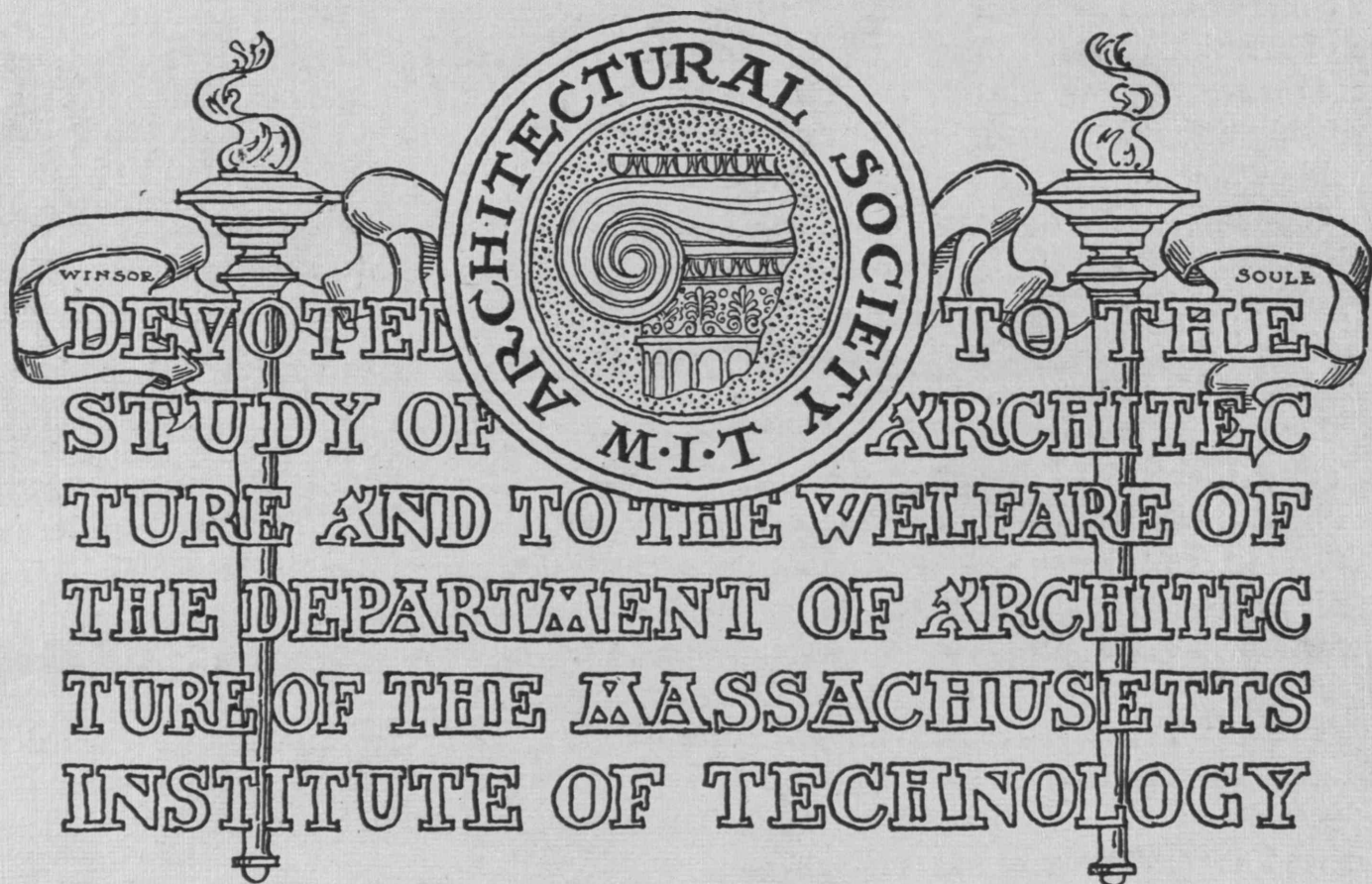


VOL. 1 · NO 1

MAY · 1907

THE TECHNOLOGY ARCHITECTURAL RECORD



PUBLISHED QUARTERLY BY THE
M.I.T. ARCHITECTURAL SOCIETY

THE
Massachusetts
Institute of Technology
BOSTON, MASS.

THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY aims to give thorough instruction in CIVIL, MECHANICAL, CHEMICAL, MINING, ELECTRICAL, and SANITARY ENGINEERING; in CHEMISTRY, ARCHITECTURE, PHYSICS, BIOLOGY, GEOLOGY, and NAVAL ARCHITECTURE. The Graduate School of Engineering Research, leading to the degree of Doctor of Engineering, and the Research Laboratory of Physical Chemistry offer unusual opportunities for advanced students.

To be admitted to the Institute, the applicant must have attained the age of seventeen years, and must pass examinations in Algebra, Plane and Solid Geometry, Physics, History of the United States (or Ancient History), English, French, and German. Preparation in some one of a series of elective subjects is also required. A division of these examinations between different examination periods is allowed. In general, a faithful student who has passed creditably through a good high school, having two years' study of French and German, should be able to pass the Institute examinations.

Graduates of colleges, and in general all applicants presenting certificates representing work done at other colleges, are excused from the usual entrance examinations and from any subjects already satisfactorily completed. Records of the College Entrance Examination Board, which holds examinations at many points throughout the country and in Europe, are also accepted for admission to the Institute.

Instruction is given by means of lectures and recitations, in connection with appropriate work in the laboratory, drawing-room, or field. To this end extensive laboratories of Chemistry, Physics, Biology, Mining, Mechanical Engineering, Applied Mechanics, and the Mechanic Arts have been thoroughly equipped, and unusual opportunities for field-work and for the examination of existing structures and industries have been secured. So far as is practicable, instruction is given personally to small sections rather than by lectures to large bodies of students.

The regular courses are of four years' duration, and lead to the degree of Bachelor of Science. In most courses the work may also be distributed over five years by students who prefer to do so. Special students are admitted to work for which they are qualified; and advanced degrees are given for resident study subsequent to graduation.

The tuition fee, not including breakage in the laboratories, is \$250 a year. In addition, \$30 to \$35 per year is required for books and drawing-materials.

For catalogues and information address

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491 Boylston Street, Boston.



ANNOUNCEMENT

THIS FIRST NUMBER OF THE TECHNOLOGY ARCHITECTURAL RECORD INCLUDES THE INFORMATION GIVEN FORMERLY IN THE CIRCULAR OF THE DEPARTMENT OF ARCHITECTURE.

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GEOMETRY.

The Course in Architecture

THE Institute of Technology was the first school in America to introduce a regular Course in Architecture. It was founded in the year 1865, though it did not graduate its first regular student until 1873.

From the beginning the spirit of instruction has followed that of the *École des Beaux-Arts* at Paris, and the wisdom of this course has been amply justified by the results obtained during past years, and by the present status of architectural education in this country. The general plan of instruction has been changed only by developing or modifying the old courses and by adding others to meet the new conditions arising in modern practice. The aim of the school was, then as now, to teach that architecture is essentially a fine art, and that its practice must be based primarily on the student's possession of a broad general cultivation and a liberal training in design, founded on the principles underlying sound construction.

Its curriculum recognized that in a profession of as many aspects as that of architecture the true function of school training is primarily to inculcate high ideals and to prepare the foundation upon which the student is to erect his superstructure of architectural capacity; that the student's mind must be educated to reason and to think clearly and logically, his sense of beauty must be trained and educated, his imagination stimulated, his point of view made flexible, and his skill in expression in the mediums of the profession cultivated.

The strong position which cultural studies hold in our curriculum is shown both by the requirements in subjects of this kind for those who desire admission to the Institute as regular students, and in the large amount of time given to studies directed toward breadth and thoroughness of general training throughout the entire four-year course.

Entrance examinations are held in Elementary French and German. In English the test is, as far as possible, the candidate's ability to express himself in writing clearly and accurately, and of his power to distinguish, in a broad sense, literary values, the qualities which mark a work as being literature. He is required to have some acquaintance with good literature, and the examination is intended as a proof rather of his power of intelligent appreciation than of his knowledge of special books. In History he must have a thorough acquaintance with the history of the Thirteen Colonies, and of the United States up to the present time, together with an elementary knowledge of its government. An alternative requirement is the history of Greece and Rome to the fall of the Roman Empire in the West.

The applicant must also present satisfactory evidence of preparation in one of the following electives:

- Additional French or German.
- Latin.
- Additional English.
- Additional History.
- Chemistry.
- Mechanical Drawing and Mechanic Arts.
- Biology.

The object of these elective requirements is to secure and recognize greater breadth of preparatory training.

Cultural Courses During the first year French is a regular study, as well as Rhetoric and English Composition, and a half-year is given to the History and Government of the United States.

During the entire second year German is a regular study. English Literature and Composition are continued, and a half-year of recent European History is added.

Excepting college graduates, all students who are candidates for the degree of the Institute are required to complete prescribed courses of reading of a non-professional character during the summer vacations following the first and second school years. The purpose of these courses is to increase the acquaintance of the student with Literature, History, and General Science, to develop in him a taste for such reading, and to impress him with the importance of general culture, not only as a source of individual enjoyment, but as a practical aid to professional men in their social and business relations.

The regular students in the third year are required to devote one hundred and twenty hours during the two terms to elective work in general studies, with entire freedom in choice of subjects from a carefully prepared list of options in Economics, English, Modern Languages, and History. Besides this, there are half-year courses in Political Economy and Business Law.

Scheme of Study The first year of the Institute course is devoted mainly to preparation in technical and cultural subjects. Professional work begins with Freehand Drawing, which is continued through the four years. Students study with individual instruction from the cast of the antique, and of architectural detail, and from life. The drawing-exercises are supplemented by lectures on art anatomy and memory drawing. In the graduate year decorative figure-design takes the prominent position belonging to it when associated with architecture in its highest development, and is studied in its varied relation to painting and sculpture. Besides the large and well-equipped drawing-rooms of the Institute, the Museum of Fine Arts offers excellent opportunities for drawing from the cast, and regular exercises are held in its galleries.

Freehand Drawing The courses in Freehand Drawing are supplemented by others in Water-color, Pen-and-Pencil, Composition and Rendering, and Modelling. In Water-color, which lasts through one year, the purpose is to give a good knowledge of the use of brush and color, primarily with a view to architectural rendering. The instruction begins with study from still-life in the studio. As the work progresses opportunity is given for out-of-door sketching, and during the summer vacations students are expected to make sketches to present for criticism when the next term opens.

Pen-and-Pencil In Pen-and-Pencil, which lasts through one year and a half, the purpose is to ensure facility in rendering architectural subjects in both

these mediums. Individual instruction is given in one-hour periods, and each week the work of the previous period is criticized before the class.

Composition and Rendering Composition and Rendering, which lasts through one year, is elective in the regular course, but a regular study in the graduate year.

Modeling Modeling lasts through one year, with the purpose of teaching the student the value of the third dimension, which he needs to recognize for the proper understanding of architectural detail. He is taught the manipulation of clay and its practical use as an aid in design.

Design and History of Architecture Design and the History of Ancient Architecture are taken up simultaneously in the second year. The student begins with the study of Classic work. It is the logical starting-place, because in the Orders culminated all ancient architecture, and in the Orders was the birth of the great styles that developed in later years. It is a study that involves all the fundamental principles of architecture, and requires historical knowledge and accuracy. It gives the student a solid training in balance, proportion, light, shade, scale, and color.

The student is made to study and analyze the elements of the best examples of Classic work in order to cultivate his taste and sense of proportion. At the same time the fundamental principles of architecture are inculcated, and the influences governing composition are explained. Lectures are given on the proportion and use of the Greek, Roman, and Renaissance Orders, arcades, balustrades, windows, and other architectural details. A thorough course in Shades and Shadows is given concurrently with that relating to the Orders; and the student learns that by applying to his drawings the laws of the projections of shadows he indicates in a degree the third dimension, and at the very beginning is made to see the importance of light and shade as a factor in the composition of design.

To familiarize the student with these forms and the value of the third dimension, and to give him the best possible idea of scale, full-size models of various Orders have been prepared, from which measured sketches and accurate drawings are made. Continued practice in drawing and academic rendering affords the training necessary for the hand and eye, and the student is thus well prepared for the subsequent practice in design, which continues with increasing importance each year until he graduates.

Lectures are given at frequent intervals on the theory of design. Its practice is in charge of instructors who are actively engaged in their profession. The main instructing force has always been made up of men who are engaged at the time in architectural practice or who have had previous experience sufficient to enable them to appreciate that architecture should be taught as a living, progressive art. This has a great deal to do with the active sympathy and help which has always been extended to the department by the Boston Society of Architects. The membership in the society of so many of the instructors has tended to continue from the beginning these close relations, the value of which cannot be overstated.

The study of design is conducted by means of regular problems, and criticism of them before the classes. The problems assigned to each class vary from sketch problems to be designed and rendered in one day "*en loge*" to those

to be finished in a week and the more difficult problems for which an entire month or more is allowed.

In order to accustom the students to concentrate their minds upon the development of a single idea, instead of wasting their energies in the successive adoption and abandonment of different solutions of the given problems, two days are allowed after the posting of the larger problem of the month, within which time each student must fix upon some general scheme for his design, and show his idea by sketch plan and elevation on a small scale. These preliminary sketches are attached to the completed designs, which must correspond with them in all essentials. These sketches are criticized before the class, and attention is called to their good and bad points; regular individual criticism is given the student while working up his scheme to the finished design; and at the end of each problem all the drawings are criticized before the class, each design being compared with the preliminary sketch submitted by the student.

Aim of Course in History of Architecture The aim of the course in the History of Architecture is to make the student see that the styles simply represent certain epochs in the great march of architecture; that they developed naturally and logically in response to changing social and political conditions, and to the skilful use of materials which were employed in construction; that throughout this great movement construction was recognized as the basis of all good architecture; that the relationship is so close between these architectural periods that in this study not one of them can be slighted if the student is to have an intelligent understanding of the proper value of precedent and tradition in their relations to modern architecture. This history is taught by lectures amply illustrated with the stereopticon, books, and photographs. Each week the students are required to present for criticism abstracts and sketches of the historical monuments discussed. They are also required to test, by comparison with the works themselves, the descriptions and conclusions of the leading architectural authorities, and to prepare careful themes and drawings showing the results of their research. This personal investigation serves, also, to give the students a good working acquaintance with the exceedingly valuable collection of books and photographs belonging to the department, and stimulates their appreciation of the best architectural works.

