11. The class room windows are carried directly to the ceiling, giving ample unilateral light. The foundation is faced with rubble masonry; inside of basement being finished brick walls, with enameled brick in the toilets. Above the wash course, the building is faced with ordinary hard and red brick, mixed haphazard as to color. The main entrance trimmed with stone. The roof is covered with Bangor slate. The inside finish, bookcases, etc., is of oak, the floors of maple. The building contains 103,400 cubic feet. Total cost, exclusive of equipment, $15,891.20.)

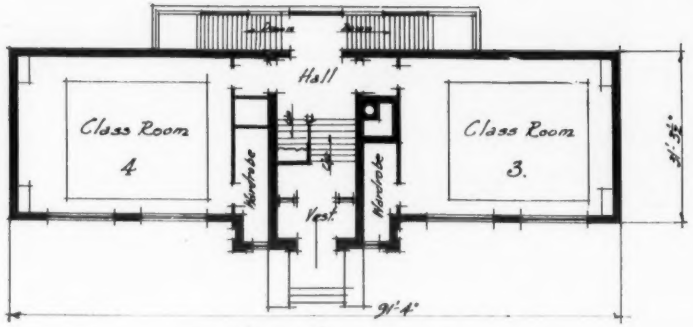
ELEVATION



SECOND FLOOR PLAN



GROUND FLOOR PLAN.



FIRST FLOOR PLAN

GLENDALE SCHOOL, GLENDALE, MO.

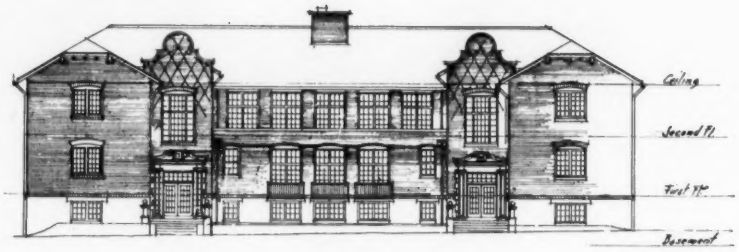
MR. WILLIAM B. ITTNER, *ARCHITECT*

GRAMMAR SCHOOL, KIRKWOOD, MO.

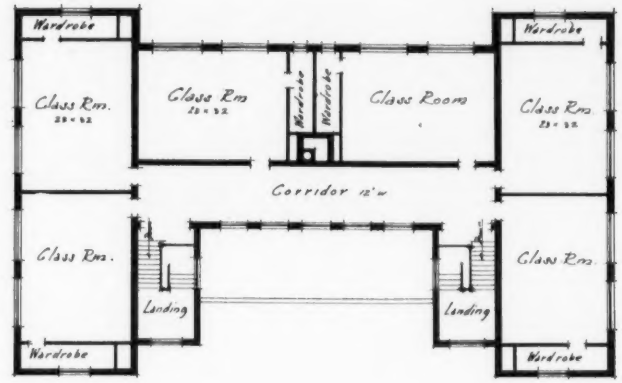
MR. WILLIAM B. ITTNER, *ARCHITECT*

(The corridors, stairways and ceilings over boiler and fuel room are built of fireproof construction. The basement story 9 feet in the clear, first and second stories 11 feet. The class room windows, being carried directly to the ceiling, give ample unilateral lighting. The foundation is faced with rubble masonry, laid in random fashion; inside of basement being finished brick walls, with enameled brick in the toilets. Above the wash course, the building is faced with ordinary hard and red brick, mixed haphazard as to color, with terra cotta trimmings for the two main entrances. Gable walls of terra cotta coping. The roof is covered with Bangor slate, the barge boards being stained with creosote. The inside finish, bookcases, etc., is of oak. The floors of maple. The building contains 325,500 cubic feet and cost $39,415, exclusive of the equipment.)

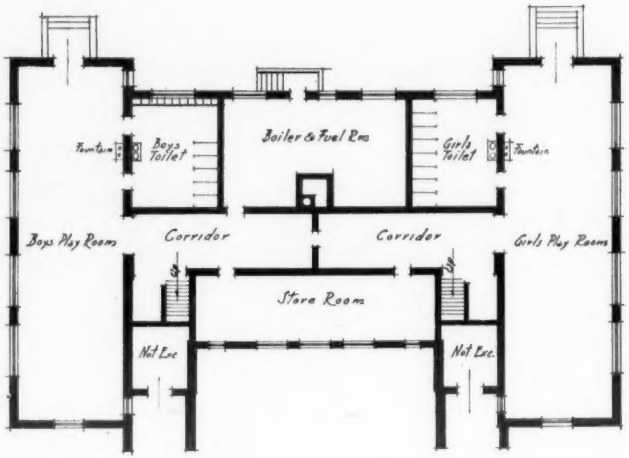
walls of terra cotta coping. The roof is covered with Bangor slate, the barge boards being stained with creosote. The inside finish, bookcases, etc., is of oak. The floors of maple. The building contains 325,500 cubic feet and cost $39,415, exclusive of the equipment.)



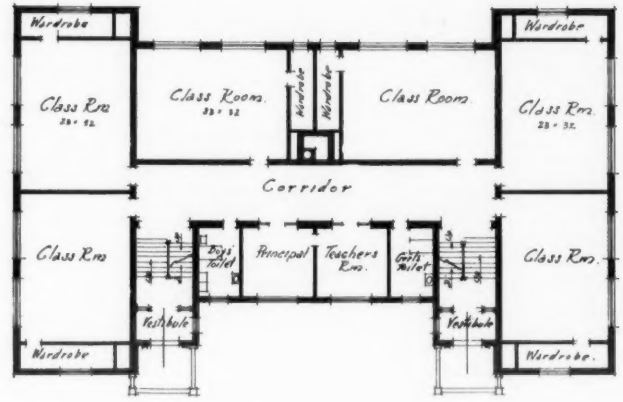
Elevation.



Second Floor Plan



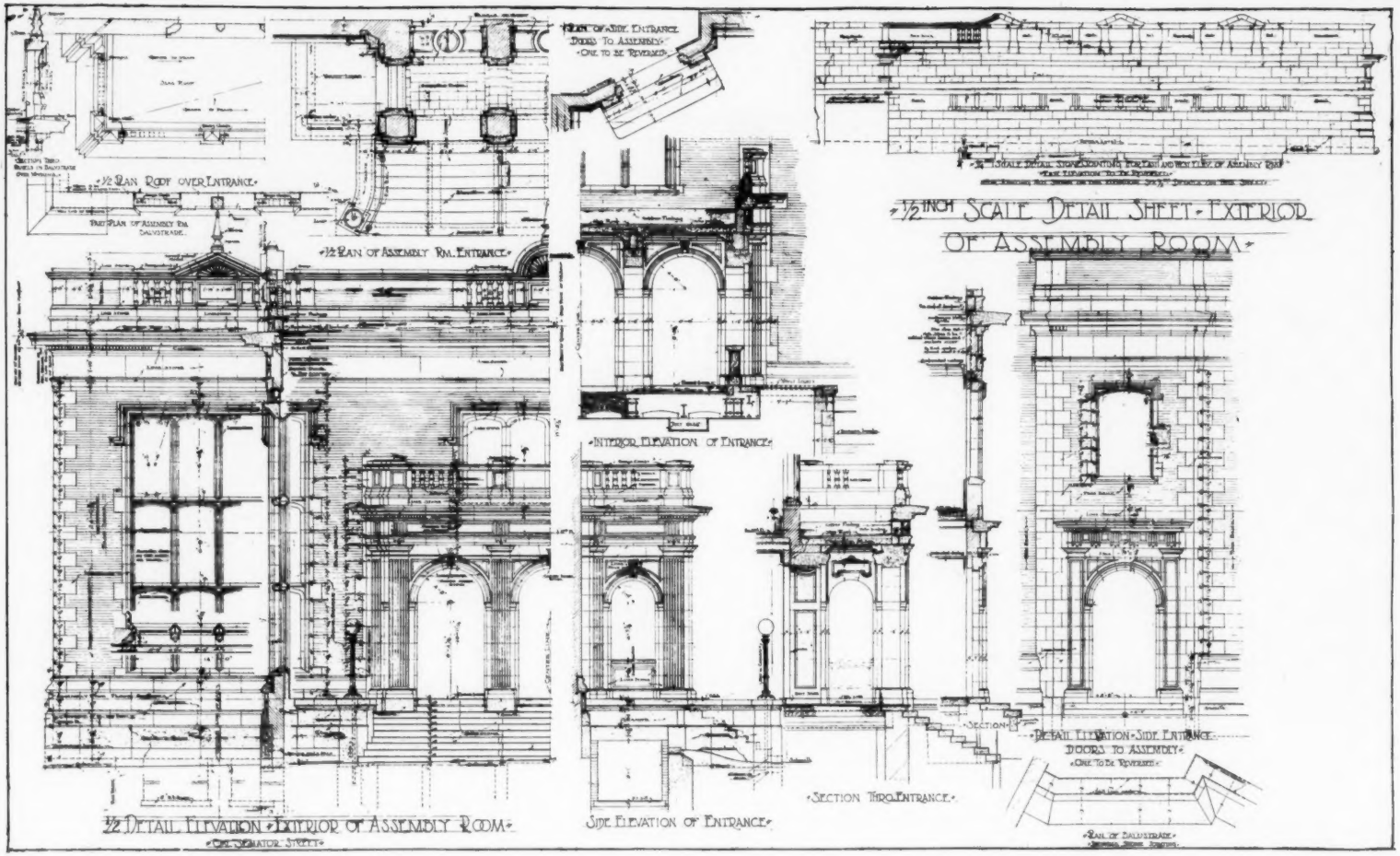
Basement Plan
Scale 1/16" = 1'-0"



First Floor Plan

GRAMMAR SCHOOL, KIRKWOOD, MO.

MR. WILLIAM B. ITTNER, *ARCHITECT*

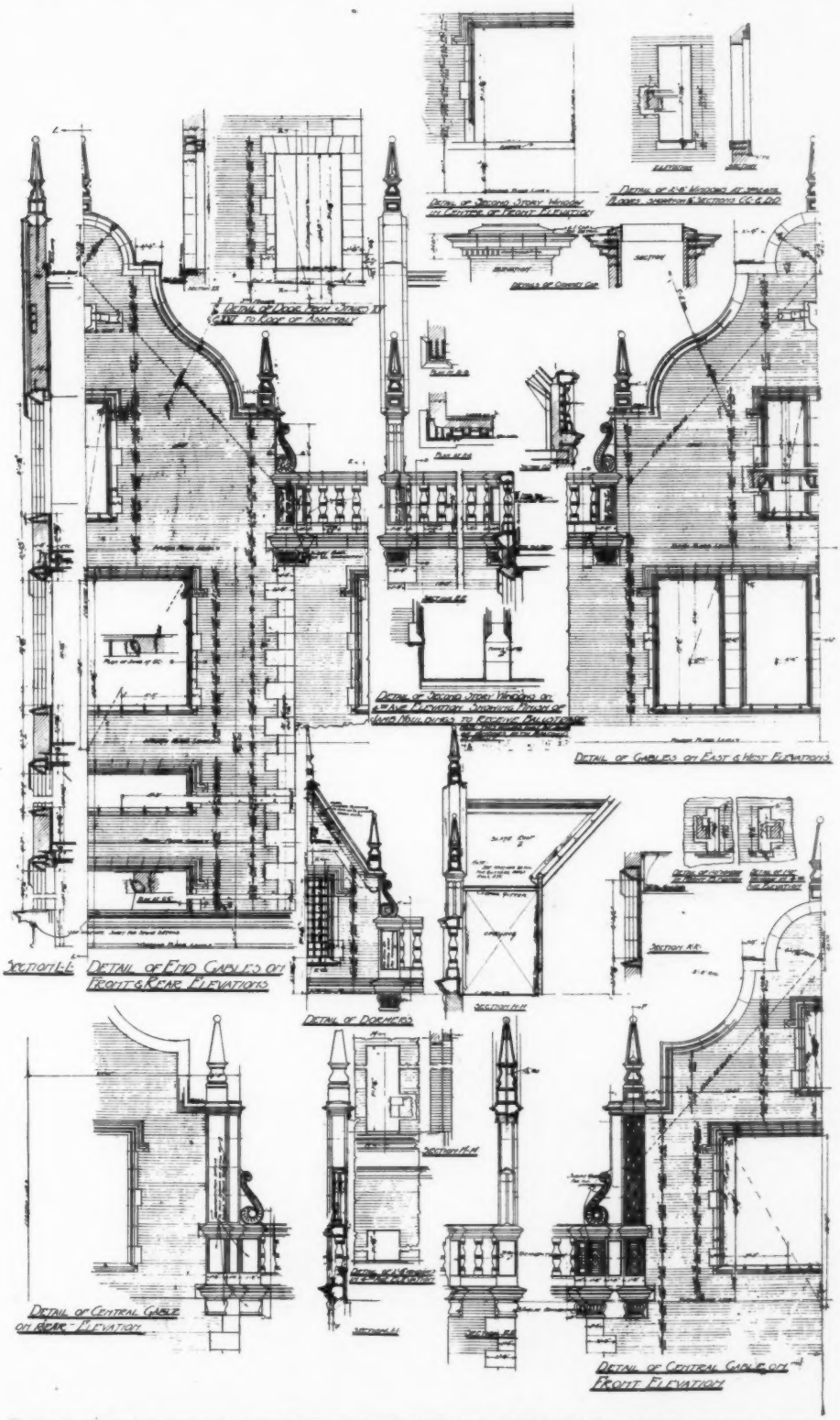


BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK CITY

MR. C. B. J. SNYDER, *ARCHITECT*

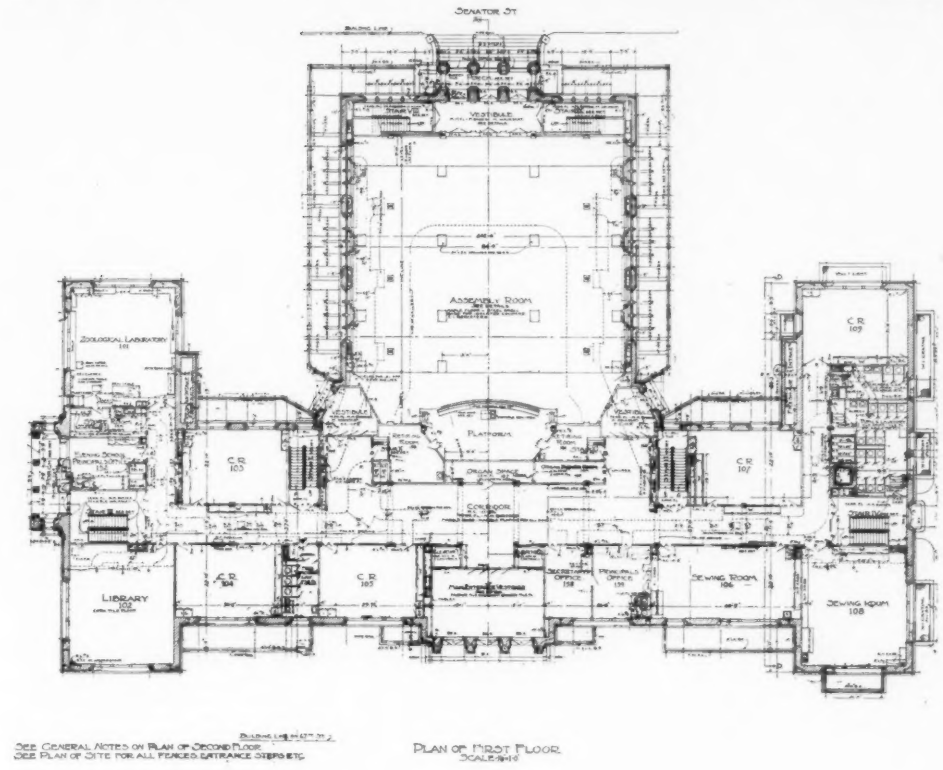
(For elevation of this school and statement of cost, see page 176)

