

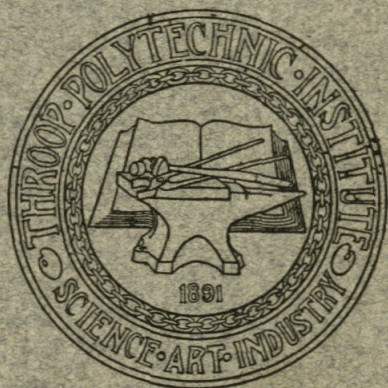
**THROOP INSTITUTE BULLETIN**  
**NUMBER XXVII** 

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**APRIL 1905**

**Fourteenth Annual Catalogue**



**THROOP POLYTECHNIC**  
**INSTITUTE**

**PUBLISHED BY THROOP POLYTECHNIC INSTITUTE**  
**PASADENA, CALIFORNIA**



## CALENDAR.

1905-6.

Annual Meeting Board of Trustees, Tuesday, September 12, 1905  
Registration....Monday and Tuesday, September 25 and 26, 1905  
Fall Term begins.....Wednesday, September 27, 1905  
Thanksgiving Vacation, Thurs. and Fri., Nov. 30 and Dec. 1, 1905  
Founder's Day.....Thursday, December 7, 1905  
Quarterly Meeting Board of Trustees....Tuesday, Dec. 12, 1905  
Fall Term ends.....Wednesday, December 20, 1905

### CHRISTMAS VACATION.

Winter Term Begins.....Wednesday, January 3, 1906  
End of the first half-year.....Friday, February 9, 1906  
Washington's Birthday.....Thursday, February 22, 1906  
Quarterly Meeting Board of Trustees...Tuesday, March 13, 1906  
Winter Term ends.....Friday, March 23, 1906

### SPRING VACATION.

Spring Term begins.....Monday, April 2, 1906  
Memorial Day.....Wednesday, May 30, 1906  
Baccalaureate Sunday.....June 3, 1906  
Fitz. E. Beach Prize Contest.....Monday evening, June 4, 1906  
Graduating Exercises, Grammar School, Tues. morn'g., June 5, 1906  
Alumni Reunion.....Tuesday evening, June 5, 1906  
Commencement.....Thursday evening, June 7, 1906  
Exhibition Day and End of Term.....Friday, June 8, 1906  
Quarterly Meeting Board of Trustees....Tuesday, June 12, 1906



# THROOP INSTITUTE BULLETIN

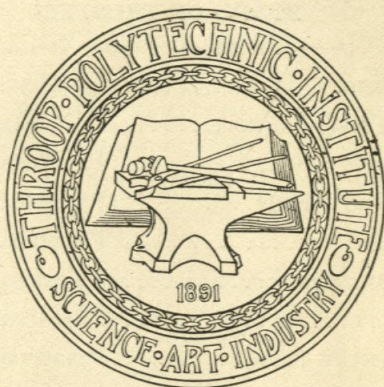
NUMBER XXVII 

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 APRIL 1905

Fourteenth Annual Catalogue



# THROOP POLYTECHNIC INSTITUTE

PUBLISHED BY THROOP POLYTECHNIC INSTITUTE  
PASADENA, CALIFORNIA



## FOUNDER

HON. AMOS G. THROOP

Born at De Ruyter, New York, July 22, 1811. Died at Pasadena,  
California, March 22, 1894.

## BOARD OF TRUSTEES

(Arranged in the order of seniority of service)

Term Expires

EVERETT L. CONGER, D. D. ....	Pasadena.....	1907
MRS. LOUISE T. W. CONGER.....	Pasadena.....	1907
E. E. SPALDING, A. M.....	Pasadena.....	1905
NORMAN BRIDGE, M. D.....	Pasadena.....	1909
JOHN WADSWORTH.....	Pasadena.....	1909
CHARLES D. DAGGETT.....	Pasadena.....	1908
A. R. METCALFE.....	Pasadena.....	1908
WILLIAM STANTON .....	Pasadena.....	1906
MRS. CLARA B. BURDETTE.....	Pasadena.....	1905
HIRAM W. WADSWORTH, A. B....	Pasadena.....	1906
JAMES H. MCBRIDE, M. D.....	Pasadena.....	1905
S. HAZARD HALSTED.....	Pasadena.....	1907
JOHN S. CRAVENS, A. B.....	Pasadena.....	1906
ARTHUR H. FLEMING.....	Pasadena.....	1909
MICHAEL CUDAHY .....	Pasadena.....	1908

## OFFICERS OF THE BOARD

NORMAN BRIDGE, President	C. D. DAGGETT, Vice-President
JOHN WADSWORTH, Treasurer	E. E. SPALDING, Auditor
THEODORE COLEMAN, Sec'y and Business Agent	
Residence, 149 South Madison Ave.	
GRACE B. WRIGHT, Assistant Secretary	
Residence, 306 Pleasant Street	