History of European Civilization and Art History of Architecture is completed in the third year, and is followed by a year's course in the History of European Civilization and Art, in recognition of the necessity of the broadest æsthetic and historical training. The course gives an extended survey of political, ecclesiastical, and social history, which is as necessary as architectural history in itself, if the essential spirit of Classical, Gothic, and Renaissance art is to be fully grasped. The ages of highest achievement, moreover, have been also the ages of greatest distinction in sculpture and painting,—arts which of necessity stand in a close practical relation to that of building. With these considerations in view, a course of study has been planned which aims at giving a general review of the history and characteristics of European civilization in the Classical, Gothic, and Renaissance ages, and at familiarizing the student with their sculpture and painting. This course is illustrated in the fullest possible manner by lantern-slides, of which in sculpture and painting the department has a collection of over two thousand sub-

jects, and by a large number of specially prepared wall-maps. Supplementing the work of the classroom, sets of photographs, well labelled for study, are exhibited in the Architectural Library, the collection being changed from time to time to keep pace with the work of the class. Ample provision has been made for books of reference and for collateral reading, of which a considerable amount is required of every student.

The extensive collections of the Museum of Fine Arts and the Boston Public Library, with its conveniently arranged Art Department, are both close at hand, and form a most valuable supplement to the resources of the Institute. Taken together, the facilities offered for a liberal æsthetic as well as practical training are such as few universities can rival.

History of Ornament Instruction in Ornament explains the historical development of ornament, and teaches facility in the general treatment of color in decoration, as well as the characteristics of different styles. Lectures are given, and the problems are designed and rendered in color, and when finished are carefully criticized before the class.

Scientific Construction Scientific construction is continually becoming a more necessary part of the architect's profession. His knowledge must be broad and thorough, and the practice of to-day shows that an architect should not only be a skilled artist, but should also be scientifically trained to control intelligently all structural questions. The subjects of entrance examination required for admission to the scientific courses are Physics, and in Mathematics, Algebra and Plane and Solid Geometry. The subjects required for the cultural courses have already been enumerated.

Construction and Office Practice The mathematical courses in Algebra, Plane Trigonometry, Analytic Geometry and Calculus, and the course in Physics prepare the way for the consideration of professional work in Applied Mechanics, Graphical Statics, and Strength of Materials. These are followed in turn by a course in Constructive Design, which applies the knowledge obtained in earlier courses to problems often encountered in modern architectural practice.

In the third year the principles involved in different methods of Perspective and the simpler problems of Stereotomy are taught. In these courses the methods of Descriptive Geometry, learned in the first year, are applied to the drawing of practical problems.

The study of Working Drawings and Specifications includes practical instruction in making quarter-scale plans and elevations from sketches of wood, brick and stone constructions, and in making the framing plans and working drawings of various kinds necessary in actual practice. Specifications are discussed, and the various materials used in modern construction are described; such as cement, lime, mortar, brick, wood, stone, metals, etc., and their use by the mason, carpenter, roofer, and plumber. Care is taken not to attempt details which may be better learned in an architect's office, but enough is accomplished to enable the student to take immediate advantage of office opportunities upon graduation.

The student is advised to spend a part of the summer in an architect's office. What he learns of office practice in this way during the vacations of his course will be a great aid to him in the clearer understanding of his school work.

Building-stones The course in Building-stones is specially designed to meet the needs of the students of Architecture. The principal varieties of stones used for building and decoration are described and discussed with the aid of numerous dressed specimens, especial stress being laid on the distinguishing features, adaptation to use in various situations, strength and durability, occurrence and distribution, and important instances of use. This work is followed by illustrated lectures on the methods of quarrying and dressing, the weathering and climatic relations, and the selection and testing of stones. Excursions are made to granite and other quarries in the vicinity of Boston. This course is adapted to the needs of students who have done no previous work in Geology.

Heating and Ventilation The course in Heating and Ventilation is planned to acquaint the student with the fundamental principles of the subject, and the proper application of these principles to practice in the solution of a considerable range of problems in this field of engineering. The practical side of the subject is treated with as much thoroughness and fulness as is consistent with the primal aim of the course.

Architectural Engineering In recent years opportunity for specialization has been offered by the introduction of options in Architectural Engineering and Landscape Architecture for students not desiring to follow the general course in Architecture. The option in Architectural Engineering meets the demand for men specially trained in the computation of all the details of modern steel construction which occur in the practice of architecture. It is the same as the other option to the middle of the third year, the general architectural training which the student has had during his first years being an important aid to him in his future career. His field of employment will be broader for this knowledge; for, as an architectural draughtsman, his familiarity with the uses to which a building is to be put, and his ability to take part in the regular routine of the architect's office, will make his services additionally valuable.

Lectures and problems on the principles of Applied Mechanics, and lectures in the Theory of Structures, including loads and reactions, shears and moments, the proportioning of beams, columns, and tension-pieces, the computation of plate and box girders, wooden and steel roof-trusses, steel framing, wind-bracing, fire-proofing, foundations, arches, etc., give the necessary preparation for practical problems in Structural Design, which forms the important feature of this course. In the fourth year a part of the time is given to laboratory tests on the strength of building-materials.

Graduate students who have completed the regular Course in Architecture will find in the Engineering option an attractive field of work.

Summer Work Besides the regular work, the department also offers in certain subjects summer instruction covering the same ground and given in the same manner as that of the regular classes. The courses are given by members of the department during July and August, and the subjects included are Second and Third Year Design and Shades and Shadows. Courses are also offered in Mechanical Drawing and Descriptive Geometry, and in the Modern Languages. For those who have had some previous training in Physics and Mathematics there are also courses in these subjects.

While these courses enable students who have incurred

deficiencies during the school year to make them up before the next term, their principal object is to assist applicants for advanced standing, particularly students coming from other colleges, to complete the preliminary work of the second year with a view to undertaking third-year work to better advantage, or even in special cases to give them the opportunity to complete the professional work in two years.

Summer School In addition to this summer instruction, a Summer School is held whenever a class is large enough to warrant, for the purpose of bringing the students in contact with the practical side of building, and that they may learn to appreciate the true value of scale and detail. For this purpose, localities are visited where buildings are to be found which are important as representative of style or character. These buildings are thoroughly studied, measured, and photographed, careful sketches are drawn, and later complete drawings are worked out to scale.

The first summer school was held in 1893, in Chicago, during the World's Fair. In the following years schools were held in Salem, Mass., and Portsmouth, N. H., for the study of Colonial Architecture. The drawings made in these years have been published in "The Georgian Period," Part VII. In 1896 the Institute took the important initiative of sending the school to Europe, and a bicycle-tour was made in England and France for the study of architectural styles. In the following summer the school made pencil and water-color sketches of the picturesque buildings in and about Quebec. After this the school again studied European Architecture, visiting cities in Northern Italy between Genoa and Venice, and then made a successful bicycle-tour to Paris for the study of the buildings of the Riviera, the Rhone Valley, and the central part of France. Measured drawings were made at Venice and Arles, and sketches were made in most of the towns visited. Over seven hundred negatives were taken with hand-cameras of important details, interesting buildings, and local scenes, and the most successful pictures were added to the library collections of photographs and lantern-slides. Again, in 1900, the school returned to the study of Colonial work, making many measured drawings at Providence and Boston, while the last summer school, that of 1903, spent four months in France and Italy.

Graduate Work The Institute offers, moreover, opportunities for one or two graduate years of advanced study, to be spent entirely in professional work. The value of such a course cannot be overestimated, for it allows uninterrupted and continuous study at a time when the students are exactly ripe for it. Such conditions are conducive to special effort, and the stride made from the very beginning of the fifth year is always surprising. During the regular course the student has been drilled in method, the way to design. The architect's knowledge of method is wherein lies his strength. Soundness in the principles of composition and construction is what makes him an architect. In alternating problems during the rest of the year, some subjects are chosen as representative of American needs of the day, to give opportunity for the most serious study from both the practical and the artistic points of view, and others for training in historical style and detail through archaeological problems, such as a Greek or Roman restoration, or an important study in Mediæval Gothic.

Degree of Bachelor of Science To be entitled to the degree of Bachelor of Science in the Department of Architecture, the student must have completed all the prescribed studies and exercises of the four-year course, and also an original design accompanied by an explanatory memoir. About half the second term of the fourth year is devoted to the preparation of this thesis.

Degree of Master of Science The course of study leading to the degree of Master of Science must consist mainly of advanced study and research. The candidate must pursue his course of study continuously, under the direction and oversight of the Faculty, for at least one full school year after filing his application. He must pass creditable examinations at such times and on such subjects as may be designated, and finally must present an acceptable thesis.

Special Students Persons applying for admission as special students in Architecture must be college graduates, or twenty-one years of age with not less than two years of office experience. They will be required to pass, before entrance, examinations in Plane and Solid Geometry, and must include in their work at the Institute the regular first-year courses in Freehand Drawing, Descriptive Geometry, and Mechanical Drawing, unless these subjects have been passed at the September examinations.

Graduates of colleges are admitted without the usual entrance examination, and will be permitted to enter any of the courses at such a point as their previous range of studies will allow. If prepared to enter upon most of the studies of a certain year they may often be afforded opportunity to make up any studies of the earlier years in which they are deficient. They will, in general, be credited with all subjects in earlier or later years in which they can show, by examination or otherwise, a standing satisfactory to the Faculty, and may be received provisionally as regular students, subject to making up deficiencies in work of previous years within a limited time.

Applicants presenting satisfactory certificates for work done at other colleges may be excused provisionally from taking the corresponding examinations at the Institute. Applicants for advanced standing should present themselves for examination (except those offering certified records from other colleges in this subject), and all applicants should submit drawings covering the above ground as fully as possible. In case these drawings are not satisfactory, further work and examination may be required.

Prizes The department is fortunate in the active interest taken in it by the Boston Society of Architects. At the society's annual meeting for choice of officers, the appointment of a committee to visit the department is always made part of the regular routine, and the good precedent established as long ago as 1868 is regularly followed in offering two prizes, of the value of fifty dollars each, in books, to the two students whose efforts during their years at the Institute have shown the best results.

The two Rotch prizes of two hundred dollars each are given according to the will of the late Arthur Rotch, a former student and lecturer,—one to the student who has graduated with the highest standing in the regular Course in Architecture, and the other to the special student who ranks highest at the end of a two-year course. For the latter prize, only those applicants are eligible who enter in accordance with the requirements, on the basis of professional office experience or as college graduates.

Scholarships The resources of the Institute for undergraduate scholarships have been largely increased by recent benefactions. In regard to the application for these funds, and also for those of graduate scholarships and fellowships, the Catalogue of the Institute should be consulted; but it may be said here that preference is given in making awards to applicants who have completed at least a year of thoroughly satisfactory work at the Institute.

The special legacy of the late W. B. Perkins and the general income of the Austin Fund for aiding students and teachers enable the Institute to make adequate provision for graduate travelling fellowships in Architecture.

The annual Travelling Scholarship amounts to twelve hundred dollars. The award is made solely on the basis of distinguished merit, since it is felt that the prize will thus possess a greater value for the advancement of architecture than if restricted to benefit only the regular or the needy student. Candidates, therefore, will be received from both regular and special students, but they must have passed two consecutive years in the department within the three years next preceding their candidacy, and at least one of the years must have been in the Graduate class. They must besides during these school years have proved themselves earnest students and of first-rate ability.

The Building For the third time since 1883 the department has had to change its location to meet the constant need of expansion. The present quarters in the Henry L. Pierce Building gave at the time opportunity for increased accommodation. The library is very fully equipped and catalogued, and has every convenience for consultation of its 3,800 books, 16,000 photographs, 48 serial publications, and 15,000 lantern-slides. By means of a special fund raised for the purpose, several thousand books, photographs, prints, drawings, and casts were originally collected for the department. To these collections large additions have been made by regular appropriations and by gifts. The adoption of the alcove system greatly assists in the effective use of books by bringing together works of the same style and subject. The exhibition-room gives ample opportunity for the display and comparison of designs and sketches and the continuous exhibition of students' work. This room has associated with it the "loges" in which the advanced students are isolated while preparing their twelve-hour sketch problems, and for the annual competition for the \$1,200 travelling scholarship.

The arrangement of drawing-rooms has proved very satisfactory. Bringing together the third, fourth, and graduate classes in the way that has been done gives the best results. In putting together between eighty and one hundred men of different degrees of experience and ability; in increasing the *esprit de corps*, which has never been want-

ing; in giving the younger class the benefit of direct association with the older men, we have succeeded in combining in the regular instruction all the best qualities of the French atelier, in which after all is the essence of the Beaux-Arts. The large open alcoves into which the great drawing-room is divided are simply for the purpose of giving wall-space, on which hang the valuable collection of drawings, prints, photographs, and historic casts. So great a part of the education of the architect comes through his eyes that they should have the opportunity to rest on such objects of beauty as we are able to supply. The collections are particularly rich in the choicest work of the Paris Beaux-Arts. Perhaps the most interesting group is Pascal's competitive drawings for the Hotel de Ville at Paris, a gift from Mr. Pascal himself. Among other drawings of this distinguished architect are those which won for him the Prix de Rome. Then there are the original Envois de Rome by such men as Tournaire, Chaussemuche, Recouré, Chiffot, and the drawings of Emanuel Brune stand forth a monument of skilled technique, unrivalled in the architectural world, a library in themselves and a continued source of inspiration.

The large studio at the top of the building has both direct and north top-light in addition to light from the side windows. By arrangement of curtains a number of classes can work in the room without interference, and the great north window gives a perfect light for life-class work.

Expenses The tuition fee for regular students is \$250 per year. For one-half, or any less fraction of the school year, the fee is \$150. Special students pay, in general, the full fee; but when a few branches only are pursued, and the time required for instruction is limited, application for reduction may be made to the bursar. The fee for students in the Graduate Course is the same as that for regular students. It is desired that regular students whose financial necessities are such as to prevent their continuance at the Institute communicate, through the Secretary, with the Scholarship Committee of the Faculty.