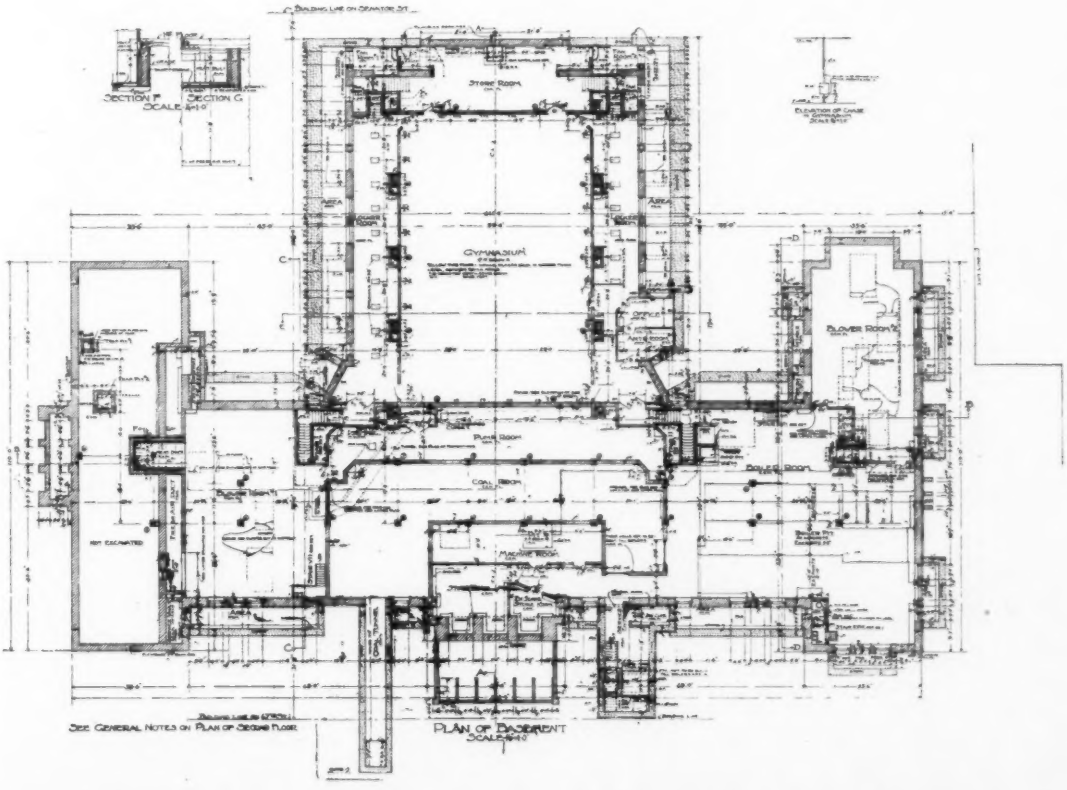
VOL. CVIII, NO. 2073 SEPTEMBER 15, 1915



BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK CITY

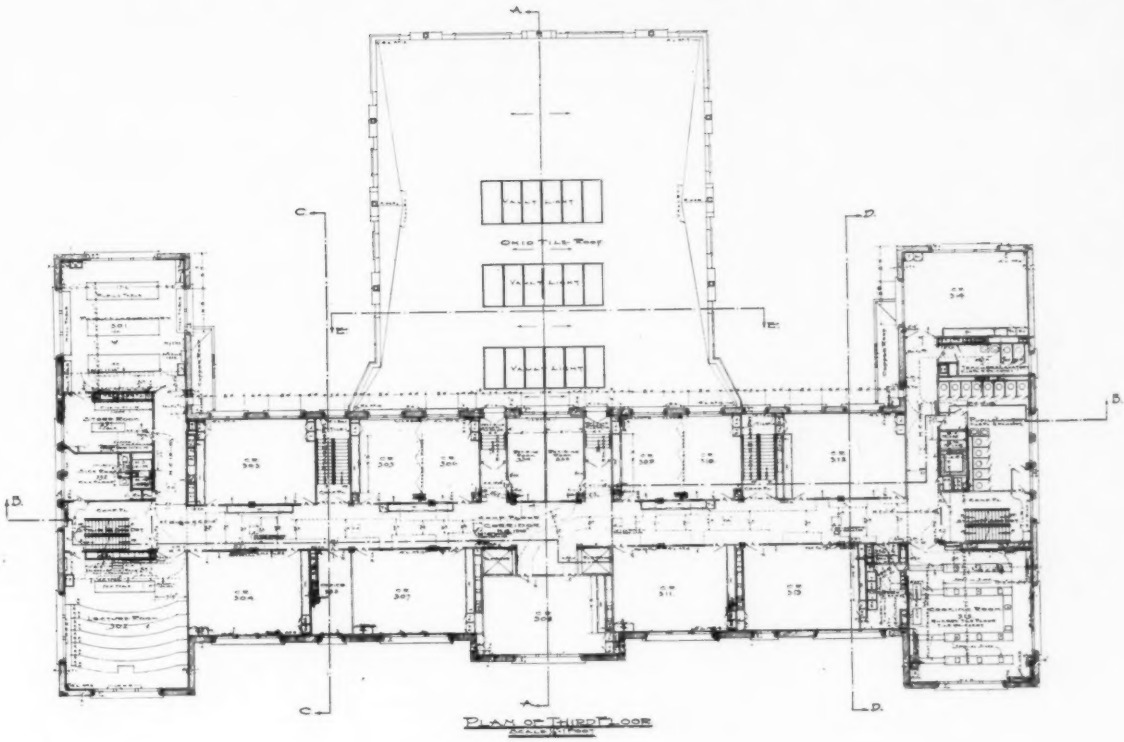
MR. C. B. J. SNYDER, *ARCHITECT*

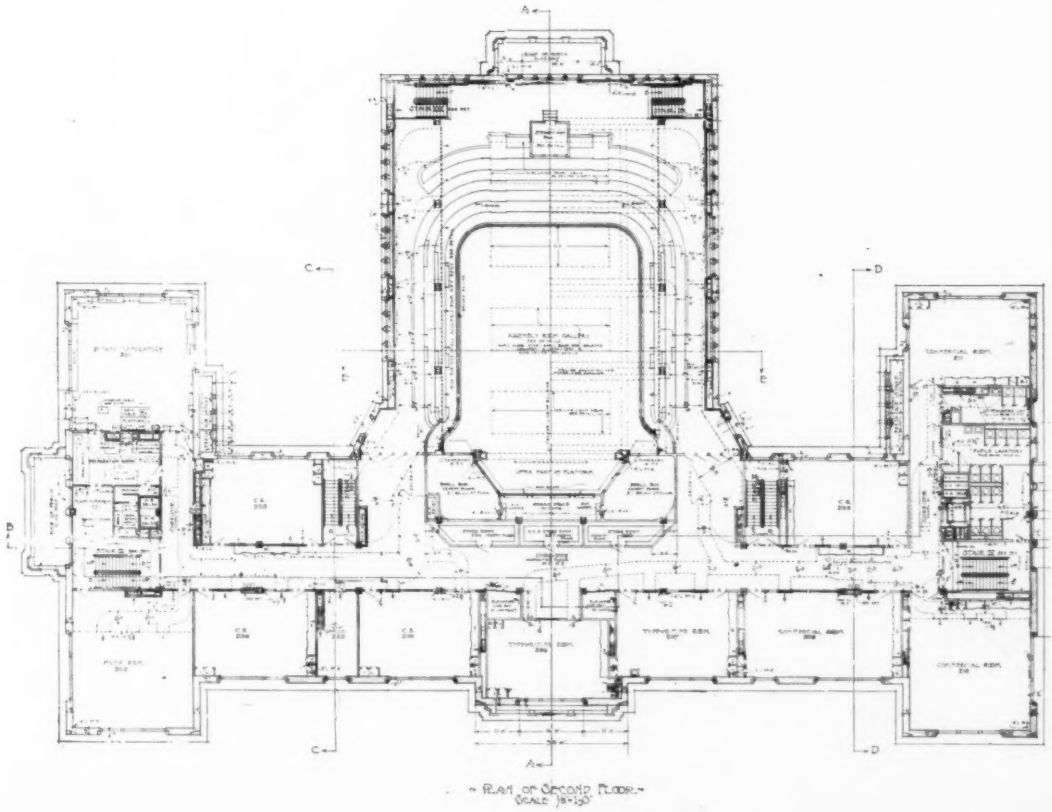




BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK CITY

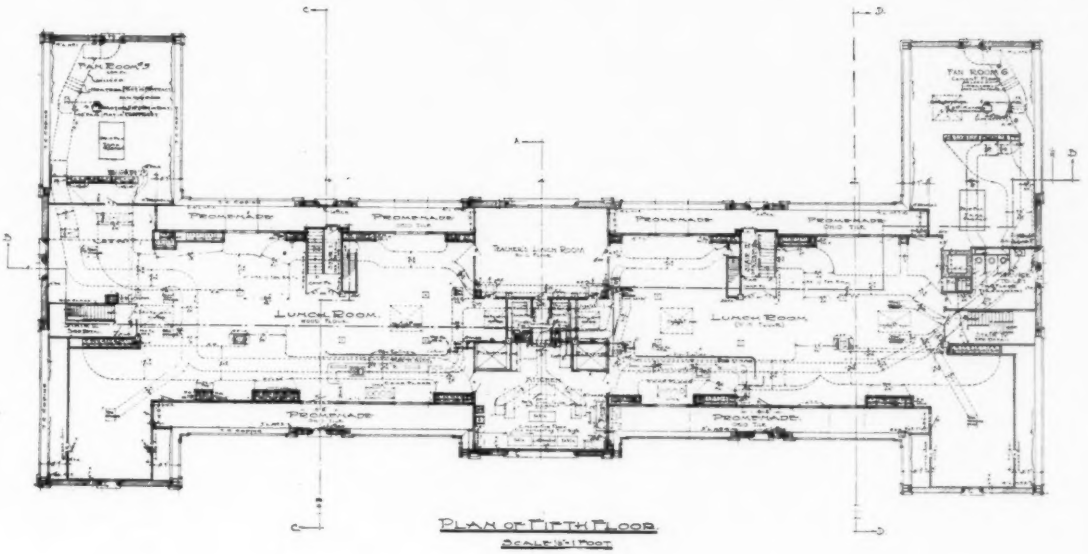
MR. C. B. J. SNYDER, *ARCHITECT*



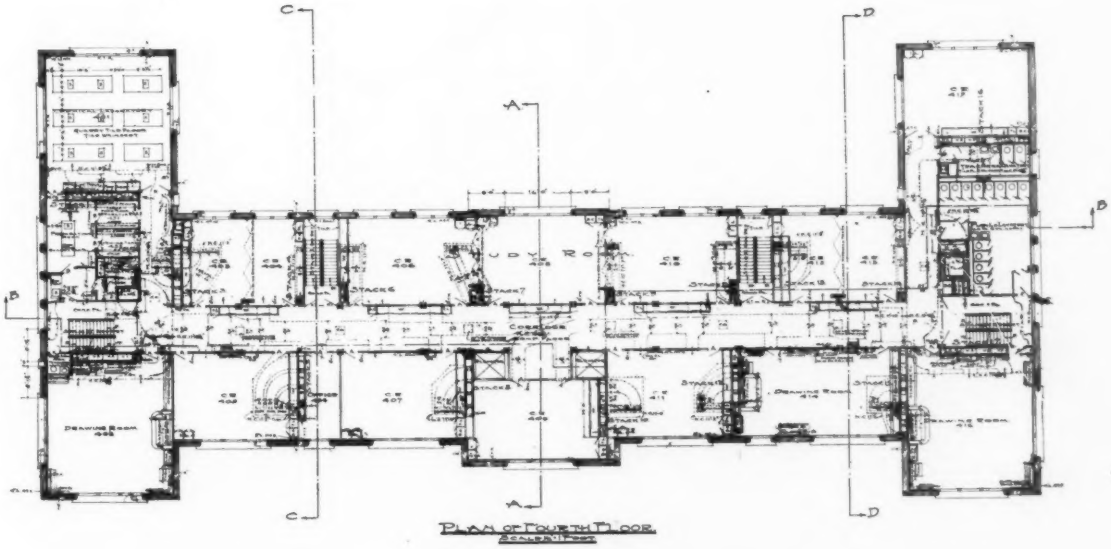


BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK CITY

MR. C. B. J. SNYDER, *ARCHITECT*



PLAN OF FIFTH FLOOR
SCALE 16'-1" POST



PLAN OF FOURTH FLOOR
SCALE 16'-1" POST

