

CORNELL UNIVERSITY OFFICIAL PUBLICATION

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ANNOUNCEMENT OF THE COLLEGE OF ARCHITECTURE 1920-1921

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CALENDAR

First Term 1920-1921

Sept. 17	Friday	Entrance examinations begin.
Sept. 27-28	Monday-Tuesday	Registration and assignment, new students.
Sept. 29	Wednesday	Registration and assignment, old students.
Sept. 30	Thursday	Assignments concluded.
Oct. 1	Friday	Instruction begins. President's annual address to the students.
Oct. 19	Tuesday	Last day for payment of tuition.
Nov. —	Thursday	Thanksgiving Recess.
Dec. 22	Wednesday	Instruction ends at 1 p. m.
Jan. 6	Thursday	Instruction resumed at 1 p. m. } Christmas Recess.
Jan. 11	Tuesday	Founder's Day.
Jan. 29	Saturday	Instruction ends at 6 p. m.
Jan. 31	Monday	Term examinations begin.
Feb. 9	Wednesday	Term examinations end.

Second Term 1920-1921

Feb. 11-12	Friday-Saturday	Registration and assignment.
Feb. 14	Monday	Instruction begins at 8 a. m.
Mar. 3	Thursday	Last day for payment of tuition.
Apr. 6	Wednesday	Instruction ends at 1 p. m.
Apr. 13	Wednesday	Instruction begins at 1 p. m. } Spring Recess.
May 21	Saturday	Navy Day.
June 8	Wednesday	Term examinations begin.
June 16	Thursday	Term examinations end.
June 22	Wednesday	Commencement.

COLLEGE OF ARCHITECTURE

FACULTY

Jacob Gould Schurman, A.M., D.Sc., LL.D., President of the University.

Francke Huntington Bosworth, jr., A.B., Dean of the College of Architecture,
Professor of Design.

Clarence Augustine Martin, D.Sc., Professor of Architecture.

Olaf Martinius Brauner, Professor of Drawing and Painting.

Albert Charles Phelps, B.S., M.Arch., Professor of Architecture and Secretary
of the Faculty of Architecture.

George Young, jr., B.Arch., Professor of Architecture, in the Theory of Construc-
tion.

Christian Midjo, Assistant Professor of Freehand Drawing and Modeling.

LeRoy P. Burnham, B.S.Arch., M.S.Arch., Assistant Professor of Design.

George Ray Chamberlain, M.E., Assistant Professor of Freehand Drawing.

———, Assistant Professor of Design.

Hiram Samuel Gutsell, B.P., A.M., Assistant Professor of Freehand Drawing.

Hubert E. Baxter, B.Arch., Assistant Professor of Architecture.

Walter King Stone, Acting Assistant Professor of Drawing.

Marie Elizabeth Waldron, Secretary to the Dean.

Ellen Irene Steele, Librarian.

Students in the College of Architecture also receive instruction from members of other faculties of the University with whom they elect work, and each year eminent architects and practitioners of allied arts lecture before the College.

GENERAL STATEMENT

The College of Architecture aims to give a professional training for the practice of architecture as thorough and well rounded as the period of residence permits. The academic training is especially designed to prepare the student for ultimate independent practice of his art and to so prepare him that he may acquire the most benefit from the practical experience required by so many of the state laws as a prerequisite to the granting of a license as a registered architect. The acquisition of a part of this technical experience during the summer vacation in the offices of architects and builders is urged upon the student during the course. Instruction in architecture as one of the building arts is felt to be best obtained by close personal association between teacher and student, and in the furtherance of this belief the closest contact between these two is maintained throughout the course. The relation in numbers of students and instructing staff is such as to make this personal contact possible. Applications for admission to the College on the part of new students will be considered in the order of their receipt.

BUILDINGS AND EQUIPMENT

The College of Architecture occupies the third and fourth floors of White Hall and the top and a part of the second floor of Franklin Hall. The college offices, the college library, and the lecture and exhibition rooms occupy the third floor of White Hall; a suite of three drafting rooms, opening together so as to form virtually a single room approximately 45 by 156 ft. in dimension, occupies the

entire fourth floor. On the top floor of Franklin are well lighted studios devoted to the work of freehand drawing, painting, and modeling.

The college library is one of the best in the country, and the student is permitted and encouraged to use the books, photographs, and drawings freely.

A carefully selected collection of about 13,000 lantern slides is used constantly in connection with the lectures upon history, theory, and construction.

The exhibition rooms are in constant use for the exhibition of current work in design or for frequent exhibitions of drawings, paintings, and textiles, which serve to keep the student in touch with the work of other schools of architecture, and to familiarize him with the work of the best practitioners and of artists.

REQUIREMENTS FOR ADMISSION

Candidates for admission should consult the General Circular of Information which will be sent post-free on application to the Secretary of Cornell University, Ithaca, New York. All applications for admission to the freshman class should be addressed to the Registrar.

The subjects that may be offered for admission to the College of Architecture are named in the following list, and the figure in parenthesis following each subject indicates its value expressed in units and shows the maximum and minimum amount of credit allowed in the subject. A unit represents five prepared recitations a week for one year in a study.

1a. English I	(1 ½)	8d. English History	(½-1)
1b. English 2	(1 ½)	9a. Elementary Algebra	(1)
2a. First Year Greek	(1)	9b. Intermediate Algebra	(½)
2b. Second Year Greek	(1)	9c. Advanced Algebra	(½)
2c. Third Year Greek	(1)	9d. Plane Geometry	(1)
3a. First Year Latin	(1)	9e. Solid Geometry	(½)
3b. Second Year Latin	(1)	9f. Plane Trigonometry	(½)
3c. Third Year Latin	(1)	9g. Spher. Trigonometry	(½)
3d. Fourth Year Latin	(1)	10. Physics	(1)
4. First, Second, or Third Year German	(1, 2 or 3)	11. Chemistry	(1)
5. First, Second, or Third Year French	(1, 2 or 3)	12. Physical Geography	(½-1)
6. First, Second, or Third Year Spanish	(1, 2 or 3)	13. Biology*	(1)
7. First, Second, or Third Year Italian	(1, 2, or 3)	14. Botany*	(½-1)
8a. Ancient History	(½-1)	14a. Zoology*	(½-1)
8b. Modern History	(½-1)	15. Bookkeeping	(½-1)
8c. Am. History, Civics	(½-1)	16. Agriculture	(½-1)
		17. Drawing**	(½-1)
		18. Manual Training**	(1)
		19. Any high school subject or subjects not already used	(½-1)

1. Admission to the Freshman Class in the College of Architecture

For admission to the Freshman class in Architecture men must be at least sixteen years of age and women seventeen, and for admission to the five-year course leading to the degree of Bachelor of Architecture or Bachelor of Science in Architecture the applicant is required to offer fifteen entrance units which must include English (3), history (1), elementary algebra (1), plane geometry (1),

*If Biology (1 unit) is offered, neither Botany (½ unit) nor Zoology (½ unit) may be counted.

**A student may not count under No. 19 work in subjects Nos. 1-18 until he has offered the maximum (e.g. 4 units of Latin; 3 units of English, Greek, German, French Italian, or Spanish; 1 unit of Physics, Chemistry, or Manual Training) in Nos. 1-18.

either Greek, German, French, Latin, Italian, or Spanish (3 units in one language or 2 units in each of two of these languages). The six remaining units may be chosen from the preceding list of entrance subjects, but not more than one unit may be offered in agriculture.

Applicants may be admitted to the freshman class at the beginning of the second term to take a four and a half-year course leading to the degree of Bachelor of Architecture or Bachelor of Science in Architecture. But any such applicant is required to offer fifteen entrance units which must include all requirements for admission to the regular course and such additional mathematics as will enable him to take his place with those students who have already had one term's work.

Students of more advanced standing may be admitted to the four-year course leading to the degree of Bachelor of Architecture or Bachelor of Science in Architecture and are required to offer not less than fifteen entrance units which must include English (3), either Greek, German, French, Latin, Italian or Spanish (3 units in one language or 2 units in each of two of these languages), history (1), elementary algebra (1), intermediate algebra ($\frac{1}{2}$), advanced algebra ($\frac{1}{2}$), plane geometry (1), solid geometry ($\frac{1}{2}$), plane trigonometry ($\frac{1}{2}$), physics (1). The remaining 3 units may be chosen from the preceding list of entrance subjects, but the applicant is advised to offer one unit in chemistry, and the other two in language or in history, and he may not offer more than one unit in agriculture.

2. Admission to Advanced Standing

All correspondence concerning admission to advanced standing should be addressed to the Registrar of Cornell University.

A student who, having already attended some technical school or institution of collegiate rank, desires advanced standing in any regular course in the College of Architecture of Cornell University, should file with the Registrar of Cornell University, on an official blank to be obtained from him, a formal application for admission to advanced standing in the College of Architecture, along with an official certificate from the institution already attended, of his honorable dismissal, his entrance credits in detail, his terms of attendance, and the amount of work that he has completed, with a detailed statement of the courses pursued for which he desires credit at Cornell University. He should also send a catalogue of the institution, writing his name on it and marking the entrance requirements that he has satisfied and each subject that he has completed.

Credit for work completed in other institutions must be obtained from the Registrar *at the time of entrance* and students should obtain all possible credits at this time, even though not needed for immediate use.

3. Admission as Special Students

All correspondence concerning admission of special students should be addressed to the Dean of the College of Architecture. An applicant must be at least twenty-one years of age; must have a good high school training or its equivalent, including a working knowledge of plane geometry and of algebra through quadratic equations; and should have a thorough familiarity with elementary architectural design. He should have at least three years' experience in some good architect's office, or its equivalent, and submit with his application examples of his

draftsmanship. Architectural drawings in particular are required, but it is to the applicant's advantage to submit any additional work that would serve to show his artistic ability or skill. Applications for admission should be accompanied by a certificate that the drawings submitted are the work of the applicant.

4. Course Leading to the Degrees of Bachelor of Architecture and Civil Engineer, or Bachelor of Science in Architecture and Civil Engineer

Students, by special arrangement between the colleges concerned, may take a course covering a period of approximately six years leading to the degrees granted respectively by the two colleges.

5. Admission as Graduate Students

All correspondence relating to graduate work should be addressed to the Dean of the Graduate School.

In all departments of the College of Architecture work is arranged to meet the special needs of graduate students. Candidates for advanced degrees in architecture must be graduates of schools of equal standing with the College of Architecture, and their training in design or other subjects elected for graduate study must be equivalent to the training required in the same subjects by the College of Architecture for the degree of Bachelor of Architecture.

PAYMENTS TO THE UNIVERSITY

For information regarding payments to the University and the expense of living in Ithaca, see the General Circular of Information.

FELLOWSHIPS, SCHOLARSHIPS, AND PRIZES

For detailed information concerning State scholarships and University undergraduate scholarships, which are open to students in architecture in common with other students in the University, see the General Circular of Information.