The exercises of the school are held at such hours as to allow students to live conveniently in any of the nearer cities or towns, on the lines of the various railroads, if they prefer to do so.

The cost of board and rooms in Boston and the neighboring cities and towns need not exceed seven or eight dollars a week. The cost of books, drawing-instruments, paper, etc., is from twenty-five to thirty-five dollars a year.

Persons desiring more detailed information on subjects, whether included or not in this description of the Course in Architecture, may make application to the Secretary of the Institute for the regular Catalogue.

Courses Offered for Graduate Work Leading to the Degree of S.M.

Advanced Architectural Design.
Advanced Composition (lectures).
European Civilization and Art.
Advanced Constructive Design.
Building Laws and Contracts.
Advanced Life Class: Composition and Decorative Design.

Advanced Pen and Pencil Rendering.
Æsthetics.
Philosophy of Art (lectures).
History and Archæology. Special Research.
Landscape Architecture.
Landscape Design.

Courses of Instruction

OPTION I. ARCHITECTURE

First Year

FIRST TERM

Algebra.
Plane Trigonometry.
Inorganic Chemistry.
Descriptive Geometry and Mechanical Drawing.
Freehand Drawing.
Intermediate French.¹
Rhetoric and English Composition.
Military Science.

SECOND TERM

Shades and Shadows.
Analytic Geometry.
Descriptive Geometry and Mechanical Drawing.
Freehand Drawing.
Modeling.
Intermediate French.¹
English.
United States History.
Military Science.

Second Year

FIRST TERM

Design, Elements of Architecture.
Architectural History.
Freehand Drawing.
Specifications and Working Drawings.
Differential Calculus.
Physics.
German.
English Literature.
European History.

SECOND TERM

Design, Elements of Architecture.
Architectural History.
Freehand Drawing.
Specifications and Working Drawings.
Integral Calculus.
Physics.
German.
English Literature and Composition.

Third Year

FIRST TERM

Design.
Architectural History.
History of Ornament.
Freehand Drawing.
Stereotomy.
Heating and Ventilation.
Applied Mechanics.
Political Economy.
General Studies.

SECOND TERM

Design.
Architectural History.
Freehand Drawing.
Pen-and-Pencil.
Water-color.
Perspective.
Building-stones.
Graphical Statics; Applied Mechanics.
Business Law.
General Studies.

Fourth Year

FIRST TERM

Design.
European Civilization and Art.
Influence of Materials on Architecture.
Life Class.
Pen-and-Pencil.
Water-color.
Color.
Constructive Design.

SECOND TERM

Design; Thesis.
European Civilization and Art.
Life Class.
Pen-and-Pencil.
Modeling.
Business Relations.
Sanitary Science and Public Health.

¹ Students who have passed Intermediate French before entrance are advised to take Intermediate German. For more advanced elective courses in French and German, see Subjects of Instruction in Catalogue.

Courses of Instruction

OPTION II. ARCHITECTURAL ENGINEERING

First Year

FIRST TERM.

Algebra.
Plane Trigonometry.
Inorganic Chemistry.
Descriptive Geometry and Mechanical Drawing.
Freehand Drawing.
Intermediate French.¹
Rhetoric and English Composition.
Military Science.

SECOND TERM.

Shades and Shadows.
Analytic Geometry.
Descriptive Geometry and Mechanical Drawing.
Modeling.
Freehand Drawing.
Intermediate French.¹
English.
United States History.
Military Science.

Second Year

FIRST TERM.

Design, Elements of Architecture.
Architectural History.
Freehand Drawing.
Specifications and Working Drawings.
Differential Calculus.
Physics.
German.
English Literature.
European History.

SECOND TERM.

Design, Elements of Architecture.
Architectural History.
Freehand Drawing.
Specifications and Working Drawings.
Integral Calculus.
Physics.
German.
English Literature and Composition

Third Year

FIRST TERM.

Design.
Architectural History.
Freehand Drawing.
Stereotomy.
Influence of Materials on Architecture.
Heating and Ventilation.
Materials.
Applied Mechanics.
Political Economy.
General Studies.

SECOND TERM.

Structural Design.
Theory of Structures.
Graphical Statics; Applied Mechanics.
Heating and Ventilation.
Building-stones.
Architectural History.
Freehand Drawing.
Pen-and-Pencil.
Perspective.
Business Law.
General Studies.

Fourth Year

FIRST TERM.

Structural Design.
Theory of Structures.
Applied Mechanics.
Laboratory Tests of Building-materials.
Foundations.
Pen-and-Pencil.
European Civilization and Art.

SECOND TERM.

Design; Thesis.
Theory of Structures.
European Civilization and Art.
Business Relations.
Sanitary Science and Public Health.

¹ Students who have passed Intermediate French before entrance are advised to take Intermediate German. For more advanced elective courses in French and German, see Subjects of Instruction in Catalogue.



AN ALCOVE OF THE LIBRARY



DRAWING-ROOMS OF THIRD, FOURTH, AND FIFTH YEAR CLASSES



AN ALCOVE OF THE LIBRARY



DRAWING-ROOM OF SECOND-YEAR CLASS



A LIFE CLASS IN THE STUDIO



THE EXHIBITION HALL AND LOGES



THE STUDIO

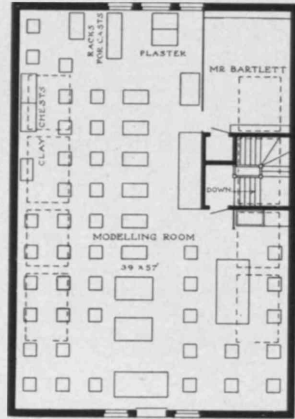


LECTURE ROOM WITH DRAWING-TABLES

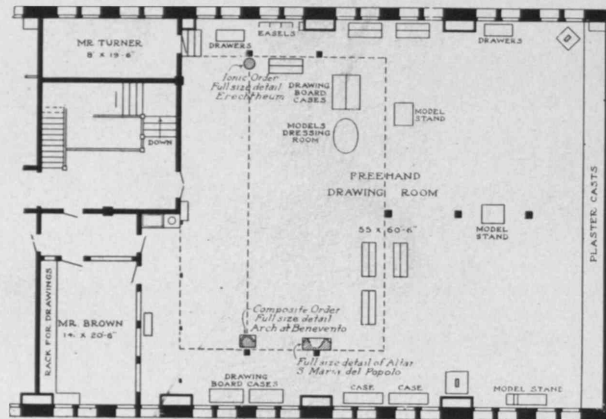
The Department of Architecture

HENRY L. PIERCE BUILDING

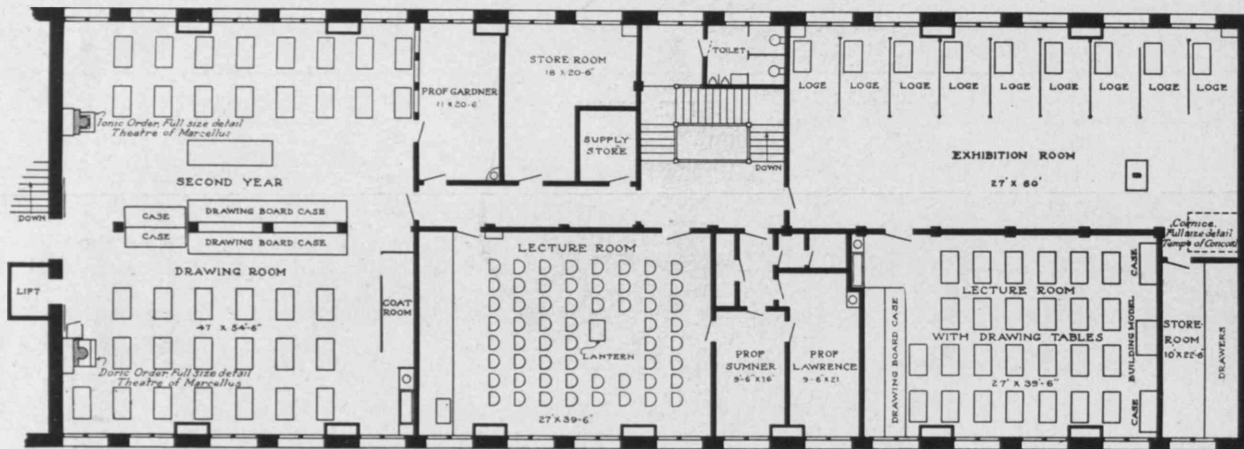
30 TRINITY PLACE



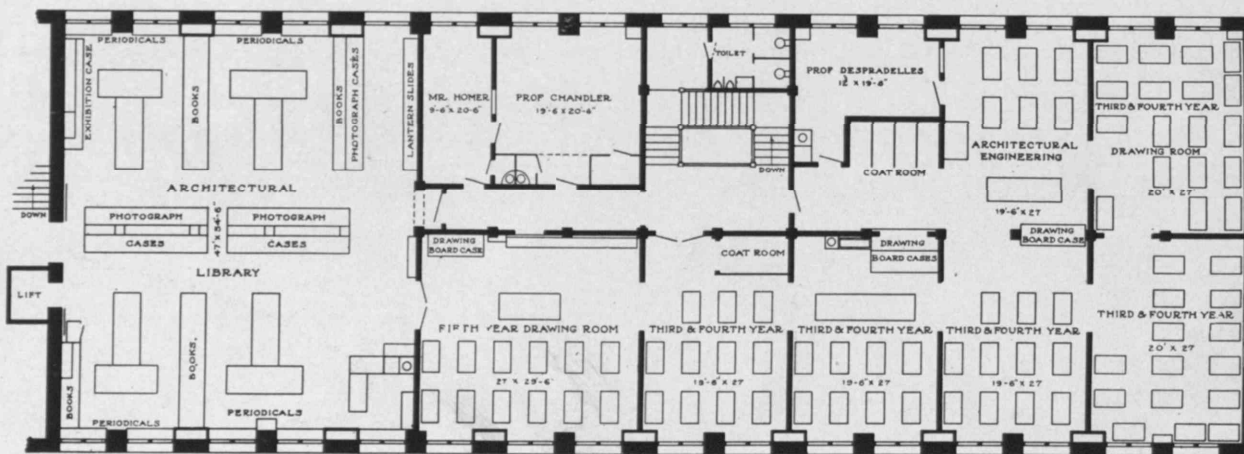
MODELING-ROOM



PLAN OF FIFTH FLOOR



PLAN OF FOURTH FLOOR



PLAN OF THIRD FLOOR

The Technology Architectural Record

Vol. I

May, 1907

No. 1

Published quarterly by the Architectural Society of the Massachusetts Institute of Technology. One dollar per annum. Thirty-five cents per copy. The proceeds of this publication are devoted to a Scholarship Fund, founded by the Architectural Society for Students of the Department of Architecture of the Institute.

THE past fifteen years have greatly advanced the appreciation of architecture in this country. Among the potent influences effecting this result, by no means the least has been that of the large architectural schools. This influence is conspicuous in the illustrations of the professional magazines, and in the crowded architectural exhibitions, whose drawings show that in the study of the practical architectural problem and its presentation, office routine simply continues the school methods.

The increased interest in architecture which now pervades the country has shown itself very noticeably in the multiplication of architectural schools, which are springing up all over the United States. No better purpose can be served by all these schools than to spread the knowledge of architecture through the community at large, for we have yet to educate the employers, as we have to continue to educate the architects. The public is taking an ever-increasing interest in architecture, which reacts for good on the schools. Such conditions are most stimulating and demand every encouragement for their continuance.

How far it is desirable for the schools to coöperate with the aim of arriving at a unification of standards is a question still to be answered, but it is certainly desirable to bring the schools closer together, and the practising architects in more intimate relations with them.

To aid in accomplishing such results will be the effort of this journal. We feel that it has a field for its usefulness that has hardly been entered by the more strictly professional magazines. We hope to make its pages interesting to the student of architecture still in school training, or in the office, as well as to the draughtsman fitting himself in the evening atelier for the hoped-for year or more study in the architectural school which has thus far been denied him. To the former students of the department we offer the opportunity of keeping in touch with the work and progress of the school. To the present students it means an incentive for their active coöperation with the instructing corps in extending the influence of the department.

The Department of Architecture is again holding a competition to award a Travelling Scholarship of \$1,200. The award is made solely on the basis of distinguished merit, as

it is felt that the prize will thus possess a greater value for the advancement of architecture than if restricted to benefit only the regular or the needy student. Candidates will therefore be received from both regular and special students who have passed two consecutive years in the department within the last three years, at least one of them being in the graduate class. They must besides have proved themselves during these school years to have been earnest students of first-rate ability. The competition began April 12, with the sketch *en loge*, and ends May 18. All the work must be done in the department. The winner of the scholarship is expected to sail for Europe September 1, 1907, and to remain abroad a complete year unless otherwise authorized. He will travel and study under a program prepared in consultation with the department and the Faculty.

On April 9 Professor Despradelle, at the invitation of Professor Hamlin, spoke to the students of the Columbia School of Architecture on the general principles to be employed in studying a problem in architecture.

Three Technology men secured places among the five winners in the recent preliminary Beaux-Arts Society competition for the Paris Prize. They were O. Faelton, '04, E. A. Walter, '06, and A. N. Rebori, '07. As a result of the second or twenty-four hour competition for the Paris Prize, A. N. Rebori, '07, was one of the five to be chosen for the final contest. The Paris Prize holds the same high position in American architectural education as does the Grand Prix de Rome in France. The prize is \$2,500, which pays the expenses of the winner for two years of foreign study. The winters are passed at the École des Beaux-Arts and the summers in travelling through Europe. Furthermore, the winner is admitted to the first class of the École des Beaux-Arts, provided he has previously done work equivalent to that required for admission to the École and its second class.

The present holder of the Paris Prize is Frederic C. Hirons, '03.

The two annual prizes of ten dollars each, offered by the Class of 1904 to third-year men, were this year awarded to E. I. Williams, regular, and K. E. Carpenter, special. The problem was a Summer Pavilion, with Terrace and Steps. The program, judgment, and illustrations of the prize-winning designs are given in this number.