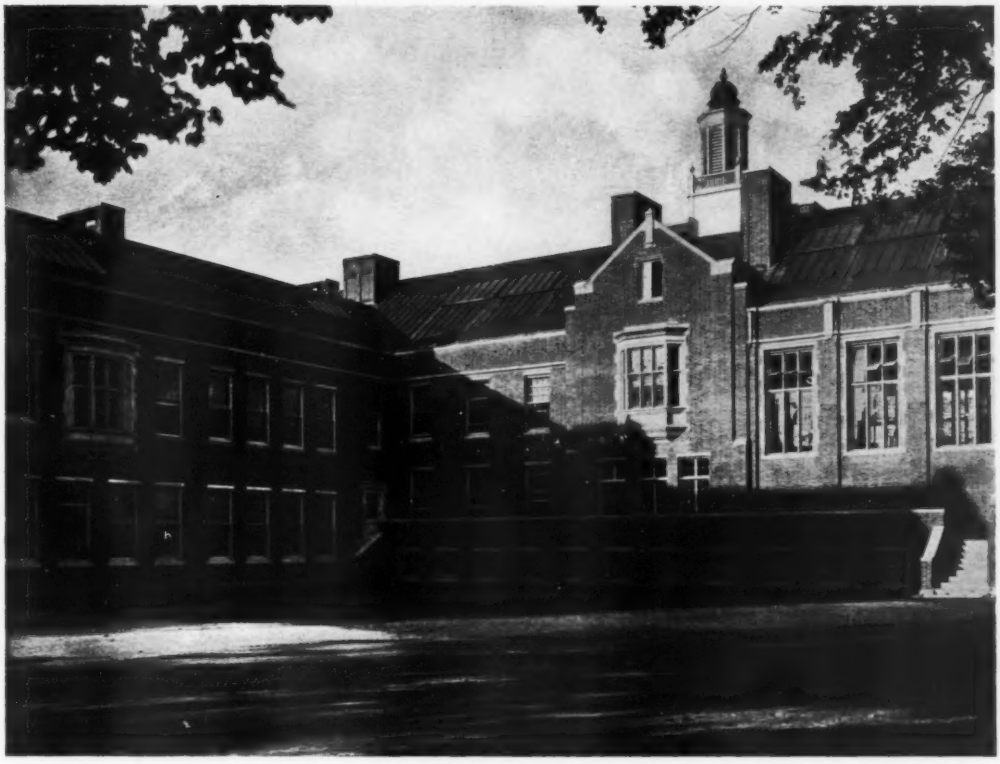
BAY RIDGE HIGH SCHOOL, BOROUGH OF BROOKLYN, NEW YORK CITY

MR. C. B. J. SNYDER, *ARCHITECT*

WINSOR SCHOOL, LONGWOOD, MASS.

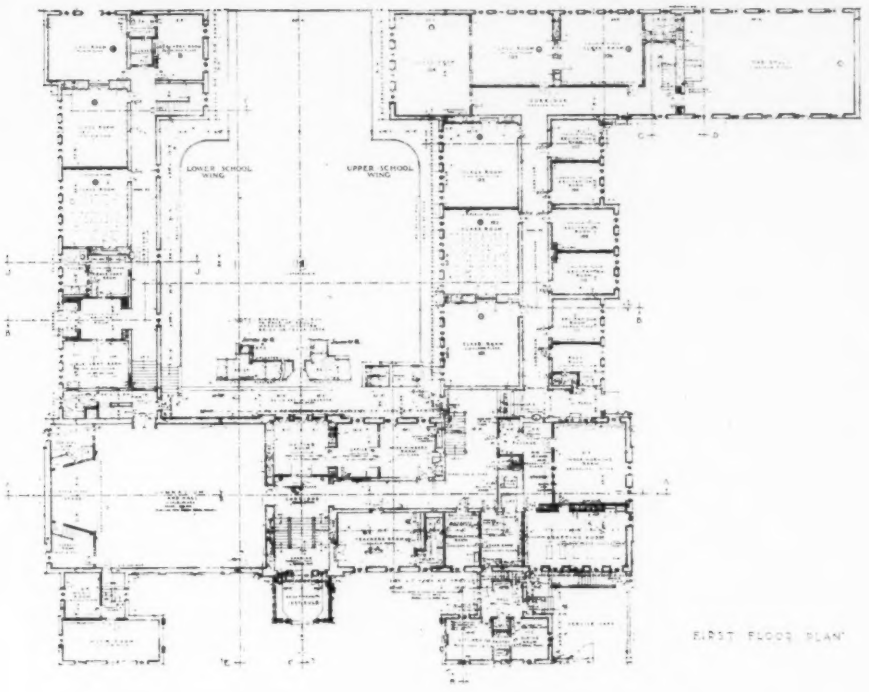
MR. R. CLIPSTON STURGIS, *ARCHITECT*

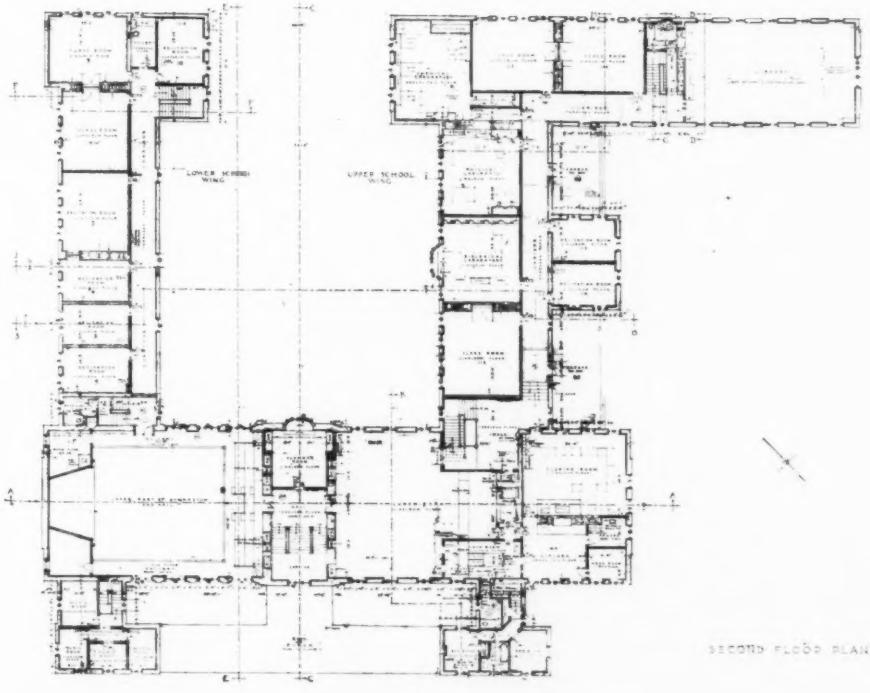
(This school building cost 23 cents per cubic foot)



WINSOR SCHOOL, LONGWOOD, MASS.

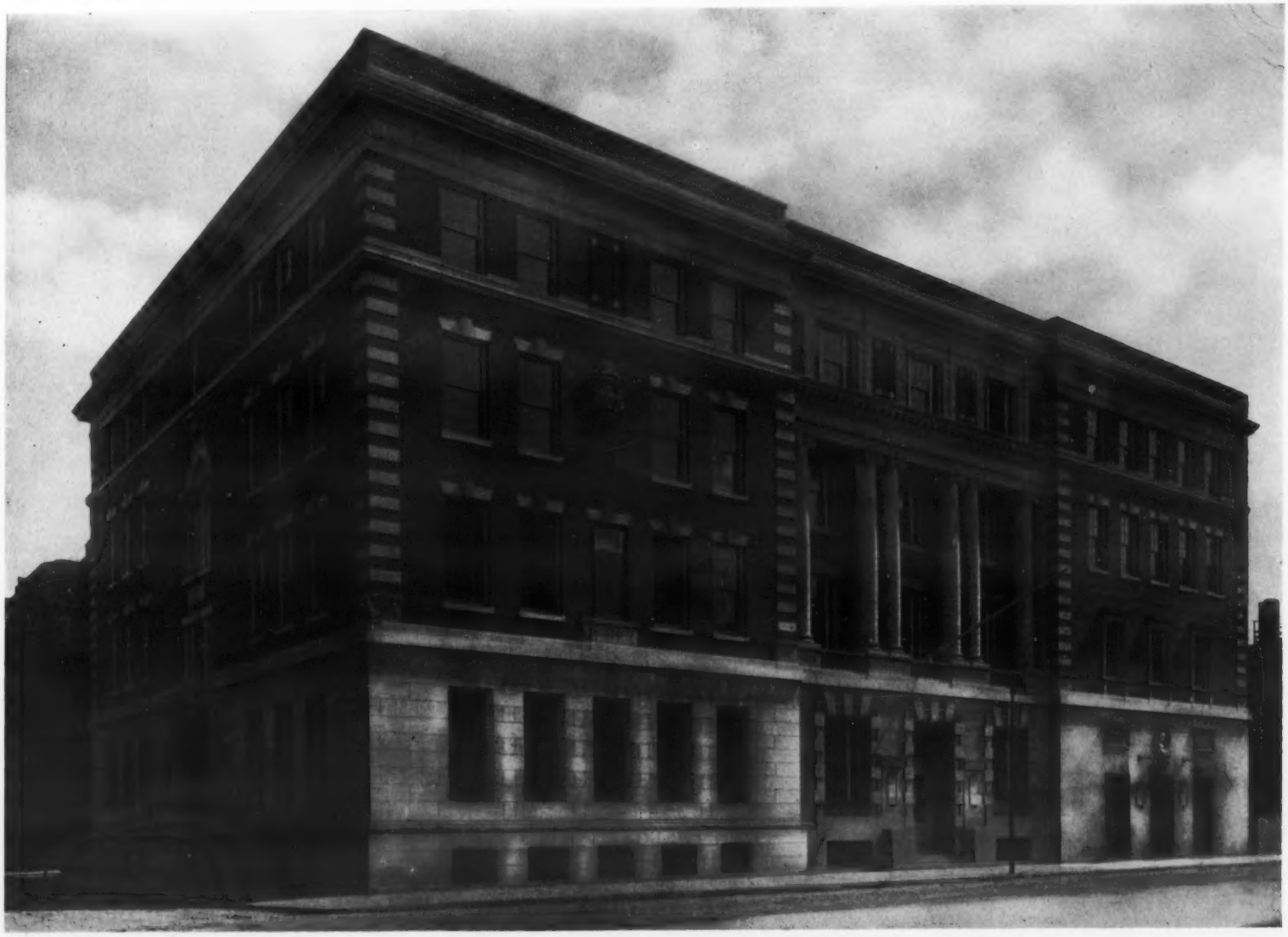
MR. R. CLIPSTON STURGIS, *ARCHITECT*





WINSOR SCHOOL, LONGWOOD, MASS.

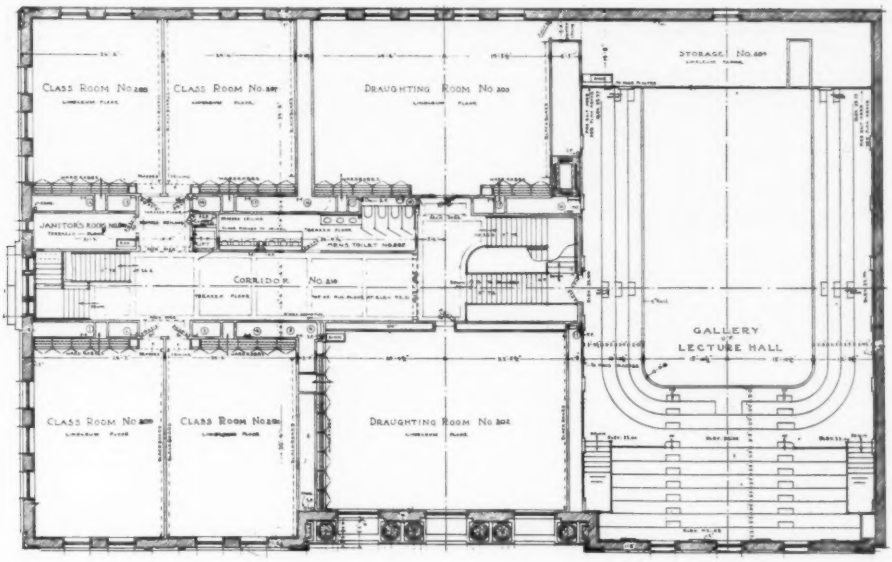
MR. R. CLIPSTON STURGIS, *ARCHITECT*



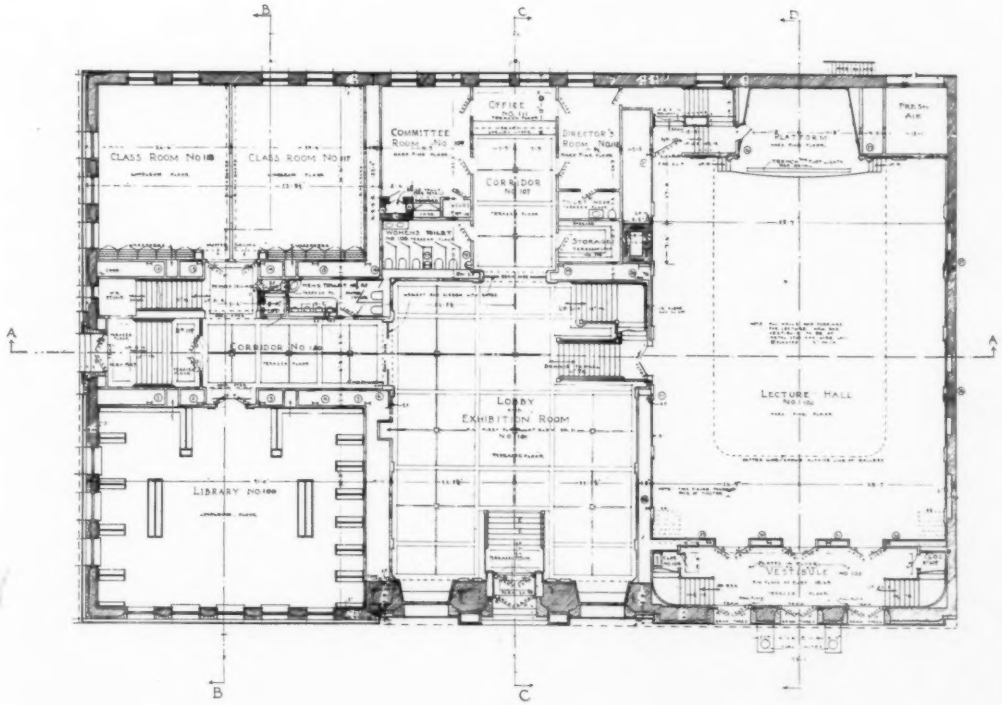
FRANKLIN UNION SCHOOL, BOSTON, MASS.