A University fellowship of the value of \$400 with free tuition is awarded annually to a graduate student in architecture.

The Sands Memorial Medal is awarded for special excellence in design attained in individual problems at any time.

The Brown Memorial Medal is awarded each year to the two members of the graduating class who have made the best record in design in their senior year.

The student medal of the American Institute of Architects is awarded to the member of the graduating class whose record is the best throughout the entire course, and the person to whom the medal is awarded is invited to exhibit his work at the next annual convention of the Institute.

Through the Beaux-Arts Institute of Design numerous prizes are offered for excellence of work in design. These prizes are open to students in the College of Architecture who frequently compete for them with success and distinction to themselves and to the College.

The Fuertes Memorial Prizes in Oratory, (first prize \$100 and second prize \$20), are open to students in architecture on equal terms with students in engineering.

COURSE LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE

First Year

	No. of Course	1st Term	2d Term
Theory of Architecture	101	1	0
Architectural Design	111-112	3	3
Elements of Drawing	131-132	3	3
Elements of Color	133-134	1	1
History of Architecture	142	—	3
Descriptive Geometry	151-152	2	3
English	1	3	0
Algebra			
Geometry	} Dependent upon entrance credits		
Trigonometry			
Military Drill		3	3
Hygiene		1	1

Second Year

Theory of Architecture	201	1	0
Architectural Design	211-212	2	2
Water Color	231	3	0
Life Class	232	0	2
History of Architecture	241-242	3	3
Perspective	252	0	1
Analytic Geometry and Calculus	8	3	3
Physics	2	5	—
Chemistry	1	0	6
Military Drill	1	3	3
Hygiene	1	1	1

Third Year

Architectural Design	311-312	6	6
Drawing from Antique	331	3	0
History of Painting and Sculpture	341-342	1	1
Mechanics	321	2	0
Strength of Materials	322	0	2
Graphic Statics	324	0	1
Materials of Construction	361	2	0
Masonry Construction	362	0	2
English		3	3
Electives		0	2

Fourth Year

Architectural Design	411-412	6	5
Structural Design	421-422	3	2
Life Class	431	2	0
Carpentry	461	2	0
Heating and Plumbing	462	0	2
Concrete Construction	C.E. 77	0	3
Electives		4	4

Fifth Year

Architectural Design and Thesis	511-512	10	10
History of Modern Architecture	542	0	2
Working Drawings and Specifications	561	4	0
Electives		3	5

COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE IN ARCHITECTURE

First Year

The courses for the first year are the same as those for the first year of the course leading to the degree of Bachelor of Architecture.

Second Year

	No. of Course	1st Term	2d Term
Theory of Architecture	201	1	0
Architectural Design	211-212	2	2
History of Architecture	241-242	3	3
Masonry Construction	362	0	2
Physics	2	—	5
Chemistry	1	6	—
Analytical Geometry and Calculus	5	5	5
Military Drill	1	3	3
Hygiene	1	1	1

Third Year

Architectural Design	311-312	6	6
Drawing from Antique	331	3	0
History of Painting and Sculpture	341-342	1	1
Materials of Construction	361	2	—
English		0	3
Mechanics (M.E. or C.E.)		5	5
Surveying	C.E. 12	0	2

Fourth Year

Architectural Design	411-412	6	6
Materials, Laboratory		2	0
Materials of Construction	C.E. 25	0	3
English		0	3
Electives		5	5

Fifth Year

Architectural Design and Thesis	512	0	5
Working Drawings and Specifications	561	4	0
Electives		13	12

Students following this course are required to take the subjects listed under either Option A or B.

Option A is for those specializing in Construction, and includes the following: Heating and Plumbing 2 hours; Bridges (C.E.) 7 hours; Steel Buildings 3 hours; Concrete Construction 3 hours and Concrete Design 3 hours; a total of 18 hours, leaving 17 hours for electives in any subjects desired by the student.

Option B is for those specializing in Mechanical Equipment, and includes the following: Structural Design (421-422) 5 hours; Mechanics, Laboratory 3 hours; Heating and Ventilating 2 hours; Refrigeration 2 hours; Lighting 2 hours; Elevation 2 hours; Electrical Engineering 4 hours; a total of 20 hours, leaving 15 hours for electives in any subjects desired by the student.

FOUR-YEAR COURSE LEADING TO THE DEGREE OF BACHELOR OF ARCHITECTURE

First Year

	No. of Course	1st Term	2d Term
Theory of Architecture	101	1	0
Architectural Design	111-112	3	3
Elements of Drawing	131-132	3	3
Elements of Color	133-134	1	1
History of Architecture	142	0	3
Descriptive Geometry	151-152	2	3
Analytical Geometry and Calculus	8	3	3
English	1	3	0

Second Year

Theory of Architecture	201	1	0
Architectural Design	311-312	6	6
Water Color	231	3	0
Life Class	232	0	2
History of Architecture	241-242	3	3
Mechanics	321	2	0
Strength of Materials	322	0	2
Graphic Statics	324	0	1
Perspective	252	0	1
Materials of Construction	361	2	0
Masonry Construction	362	0	2

Third Year

Architectural Design	411-412	6	6
Structural Design	421-422	3	2
Drawing from Antique	331	3	0
History of Painting and Sculpture	341-342	1	1
Carpentry	461	2	0
Heating and Plumbing	462	0	2
English		0	3
Electives		3	4

Fourth Year

Architectural Design and Thesis	511-512	10	10
History of Modern Architecture	542	0	2
Working Drawings and Specifications	561	4	0
Electives		4	6

COLLEGE OF ARCHITECTURE

FOUR-YEAR COURSE LEADING TO THE DEGREE OF BACHELOR
OF SCIENCE IN ARCHITECTURE

First Year			
	No. of Course	1st Term	2d Term
Theory of Architecture.....	101	1	0
Architectural Design.....	111-112	3	3
Elements of Drawing.....	131	3	0
History of Architecture.....	142	0	3
Descriptive Geometry.....	151-152	2	3
Analytical Geometry and Calculus.....	5	5	5
English.....	1	3	0
Surveying.....	C.E. 12	0	2
Military Drill.....	1	3	3
Hygiene.....	1	1	1
Second Year			
Theory of Architecture.....	201	1	0
Architectural Design.....	211-212	2	2
Drawing from Antique.....	331	3	0
Masonry Construction.....	362	0	2
English.....	-	0	3
Physics.....	2	0	5
Chemistry.....	1	6	0
Mechanics (M.E. or C.E.).....	-	5	5
Military Drill.....	1	3	3
Hygiene.....	1	1	1
Third Year			
Architectural Design.....	311-312	6	6
History of Architecture.....	241-242	3	3
Carpentry.....	461	2	0
Materials, Laboratory.....		2	0
Materials of Construction.....		0	3
Electives.....		5	5
Fourth Year			
Thesis.....	512	0	5
History of Painting and Sculpture.....	341-342	1	1
Working Drawings and Specifications.....	641	4	0
Electives.....		13	12

Students following this course are required to take the subjects listed under either Option A or B.

Option A is for those specializing in Construction, and includes the following: Heating and Plumbing 2 hours; Bridges (C.E.) 7 hours; Steel Buildings 3 hours; Concrete Construction 3 hours and Concrete Design 3 hours; a total of 18 hours, leaving 17 hours for electives in any subjects desired by the student.

Option B is for those specializing in Mechanical Equipment, and includes the following: Structural Design (421-422) 5 hours; Mechanics, Laboratory 3 hours; Heating and Ventilating 2 hours; Refrigeration 2 hours; Lighting 2 hours; Elevation 2 hours; Electrical Engineering 4 hours; a total of 20 hours, leaving 15 hours for electives in any subjects desired by the student.

COURSES OF INSTRUCTION GIVEN IN THE COLLEGE OF ARCHITECTURE

In the numbering of the courses the first figure indicates the year, the second, the general subject, and the third, the term; odd numbers being first term courses and even numbers, second term courses. All courses numbered 700 and over are elective.

Courses in Theory of Architecture

101. Theory of Architecture. First term, credit one hour. Dean BOSWORTH. Lectures, with sketches and essays by class.

201. Theory of Architecture. First term, credit one hour. Prerequisite, course 101. Dean BOSWORTH. Lectures, with sketches and essays by class.

701. Philosophy of Architecture. First term, credit one hour. Prerequisite, course 312. Dean BOSWORTH. Lectures, with sketches and assigned work.

702. Philosophy of Architecture. Second term, credit one hour. Prerequisite, course 312. Continuation of course 701. Either term or both may be taken. Dean BOSWORTH.

Courses in Architectural Design

111-2. First Year Design. Throughout the year, credit three hours a term. Dean BOSWORTH and Assistant Professor BURNHAM. Elementary architectural composition, with drawings in pencil and ink, rendered in wash and color.

211-2. Second Year Design. Throughout the year, credit two hours a term. Prerequisite, courses 111-2. Dean BOSWORTH and Assistant Professor ———. A series of problems in architectural composition and planning.

311-2. Third Year Design. Throughout the year, credit six hours a term. Assistant Professor ———. A series of problems in architectural composition and studies of detail.

411-2. Fourth Year Design. Throughout the year, credit six hours a term. Prerequisite, courses 311-2. Assistant Professor ———. This course continues the work of courses 311-2 with more advanced problems in architectural composition.

511-2. Fifth Year Design and Thesis. Throughout the year, credit ten hours a term. Prerequisite, courses 411-2. Prerequisite, for thesis course 461-421-2. Dean BOSWORTH and Assistant Professor BURNHAM.

714. Architectural Rendering. Second term, credit three hours. Prerequisite, course 411. Series of exercises in pencil, pen, and wash renderings. Assistant Professor BURNHAM.

711-2. Interior Decoration. Throughout the year, credit three hours a term. Prerequisite, course 312. A single term may be taken. Dean BOSWORTH and Assistant Professor ———. A series of lectures and problems in interior composition and detail.

Courses in Theory of Construction

321. Mechanics. First term, credit two hours. Prerequisite, Mathematics 8. Professor YOUNG and Assistant Professor BAXTER. A brief study of the principles of analytic and graphic statics with reference to their application in course 322. Recitations.

322. Strength of Materials. Second term, credit two hours. Prerequisite, course 321. Professor YOUNG and Assistant Professor BAXTER. A brief study of the effects of loading in producing stress and deformation. The classroom work is supplemented by problems relating to beams, columns, masonry, and very briefly to reinforced concrete. Recitations and lectures.

324. Graphic Statics. Second term, credit one hour. Prerequisite, course 321, and must follow or be taken with course 322. Professor YOUNG and Assistant Professor BAXTER. The study of graphic statics is continued from course 321 and applied to the solution of problems on a larger scale. Drafting.