The department will offer as usual its Summer Courses in second and third year Design and Shades and Shadows. They will begin July 1, and be of eight weeks' duration. A six-week course in Mechanical Drawing and Descriptive Geometry will also be given. Circulars giving more complete information can be obtained by addressing Dana P. Bartlett, Acting Secretary, Massachusetts Institute of Technology, Boston, Mass.

The Architectural Society

1906-1907

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S. A. MARX.

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Examination Committee.

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Visiting Committee.

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E. S. WIRES.

R. J. BATCHELDER.

ON the twentieth of October, 1886, a few students of the Department of Architecture met in Room 21, "Rogers," which was then the only building belonging to the Institute, for the purpose of forming a sketch club. A committee, consisting of Messrs. J. B. Gay, H. D. Bates, and F. A. Moore, was appointed to draw up a constitution.

The sketch club thus inaugurated very soon developed into an organization, and under the name of the Architectural Society of the Massachusetts Institute of Technology held its first regular meeting in the Quincy House on the thirteenth day of November, 1886, nearly twenty-one years ago. At this meeting the general purpose of the association was declared to be the advancement and improvement of its members in all matters pertaining to architecture. Mr. Thomas O'Grady, instructor in architecture, made the opening address, which was "both instructive and entertaining." A proposition was made to start an architectural paper "to be published by the society once a month, and to contain cuts of the first-mentioned drawings" of the department, etc. This paper was actually started the next year, under the name "Technology Architectural Review,"

and it had a rather brilliant success from its beginning. The students managed it themselves until the spring of 1889, when they began to find it a "difficult task," and "thought that the members of the society could not give the time necessary for the work and do justice to their studies at the same time." With a guarantee of sixty subscribers, some of the original editors agreed to relieve the society of the actual publishing. They formed a company and cooperated with the Society until 1889, when, by mutual agreement, the company assumed its entire publication. In 1890 its name was changed to its present one, "The Architectural Review."

Another proposition which was approved at this memorable meeting on the thirteenth of November, 1886, produced results which perhaps have done the most to preserve the active interests of the Society members. That part of the school training the loss of which was felt most keenly by the graduates was the opportunities that had been enjoyed in the architectural libraries of the department, and in those of the Public Library and the Boston Athenæum, both of whose very valuable collections were opened freely to the students. Private architectural libraries were more rare in those earlier days than now, and the architectural magazines were more interested in illustrating modern work than in teaching the value of the classical examples.

The proposition was to make tracings of rare plates or those difficult of access, from which blue-prints could be made and sold to the members at cost. Perhaps the seriousness of purpose in founding the Architectural Society for the improvement of its members in all matters pertaining to architecture is best seen in the results of this particular undertaking. Three hours weekly were to be devoted by each student to this work. As the years went by classical examples were brought nearer to the means of the average student through inexpensive reprints of the old standard authorities. The magazines increased in number, and recognized, besides, the importance of both ancient and modern work in their illustrations. The pocket camera also became an important means of duplication. These may be considered sufficient reasons why the three hours tracing each week has been gradually reduced until at the present time only one tracing is required during the three years active membership in the society, and this one tracing requires only about three hours for its execution. The society, however, has to-day in its possession some eight hundred tracings, films, and plates of most valuable examples, the majority being plans of a great variety of types, and prints from these can always be had by any member of the society at a nominal price.

Early in the spring of 1887 the society was well established. Regular fortnightly meetings were held, and they were made attractive in various ways. The solving of short sketch problems was a regular feature; the programs were of the simplest nature, and required completion in from thirty to forty-five minutes. At first, judgment was passed upon the finished drawings by a committee from their own members, but later they invited some one of the instructing staff to do this. At other meetings original papers were read, prepared by the students, on subjects of architectural interest. There were also smoke-talks by "certain celebrated architects" who were interested in the society, and essays were read and lectures given from time to time by the instructors. There are records even of translations from works on architectural subjects, made by the students

themselves, which were read and listened to "with great interest" by their colleagues.

For a number of years these meetings were held regularly. Then it was decided to hold them only subject to call. This change does not seem to have been made from any lack of interest in the aims of the society, for in 1902 a new constitution was adopted and the scope of the society still further enlarged. Its members were to be brought "into closer social relationship;" they were to be cared for, besides, in sickness and in trouble, etc. The broader outlook caused no sacrifices of the serious purposes for which the society was founded. Sketching-parties were taken to neighboring towns. At frequent dinners there were always subjects to be considered in discussion among the members themselves, or there was an honored guest to entertain them. Smoke-talks continued to be an important function, and any new conditions arising in the courses of study or in the practice of the profession were called to the attention of the society and carefully considered. And such is the work the society is doing to-day.

Of particular interest at this time is the fact of the "Year Book" or "Annual," which has been published by the students of the department through its Architectural Society since 1891. The results of this effort are so generally known as to need no further description. It is sufficient to say that this "Annual" has contained illustrations and records of the premiated drawings in the courses of Architectural and Structural Design, and also of the current work in Free-hand Drawing, Pen and Pencil, Modelling, etc. The "Annual" has grown in these fifteen years from a small pamphlet of a few pages to a book bound in board covers and numbering one hundred and sixty pages.

It has resulted, besides, in the establishment by the society of a fund, the proceeds of which are to be devoted to the use of students requiring financial aid.

It has become so important a factor in bringing before the public the work of the department and being useful in other ways that it has been decided to enlarge its scope still further, and the Annual is to become a Quarterly.

Thus the Architectural Society has made a record to be proud of. Starting in 1886 with a total enrolment of eighteen members at the end of the year, the society has developed from a small but promising "sketch club" to a successful organization comprising seventy-two active members of the Architectural Department, and an honorary membership of seventeen. It has started one publication, which, continued in private hands, has developed into one of the most influential architectural journals in the country,—*"The Architectural Review."* It has published and maintained a prosperous Annual. It has established a fund to aid deserving students; and with this number of THE TECHNOLOGY ARCHITECTURAL RECORD the society takes another step forward in its march of usefulness and development.

On February 8 the Architectural Society gave its third smoke-talk, at which Mr. C. H. Blackall, the architect of the new Jewish synagogue in Boston, was the speaker for the evening. After the talk a supper was enjoyed by all, followed by singing and a general good time. Mr. Blackall spoke on "Jewish Architecture and Art." He said in part:

A consideration of the people must come before the study of their art. We have a very early history of the Jewish race in the Bible, which shows us that they had one

difference from the other peoples,— their strong religious belief and steadfastness. They went to Egypt and while there multiplied so rapidly that the Egyptians did not know what to do with them. They finally settled in Palestine, driving out the Phœnicians. They had no individual art at this time; and although Solomon's temple, built about 1000 B.C., displayed great magnificence, it was not until the return from captivity 500 years later that their work began to assume any architectural tendency. Here begins their real history. From this time they were subject to other nations, but they clung tenaciously to the religion of their fathers, although they had no national life. The Jews here in America have had their first real chance to show their worth. They are progressive and wealthy, but have suffered from lack of architects and architecture.

They have had but one building, Temple of Solomon, which may truly be called Jewish. Their architectural training began in Egypt, although their inspiration probably came largely from Assyria. There were no real prototypes of Solomon's temple, and we have no pictures and no good descriptions. The pylon motive of the Egyptians was probably used in the Temple. Herod built a temple for the Jews at Jerusalem, but this is not a real Jewish temple. In the early centuries of the Christian era came the synagogue, and here we see the dome for the first time. *St. Sophia* was the inspiration for most of the later synagogues. The Mohammedans assisted the Jews, and we see their influence in synagogue architecture. All decorative work of the Jews has been limited by the Second Commandment, which forbids the use of human figures or animals. The ark is the only distinct relic of the old Jewish faith,— a cupboard in the wall.

There are two types of Jewish architecture, the ancient and modern. All true development is logical, and the development of the synagogue should be so, although we see many synagogues which are not thus developed. There are many Romanesque and Christian synagogues, which of course are not appropriate. The synagogue must express its use and function or it does not fulfil its purpose.

The Temple Adath Israel in Boston was originally to be entirely of concrete, but later a marble facing was substituted, and gives a much better effect. The interior has been designed in keeping with the exterior, and the decoration follows the same motive, even to the furniture and the balcony railings. The whole purpose has been to express at sight the functions of a synagogue, both in the building and its fittings, and it is hoped that this has been accomplished.

At the fourth smoke-talk of the Architectural Society, March 15, Mr. J. Harleston Parker, of the firm Parker, '95, & Thomas, '95, of the Board of Architects for the Jamestown Exposition, was the guest of the evening. He spoke particularly on the architectural problems encountered in planning the grounds and designing the buildings at the Exposition. Mr. Parker said that the Board of Governors insisted that the general plan of the Exposition should be laid out on a rectangular scheme in order that it could be transformed easily to a town after the Exposition was over. This made the problem of composition a very difficult one. They desired also to have the Exposition carried out in the Colonial style characteristic of Virginia, as no locality where Expositions have heretofore been held has had a distinct

(Continued on Page 31)

Translation

Architecture is the Art of Building According to the Principles of Beauty

From "Grammaire des Arts du Dessin," by Charles Blanc

IN every true architect there are two beings, an artist and a constructor. What the one conceives the other constructs, and their union in one person brings into closest harmony the useful and the beautiful. Still, that which in architecture relates to science must be clearly distinguished from that which is art.

As constructor, the architect is concerned with structural conditions and practical requirements: he tests materials, he calculates their resistance and weight, he determines their forms, and he orders his building so as to have it solid and convenient if its purpose is practical, and at least solid if its purpose is purely symbolical.

As artist, the architect invents combinations of lines and surfaces, solids and voids, which should awaken in the mind of the spectator impressions of astonishment or majesty, terror or pleasure, power or grace. Before science makes him yield to all the rigor of mathematics, his art, escaping the laws of utility and necessity, inspires him to conceive that which feeling alone should judge. His art obeys only those great principles already laid down by the genius of others, or worked out by his own genius, and which are superior to rule.

In defining architecture as "the art of building, planning, and decorating buildings," the lawmakers of our language have nearly obliterated from it its most important element. By their definition the architect is only a decorator of inferior position, whose purpose is to add ornament to the building. Instead of proclaiming the importance of beauty, its independence almost, they have reduced it to being simply an accompaniment of the useful. They have designated as a pure accessory of construction that part of it which is the most subtle, the most illustrious, the most elevated, the most rare. Such is not the definition of architecture for those who esteem this art at its value, sometimes sublime, sometimes beautiful, sometimes graceful, but always dignified, always associated with the grandeur of nations and with their glory. The art of building, says M. Hittorff, can be found with the least civilized people, whereas architecture can be the result of only the highest civilization.

Some writers, particularly among those in England, wish to have architecture definitely defined as "beauty in building;" but it is necessary to be careful in admitting such a definition, lest it promote the fatal idea that beauty is a quality which buildings can do without. When the beautiful is proclaimed to be not essential, when science is declared to be separable from art, one soon grows accustomed to all that is ugly, monstrous, and deformed. It is necessary, therefore, in defining the word "architecture," to make the idea of beauty an essential part of the definition.

Design

AWARDS FOR FIRST TERM, 1906-1907

Fourth Year of Design

TREATMENT OF A RETAINING-WALL.

1st	First mention,	E. A. WALTER.
2d	" "	R. T. C. JACKSON.
3d	" "	E. S. CAMPBELL.
Second	" "	F. H. HASKELL.

A PAVILION FOR MUSIC.

(Sketch problem *en loge*.)

1st	First mention,	R. T. C. JACKSON.
2d	" "	G. H. BUCKINGHAM.
3d	" "	A. A. BLODGETT.

A CLOCK-TOWER FOR A RAILWAY STATION.

(Sketch problem *en loge*.)

1st	First mention,	F. H. HASKELL.
2d	" "	E. S. CAMPBELL.
1st	Second "	J. T. WRINKLE.
2d	" "	A. A. BLODGETT.

A FRANCO-AMERICAN CLUB HOUSE.

1st	First mention,	A. A. BLODGETT.
2d	" "	R. T. C. JACKSON.
3d	" "	J. T. WRINKLE.
Second	" "	H. B. THOMSON.

THE DECORATION OF A CORNER LOT.

(Sketch problem *en loge*.)

Second mention, J. T. WRINKLE.

A PULPIT.

(Sketch problem *en loge*.)

FOR ENSEMBLE.

1st	First mention,	J. T. WRINKLE.
2d	" "	F. H. HASKELL.
3d	" "	E. S. CAMPBELL.

FOR DETAIL.

1st	First mention,	R. T. C. JACKSON.
2d	" "	F. H. HASKELL.
3d	" "	E. A. WALTER.

A PULPIT.

1st	First mention,	G. H. BUCKINGHAM.
2d	" "	F. H. HASKELL.
1st	Second "	E. A. WALTER.
2d	" "	R. T. C. JACKSON.

Third Year of Design

A TRIUMPHAL ARCH.

1st	First mention,	J. A. KANE.
2d	" "	J. T. MOHN.
3d	" "	S. A. MARX.
4th	" "	O. A. JOHNSON.
5th	" "	C. EVERETT.
6th	" "	E. F. LEWIS.
7th	" "	W. B. KIRBY.
8th	" "	E. J. KRAFFT.
1st	Second "	J. C. WOLFENDEN.
2d	" "	R. B. BARNES.

- 3d Second mention, A. N. REBORI.
- 4th " " MISS M. F. DARLING.
- 5th " " J. T. FALLON.
- 6th " " C. L. PITKIN.
- 1st Third " A. S. KENDALL.
- 2d " " C. ALLBRIGHT.
- 3d " " B. C. BAKER.
- 4th " " F. B. SCHMIDT.

A SCHOOL OF DECORATIVE AND INDUSTRIAL ARTS.