MR. R. CLIPSTON STURGIS, *ARCHITECT*

(This school building cost 24 cents per cubic foot)



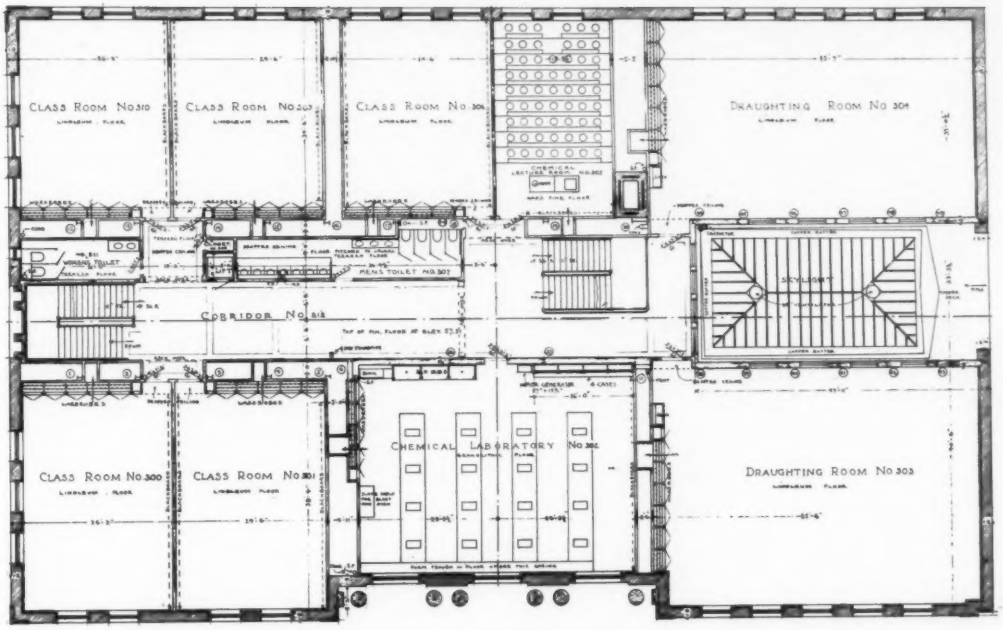
SECOND FLOOR PLAN



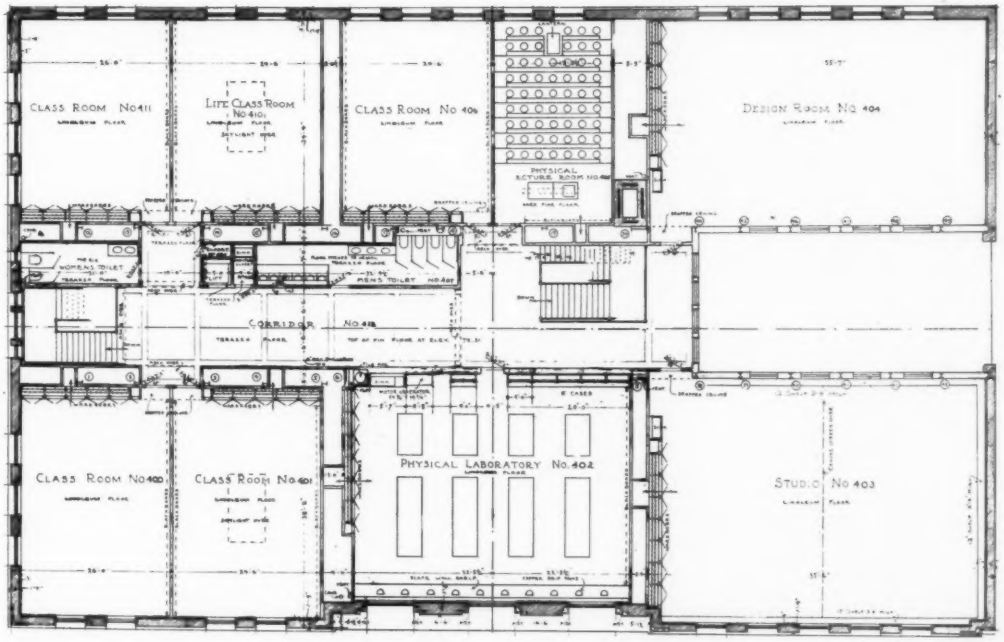
FIRST FLOOR PLAN

FRANKLIN UNION SCHOOL, BOSTON, MASS.

MR. R. CLIPSTON STURGIS, *ARCHITECT*



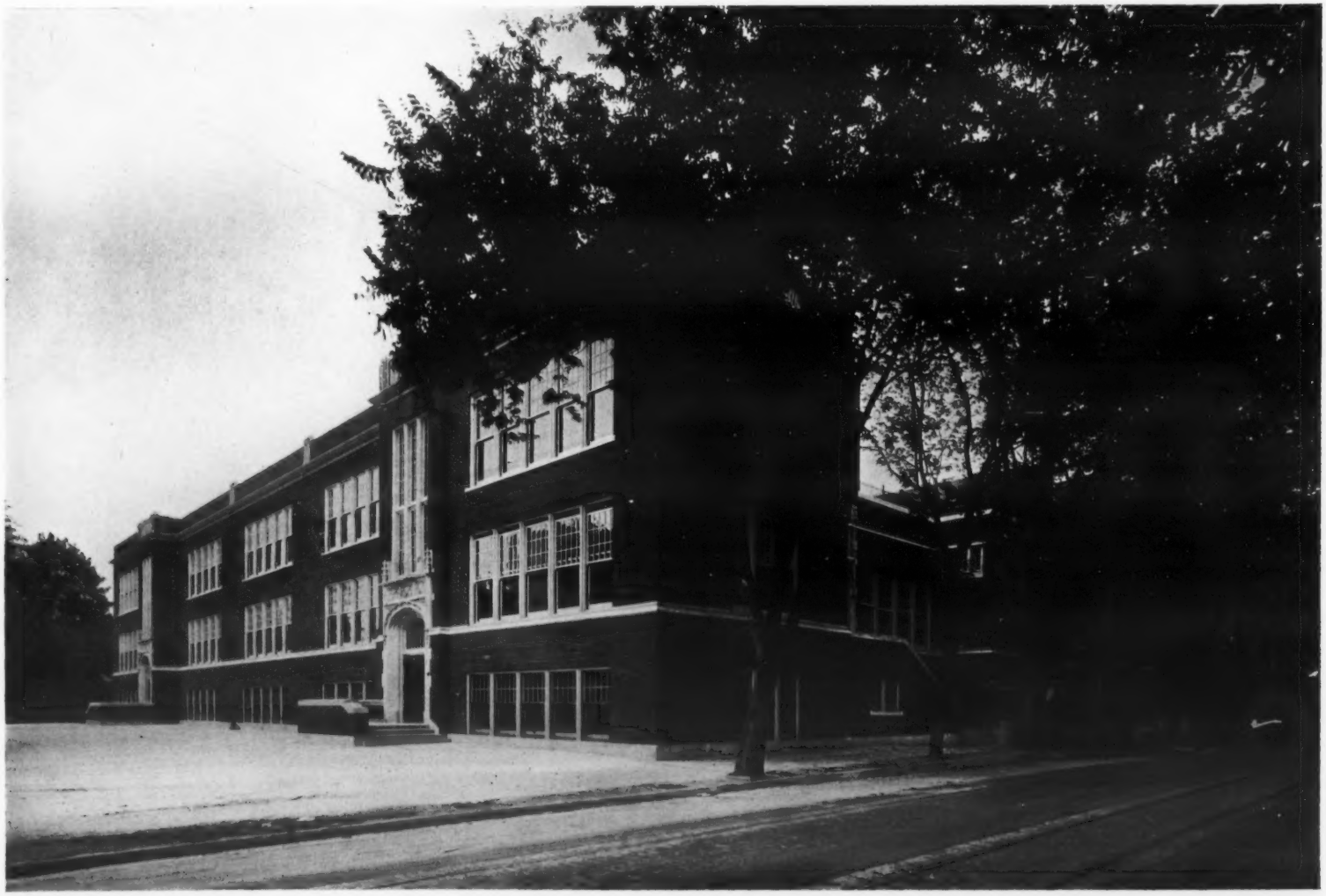
THIRD FLOOR PLAN



FOURTH FLOOR PLAN

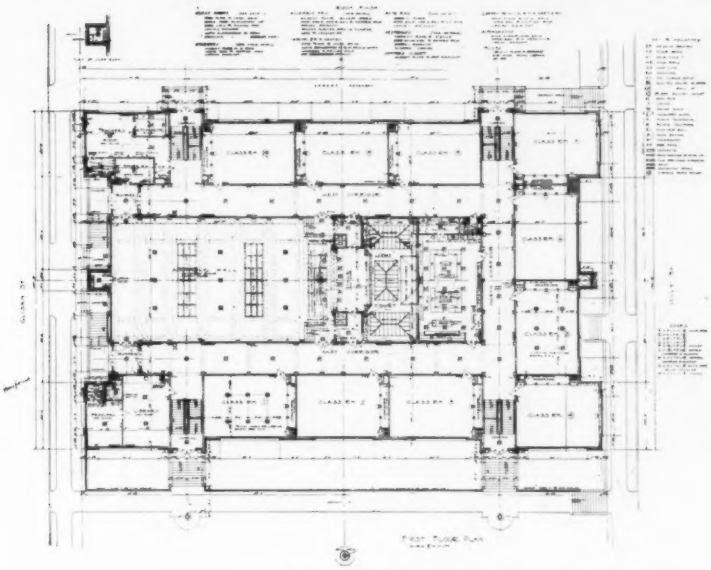
FRANKLIN UNION SCHOOL, BOSTON, MASS.

MR. R. CLIPSTON STURGIS, *ARCHITECT*

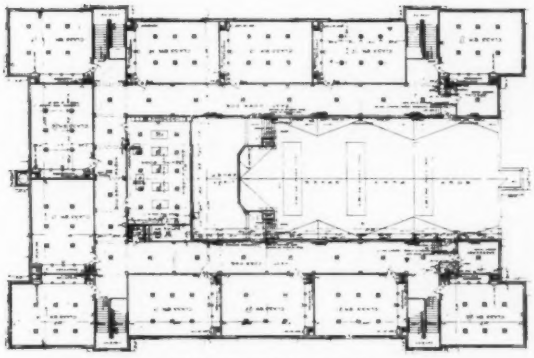


COUCH ELEMENTARY SCHOOL, PORTLAND, ORE.

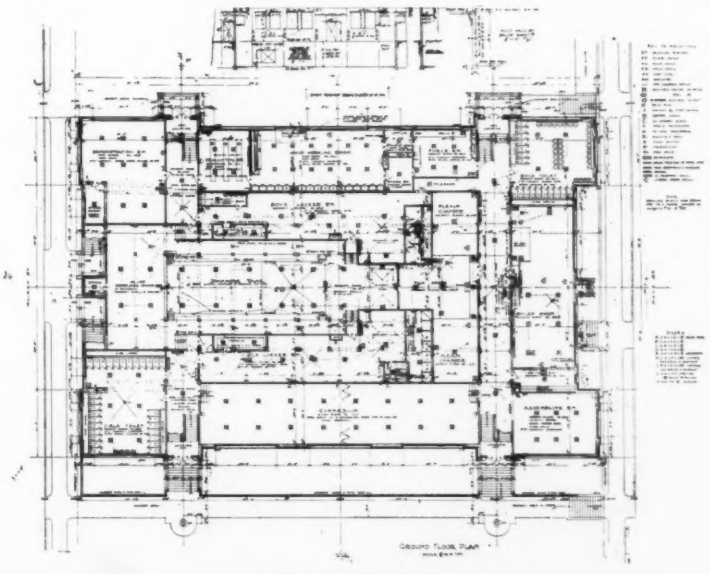
MR. F. A. NARAMORE, *SUPERINTENDENT OF PROPERTIES*