421. Structural Design. First term, credit three hours. Prerequisite, courses 321, 322, and 324. Professor YOUNG and Assistant Professor BAXTER. The principles studied in courses 321, 322, and 324 are applied to the structural design of typical architectural problems. Lectures and reports.

422. Structural Design. Second term, credit two hours. Prerequisite, course 421. Professor YOUNG and Assistant Professor BAXTER. This is a continuation of course 421.

Courses in Freehand and Art Work

131-2. Elements of Drawing. Throughout the year, credit three hours a term. Assistant Professor CHAMBERLAIN. Pencil and charcoal drawing from the cast.

133-4. Elements of Color. Throughout the year, credit one hour a term. Assistant Professor MIDJO. Elementary color work from still life.

231. Water Color Painting. First term, credit three hours a term. Prerequisite, courses 133-4. Assistant Professor MIDJO.

232. Life Class. Second term, credit two hours a term. Prerequisite, courses 131-2. Professor BRAUNER and Assistant Professor MIDJO. Work consists of drawing from the nude model.

331. Drawing from the Antique. First term, credit three hours. Prerequisite, course 232. Professor BRAUNER. The work consists of drawing from the antique, sculpture, and life.

431. Life Class. First term, credit two hours. Prerequisite, course 331. Professor BRAUNER. The work consists of charcoal drawing from the nude model.

731-2. Elective Life Class. Throughout the year, credit three hours a term. May be taken for a single term. Professor BRAUNER. Drawing or modeling from the nude model.

733-4. Modeling. Throughout the year, credit two hours a term. Assistant Professor MIDJO. Modelling from the cast and original composition in the solid.

735-6. Color Composition. Throughout the year, credit two hours a term. Assistant Professor MIDJO. Exercises in original composition and color.

737-8. Magazine and Book Illustration. Throughout the year, credit two hours a term. Acting Assistant Professor STONE. Prerequisite, course 331. A study of illustrative mediums and reproductive processes. Lectures and classroom criticism of required work of students. Classroom work will be supplemented by visits to local engraving plants.

830. Art Editorship. Second term, credit two hours. Acting Assistant Professor STONE. Elementary design as applied to space arrangement and page planning and study of different processes and illustrative mediums. Lectures and classroom criticism of work submitted by students. Drawing is not a prerequisite.

Courses in History

142. History of Architecture. Second term, credit three hours. Professor PHELPS. Egyptian, Greek, Roman, and Byzantine architecture. Lectures with assigned readings, sketches, and examinations.

241. History of Architecture. First term, credit three hours. Prerequisite, course 142. Professor PHELPS. Romanesque and Gothic architecture. Lectures with assigned readings, sketches, and examinations.

242. History of Architecture. Second term, credit three hours. Prerequisite, course 241. Professor PHELPS. Architecture of the Renaissance and to the beginning of the nineteenth century in the principal European countries. Lectures with assigned readings, sketches, and examinations.

341-2. History of Painting and Sculpture. Throughout the year, credit one hour a term. Professor BRAUNER. A brief survey of the history of Greek sculpture and of Italian painting.

542. Modern Architecture. Second term, credit two hours. Prerequisite, course 242. Professor PHELPS. Nineteenth century architecture in the principal European countries, and colonial and more recent work in the United States.

741. Historic Ornament. First term, credit two hours. Prerequisite, course 242. Professor PHELPS. Some of the great historic styles of decoration will be analyzed and studied in detail, and the development of furniture, stained glass, and other minor arts will be briefly outlined. Lectures, sketches, and examinations.

743-4. Historical Seminary. Throughout the year, credit two hours a term. Professor PHELPS. Investigation of assigned topics in the history of architecture; review of books and discussions of current periodical literature. For graduates and open to qualified upperclassmen by permission.

[745-6. History of Art. Throughout the year, credit two hours a term. Assistant Professor GUTSELL. The condition of the arts on the decline of Roman civilization. The revival of the art of design in the thirteenth century. The development of painting and sculpture in Italy until the sixteenth century and a brief review of their decline. Registration in the second term is open to students not having the first term, provided they have credit for course 341-2, or (Arts and Sciences) History 11 or 12, or Philosophy 4.] Given in 1919-1920, and in alternate years following.

747. History of Art. First term, credit two hours. Assistant Professor GUTSELL. Painting and the reproductive arts in the north of Italy until the reformation. Given in 1918-1919, and alternate years following.

748. **History of Art.** Second term, credit two hours. Assistant Professor GUTSELL. Painting in the sixteenth and seventeenth centuries in Flanders and Holland. Given in 1918-1919, and alternate years following.

Courses in Graphics

151. **Descriptive Geometry.** First term, credit two hours. Prerequisite, Solid Geometry. Professor YOUNG and Assistant Professor BAXTER. The fundamental principles of descriptive geometry are studied and applied to the solution of problems in projection. Lectures and drawing.

152. **Descriptive Geometry.** Second term, credit three hours. Prerequisite, course 151. Professor YOUNG and Assistant Professor BAXTER. Continuation of course 151.

252. **Perspective.** Second term, credit one hour. Prerequisite, courses 151-152. Professor MARTIN. Lectures and drawing.

Courses in Applied Construction

361. **Materials of Construction.** First term, credit two hours. Professor MARTIN. A brief study of the properties, characteristics, manufacture, and use of the more common materials used in building construction, as plaster, lime, cement, clay products, stone, metals, and wood.

362. **Masonry Construction.** Second term, credit two hours. Prerequisite, course 361. Professor MARTIN. Masonry construction as applied to buildings, including survey and setting out, foundation soils, drainage and waterproofing, structural foundations, concrete, stonework, brickwork, tile and terra cotta work, fireproofing, plaster, and stucco.

461. **Carpentry and Roofing.** First term, credit two hours. Professor MARTIN. A study of carpentry and joinery as applied to the construction and finish of buildings and a study of roofing with shingles, sheet metals, bituminous compositions, slates, tiles, etc.

462. **Heating, Plumbing, and Lighting.** Second term, credit two hours. Professor MARTIN. A brief study of the principles of heating, ventilation, plumbing, and lighting. Lectures and exercises.

561. **Working Drawings and Specifications.** First term, credit four hours. Prerequisite, courses 362 and 461. Professor MARTIN. The work of this course consists in the preparation of scale drawings and details approximating office practice as closely as possible, and including specification notes and a brief study of the principles of specification writing.

762. **Fire Resisting Construction.** Second term, credit two hours. Professor MARTIN. A study of fire prevention and fire protection in the design, construction, and equipment of buildings. Lectures and assigned reading.

Summer Reading. In addition to the regular studies of the first and second years the students are required to read, during the summer vacation, books of their own selection from grouped lists. The book lists are prepared and an introductory lecture is given each year by one of the Professors in the Department of English in the College of Arts and Sciences.

COURSES OF THE REGULAR CURICULA GIVEN OUTSIDE OF THE COLLEGE OF ARCHITECTURE

MILITARY SCIENCE AND TACTICS AND PHYSICAL TRAINING

All men in the first two years of undergraduate courses must, in addition to the scholastic requirements for the degree, take three hours a week in the Department of Military Science and Tactics. This department is a unit of the Reserve Officers' Training Corps of the United States Army. The students are organized in an infantry regiment of twelve regular companies, a battalion of field artillery of three batteries, one headquarters company, one machine gun company, and a band.

For details of the work in the Department of Military Science and Tactics, see the *General Circular of Information*.

All women in the first two years of undergraduate courses, and all men of those two classes who are excused from military drill, must, in addition to the scholastic requirements for the degree, take three hours a week in the Department of Physical Training.

For details of the work in the Department of Physical Training, see the *General Circular of Information*.

HYGIENE AND PREVENTIVE MEDICINE

All students in the first two years of undergraduate courses are required to attend lectures on Hygiene and Preventive Medicine given once a week throughout the college year.

COLLEGE OF ARTS AND SCIENCES

Mathematics

1. **Solid Geometry.** Repeated in second term, credit three hours.

Open to all students, but designed especially for those who have entered with the minor requirements in mathematics and are preparing, (a) to teach mathematics in the secondary schools, (b) to take up engineering work later in the course, or (c) to specialize in chemistry or physics

- 2 (E). **Advanced Algebra.** First term, credit three hours. Open to engineering students who have satisfied the entrance requirements in Intermediate Algebra. The work here covered is the equivalent of that required in this subject for entrance to the four-year course.

3. **Plane Trigonometry.** Repeated in second term, credit three hours.

Open to all students, but designed especially for those mentioned under course 1.

5. **Analytic Geometry and Calculus.** Throughout the year, credit five hours a term. Prerequisite, courses 1, 2 and 3, or their equivalent.

8. **Analytic Geometry and Calculus.** Throughout the year, credit three hours a term. Prerequisite, courses 1, 2 and 3 or their equivalent.

English

1. **Introductory Course.** Throughout the year, credit three hours a term. Assistant Professor SMITH and assistants.

Physics

2. **Introductory Experimental Physics.** Repeated in second term, credit five hours. Three lectures, one two-hour classroom period and one two-hour laboratory period each week. Professors MERRITT and GIBBS. Classroom and laboratory work. Hours to be arranged. Assistant Professor HOWE and assistants.

Chemistry

1. **Introductory Inorganic Chemistry.** Repeated in second term, credit six hours. Lectures, recitations, and laboratory. 1a. Lectures. Professor BROWNE and Mr. GRIFFIN. 1b. Recitations and laboratory.

COLLEGES OF ENGINEERING

12. **Elementary Surveying.** Second term, credit two hours. Primarily for students in Sibley College. Recitations, first half term; field work, computations, and plotting, second half term. A short elective course intended for those students outside of the College of Civil Engineering who desire work in surveying but are unable to devote more than two hours to the entire subject. A knowledge of plane trigonometry is required. Use of surveying instruments. Tape measurements. Leveling. Problems with transit and tape. Stadia. Textbook, Breed and Hosmer's *Elementary Surveying*. Two periods a week. Two sections. Assistant Professor UNDERWOOD and Mr. PERRY.

22. **Materials Laboratory.** Sophomores. Either term, (about one-half of the class each term), credit two hours. Must be preceded by, or taken with, courses 20 and 21, and must be taken with course 25. Laboratory work two and one-half hours a week. Experimental determination of the properties of materials by mechanical tests. Study of testing machines, their theory, construction, and manipulation. Calibration of testing machines and apparatus. Commercial tests of iron and steel. Tensile, compressive, torsional, shearing, and flexure tests of metals and various woods, with stress-strain observations. Tests of cement for fineness, specific gravity, normal consistency, time of setting, soundness, and tensile and compressive strength for neat and mortar mixtures. Tests of concrete aggregate, and of road material and paving brick. The course is planned to coordinate with course 25 and aims to supplement the study of the properties of materials by the actual handling of the materials and observations of their behavior under stress. Assistant Professor WALKER and Mr. ———.