- 1st First mention, R. B. BARNES.
- 2d " " E. S. WIRES.
- 3d " " S. A. MARX.
- 4th " " C. EVERETT.
- 5th " " C. ALLBRIGHT.
- 1st Second " W. B. KIRBY.
- 2d " " J. T. MOHN.
- 3d " " A. N. REBORI.
- 4th " " E. J. KRAFFT.
- 5th " " O. A. JOHNSON.
- 6th " " W. SOULE.
- 1st Third " MISS M. F. DARLING.
- 2d " " E. W. BONTA.
- 3d " " A. S. KENDALL.

A STUDIO FOR A SCULPTOR.

(Sketch problem.)

- 1st First mention, E. F. LEWIS.
- 2d " " J. A. KANE.
- 1st Second " A. S. KENDALL.
- 2d " " C. ALLBRIGHT.
- 3d " " O. A. JOHNSON.
- 4th " " W. B. KIRBY.
- 5th " " V. J. BLACKWELL.
- 1st Third " C. EVERETT.
- 2d " " R. B. BARNES.
- 3d " " A. N. REBORI.

A CONCERT-HALL.

- 1st First mention, A. N. REBORI.
- 2d " " H. A. SULLWOLD.
- 3d " " C. EVERETT.
- 4th " " E. F. LEWIS.
- 5th " " J. A. KANE.
- 6th " " J. T. MOHN.
- 7th " " S. A. MARX.
- 8th " " W. B. KIRBY.
- 9th " " R. B. BARNES.
- 10th " " W. SOULE.
- 1st Second " W. G. PERRY.
- 2d " " E. H. REED, JR.
- 1st Third " O. A. JOHNSON.
- 2d " " E. S. WIRES.
- 3d " " V. J. BLACKWELL.
- 4th " " B. C. BAKER.
- 5th " " C. F. BAKER.
- 6th " " E. J. KRAFFT.
- 7th " " F. O. ADAMS, JR.
- 8th " " F. H. KALES.
- 9th " " R. BUCKLER.

Second Year of Design

A MEMORIAL CHAPEL.

- 1st First mention, E. I. WILLIAMS.
- 2d " " F. J. ROBINSON.
- 3d " " K. E. CARPENTER.
- 4th " " P. W. NORTON.
- 1st Second " MISS L. P. C. PACKWOOD.
- 2d " " H. F. KUEHNE.
- 3d " " R. G. CRANE.
- 4th " " H. H. BENTLEY.

DETAIL OF FRONT DOOR OF CHAPEL.

(Sketch problem.)

- 1st First mention, E. I. WILLIAMS.
- 2d " " W. F. DOLKE, JR.
- 3d " " P. W. NORTON.
- 1st Second " F. J. ROBINSON.
- 2d " " T. OWINGS.
- 3d " " C. S. CLAPP.
- 4th " " C. H. PRESTON.
- 1st Third " K. E. CARPENTER.
- 2d " " H. F. KUEHNE.
- 3d " " H. H. BENTLEY.
- 4th " " F. HOOPER.
- 5th " " R. F. HASKELL.
- 6th " " K. VONNEGUT.

A REGISTRY OF DEEDS AND COURT-HOUSE.

- 1st First mention, E. I. WILLIAMS.
- 2d " " MISS L. P. C. PACKWOOD.
- 3d " " F. J. ROBINSON.
- 4th " " H. H. BENTLEY.
- 1st Second " R. G. CRANE.
- 2d " " P. W. NORTON.
- 3d " " H. F. KUEHNE.
- 4th " " W. L. PATTON.
- 5th " " K. E. CARPENTER.

THE BUILDING AND GALLERY FOR THE COPLEY SOCIETY OF BOSTON.

- 1st First mention, E. I. WILLIAMS.
- 2d " " R. G. CRANE.
- 3d " " H. F. KUEHNE.
- 4th " " C. H. PRESTON.
- 5th " " K. VONNEGUT.
- 1st Second " P. W. NORTON.
- 2d " " H. H. BENTLEY.
- 3d " " F. J. ROBINSON.
- 4th " " K. E. CARPENTER.

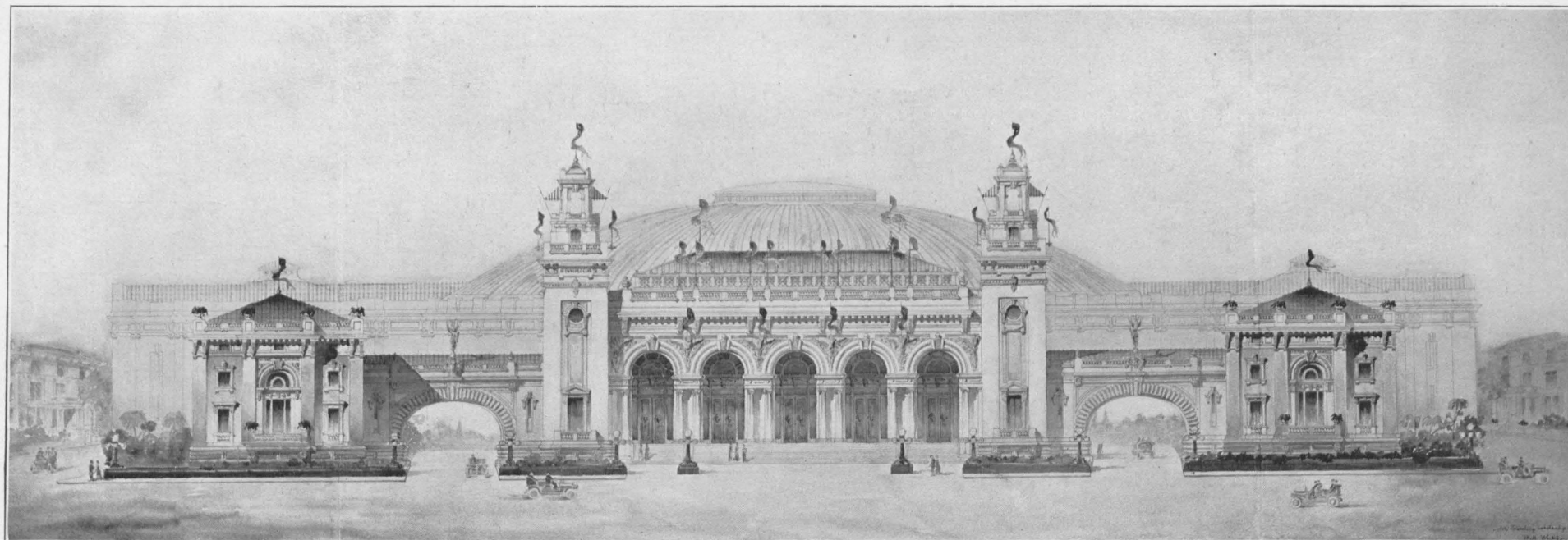
A RETAINING-WALL WITH STAIRCASES AND A SUMMER-HOUSE.

("Class of 1904 Competition Prize" problem.)

- Prize, E. I. WILLIAMS, Regular Student.
- " K. E. CARPENTER, Special Student.
- 1st First mention, R. G. CRANE.
- 2d " " P. W. NORTON.
- 3d " " H. H. BENTLEY.
- 4th " " C. S. CLAPP.
- 5th " " C. YOUNGERMAN.
- 6th " " C. H. PRESTON.
- 7th " " R. F. HASKELL.
- 1st First " MISS L. P. C. PACKWOOD.
- 2d " " W. L. PATTON.

} Regular.

} Special.



A STATE AUTOMOBILE CLUB

1906 Traveling Scholarship Competition

WON BY M. H. WHITEHOUSE

MENTION, MISS I. A. RYAN, L. C. CLARKE, JR.

PROGRAM

THIS establishment should occupy a whole city block surrounded by wide streets or avenues. The lot of land is rectangular; the dimensions are 450' x 600'. The student is at liberty to use either side of the rectangle for his composition.

The different parts of this establishment should form a complete whole. The composition should include two distinct divisions, namely:

DIVISION I should contain a public exhibition-hall; a club; offices for the administration; offices for representative agents; a printing-office.

DIVISION II, the garage proper, should be divided into several parts or buildings.

From the above summary, the establishment is more than either a garage, a club, or an exhibition-hall. It is an ensemble which should have both a utilitarian and a scientific object, permitting the public to follow the progress of this interesting industry.

REQUIREMENTS IN DETAIL.

DIVISION I.

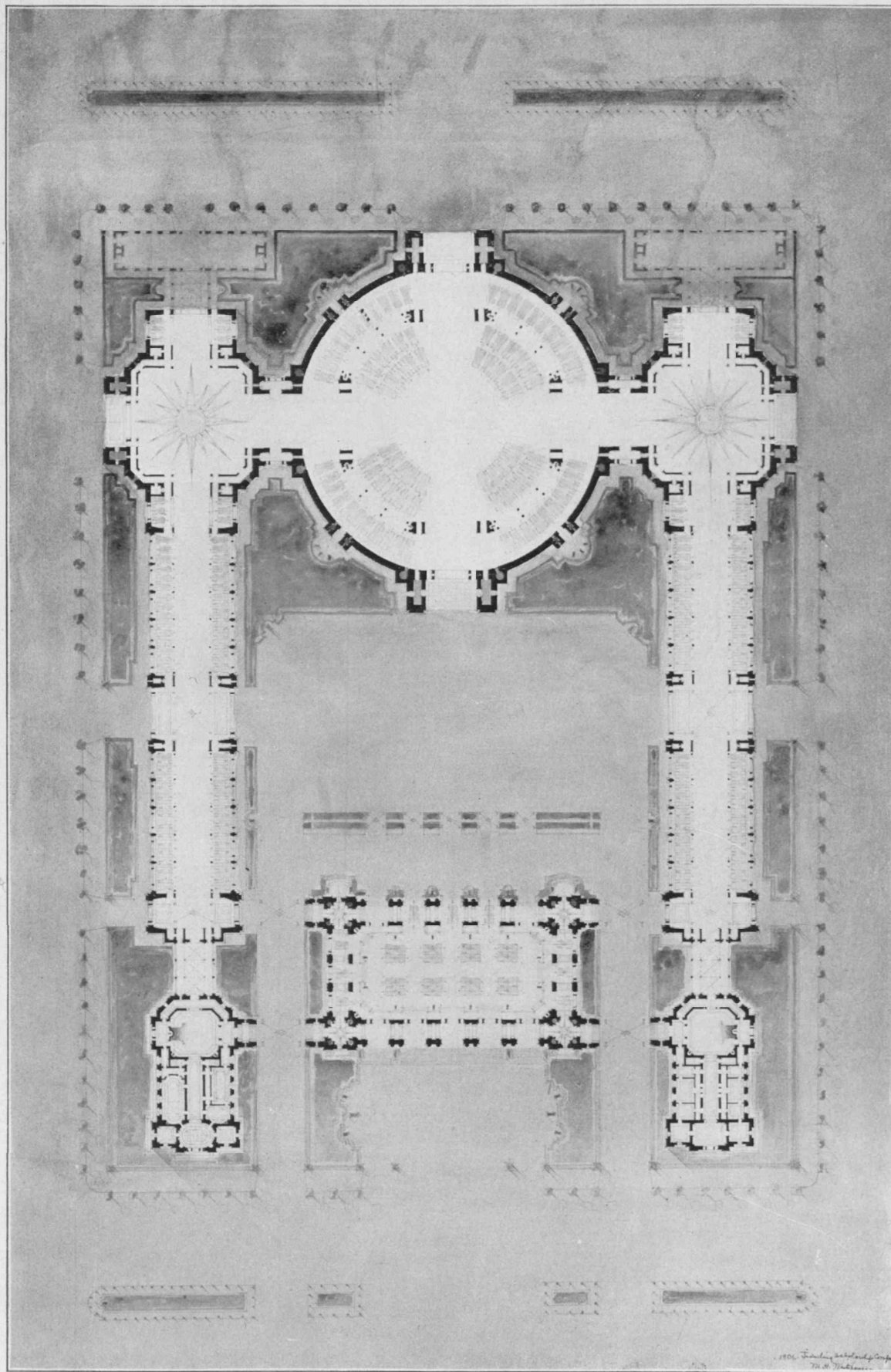
(a) An exhibition-hall, easily accessible and near the street. This hall should be so

arranged as to display the most perfect models of the best makes. Its dimensions and form are left to the choice of the student, but the area must not exceed 15,000 sq. ft., nor be less than 12,000 sq. ft. It should contain one large story.