FIRST FLOOR PLAN



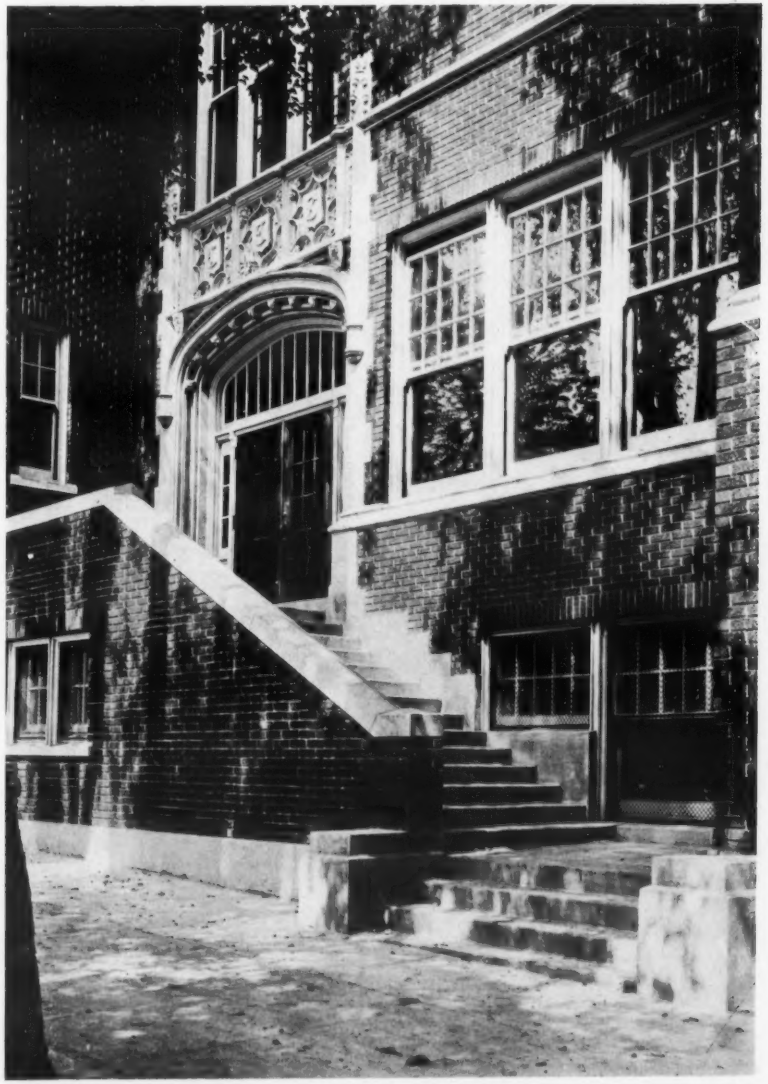
SECOND FLOOR PLAN



GROUND FLOOR PLAN

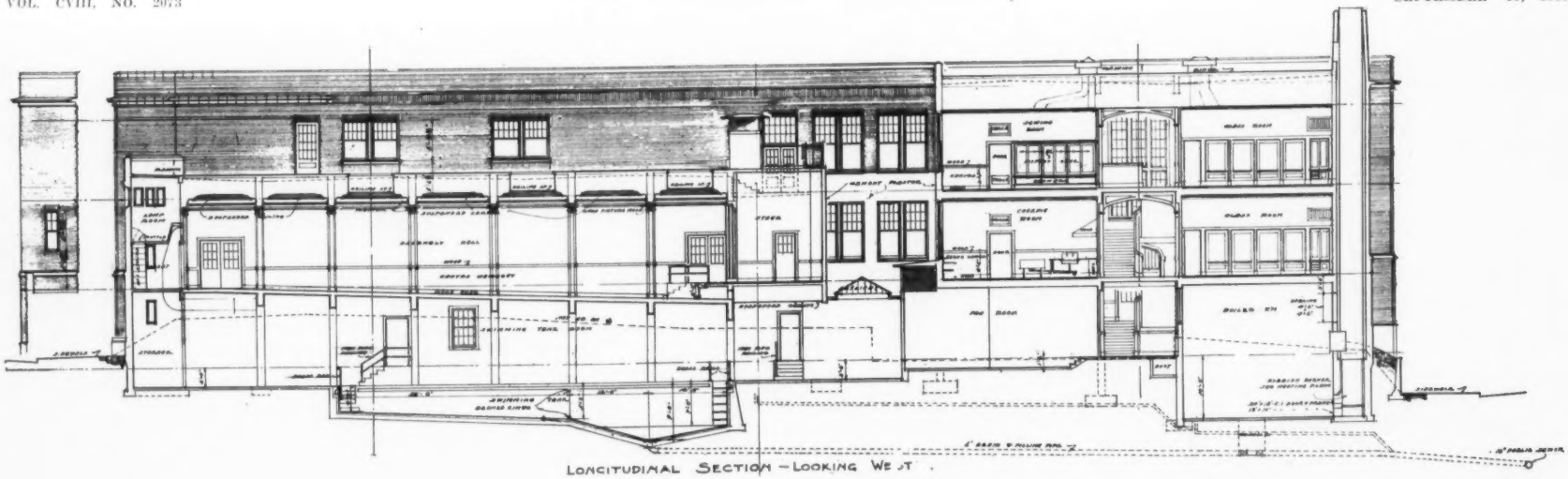
COUCH ELEMENTARY SCHOOL, PORTLAND, ORE.

MR. F. A. NARAMORE, *ARCHITECT AND SUPERINTENDENT OF PROPERTIES*

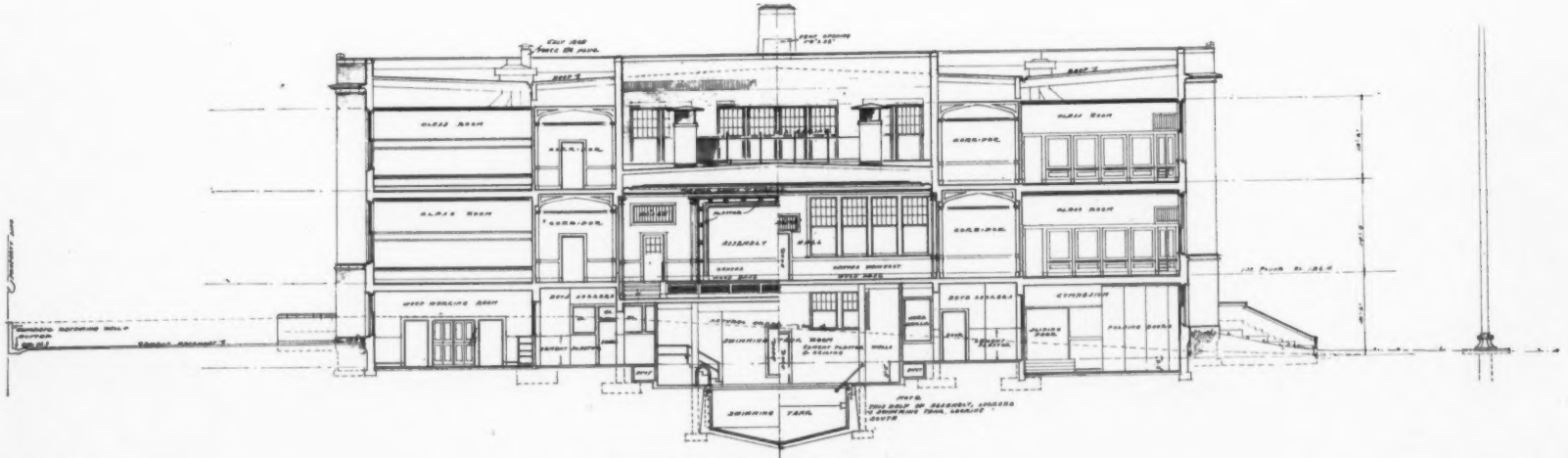


COUCH ELEMENTARY SCHOOL, PORTLAND, ORE.

MR. F. A. NARAMORE, *ARCHITECT AND SUPERINTENDENT OF PROPERTIES*



LONGITUDINAL SECTION — LOOKING WEST



TRANSVERSE SECTION — LOOKING NORTH

SCALE 1/8" = 1'0"

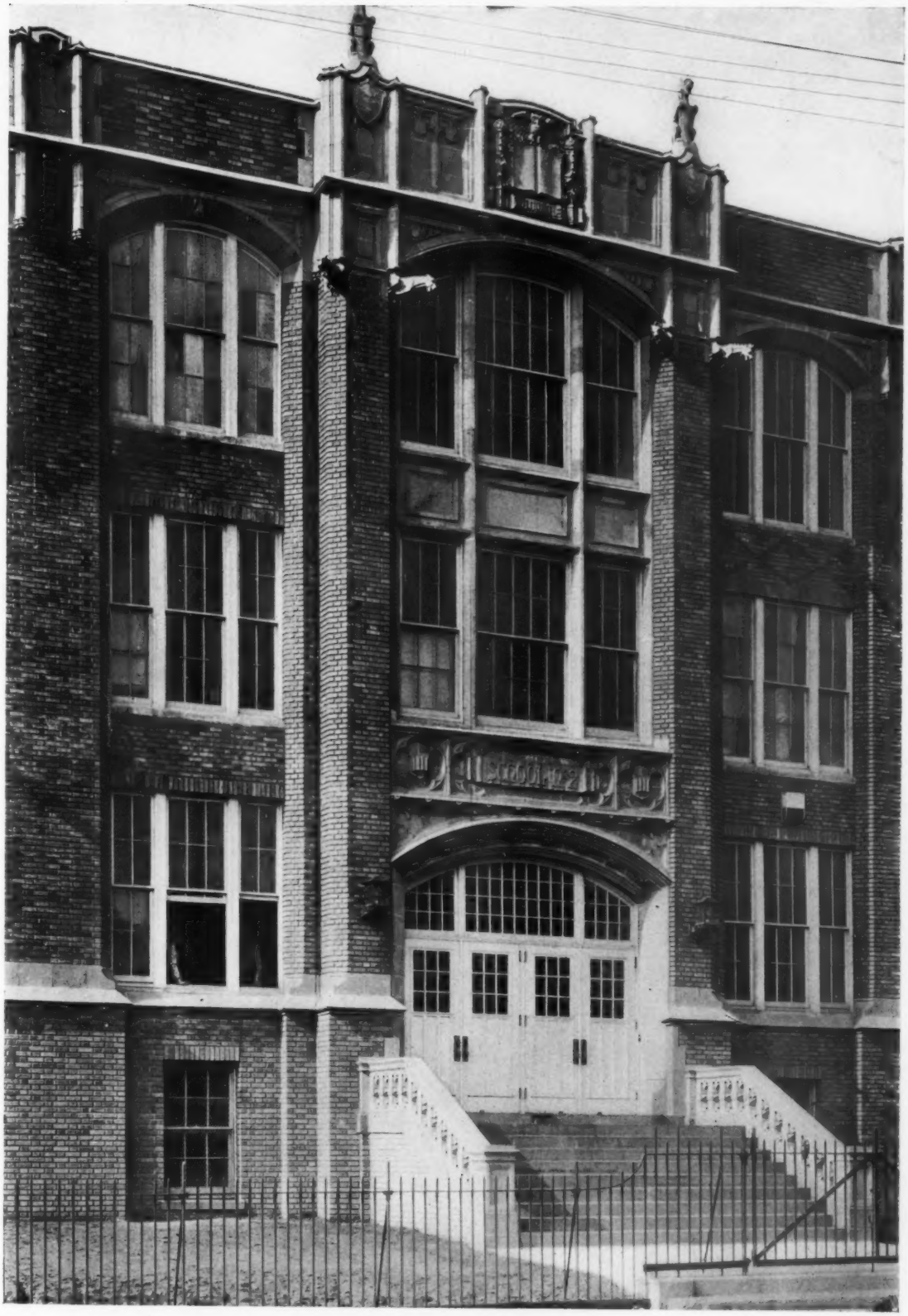
COUCH ELEMENTARY SCHOOL, PORTLAND, ORE.

MR. F. A. NARAMORE, *ARCHITECT AND SUPERINTENDENT OF PROPERTIES*

PUBLIC SCHOOL NO. 2, BAYONNE, N. J.

MESSRS. GUILBERT & BETELLE, *ARCHITECTS*

(This school building cost 18½ cents per cubic foot)



PUBLIC SCHOOL NO. 2, BAYONNE, N. J.

MESSRS. GUILBERT & BETELLE, *ARCHITECTS*

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VOL. CVIII SEPTEMBER 15, 1915 No. 2073

THE HIGH ORDER OF PROFESSIONAL ABILITY REQUIRED OF THE DESIGNER OF SCHOOL BUILDINGS

IT will doubtless become obvious from a study of the various examples of modern school buildings illustrated in this issue, that the complex features of modern educational methods demand buildings, including accessories and equipment, that tax to the utmost the ability of even the leaders in the profession. Here, in fact, is where architects are afforded an opportunity to demonstrate their abilities, that is probably surpassed in no other phase or department of practice. Heating, ventilation, lighting, humidification, and the many sanitary features now insistently a part of every school building (each in itself a specialized study) must be fully mastered by the practitioner, at least as regards general conditions and requirements, if not in actual detail. All this is apart from and in addition to the artistic skill as a designer which he must now possess to a high degree in order to be regarded as a successful school architect. Moreover, in his practice as an architect of school buildings, the designer must ever keep before him, as a first essential, the requirement of comparatively low cost. In a word, a modern school building of the highest type is one of intensely practical character, possessing at the same time artistic merit of no mean order.

It is believed that a number of examples conforming to the foregoing definition are presented herewith.

THE VALUE OF GOOD ARCHITECTURE AS AN EDUCATIONAL FACTOR

IT may probably be truthfully stated that the day when the value of good architecture in public buildings is thoroughly realized by a large majority of the citizens of this country is at hand, and that to deny this fact or minimize its importance is to identify oneself with that class of "small Americans" in whose diminishing numbers ex-President Taft sees cause for genuine national satisfaction. The influence of McKim and his associates, coming at a time when the national administration was, in the opinion of many, more amenable to artistic influences than is the present one, gave an impetus to the beautifying of our public buildings that still continues to be potent. Mr. Taft refers to the fact that "we now seem to have come under the influence of men like McKim, St. Gaudens, Olmstead and other leaders among American architects" and rejoices that "we have returned to better days." He sees in the development of public buildings an educational effect that will inculcate a love of the beautiful. The result will make for the happiness of all.

While this is true of all public buildings, it is particularly so of those devoted to educational uses. The intimate and close association of the student with structures and surroundings planned in good taste must inevitably produce an effect upon the young mind, and thus become a part of the education sought in schools. That school buildings merit all the attention that is now being directed toward them cannot be intelligently questioned; no other class of structures are more nearly connected with the progress of the nation, and no effort can be spent to better advantage than that which is focussed upon the school and the college, including the structures designed to house them.

"I was much interested," Mr. Taft continues, "during a recent visit to the University of Virginia to note the effect of good

architecture upon the student body. Everything on the grounds conforms to the original plan of Jefferson, except one building, constructed soon after the Civil War, according to the inartistic plans of the donor. That structure, although a large one and useful because of the space it affords, is an eyesore to every student who breathes in the catholic and cultivated spirit of Jefferson in his daily life, and they long for the day when they can dispense with it. The students' attitude shows the educational effect of good architecture upon those who live with it."