25. **Materials of Construction.** Sophomores. Either term (one-half of the class each term), credit three hours. Must be preceded by, or taken with, courses 20 and 21, and must be taken with course 22. Three recitations a week. Textbook, Mill's *Materials of Construction*. The materials studied are: lime, cement, stone, bricks, sand, timber, ores, cast iron, wrought iron, steel, and some of the minor metals and alloys. The chemical and physical properties,

uses, methods of manufacture, methods of testing, and unit stresses of each material are considered, particular emphasis being laid on the points of importance to engineers. The work is planned to coordinate with the course in Materials Laboratory, and supplements that work where necessary. Assistant Professor WALKER.

75. Bridge Design. Elective. Seniors and graduates. Credit three hours. Prerequisite, course 71, second term. Computations and drawing for the complete design of a riveted railroad bridge of six or seven panels, the stresses for which were computed in connection with the previous study of bridge stresses. The computations to determine the sections of all members and of pins, pin plates, splices, and other details, as well as of connecting rivets, are to be written up in the form of systematically arranged reports. The drawings consist of general detail plans showing the location of all rivets as well as the composition and relation of all members and connections. The final report is to give a full list of shapes and plates, and a classified analysis of weight for the span. Textbook, Merriman and Jacoby's *Roofs and Bridges*, Part III. Second term. Computation and drawing, twelve hours a week. Professor JACOBY and Assistant Professor BURROWS.

76. Steel Buildings. Elective. Seniors and graduates. First term, credit three hours. Prerequisite, courses 20, 21 and 71. Reports and drawings. Three two-hour periods a week. This course may be substituted for Engineering Design course 91. This course comprises the design of the steel framework for a building of the prevailing type used in power house or shop construction. Dead, snow, and wind stress diagrams are drawn for the roof trusses. Provision is made for an electric crane moving the full length of the building and the stresses in the framework due to the movement of the crane are determined. The effect of the wind and the eccentric load due to the crane girder are considered in the design of the columns. Assistant Professor URQUHART.

77. Concrete Construction. Either term, credit three hours. Prerequisite, courses 20 and 21. Two recitations and one laboratory or computing period a week. Concrete materials, properties of plain concrete, its making and deposition. Elementary theory of reinforced concrete as applied to columns, rectangular beams and slabs, T-beams and beams reinforced for compression. Direct stress combined with flexure. Laboratory work includes the making and testing of columns, beams, and bond specimens. Assistant Professor URQUHART.

78. Concrete Design. Elective. Seniors and graduates. Second term, credit three hours. Prerequisite, course 77. Reports and drawings. Seven and one-half hours a week. This course may be substituted for Engineering Design, course 91. Applications of the theory of reinforced concrete to the design of the various types of retaining walls. Selective problems in the design of reinforced concrete structures such as buildings, sewers, etc. Assistant Professor URQUHART.

20. Mechanics of Engineering. First term, credit five hours. Repeated in one section, second term. Prerequisite, Mathematics 5.

Statics of a material point and of rigid bodies by graphic and by algebraic methods of analysis. Chains and cords. Centers of gravity. Moment of inertia of plane figures. Mechanics of materials including stress and strain,

tension, shearing, compression, torsion, flexure; elastic curves; safe loads; columns; flexure of beams by semigraphic treatment; review problems showing application of principles of mechanics in engineering design.

Textbooks, Church's *Mechanics of Engineering*, and Notes and Examples in *Mechanics*, supplemented by other printed notes and problems. Four recitations and one computing period a week. The computing period will be in charge of an instructor and will be devoted to the solution of mechanics problems, the use of the slide rule, planimeter, etc. The solution of each problem is to be written up in good form and will be criticized by the instructor. If found unsatisfactory, either as to form or matter, it will be returned for revision. Emphasis will be placed particularly upon correct numerical work and consistent use of proper units. Each student is required to provide himself with a slide rule of approved type. Professor GEORGE and Assistant Professor RETTGER.

P 31. Pumping and Refrigeration. Elective. Two hours, first and second terms. Credit two hours each term. A course dealing with the principles of pumping, air compression, and refrigeration. Dean SMITH.

P 33. Heating and Ventilating. Elective. First term, credit two hours. Prerequisite, P 10 and D 10 and 16. Lectures and recitations covering the methods of design and of construction of various forms of ventilating and heating apparatus. Professor SAWDON.

X 10. Mechanical Laboratory—Properties of Engineering Materials. Juniors. First term, credit three hours. Prerequisite, courses X 6 and M 5 and 6. One laboratory period a week. Mechanical strength of materials; tension, torsion, transverse, and compression tests; the variation of the mechanical strength with differences in composition or heat treatment; demonstration of different methods of tempering, annealing, forging, etc. The student is required to write and submit one report each week upon the experiment of the previous week. Assistant Professor UPTON and instructors.

ELECTIVES

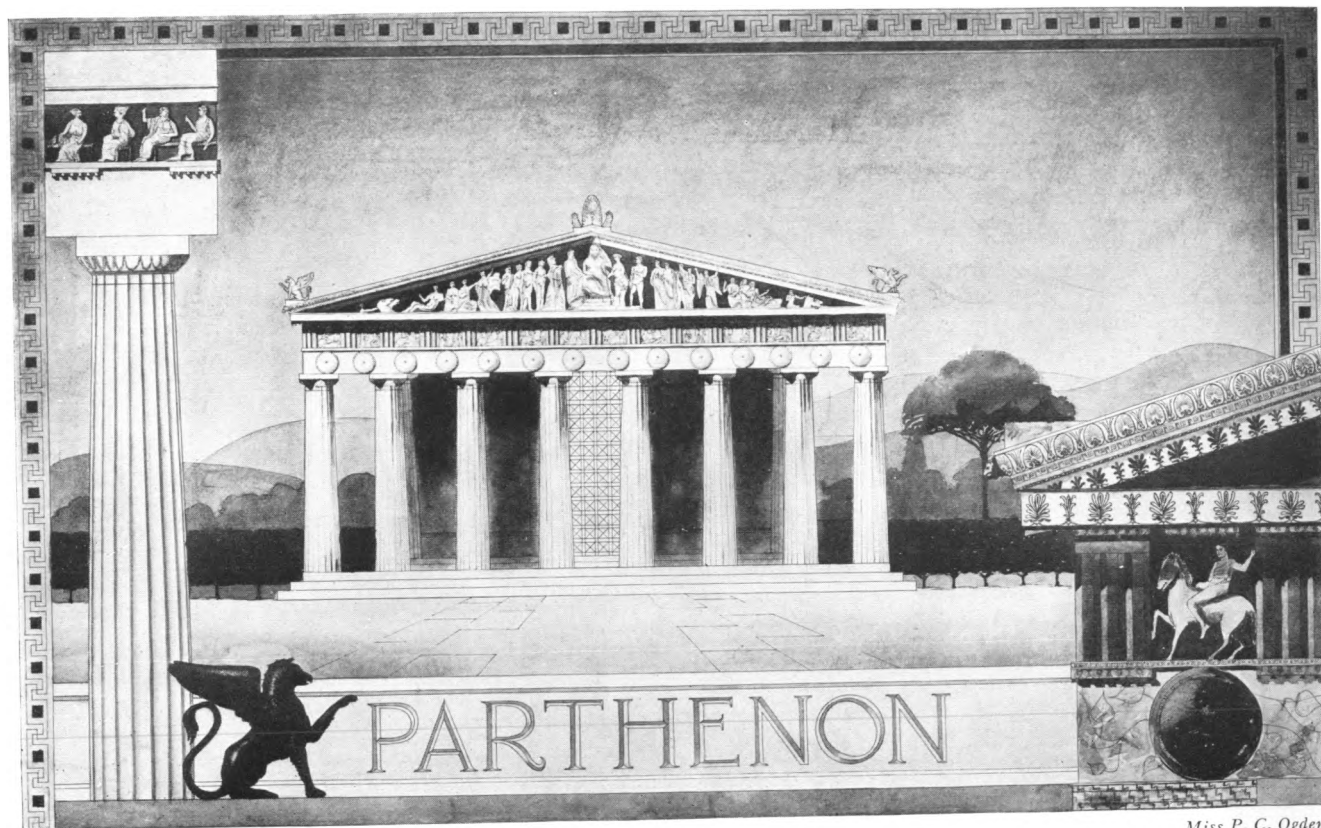
The elective hours required in any of the regular courses leading to a degree may be taken either within or without the College of Architecture, subject only to the approval of the professor in charge of such course and the Dean of the College of Architecture.



A PART OF THE FREEHAND DRAWING STUDIO

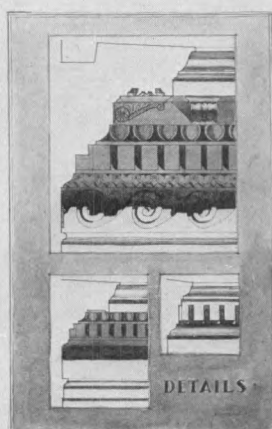
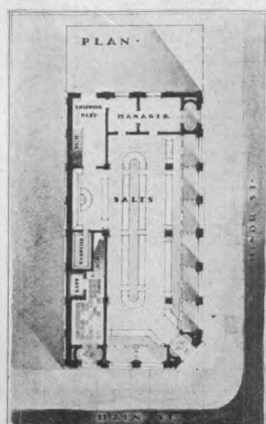
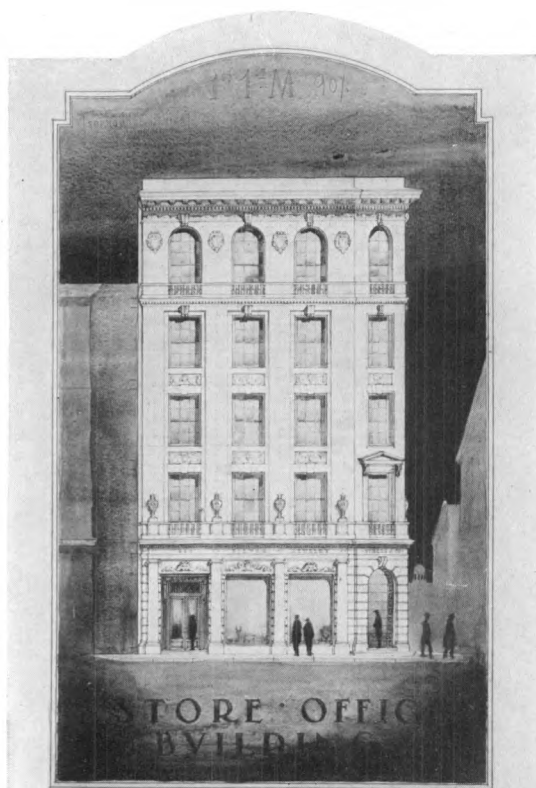