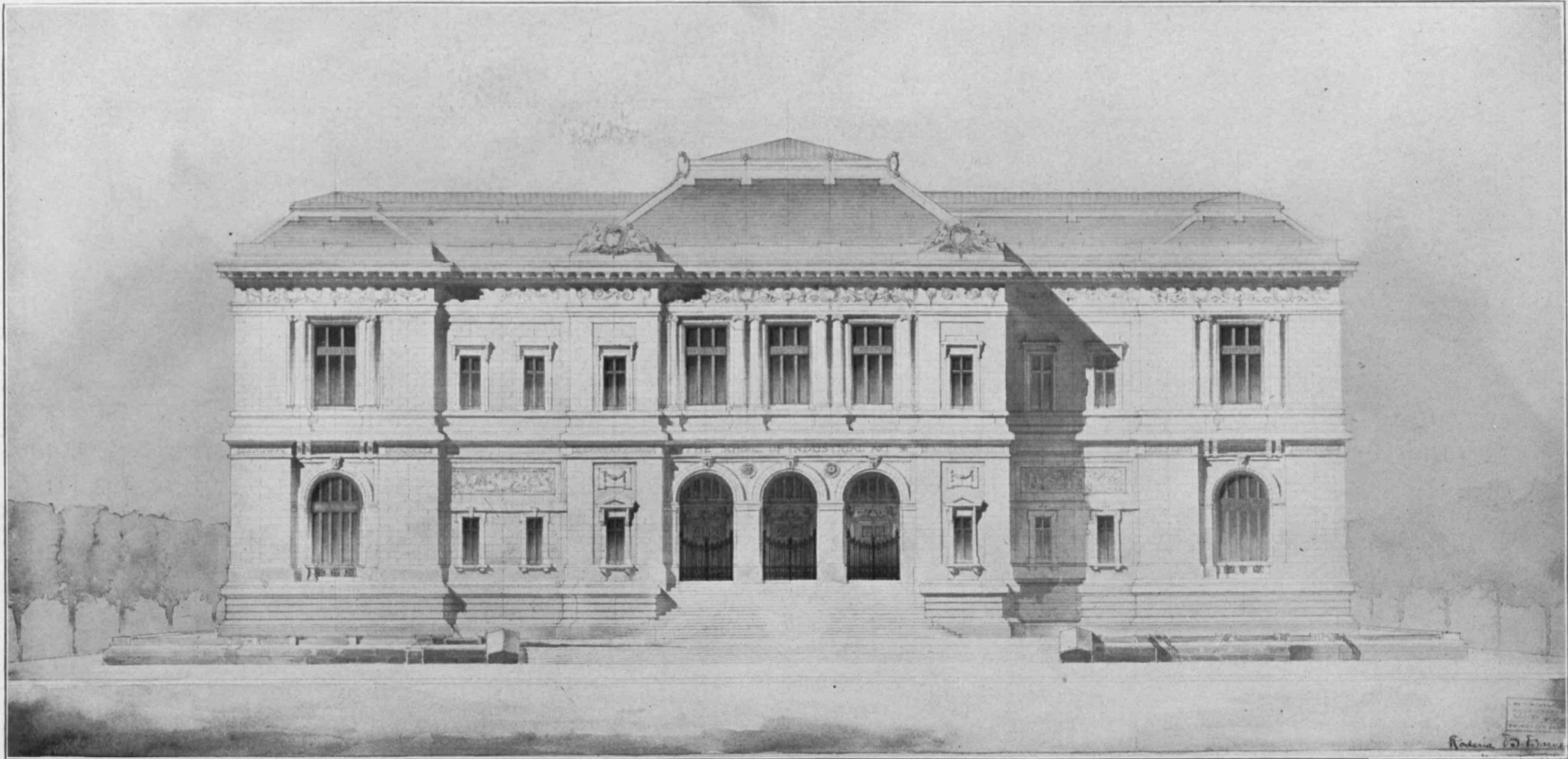
(b) A club for a limited number of members, say 150, with all the conveniences that belong to an American club. The club should be arranged in two stories; or a third floor may be added if the student deems it necessary for his composition. He is also free to emphasize one story, or he may keep them of equal importance. The club should contain waiting-rooms, coat-rooms, several club-rooms, a committee-room, library, two or three bedrooms, dining-room, kitchen, etc.

(c) The administrative department should consist of several rooms. There should also be offices for the representative agents of both domestic and foreign manufactures of automobiles; and several rooms for the printing of an automobile journal. This part of the division, in spite of the differences of treatment and of interior planning, should be treated in its main lines, both in plan and façade, like the club.

(Continued on Page 23)



BY M. H. WHITEHOUSE



A MUSEUM OF INDUSTRIAL ARTS
BY R. B. BARNES

Third Year of Design PROGRAM

AN effort is remarked on all sides in the United States to form establishments of a new character for which there is a growing need, such as schools of decorative art, of industrial arts, popular institutes, etc., the aim of which is to form not exactly artists but rather artisans,— men familiarized with the technique and use of the various materials employed in the different branches of the industrial arts.

To cite a single example: in the construction of the various parts of a building it is very difficult to find men capable of collaborating in the treatment of marble,

metals, wood, etc., the result of insufficient instruction; consequently it is impossible to obtain either the desired perfection in the work, or the spirit that a man employed in erecting a building should bring to the general good and the harmony of the ensemble. An interesting institution which responds more or less to this necessity is the Cooper Union in New York.

The aim of this problem is not to make a composition as important as the Cooper Union, but simply a school for a city of secondary importance. This school, frequented by young men of modest position who, in general, can attend at night

only, and in exceptional cases one or two hours during the day, as well as by workmen wishing instruction in special branches, will comprise chiefly halls for drawing and lectures, ateliers, library, and an important special museum.

The building should be divided into two principal stories, of which the second, according to the fancy of the student, may be more important than the first. The surface of the building should not exceed 25,000 sq. ft., nor should it be less than 22,000 sq. ft. The form of the building as well as of the different rooms is undetermined.

REQUIREMENTS

FIRST STORY.

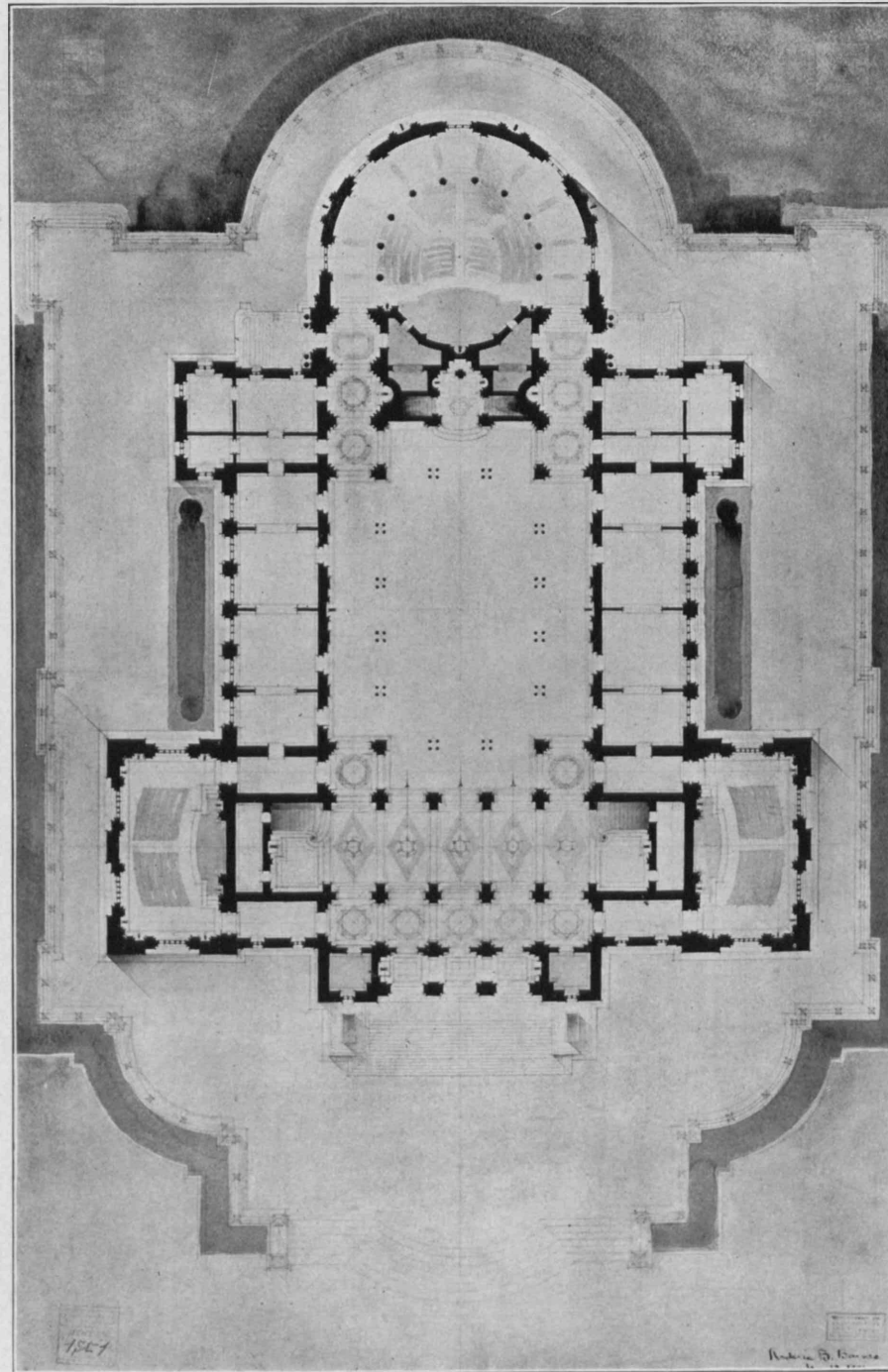
A large hall or museum, with skylight in which models of large dimensions in stone, metal, wood, etc., will be exposed. Its dimensions will result from the principle of composition adopted.

In the immediate neighborhood of this hall, and as far as possible in direct communication with it, will be found ateliers of various dimensions, at least eight in number, for manual demonstration, one large lecture-room for 500 persons, and two lecture-rooms for 100 or 150 persons each.

Entrance-hall, one or more staircases, coat-rooms, and lavatories complete the requirements of the first story. It should be added that the large hall and the ateliers should be arranged to permit students to draw and measure the objects exhibited.

SECOND STORY.

Six or eight exhibition-rooms of varied dimensions for models of the industrial arts, — wood, bronze, wrought iron, marble, furniture,



stained glass, jewelry, ornaments of various kinds, even pictures and sculpture. Two drawing-rooms of the size of the two small lecture-rooms below. A library of relative importance, to contain a large collection of technical books.

The first story will be 8 or 10 ft. above the ground, permitting large storerooms, beside casting and modeling rooms in the basement, in addition to the usual boiler-room, coal-bunkers, ventilating-apparatus, etc.

REQUIRED FOR THE SKETCH

Plan of the first story	$\frac{1}{32}'' = 1'$
Principal façade	$\frac{1}{16}'' = 1'$
Section	$\frac{1}{16}'' = 1'$

The building is supposed to be surrounded by streets and facing a large avenue. Students are permitted to take a space of thirty feet all around for a sort of garden.

DESPRADALLE.

(Continued from Page 20)

There should be easy communication between these three different parts of Division I. The total area should not be more than 32,000 sq. ft., nor less than 25,000 sq. ft.

DIVISION II. The garage. As its name indicates, this is to be a large repository for several hundred automobiles of all makes. It should consist of three large halls or galleries. Two of these halls should be of the same dimensions, and the third should be a sort of repair-shop, in the neighborhood of which should be located such small buildings as would be necessary to put a machine in good condition. The repair-shop may be larger than the other two halls. The area of the three halls should not exceed 60,000 sq. ft., nor be less than 45,000 sq. ft. They should be easily reached from the outside and should connect; at least the repair-shop



A MUSIC HALL
BY A. N. REBORI

Third Year of Design

should connect with the other two halls.

These two divisions of the establishment should be so arranged as to have a court large enough to exhibit one or more machines at the same time; also space for visiting automobiles. Some sort of light shelter may be provided in the court.

It goes without saying that the architectural treatment of this composition should be in accord with the nature of the subject.

DRAWINGS REQUIRED

Plan, at the scale $\frac{1}{32}'' = 1'$
 Section, at the scale $\frac{1}{32}'' = 1'$
 Principal façade $\frac{1}{16}'' = 1'$

In the expression of the sketch drawings required, the student should show clearly the principle of his composition, otherwise the competitor will be placed "*hors de concours*."

The sketch will be made "*en loges fermées*" from 9 A.M. to 12 P.M. (15 hours), Friday, April 13, 1906.

DESPRADALLE.

May 14, 1906.

PROGRAM

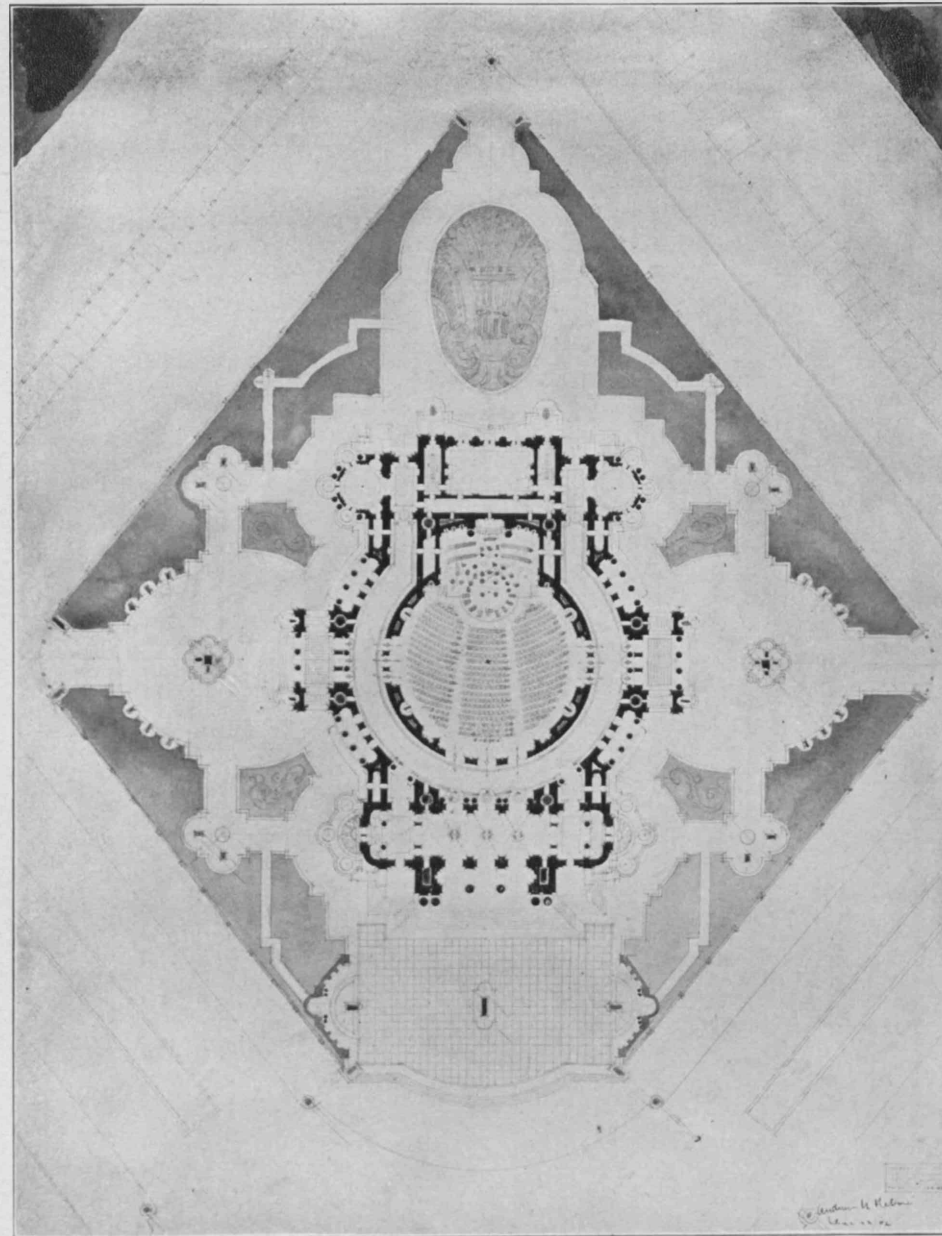
SUPPOSE a space the form of the adjoining sketch, in the public garden of a Southern town where it is proposed to erect a hall, or "Odeon," for concerts of classical music with a large orchestra.