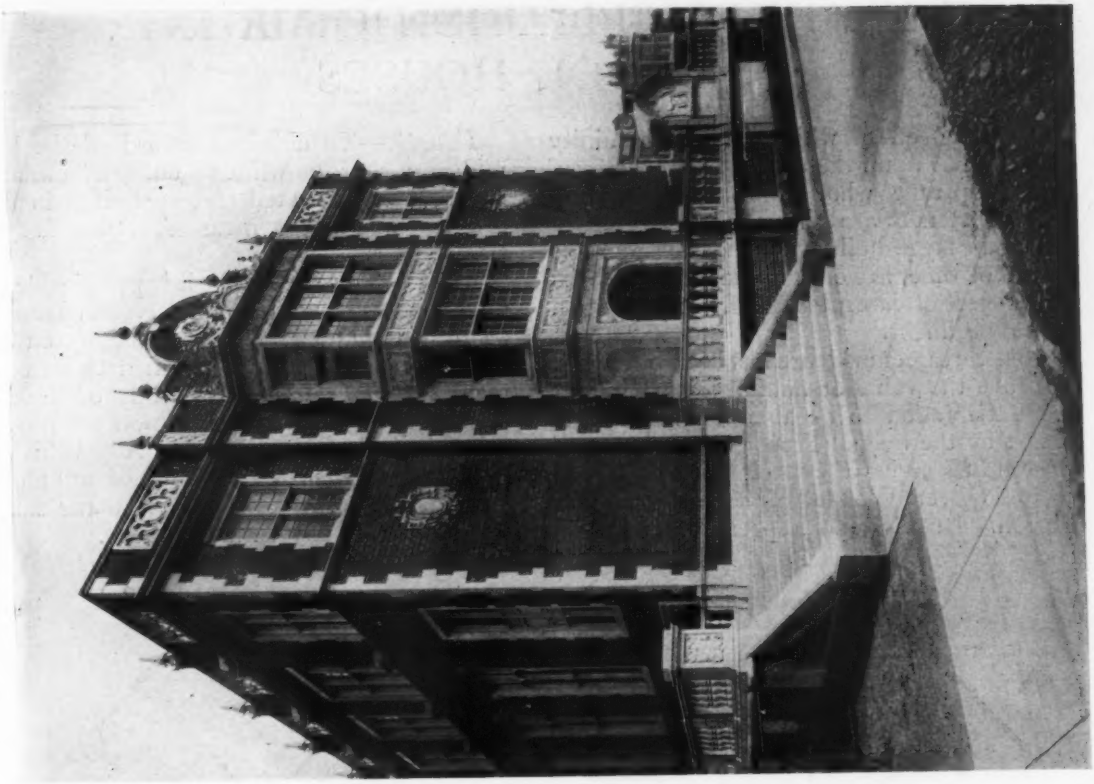
These words come not from a visionary or idealist, but from one who has had ample opportunity to study the practical and material value of good architecture upon the nation. The weight and force they carry is unquestioned. Their significance is a special one. Approaching the subject from an entirely different point of view, the conclusions Mr. Taft draws are thus seen to be the same as those outlined for many years past by the leaders of architectural thought. Education in the highest sense demands more than well-planned and well-constructed schools; it demands buildings that are architecturally correct and therefore æsthetically satisfying.

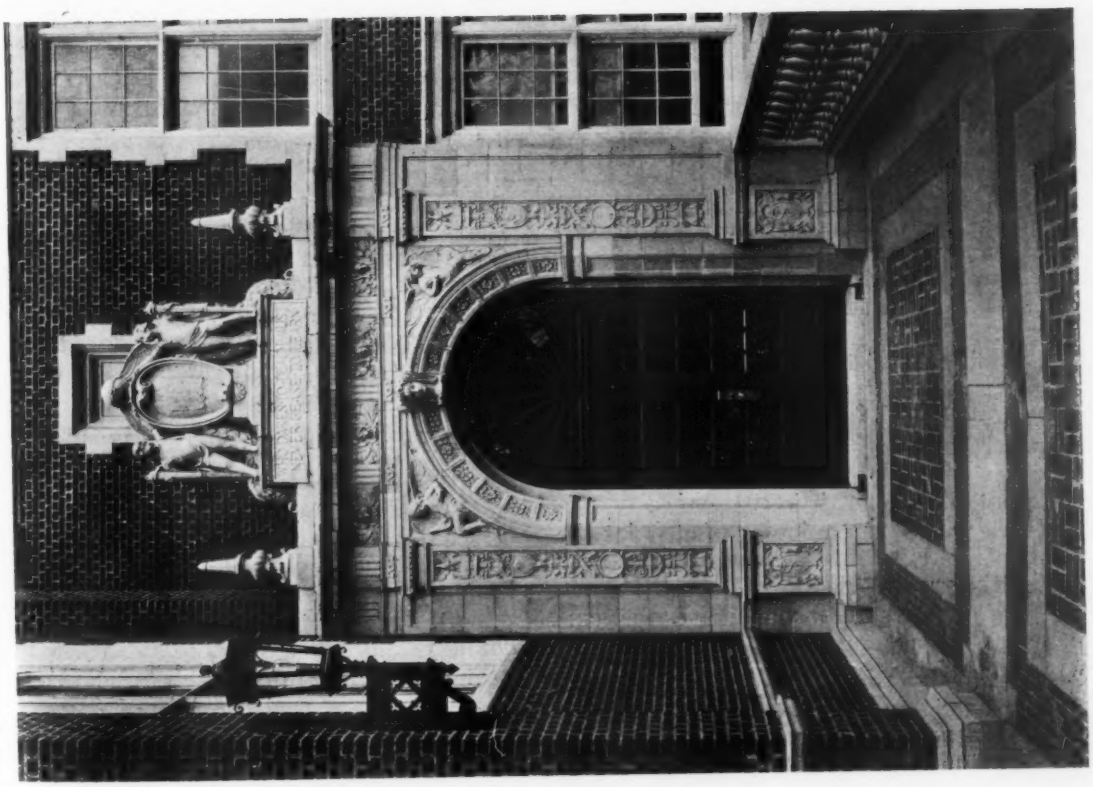
OPPORTUNITIES OFFERED THE ARCHITECTURAL STUDENT IN IRELAND

THE eighteenth century architecture of Ireland can scarcely be called a true expression of national taste The majority of its designers were either Englishmen, who crossed to Ireland for the express purpose of transplanting the art of the Georges', or native artists whose training had consisted almost entirely of work in which use was made of English forms.

But despite the fact that Irish art of this period is largely hybrid, it provides in many ways a most prolific field for study. Dublin contains a wealth of Georgian residences, the majority of which have now passed from the possession of the original owners, and while they retain little of their one-time splendor, it is stated that more than three hundred houses of this period presenting many features of artistic interest are still to be found in and about the city.

American students and traveling architects are, as a rule, accustomed to ignore Ireland as a field for study, and even English architects, in spite of their proximity, generally know little or nothing concerning these fine old Hibernian mansions. The special interest that is now being shown in work of this period, however, will probably draw attention to Dublin as well as the rest of Ireland, and the attention is well merited; for although built by either Englishmen or Anglicized Celts, this work is not merely a transplantation of the English architecture of the period. It exhibits, on the other hand, considerable individuality, and in many instances shows unmistakable features of French or Dutch influence. It is believed that these adaptations of the Georgian period will eventually find a place in professional literature. The recent publications of the Georgian Society of Dublin form a notable beginning.





STATE NORMAL SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

THE HUMIDIFICATION OF AIR IN SCHOOL HOUSES

THE effect which relative humidity has upon the comfort and health of people who, by force of circumstances are compelled to gather together in large buildings for a considerable length of time, has only in recent years been the subject of careful scientific investigation and experiment.

So little direct evidence has been published to prove the value of humidification that it is a satisfaction to be able to avail of the report by the School House Department of Boston of a series of experiments conducted at the Oliver Wendell Holmes School in Boston. In this report specific data is furnished upon which some measure of certainty may be built, and the value of such a research over the academic or theoretical discussion of the subject of humidity is apparent.

The objects of the experiments were as follows:

First.—To find whether the mental and physical conditions of the occupants of a school are improved by increasing the relative humidity of the air in the rooms.

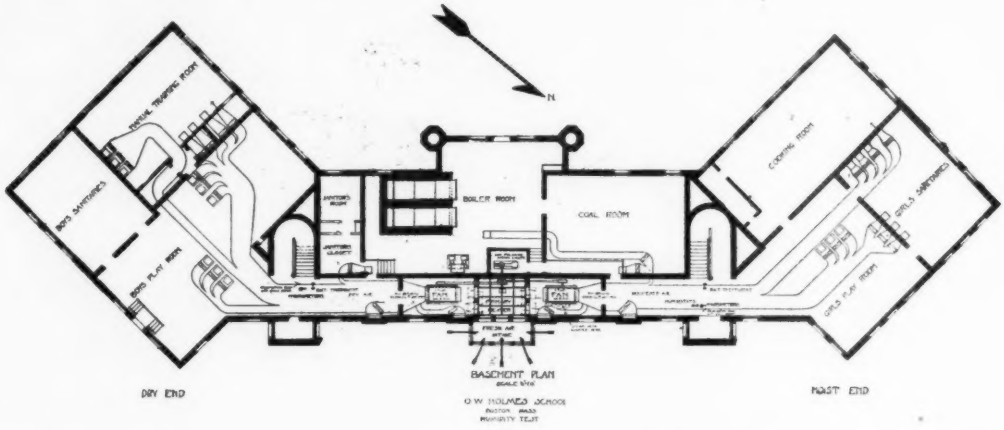
Second.—To determine at what point the relative humidity should be maintained, to ensure the greatest degree of comfort.

Third.—To find how much lower the temperature may be comfortably maintained when the relative humidity is increased.

Fourth.—To obtain a record of the humidity during the winter months of a school building when heated and ventilated in the ordinary manner, by means of a plenum system.

Fifth.—To see whether it is practicable to moisten the air by means of a system jet and keep the humidity within reasonable control.

At the outset it was assumed to be correct that any comparative study of the effects of increased humidity upon the physical and mental conditions was only valuable when made upon children who live and move in the same walks of life, attend the same school and occupy similar grades.



The school selected for the test contains twenty-four class rooms besides a manual training room and cooking room, and has a capacity of 1,000 pupils.

The second floor plan reproduced herewith very clearly shows the shape of the building, which in its construction is of the most modern type. The arrangement of the heating and ventilating apparatus is shown on the basement plan.

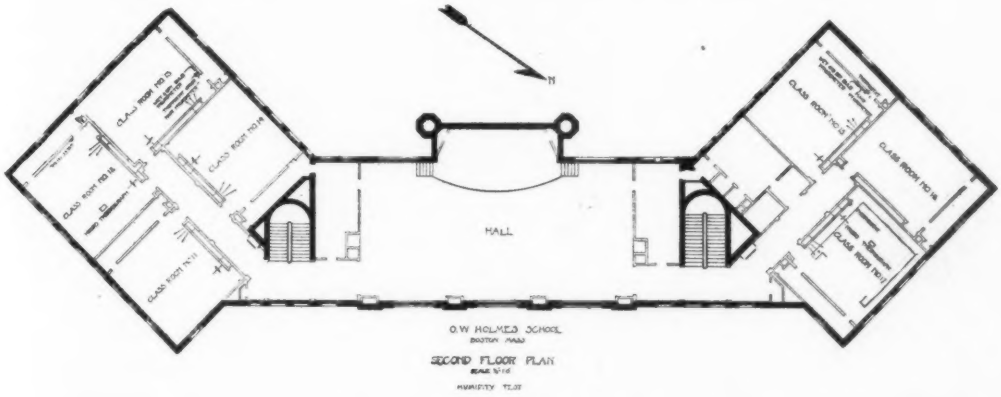
The method employed and the results obtained are best set forth in the report of the Boston School House Department, which is in part as follows:

Before beginning the experiments, all the dampers and deflectors were so adjusted as to furnish an air supply to each room on the

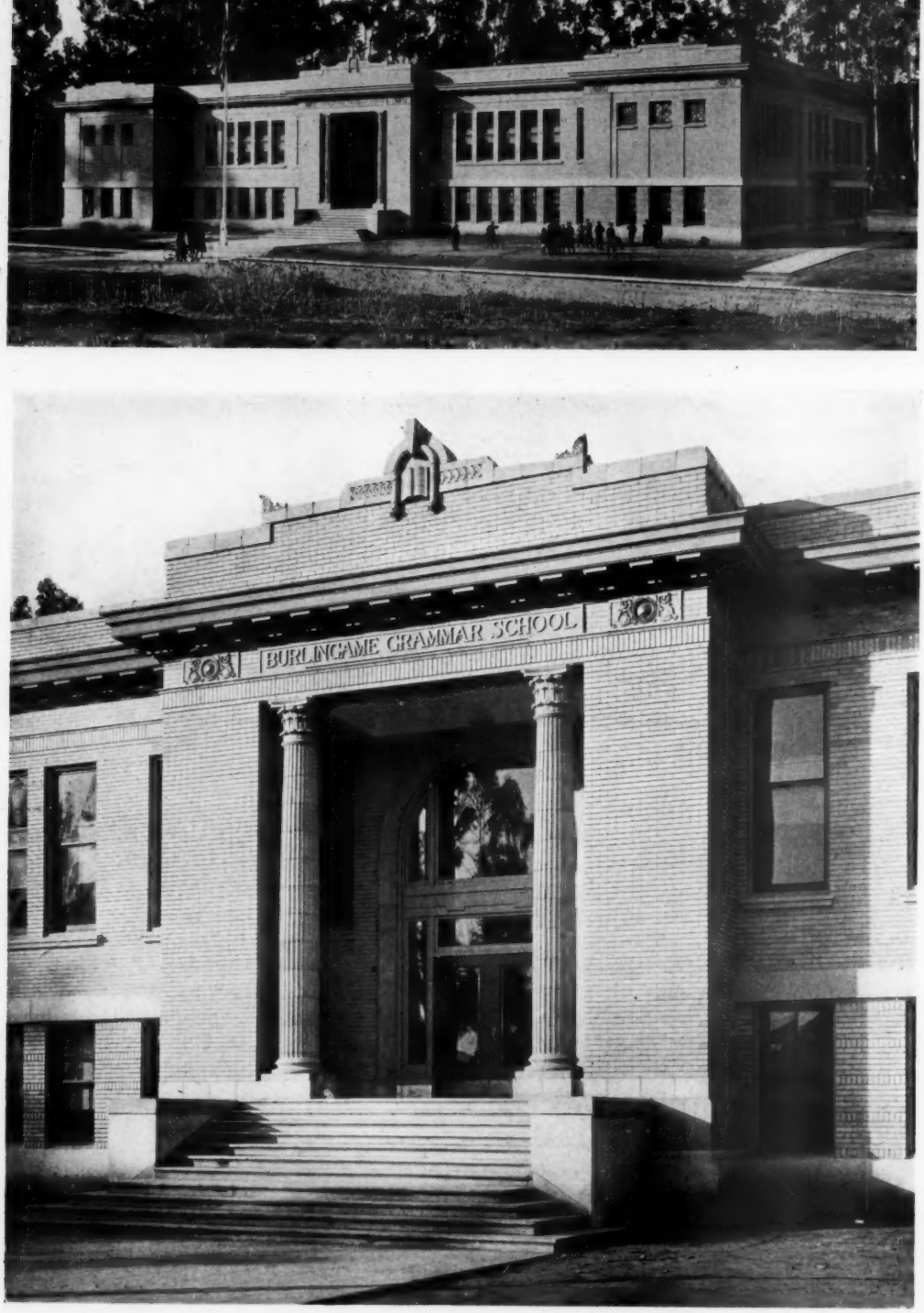
basis of 30 cubic feet per minute per occupant.