THE MAIN DRAFTING ROOM IN WHITE HALL



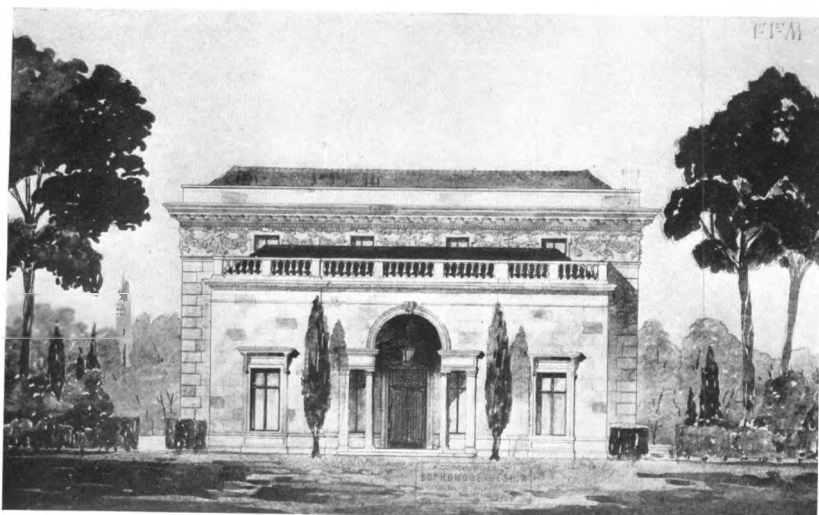
Miss P. C. Ogden

FRESHMAN DESIGN



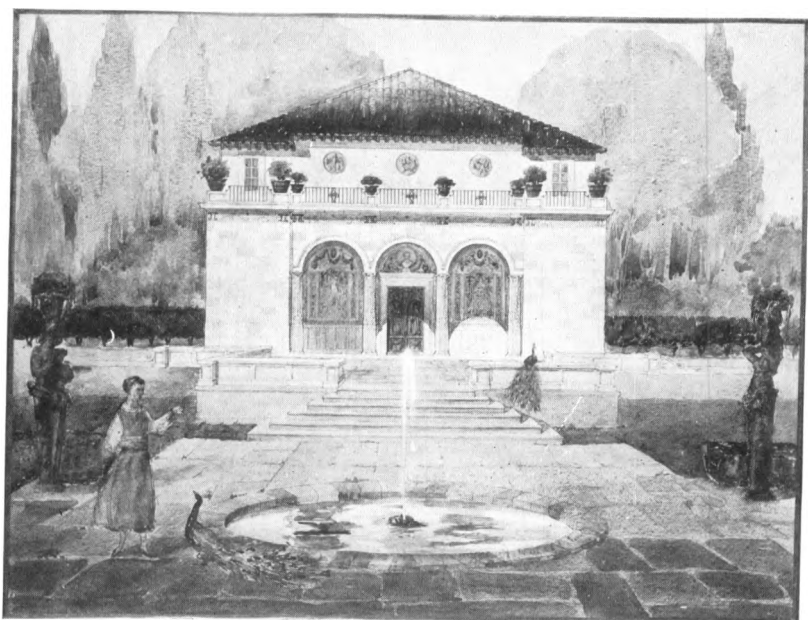
R. D. McPherson

SOPHOMORE DESIGN—A STORE AND OFFICE BUILDING



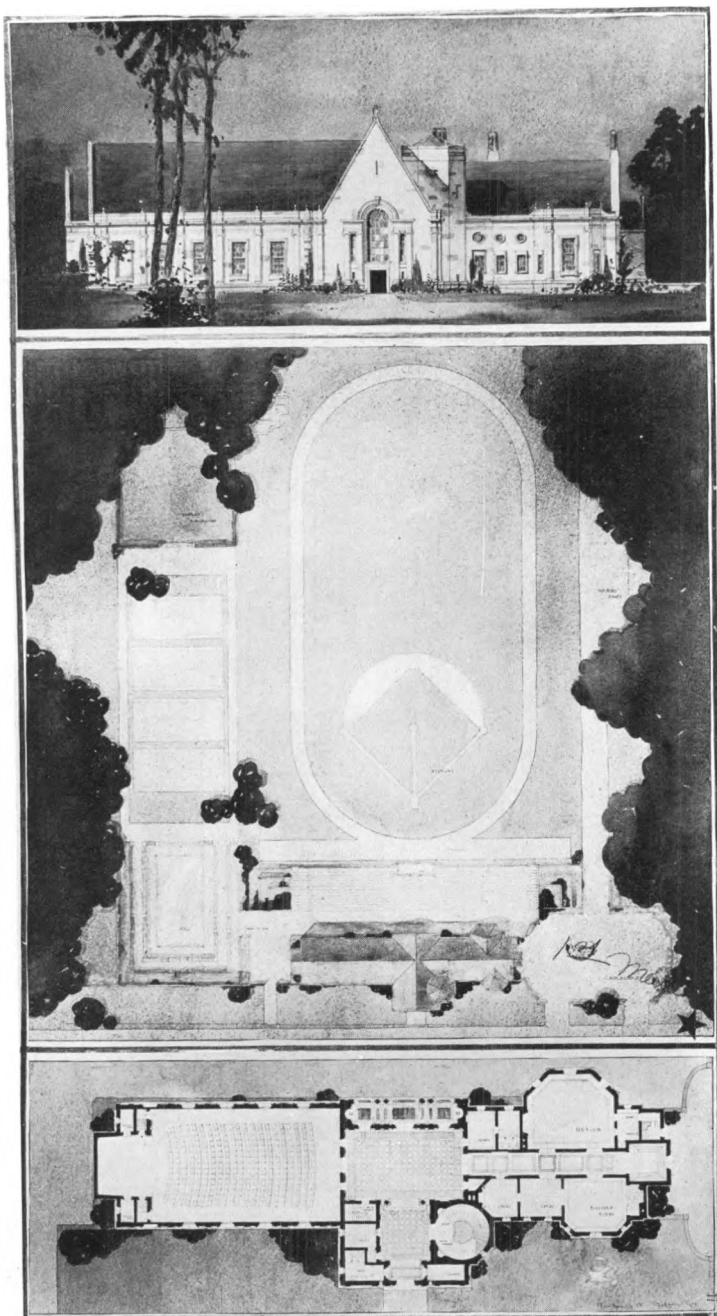
A STUDIO BUILDING

E. B. Mason



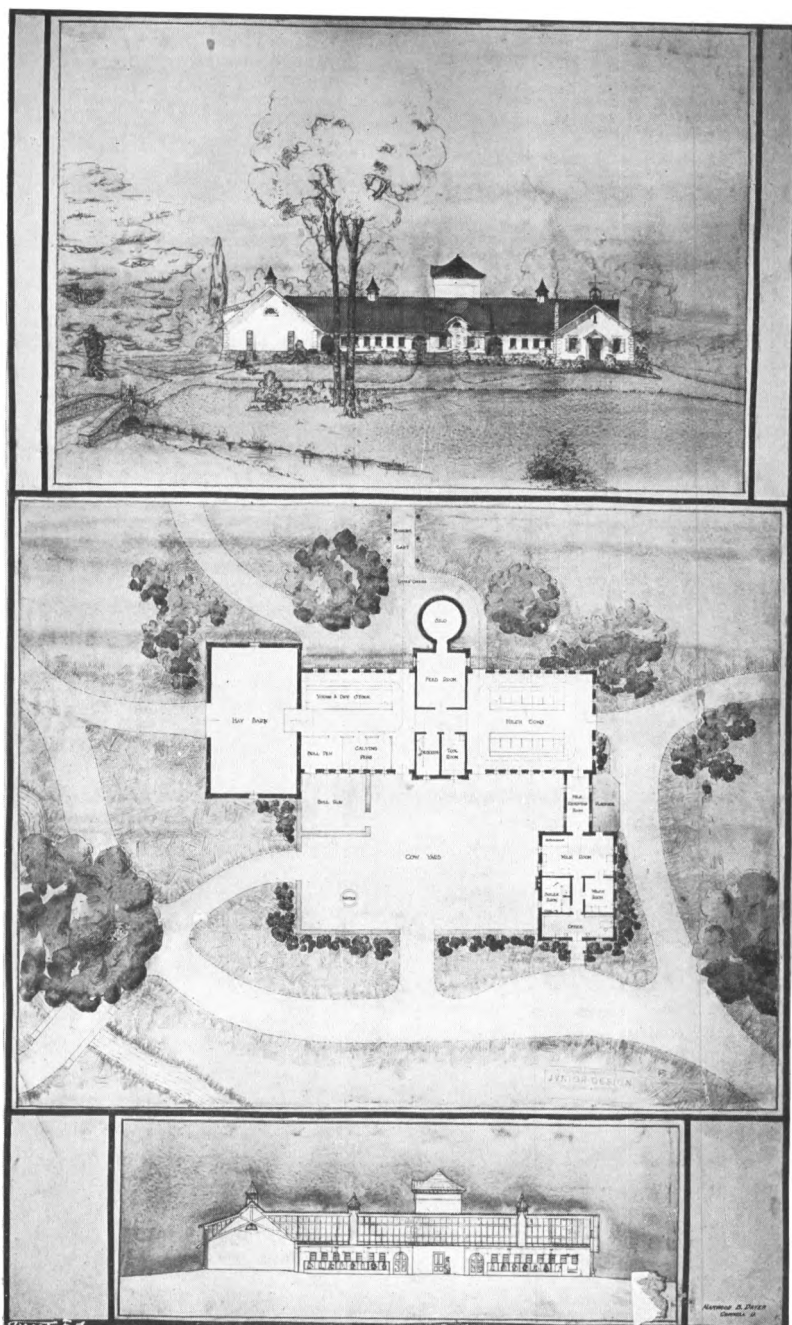
A CONCERT HALL IN A GARDEN
SOPHOMORE DESIGN