This edifice, conceived with a single large story, should have, however, an interior gallery of secondary importance in the auditorium.

Erected 8' to 12' above the ground, its principal requirements will comprise:

A grand entrance-vestibule with ticket-office.

Space for coat-rooms, lavatories, etc.

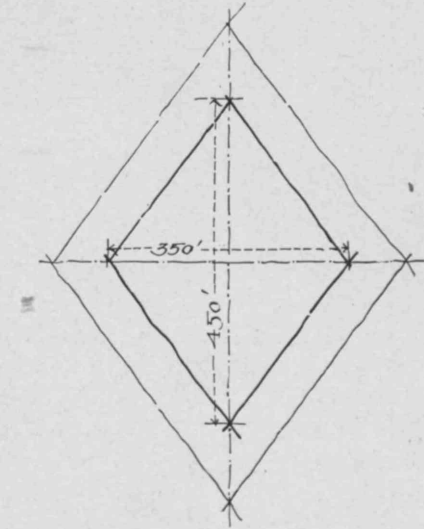


BY A. N. REBORI

"*Promenoir*" divided or not in several parts.

Room for buffet.

A covered arrival for carriages, which may be treated like a large porch.



Near the stage one or two rooms for musicians (greenroom), and the administration, also dressing-rooms for the artists.

Means of access to the gallery.

Main hall (auditorium), the form undetermined. Its area will not be less than 3,500 sq. ft., nor will it exceed 5,000 sq. ft.

The total area of the building will not be less than 15,000 sq. ft., nor more than 20,000 sq. ft.

REQUIRED FOR SKETCH

Plan at the scale $\frac{1}{32}'' = 1'$
 Principal façade $\frac{1}{16}'' = 1'$
 Section $\frac{1}{16}'' = 1'$

DESPRADALLE.



PRIZE DESIGN FOR REGULAR STUDENTS

BY E. I. WILLIAMS

Competition for the Class of 1904 Prize

FOR THIRD-YEAR STUDENTS

Program

At one end of a terraced garden there is to be built a retaining-wall 10 feet high which will be finished with a balustrade about 3 feet high, making a total height of 13 feet.

The upper terrace forms a lawn surrounded with trees, and extending back some distance to the residence.

The lower terrace forms a large garden designed with avenues, walks, and parterres.

On the upper terrace there is to be a main avenue extending from the house to the garden in a straight line, and at the retaining-wall there will be a summer-house forming the end to this avenue.

At either side of this pavilion or summer-house there will be ramps or staircases connecting with the lower terrace, and central between these ramps there is to be placed a niche or small fountain in the retaining-wall.

This design must not exceed 45 feet in width, including the ramps, but portions of the retaining-wall at either side may be shown in excess of this dimension. The finished drawing is to be an elevation drawn to the scale of $\frac{3}{8}$ ". A sketch plan must be shown at a small scale in connection with the rendering.

S. W. MEAD.

Awards

REGULAR STUDENTS.

- | | | |
|----------|-------------------|-------------------|
| Prize: | E. I. WILLIAMS. | 4. C. S. CLAPP. |
| Mention: | 1. R. G. CRANE. | 5. C. YOUNGERMAN. |
| | 2. P. NORTON. | 6. C. H. PRESTON. |
| | 3. H. H. BENTLEY. | 7. R. F. HASKELL. |

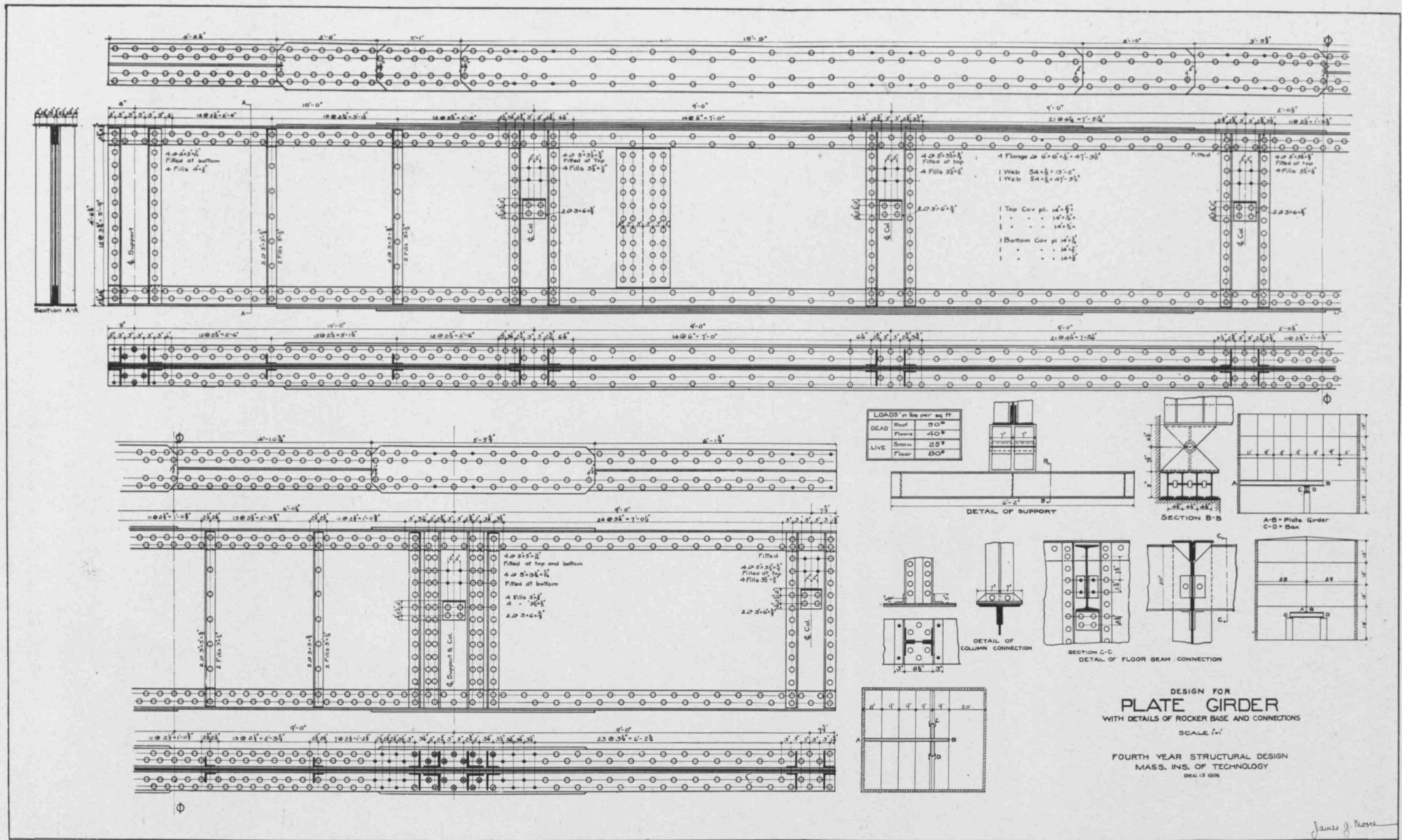
SPECIAL STUDENTS.

- | | |
|----------|----------------------------|
| Prize: | K. E. CARPENTER. |
| Mention: | 1. MISS L. P. C. PACKWOOD. |
| | 2. W. L. PATTON. |



PRIZE DESIGN FOR SPECIAL STUDENTS

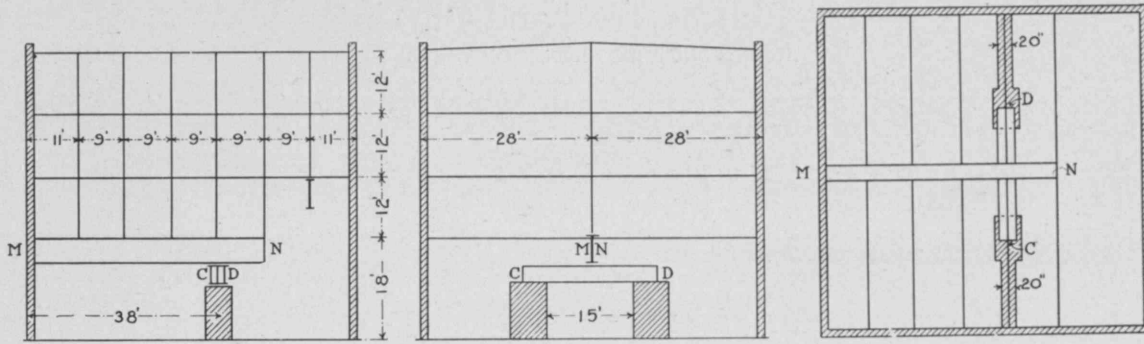
BY K. E. CARPENTER



PROBLEM IN STRUCTURAL DESIGN

BY J. G. MOORE

To Design a Plate Girder and a Three Web Box Girder



DEPATH of MN limited to 5 ft. over all. Weight of roof, not including roof-beams, 40 lbs. per sq. ft. Weight of floor, not including floor-beams, 50 lbs. per sq. ft. Allowance for snow 25 lbs. per sq. ft. Live load 80 lbs. per sq. ft.

MN rests upon the three-web box girder CD, as indicated.

CD spans opening of 15 ft. in a 20-inch brick wall. The depth of girder CD should be made as small as possible so as to give proper head-room below.

Before beginning the design for the girders it will be necessary to design beams and columns for the stories above the basement.

Make the following drawings of each girder at a scale of 1".

Side elevation.

Plan of girder looking down.

Horizontal section through web looking down.

Such vertical sections and details as are necessary to explain the design in full.

Also show sections of columns used in each story.

SUGGESTED METHOD OF PROCEDURE

Determine the depth of the web to be used. In architectural work this will generally be fixed by the conditions of head-room, etc.

Determine thickness of web required to resist shear.

In architectural work the floor-beams usually give ample lateral support to the girder. If this should not be the case, determine the reduction to be made in the allowable stress for the compression flange.

Compute the required flange-area at each section where the moment has been determined.

Design flange for the section of maximum moment.

Determine where to cut off flange-plates.

Compute pitch of horizontal flange-rivets.

Design splices for flange-angles, flange-plates, and web.

Design stiffeners carrying concentrated loads.

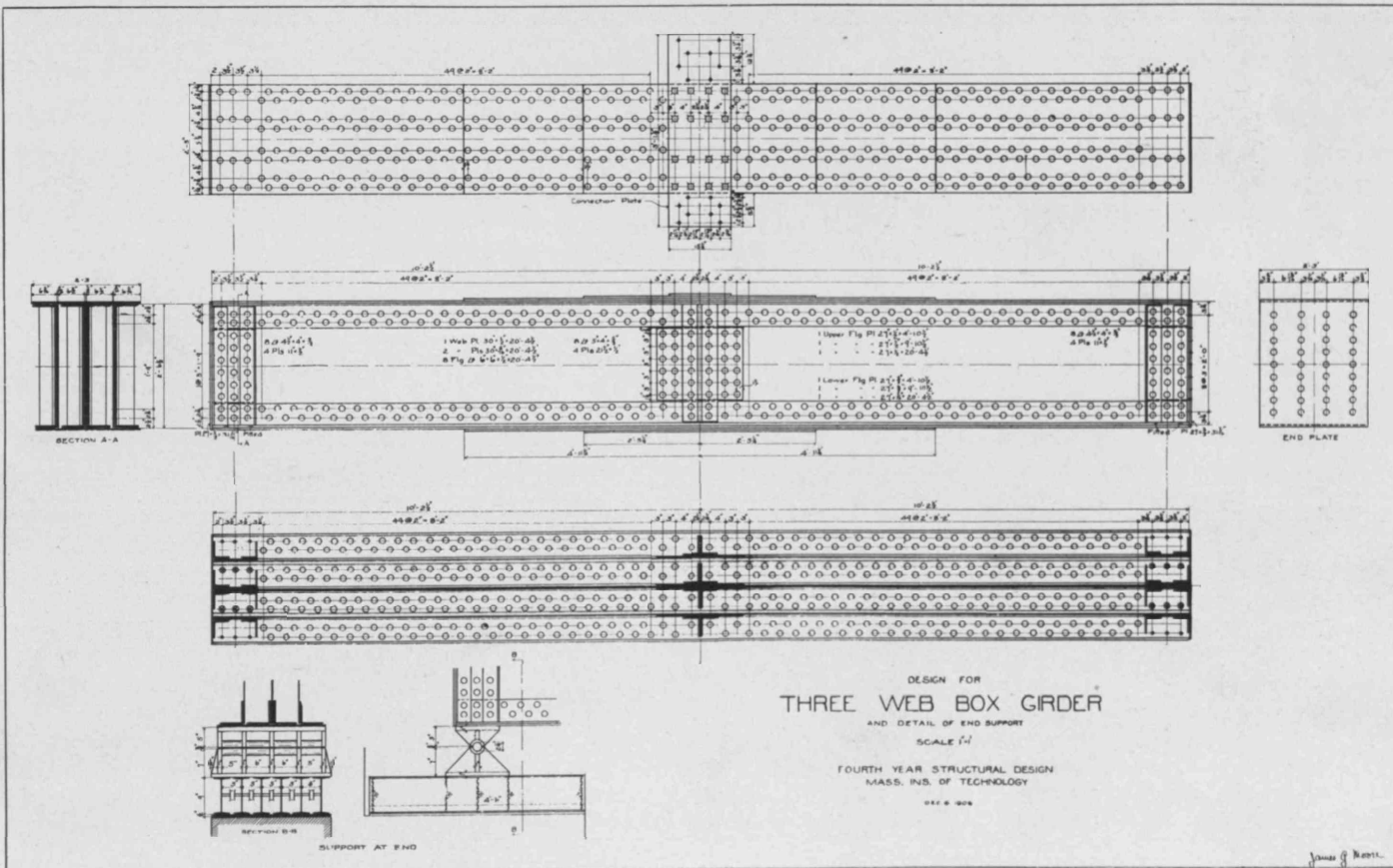
Compute rivets for these stiffeners.