The relative humidity of the air supply to the north end of the building was raised by introducing moisture in the form of steam, while that of the south end remained in its natural state. Separate readings were taken of the humidity and temperature of the air in the duct and of the classrooms of each half of the building. The children of similar grades on the moist and dry side were subjected to similar mental tests, and a record was kept of both the physical condition and the percentage of attendance.

Owing to lack of space an air washer could not be installed in connection with the existing apparatus without making too many structural changes, and the steam jet was found to be the only moistening device which could be economically applied. The sketch, page 183, shows the essential details. Six 1¼-inch pipes spaced an equal distance apart were suspended in front of the inlet of one of the fans. A single row of holes 1/16 inch in diameter and 1 inch apart were drilled in each of the two outer pipes, the others having two rows similarly placed. The pipes were connected up in two groups in such a way as to equalize the flow of steam as nearly as possible. The supply pipe was connected to the main steam drum, taking steam at boiler pressure. This was partially throttled by a valve near the boilers, further reduction being made, as the occasion required, by the globe valve in the branch supply to each group of perforated pipes. The volume of steam issuing from the openings was regulated by a diaphragm valve operated by compressed air taken from the automatic temperature control system and controlled by a humidostat placed in the main warm-air duct. The exact location is shown on the basement plan. In order to prevent flooding of steam in case of failure of the air pressure, a reverse acting diaphragm valve was also installed. This valve was normally closed by means of a spring and opened when the proper air pressure was maintained on the system. A three-way cock placed in the air piping to the diaphragm top of the valve permitted its operation by hand. The apparatus could thus be easily started and stopped by manipulating the cock. The water of condensation which always formed when the apparatus was first turned on, and which would slowly collect during use, was drawn off through a lever-handle air cock at the bottom of each pipe and caught in the drip pan underneath.



Humidostats of three different makes were connected up to the air piping, shut-off cocks being installed to cut out any two of them as desired. The action of the instrument is somewhat similar to the thermostat and depends upon the change in shape of a piece of cross-grained hard wood, due to presence or absence of moisture. Two of them had a graduated action causing the control valve to slowly turn on or off the steam. The other was of the positive type and its effect upon the movement of the valve disc was very much like that of a positive thermostat upon a set of mixing dampers, viz., either completely opened or closed, there being no midway position. There was either a full flow of steam or none, and the results were far from satisfactory. One of the other instruments, having a graduated



BURLINGAME, CALIFORNIA, GRAMMAR SCHOOL

MR. W. H. WEEKS, *ARCHITECT*

action, gave excellent satisfaction, the curtain of vapor in front of the fan inlet being very uniform and changing gradually with the varying demand for moisture.

Before beginning the experiments the water was drawn off completely from both the boilers, the piping was thoroughly blown off and fresh water introduced to prevent as far as possible any odor due to oil or foreign matter. Notwithstanding this, a slight odor, somewhat objectionable, was noticeable on first entering the classroom when the relative humidity was over 55 per cent.

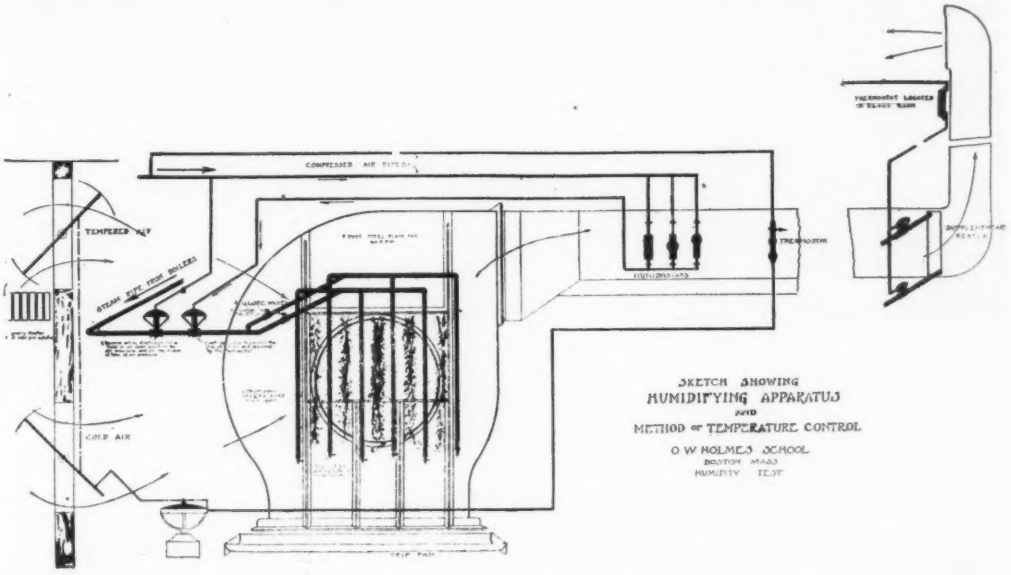
In the basement fresh-air duct on each side of the building there were placed wet and dry bulb thermometers of a pattern similar to those in use by the Weather Bureau of the United States Government, and also a hair hygrometer. A tight-fitting glass door of ample size permitted the instrument to be read from the outside of each duct, eliminating as far as possible any exterior influences. The hair hygrometer was set daily to correspond to the readings obtained from the wet and dry bulb thermometers. This instrument was installed particularly for use by the janitor, as it indicated directly the humidity in per cent. and enabled him to determine whether the apparatus was working properly.

In two rooms on the second floor, located respectively on the dry and moist ends, were placed recording hygrothermographs from which complete autographic records were obtained of the temperature and relative humidity, the charts being replaced weekly.

The rooms were alike in respect to outside wall and glass area, and as they had no direct sunlight during the day it was not necessary to take into account the effect of the sun's rays upon the readings.

On the third floor, in two rooms, wet and dry bulb thermometers were placed similar to those described above. They were located on an inside wall near the inner corner of the room and at about the height of the hygrothermographs.

For tables of average readings see end of this article.

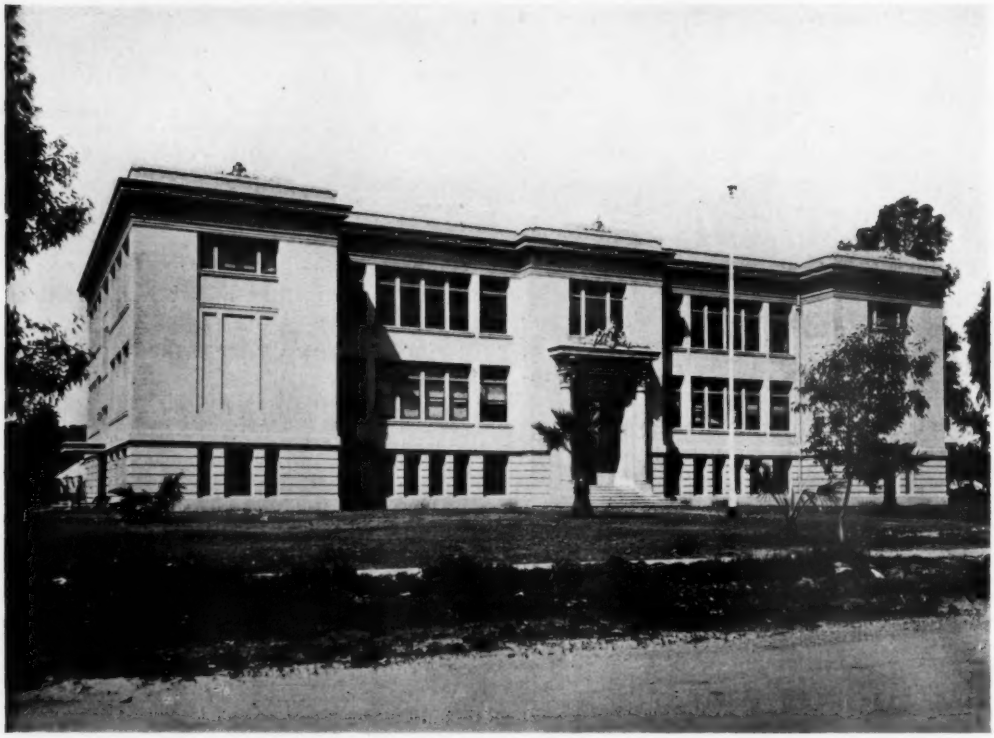


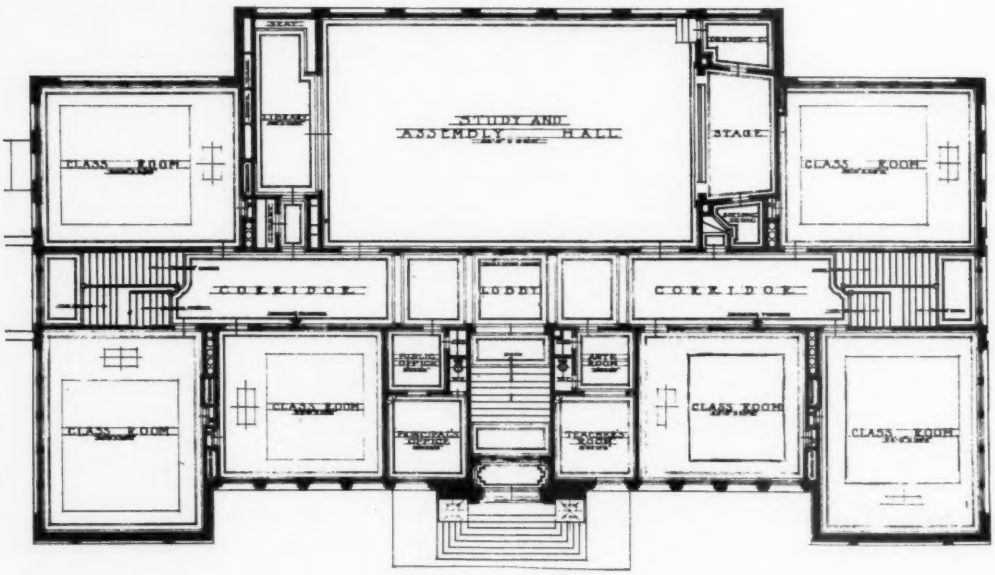
The average results of the experiments may be summed up as follows:

(*a.*) With the outside temperature ranging from 0 degrees to 10 degrees above, precipitation was observed on the windows in the moist end of the building when the humidity was 40 per cent. and over. The teachers were inclined at the outset to raise some objections, but became accustomed to the conditions after a short time.

(*b.*) In the room on the north end of the building it was quite apparent that there was less body odor, so called, than on the dry end.

(*c.*) An increase in temperature of from 4 to 5 degrees was far more apparent on the moist side than on the dry.





HIGH SCHOOL, WILLOWS, CALIFORNIA

MR. W. H. WEEKS, *ARCHITECT*

(*d.*) Complaint was raised when the apparatus was first turned on each morning, of a very close and oppressive feeling in the rooms, and also an objectionable odor. Upon investigation it was found that the humidostat did not at once act upon the control device, and too much steam was introduced into the air, thereby raising the humidity far above the proper point. By checking the flow at the beginning this was almost entirely overcome.

Originally the room thermostats were mounted directly upon the slate blackboard, causing a decided overheating of the rooms Monday mornings, due to influence of cold walls upon the thermostats. This trouble was overcome to a certain extent by mounting the thermostats upon wood backs, thus insulating the metal from the blackboard.

On Sunday afternoon the apparatus was started up with a corresponding rise in temperature, and the quick recovery on Monday morning showed that a sufficient amount of radiation had been provided to bring up the temperature of the air in the room. It is, of course, evident that a greater time must elapse before the walls, floors, ceilings and furniture become heated to the same degree. The teachers and pupils of this particular school have complained repeatedly of the discomfort arising from the cold floors and furniture on Monday. The remedy is to be found in disciplining the janitor, and there was a marked improvement each morning when the autographic evidence was submitted to the proper authorities. The moral effects of a recording pressure gauge and a recording thermometer are invaluable in maintaining proper operation of heating plants.

(*e.*) While the heating apparatus in the average school may perhaps be operated a greater number of hours in the week than the one under discussion, nevertheless an ample factor of safety ought always to be used in figuring radiating surface to allow for quick heating in the morning.

The results obtained when humidifying the air by means of a steam jet lead us to the following conclusions:

First.—To secure the greatest comfort, the relative humidity should not exceed 55 per cent.; somewhere between 45 and 50 per cent. is probably the best range.