Miss D. F. Levy



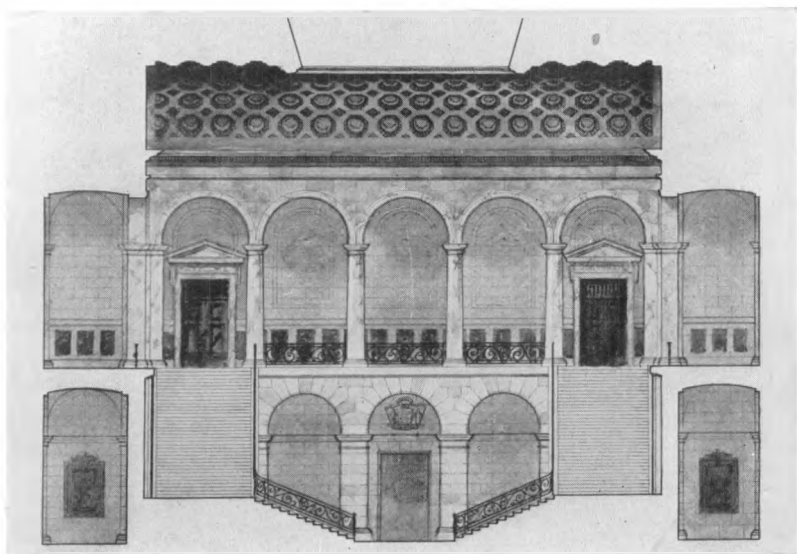
F. R. Steffens

JUNIOR DESIGN—AN ATHLETIC CENTER FOR AN INDUSTRIAL TOWN

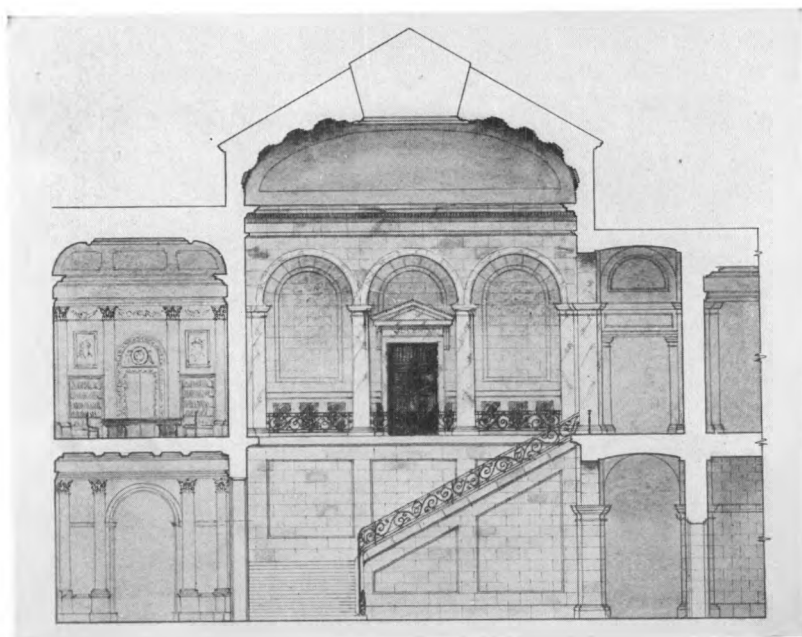


H. B. Dryer

JUNIOR DESIGN—A DAIRY FARM

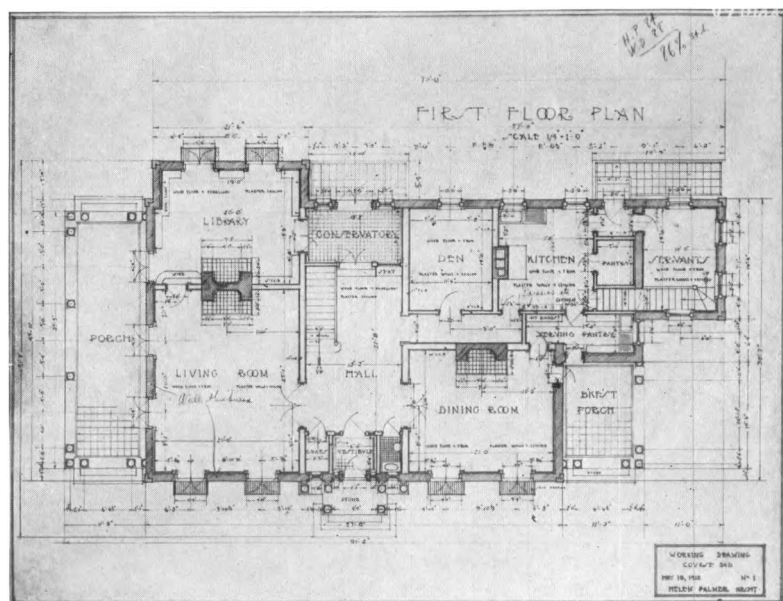


LONGITUDINAL SECTION

CROSS SECTION
JUNIOR DESIGN—A STAIR HALL*J. N. Bullen*

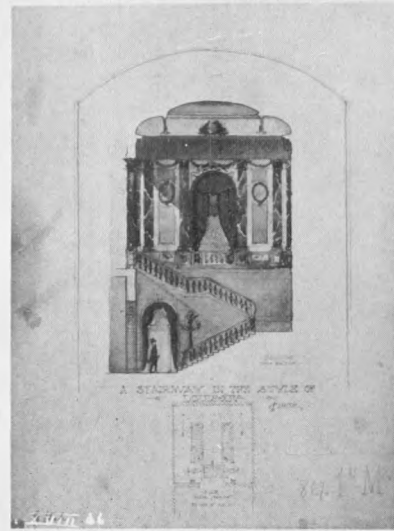
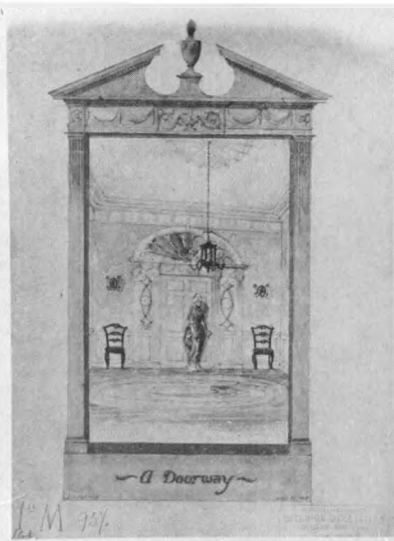


FRONT ELEVATION



FIRST FLOOR PLAN
HOUSE PLANNING AND WORKING DRAWINGS

Miss H. Palmer



W. G. French
C. L. Smith

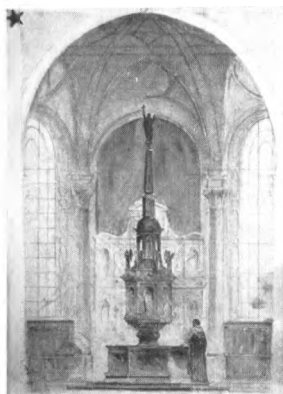
K. F. Coffin
Miss R. Wolcott

INTERIOR DECORATION SKETCHES
JUNIOR AND SENIOR DESIGN



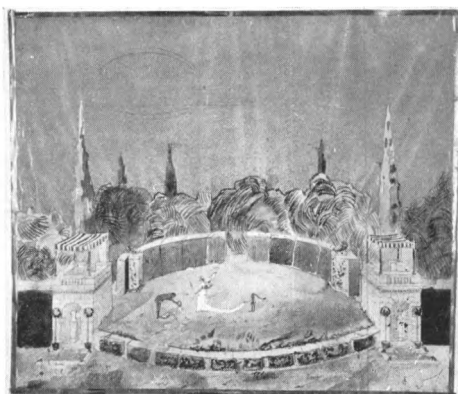
Y. C. Lu

ENTRANCE TO AN ELIZABETHAN HOUSE
(ARCHAEOLOGY PROBLEM)



W. G. French

A BAPTISMAL FONT*

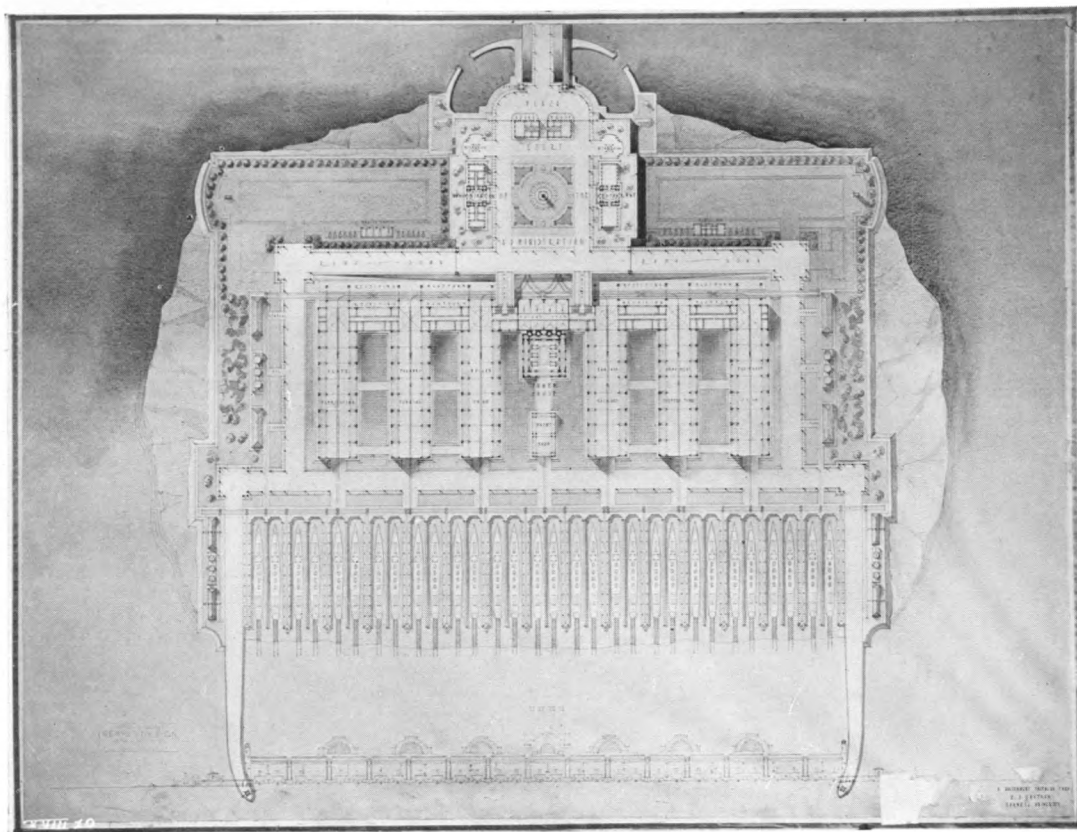


L. J. Kavana

A GARDEN THEATRE

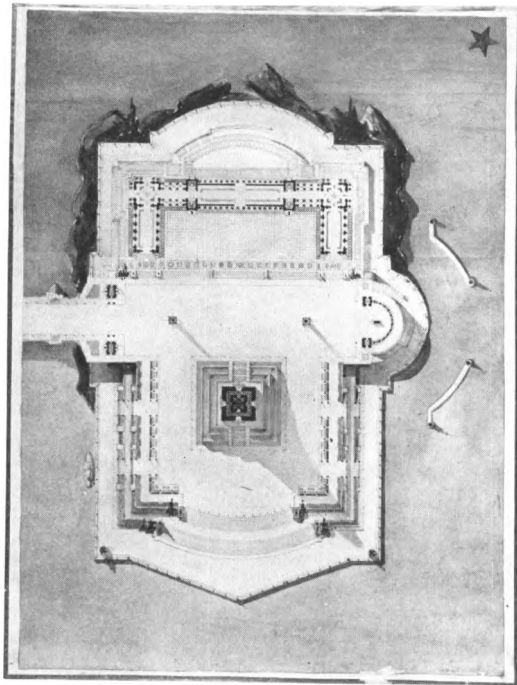
SENIOR DESIGN (ONE-DAY SKETCH PROBLEMS)

*Awarded Loeb Prize, \$50, S.B.-A.A., 1918.