Investigate web for buckling.

Design connections.

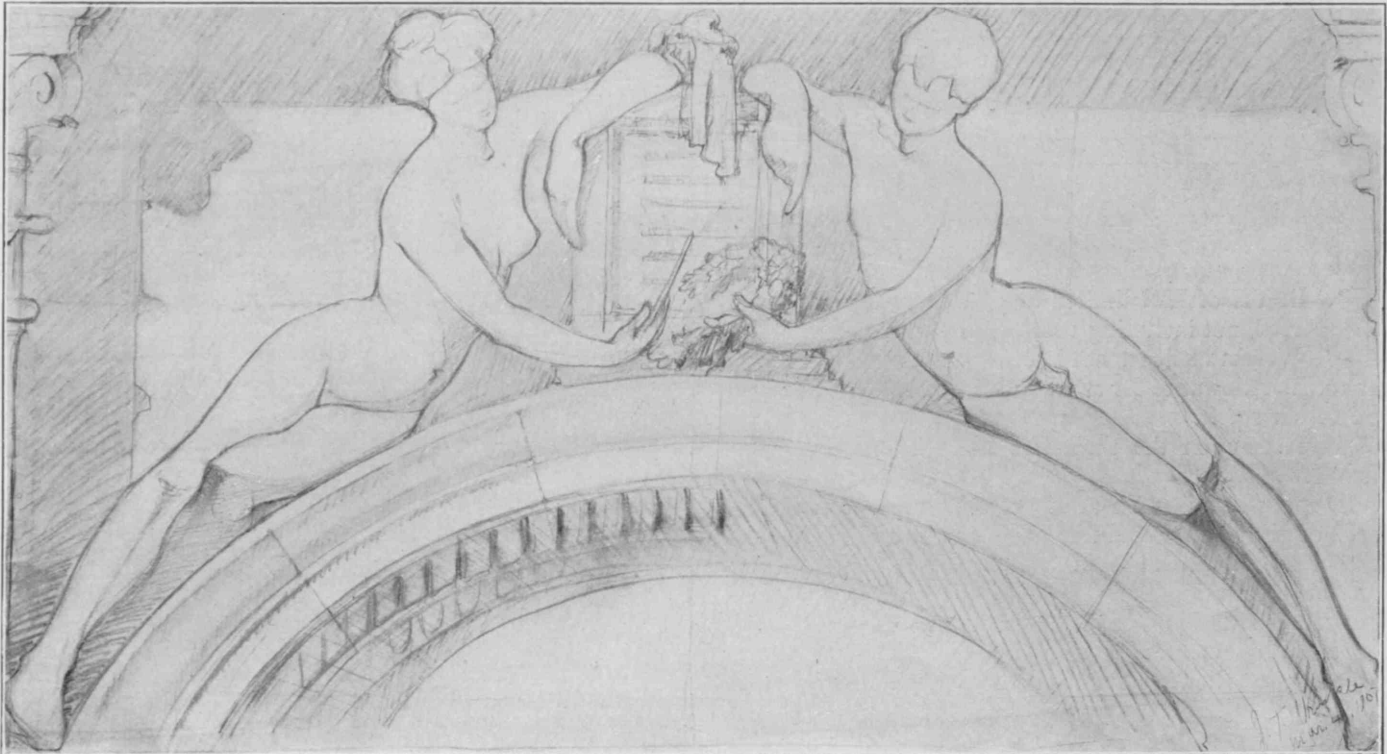
Design wall-plates, etc.

W. H. LAWRENCE.

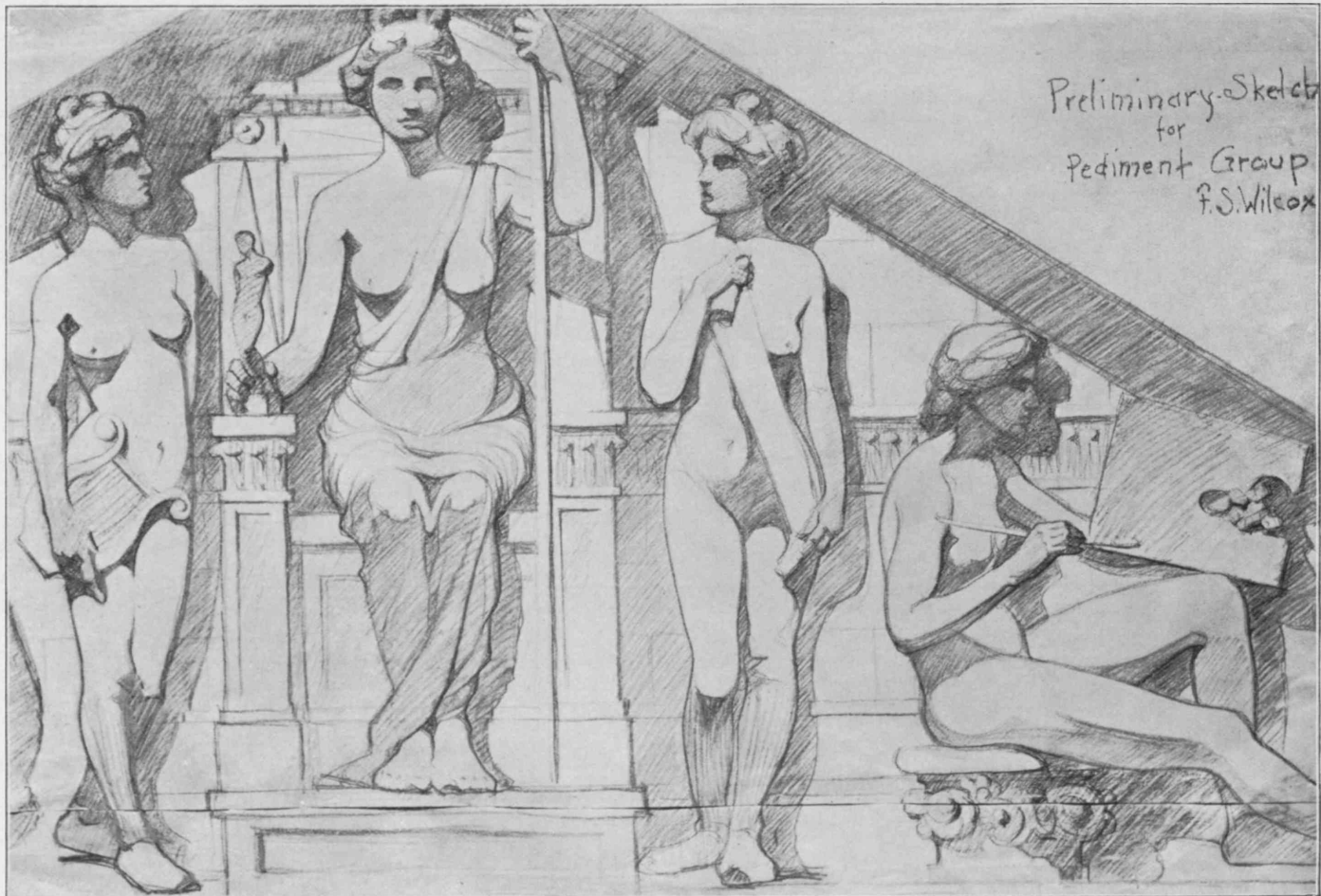


Advanced Freehand Drawing

STUDIES IN COMPOSITION, FROM THE MODEL



BY J. T. WRINKLE



Preliminary Sketch
for
Pediment Group
F.S. Wilcox

BY F. S. WILCOX

Alumni Notes

The department is in receipt of many applications from architects and others for assistants. We have no information as to whether our alumni are satisfied with their present positions and prospects, consequently many opportunities for Institute men are doubtless lost.

The Secretary of the Institute will send application blanks to any of our former students who wish to register their names with the view of making a change whenever a suitable opportunity occurs.

Of seventy-five foreign students at the last entrance examinations of the École des Beaux-Arts, only eleven were admitted. Three Technology men were among this number,—W. D. Crowell, '02; C. G. Loring, '06; and P. F. Mann, '06.

A. H. Jacobs, '04, and F. C. Lebenbaum, '06, have been travelling and studying the past winter in Greece and Italy. They are now in Paris preparing for the spring examinations of the École des Beaux-Arts.

L. C. Clarke, Jr., '04, is now with the John Scott Company, Architects, Detroit.

E. E. Hoxie, '03, and A. J. Scholtes, '03, have formed a partnership and opened an office in the new Berkeley Building, Boston.

J. J. Donovan, '06, is assistant superintendent for Ernest Flagg on one of the latest sky-scrapers in New York, the Singer Building.

An announcement has been received from Vinal & Negus, Landscape Architects, 601 Boylston St., Boston, Vinal being of the class of '97 and Negus a Harvard graduate.

M. H. Whitehouse, '05, holder of the 1906 Travelling Scholarship, has been spending the winter in Italy, the greater part of the time being in Rome at the American Academy.

E. L. Mayberry, '06, and L. A. Parker, '06, have formed a partnership and established an office in the Pacific Electric Building, Los Angeles, for the practice of structural steel and reinforced concrete engineering.

W. P. R. Pember, '02, in association with Martin C. Miller, of Buffalo, was one of ten architects to win in the preliminary competition for the New York State Library building. They receive a prize of \$500 and an allowance of \$1,000 for making plans for the final competition. As the other winners are among the best-known architectural firms in the country, the work of two such young men as Messrs. Pember and Miller is particularly creditable. Mr. Pember has recently entered the employ of the South and Western Railway Co. This road has undertaken extensive improvements, and Mr. Pember will have charge of all the architectural and landscape work. With him is associated F. H. Hunter, '02.

H. Lord, '06, has gone to Honolulu on lighthouse construction work for the government.

[From a Pittsburgh Daily Paper.]

Much valuable information for architects, engineers, and property-owners is being compiled from the recent flood experiences. Chief of the lessons concerns water-proofing, a matter in which there has been a wide diversity of opinion among building experts in this city. The work of the flood last week showed conclusively that many of the old-time ideas regarding water-proofing must be abandoned for all buildings below or facing in Wood Street, if these structures are to be made permanently safe.

Architect C. A. MacClure, of the firm MacClure, '94, & Spahr, '95, with William E. Morrison, their superintendent of building construction, spent all of Thursday night making an exhaustive study at first hand of the ravages of the flood. They took hourly measurements of the height of the water at the Union Bank sky-scraper at Fourth Avenue and Wood Street, and the Diamond Bank Building at the foot of Fifth Avenue, both of which they designed. These reckonings extended from 6 o'clock Thursday night to 8 o'clock Friday morning. The measurements at the Union Bank Building were taken along the curb in Wood Street. The following day Engineers Edeburn and Cooper verified the figures and applied them to the first-floor level of the Union Bank Building, which has an official height of 41.50 feet. The water rose to within 3.80 feet of this floor, so that the net high-water mark was 37.7 feet.

Major Henry C. Newcomer, the new government engineer in charge of local river affairs, is much interested in the figures given and has started a party of three men, under the direction of H. C. Gould, to determine accurately the flood stages. He said last night that the high point for Pittsburg might be announced within a few days, but that it would probably take two weeks.

The net result of the investigation made by Messrs. MacClure and Morrison is that there must be a new high-water level established for buildings, and that more care must be taken with the kind of water-proofing used in large structures.

The prize of twenty-five dollars offered by the Architectural Society for a design for the cover of THE TECHNOLOGY ARCHITECTURAL RECORD was awarded to Winsor Soule, '07. Thirteen designs were submitted.

(Continued from Page 17)

character of its own, which formed a key-note for the architectural scheme. This presented a difficult architectural problem, as the Colonial scale, being necessarily small, could not be forced to give the height of cornice and lines of buildings desired. As there are a great number of buildings on the grounds and the Colonial motives limited to some extent, it was found very difficult to avoid repeating them in making the individual buildings interesting.

In order to get a water feature for the Exposition, two long piers or streets were built out into the bay, and have proved very successful. These piers enclose a large lagoon, and are joined at their outer ends by an ornamental bridge which forms the entrance to the lagoon. Two lofty towers crown the ends of the piers, and give an imposing and stately appearance to the whole. On the outskirts of the Exposition the style changes to the Mission and Spanish Renaissance, as the Colonial was found to be too monotonous for this kind of building.



STVDY OF A
CORINTHIAN CAPITAL
TO BE EXECVTED IN STONE

BY E. S. WIRES

Publications
OF THE
Massachusetts Institute of
Technology

THE BULLETIN.

Comprising the following Numbers:

CATALOGUE of the Officers and Students, with a statement of the Requirements for Admission; a full description of the Courses of Instruction; and an account of the Lowell School for Industrial Foremen. *Issued in December.*

REPORT OF THE PRESIDENT AND TREASURER, including Statistics, Reports of Departments, and Titles of Publications of Members of the Instructing Staff. *Issued in January.*

REGISTER OF GRADUATES, comprising Class, Geographical, and Alphabetical Registers, Professional Occupations, Addresses, Statistics, and a List of Alumni Associations. *Issued in March.*

PROGRAMME of the Courses of Instruction offered during the following school year. Identical in form with the Catalogue, but not containing the Register of Students. *Issued in June.*

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Circulars describing in detail the Departments of MINING ENGINEERING; ARCHITECTURE; CHEMISTRY AND CHEMICAL ENGINEERING; BIOLOGY; PHYSICS AND ELECTRO-CHEMISTRY; and NAVAL ARCHITECTURE.

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SUMMER COURSES, issued in March; ADMISSION FROM OTHER COLLEGES; THE RESEARCH LABORATORY OF PHYSICAL CHEMISTRY; THE GRADUATE SCHOOL OF ENGINEERING RESEARCH; and ADVANCED STUDY AND RESEARCH.

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