Second.—With the humidity at 55 per cent. the temperature of the room should never rise above 65 degrees Fahrenheit. A temperature of from 61 degrees to 62 degrees will give better results.

Third.—Moistening the air up to 40 per cent. or above should never be attempted unless both the heating system and the humidifying apparatus can be kept under close control. With a room temperature of from 70 to 75 degrees, and a relative humidity of 50 per cent., there is a very pronounced feeling of oppression and physical discomfort, as well as a perceptible odor which is disagreeable.

If the heating apparatus does not have automatic temperature control, the regulation being in the hands of the teacher or janitor, there will be many times when it will rise above 70 degrees. Under such conditions it is not wise to increase the humidity of the air much over 35 per cent., and we should be inclined to omit it altogether.

No system of air moistening will prove successful unless both the temperature and the humidity are under close and accurate control. A jet of steam blown into the incoming air without some forms of close regulation is at best a very crude affair. While the introduction of steam in moderate quantities may seem to the average layman to meet all of the requirements, it is of doubtful value, and when delivered in large amounts is liable to produce great discomfort.

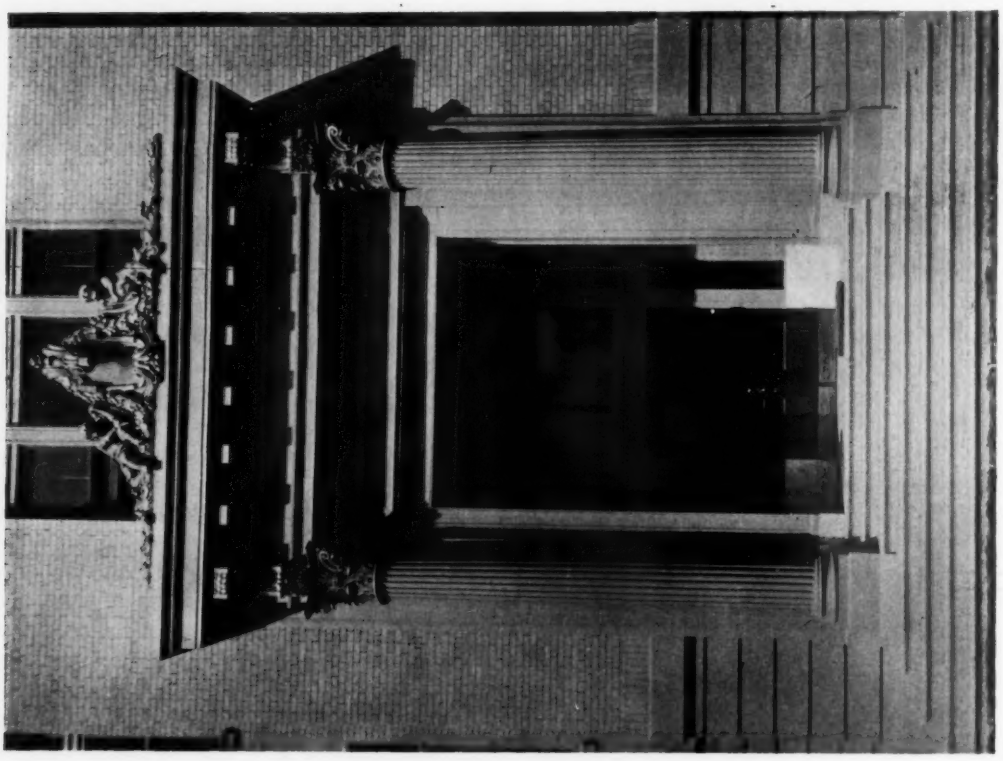
Doctor Harrington submitted the following reports of the effect of increased humidity upon the mental and physical conditions of the pupils:

First.—On the basis of similar mental tests conducted upon pupils occupying similar grades on both the moist and dry sides of the building no appreciable difference was found.

Second.—The three rooms on the moist side had a percentage of attendance of 100. The percentage of attendance of all teachers on the moist side was 100; on the dry side the percentage of attendance of pupils was 97.

The tables of average readings for three months, showing the various conditions of temperature and humidity, will be found on the second page following.

MAIN ENTRANCE AND FLOOR PLANS



HIGH SCHOOL, WILLOWS, CALIFORNIA

MR. W. H. WEEKS, *ARCHITECT*

The Humidification of Air in School Houses, continued from page 185

AVERAGE READINGS FOR JANUARY, FEBRUARY AND MARCH

Temperature and Humidity in Fresh-Air Duct.

	Moist End			Dry End		
	Dry Bulb	Wet Bulb	Relative Humidity, Per Cent.	Dry Bulb	Wet Bulb	Relative Humidity, Per Cent
January	68.2 F	56.1 F	46	67.7 F	49.1 F	21.2
February	66.1 F	54.1 F	44.3	67.5 F	49.9 F	24.4
March	65.1 F	55.2 F	52 6	66.3 F	52.8 F	34.8

Temperature and Humidity in Classrooms 12 and 17 from Hygrothermographic Charts.

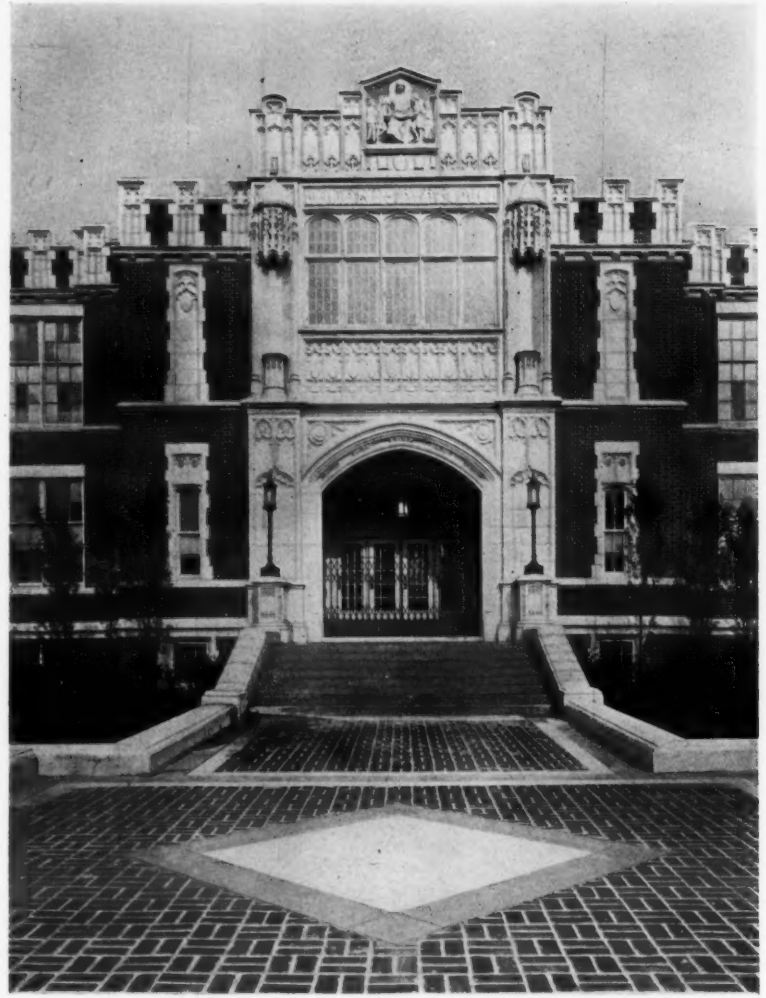
	Room 17, Moist End		Room, 12, Dry End	
	Temperature	Relative Humidity	Temperature	Relative Humidity
January	62.2 F	50.1 per cent	69.4 F	34.3 per cent
February	65.0 F	41.2 per cent	68.4 F	23.6 per cent
March	65.1 F	47.3 per cent	68.1 F	32.2 per cent

Temperature and Humidity in Classrooms 20 and 22 from Wet and Dry Bulb Thermometer.

	Room 22, Moist End.			Room 20, Dry End.		
	Dry Bulb.	Wet Bulb.	Relative Humidity, Per Cent.	Dry Bulb.	Wet Bulb.	Relative Humidity, Per Cent.
January	67.4 F	57.2 F	53.4	69.5 F	54.1 F	34.4
February	68.5 F	56.5 F	47.1	68.2 F	53.4 F	35.8
March	67.6 F	57.8 F	52.6	67.8 F	55.4 F	44.3

Outdoor Humidity.

	Outdoor Humidity.	
	Day Reading, 8 a. m.	Night Reading, 8 p. m.
January	71.3 per cent	63.5 Per cent
February	64.8 per cent	55.7 per cent
March	70.7 per cent	63.5 per cent



SOUTH SIDE HIGH SCHOOL, NEWARK, N. J.

RIDGE SCHOOL, NEWARK, N. J.

MAIN ENTRANCE DETAILS

MR. E. F. GUILBERT, *ARCHITECT*

AUDITORIUM

HORACE MANN SCHOOL, NEWARK, N. J.

MESSRS. GUILBERT & BETELLE, *ARCHITECTS*

CURRENT NEWS AND COMMENT

Art Associated with the Child

It is proposed to hold in New York City, late in November, an exhibition of Art Associated with the Child. It will be under the management of Mr. W. H. Nelson, editor of the *International Studio.*

A preliminary announcement indicates that this exhibition will be a large and extremely interesting one of a phase of art that has attracted the efforts of artists of all ages.

It is stated that Mrs. H. P. Whitney will send a nursery mantel, Mr. Carton Moorepark will exhibit the frieze executed by him for Lady Warwick's home, and Harrie P. Lindeberg, it is also announced, will co-operate with Mr. Moorepark in designing a special room for this frieze.

The co-operation of architects is solicited by those in charge by the submission of designs (plans and models) for playhouses, as well as playrooms.

The playhouse, a feature common to England, is little known in this country. A reason why this important feature for recreation of the child has not received more consideration is, perhaps, the mistaken idea that it is only possible to those of large means. Given a large and growing family of children, the playhouse is probably the safest and best provision that can be made for their welfare and happiness, and the ordinary suburban site will be found to provide ample space for such a desirable feature.

The architectural features will be but a part of this exhibition. The work of the painter and sculptor will also be shown, while toys, furniture, books; in fact, all of the many things that enter into the life of the child will find space.

It is hoped that architects will show sufficient interest in this exhibition to contribute materially to its success.

Inquiries should be addressed to Mr. W. H. Nelson, No. 120 West Thirty-second street, New York.

First Saltus Prize Competition

The Museum of French Art announces that the Saltus Prize, of the value of $100, the interest of a fund created by Mr. J. Sanford Saltus, will be awarded annually as the result of a competition among students of painting, sculpture, architecture, music, or literature. The first competition will be in painting, open to all art students of an American university, college, or arts school, residents of the United States and under 25 years of age, who shall have made application to compete to the Executive Secretary of the Museum of French Art on or before August 1. The subject will be a decorative composition in oil, symbolical of the progress of the Fine Arts in France. All particulars can be learned from the Secretary of the Museum of French Art, 599 Fifth avenue, New York.

Charles T. Wills Dead

Charles T. Wills, banker, builder and contractor, widely known among architects in the East, died on September 1st at his home in Connecticut.

Personal

Mr. William H. Carr, architect, Winter Haven, Fla., desires to receive manufacturers' samples and catalogues.

AUDITORIUM

STATE NORMAL SCHOOL, NEWARK, N. J.

MR. E. F. GUILBERT, *ARCHITECT*

LIBRARY, HIGH SCHOOL, NEWARK, N. J.
MR. E. F. GUILBERT, *ARCHITECT*

INDUSTRIAL INFORMATION

Oswego Boilers

Bulletin No. 2, sixth edition of the Oswego Internally Fired Water Tube Boiler, has recently been published by A. D. Granger Company, 90 West street, New York City.

The advantages claimed for this boiler are as follows: Smallest space occupied per horse-power of any boiler built; Maximum fuel economy; safety; Very rapid steamer; Excellence of design; Superiority of construction; Facility for repairs; Ease of operation and cleaning. Tables giving dimensions, ratings, and other data for both high and low pressure boilers are included in this bulletin. A number of prominent buildings in which these boilers have been installed are shown, and much information of interest to architects is given.

Bulletin will be sent on application.

Handy Electric Wiring Devices

Catalogue No. 23, just issued by Pass & Seymour, Inc., Solvay, New York, is devoted to descriptions and illustrations of handy electrical wiring devices, including a great variety of Lamp sockets, outlets and receptacles, designed for every conceivable position and purpose. Prominent among these is shown a large scale cut of "Shurlok," the socket that locks. The prime object of the "Shurlok" socket is to prevent the theft of the lamp. This, it is stated, it will do, wherever used, and finds a wide range of application in hotels, apartments, factories, colleges, office buildings, institutions, etc. In addition to the prevention of theft, it is claimed that it accomplishes many other purposes, such as the following: Prevents guests from installing high wattage lamps, heating appliances, etc., in hotels, which tend

to overload the circuits. Prevents guests from using electric flatirons without the permission of the proprietor. In factories it insures that lamps over fire exits and dark stairways will not be removed and prevents employees from appropriating your lamps. Stops loss of lamps in public buildings, and reduces the number of damage suits on account of accidents in passage ways, etc., where lamps have been removed. In street cars, steamboats, and other conveyances, lamps frequently become loose, due to vibration. It is claimed that these lamps cannot become loosened by any accidental means.

Catalogue will be sent to anyone requesting it.

Greendale Rug Brick

The Hocking Valley Products Company, with general offices at Columbus, O., has recently issued a catalogue of its products, printed in colors, representing the various shades and textures of the brick supplied by this concern. Reproductions of panel and sections of the wall give a very accurate idea of the appearance of the different bricks, when laid up in position, and enable the architect to determine their effect as nearly as may be, without going to the trouble or expense of constructing actual sample panels. It would seem as though this catalogue, which may be had upon application, would be of more than usual value.

In addition to the colored reproductions, there are a number of half-tone cuts, presenting buildings of prominence throughout the country, in which these brick have been used. The printing, paper, binding and hence appearance of the catalogue are all much above the average.

AUDITORIUM, CENTRAL COMMERCIAL HIGH SCHOOL, NEWARK, N. J.
MR. E. F. GUILBERT, *ARCHITECT*