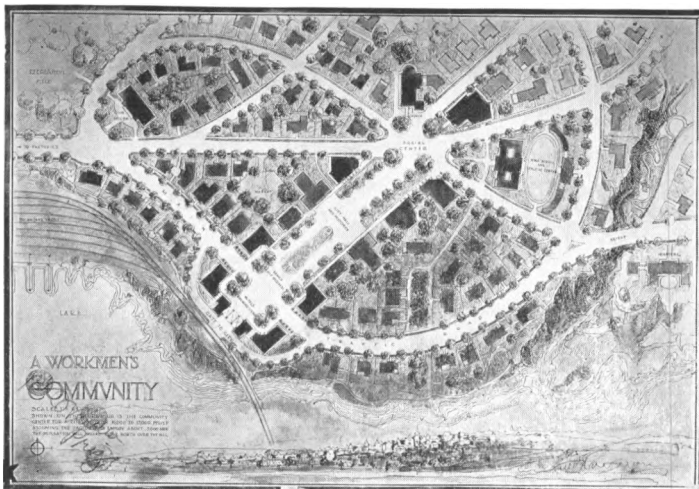
A GOVERNMENT SHIPBUILDING YARD

E. J. Truthan



AN ISLAND OF FREEDOM

A. E. Middlehurst



A WORKMEN'S COMMUNITY* (TWO-DAY SKETCH PROBLEM)
SENIOR DESIGN

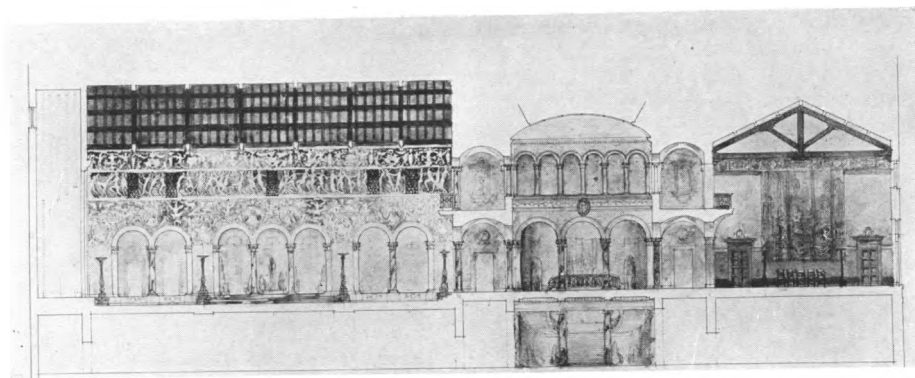
L. V. Lacy

Awarded Warren Prize, \$50, C.B.-A.A., 1917.

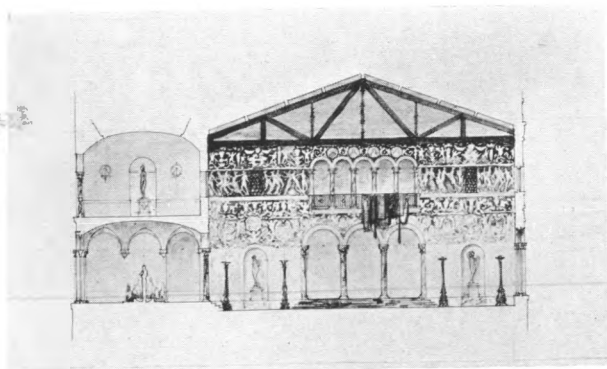


A. E. Middlehurst

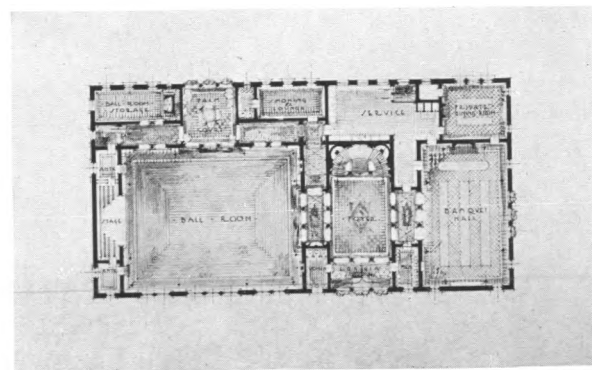
SENIOR DESIGN—AN ISLAND OF FREEDOM
 (Awarded 3d Prize, Special Competition, S.B.-A.A., 1919)



LONGITUDINAL SECTION



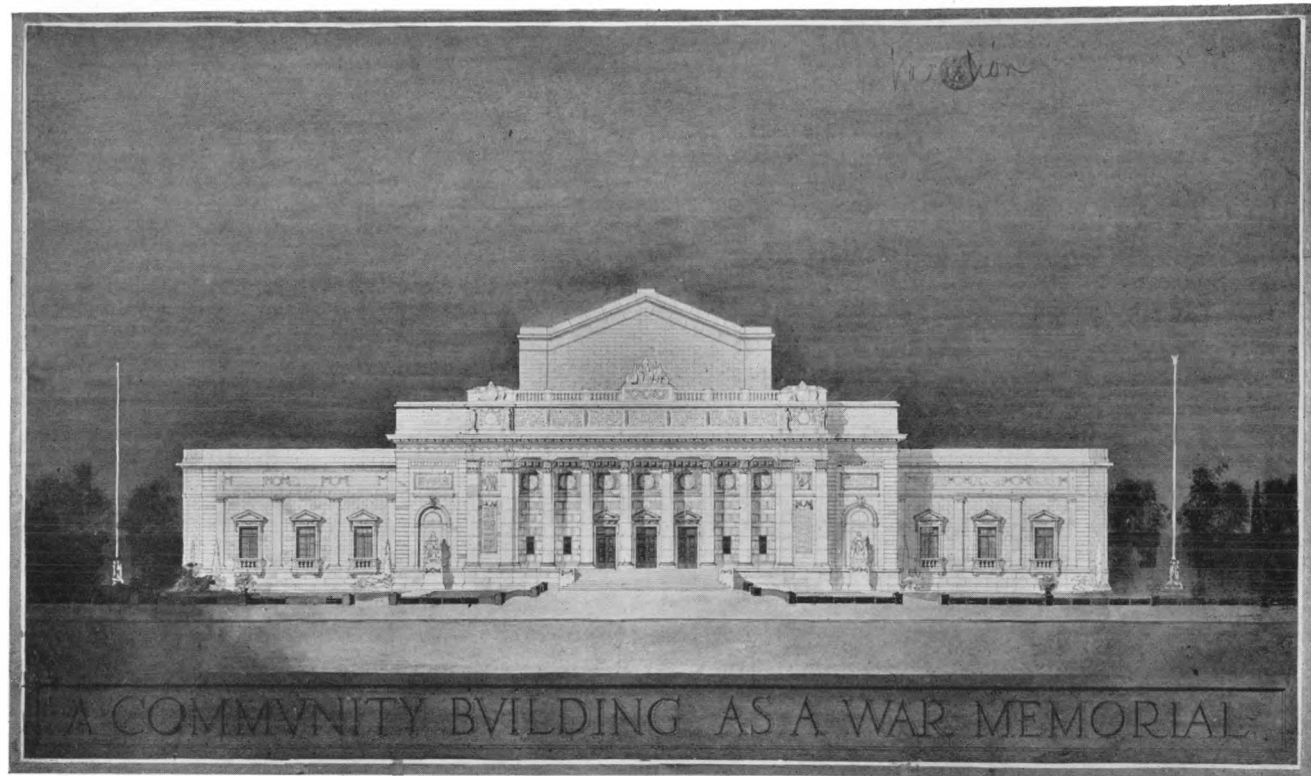
PLAN



TRANSVERSE SECTION

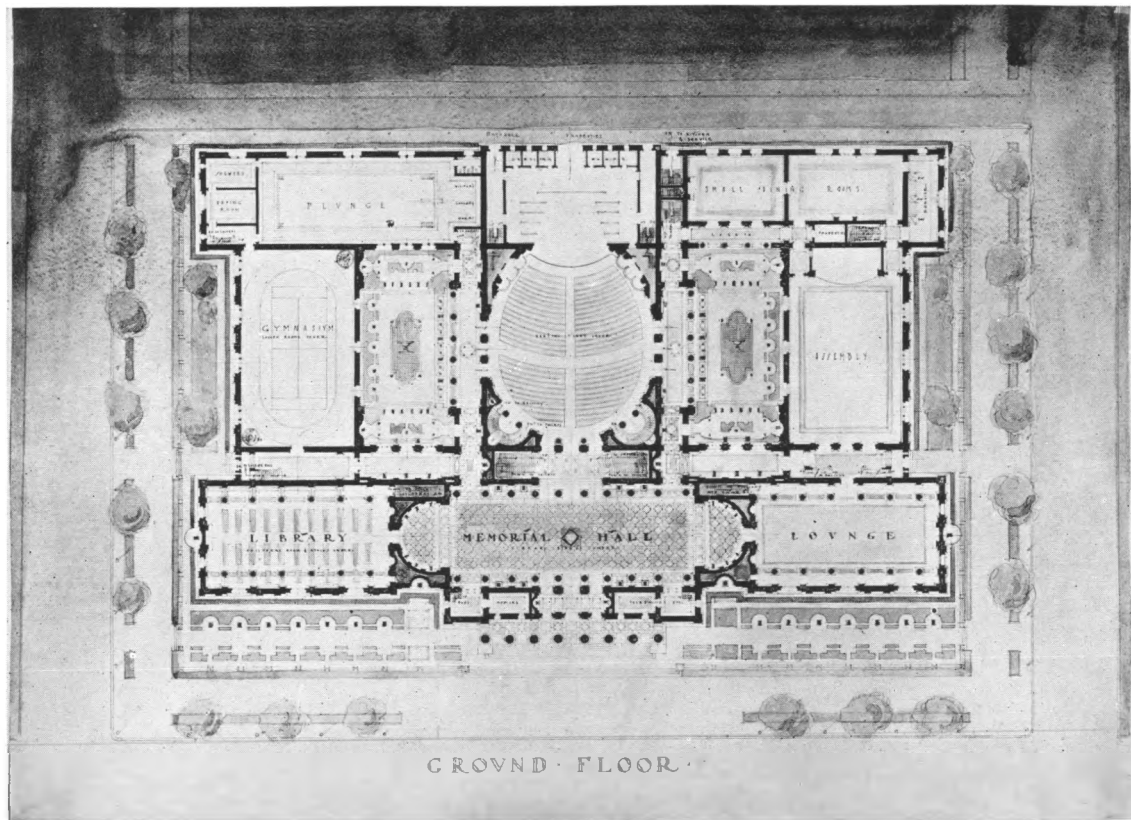
SENIOR DESIGN—ENTERTAINMENT ANNEX OF HOTEL

R. Bailey



SENIOR DESIGN—A COMMUNITY BUILDING AS A WAR MEMORIAL

R. W. Cheesman



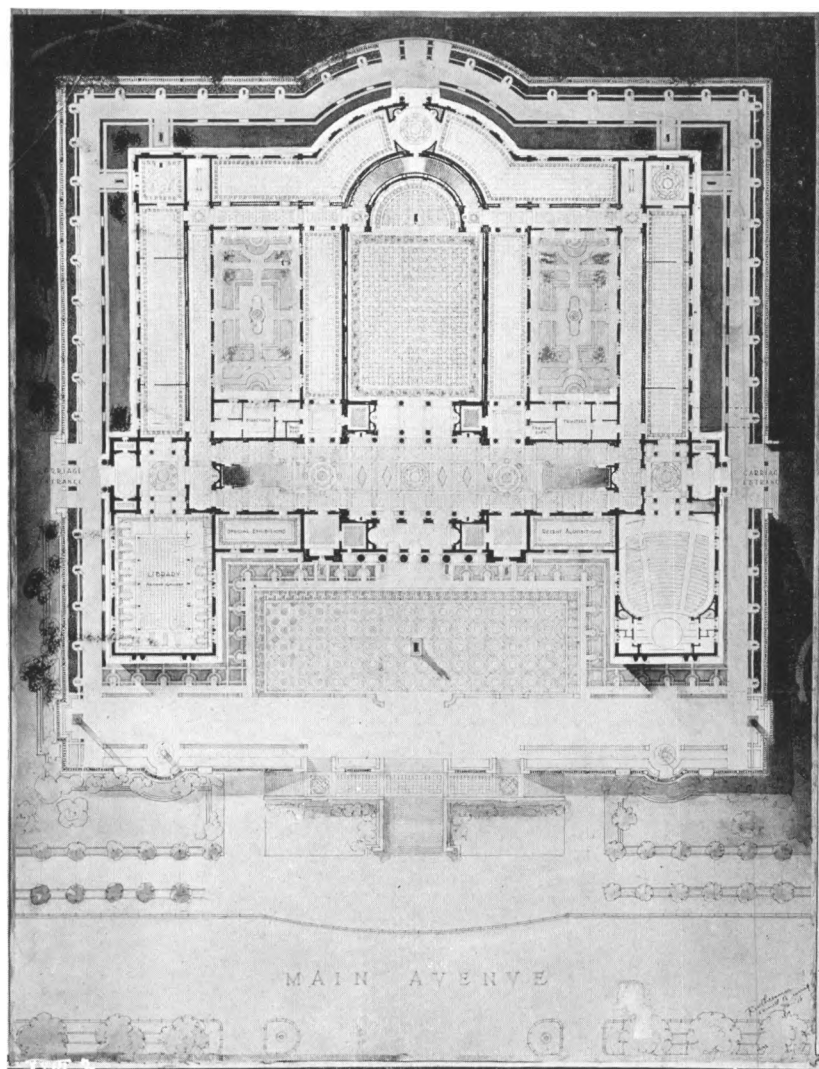
SENIOR DESIGN—A COMMUNITY BUILDING AS A WAR MEMORIAL

A. E. Middlehurst



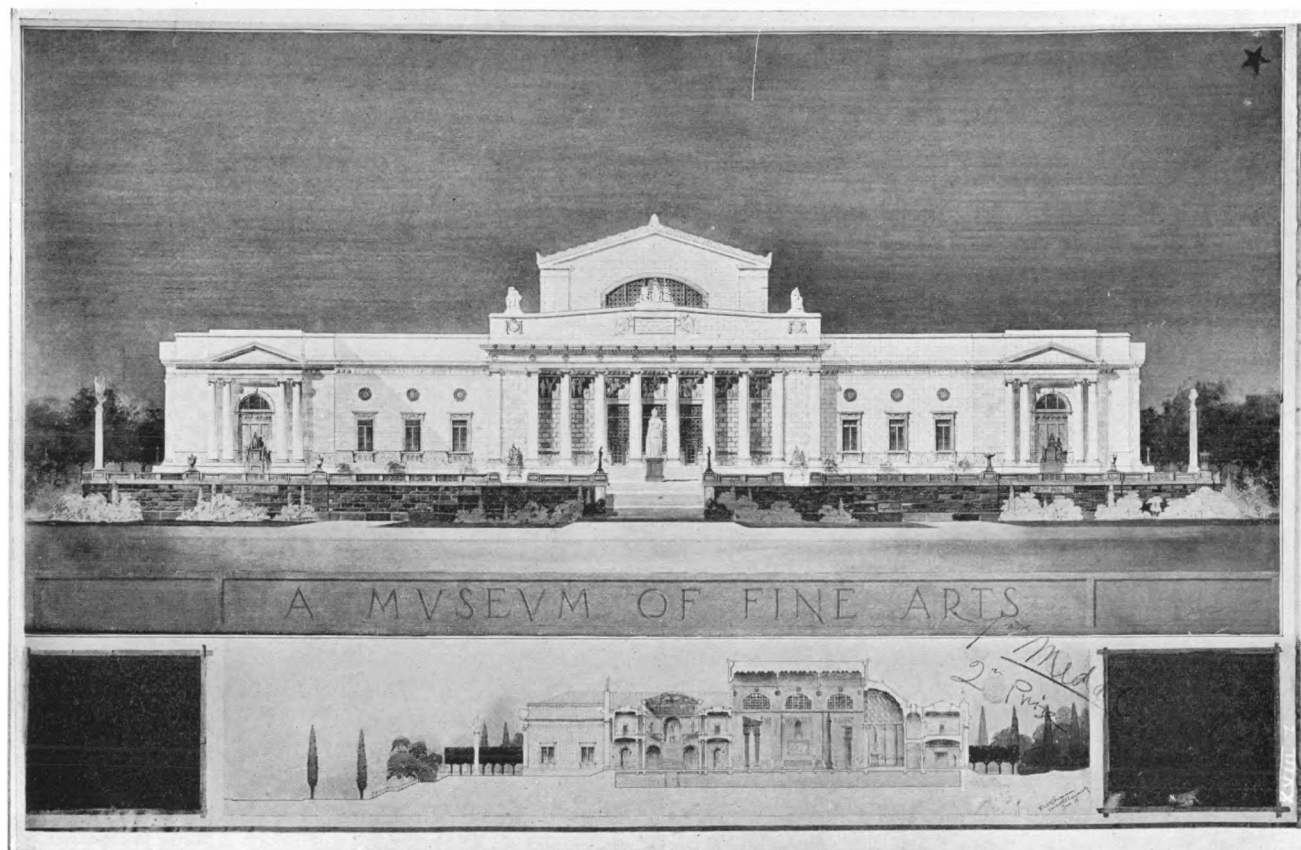
SENIOR DESIGN—A COMMUNITY BUILDING AS A WAR MEMORIAL
(Awarded New York Municipal Art Society Prize, \$50, 1919)

A. E. Middlehurst



SENIOR DESIGN—AN ART MUSEUM

R. W. Cheesman

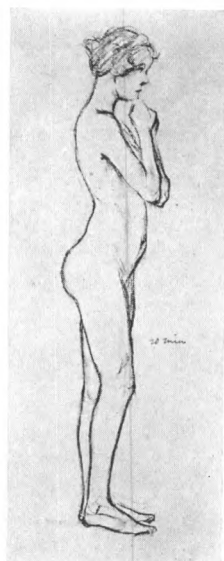
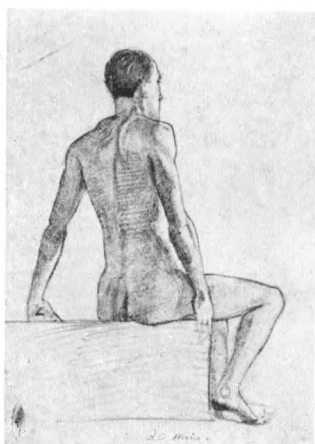
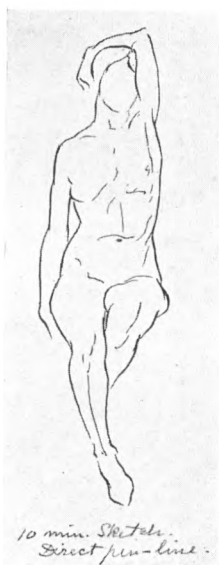


SENIOR DESIGN—AN ART MUSEUM
 (Awarded 2d Prize, \$100, S.B-A.A., Special Competition, 1918)

R. W. Cheesman



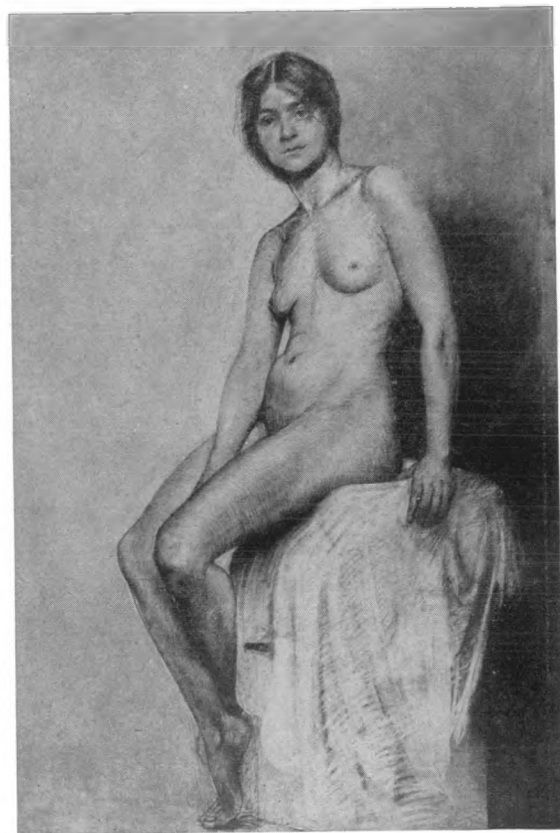
WATER COLOR DRAWING



SKETCHES FROM LIFE



DRAWING FROM THE ANTIQUE



DRAWING FROM LIFE



Palais de Fontainebleau
Facade Henry IV.

R. Suring
7.10.19



CHURCH OF
THE SORBONNE
IN PARIS -
LE MERCIER
ARCHITECT.

DOROTHY F. LEVY



T. YOK



CENTER BAY TO SOUTH FRONT
Wilton House

F. G. Jones