## EXECUTIVE COMMITTEE OF THE BOARD

NORMAN BRIDGE, <i>Chairman ex-officio</i>	C. D. DAGGETT
JOHN WADSWORTH	A. R. METCALFE
WILLIAM STANTON	



# FACULTY

1904-1905

(Arranged in groups in order of appointment)

WALTER ALISON EDWARDS, President

A. B., A. M. and LL. D., Knox College, Galesburg, Ill.; Instructor in Latin and Greek, High School, Peoria, Ill., 1883-6; student, Universities of Berlin and Tübingen, 1886-9; Principal High School, Decatur, Ill., 1889-90; Principal High School, Rockford, Ill., 1891-5; Instructor Latin and Greek, High School, Pasadena, Cal., 1895-6.

*408 S. Orange Grove Ave.*

ARTHUR HENRY CHAMBERLAIN, Dean

Professor of Education and Director of Normal School

B. S. and A. M., Columbia University; Master's Diploma, Teacher's College, N. Y., graduated Cook County Normal School; Teacher in the Public Schools of Cook County, Ill., 1892-4, Principal W. Harvey Public Schools, 1893-4; graduated, Normal School, Throop Polytechnic Institute; diplomas Deutsche Lehrerbildungsanstalt für Knabenhandarbeit, Leipzig, Germany, and Slöjdlärareseminarium, Nääs, Sweden; Teachers' College Scholar, 1902-03; President Manual Training Department and State Director National Educational Association; Author of Educative Hand Work Manuals, Bibliography of the Manual Arts, Technical Education in Germany.

*377 N. Los Robles Ave.*

HERBERT BOARDMAN PERKINS

\* John Wadsworth Professor of Mathematics; Instructor in Mechanical Drawing

S. B., Massachusetts Institute of Technology, 1874; Professor of Mathematics and Astronomy, Lawrence University, 1878-80 and 1882-6; student, University and Polytechnikum, Munich, Germany, and University of Geneva, Switzerland, 1880-82; student, University of California, 1886-8; Professor of Modern Languages, University of Southern California, 1890-2.

*45 S. Fair Oaks Ave.*

WALLACE KENDALL GAYLORD

Professor of Chemistry; Registrar

S. B., Massachusetts Institute of Technology, 1893; Member American Chemical Society; Member Society of Chemical Industry.

*75 N. Hudson Ave.*

LUCIEN HOWARD GILMORE

Professor of Physics and Electrical Engineering; Editor of the Catalogue

A. B., Leland Stanford Jr. University, 1894; Acting Assistant, Department of Physics, Leland Stanford Jr. University, 1894-5; graduate student, University of Chicago, 1898-9.

*165 S. Marengo Ave.*

MRS. JENNIE COLEMAN

Professor of English; Librarian

Instructor in Latin and English, High School, Rochester, N. Y., 1867-8; Principal Grammar School, Lakeport, Cal., 1884-6; Member County Board of Education, Lake Co., Cal., 1883-7; Vice-Principal High School, Pasadena, Cal., 1888-96; Holder of California High School Life Diploma; Member of the Board of Education of Pasadena.

*149 S. Madison Ave.*

JOSEPH GRINNELL

Professor of Biology; Curator

A. B., Throop Polytechnic Institute, 1897; A. M., Leland Stanford Jr. University, 1901; Assistant Instructor, Throop Polytechnic Institute, 1897-98; Assistant in Embryology, Hopkins Laboratory, Leland Stanford Jr. University, 1900; Instructor in Ornithology, Hopkins Laboratory, 1901-2; Instructor in Zoology and Botany, Palo Alto High School, 1901-03; graduate student, Leland Stanford Jr. University, 1901-03; Fellow American Ornithologists' Union.

*572 N. Marengo Ave.*

\*The founding of a Professorship is secured by the donation of \$20,000.



## FRANCES STERRETT

Director of Art

Portrait Artist, Springfield, Ohio, 1886-91; student Chicago Art Institute, 1891-2; graduated Normal Art Department, Pratt Institute, Brooklyn, N. Y., 1894; pupil of M. Injalbert, Sculptor, Academie Colarossi, Paris, France, 1900.

*373 S. Catalina Ave.*

## MRS. GRACE DUTTON

Director of Domestic Science

Graduated Pennsylvania State Normal School 1885; Instructor in Public Schools of Twin Oaks, Pa., 1885-8; graduated Mrs. S. T. Rorer's Philadelphia School of Domestic Science 1897.

*28 W. California St.*

## ROBERT EDGAR FORD

Director of Manual Training; Instructor in Machine Shop Practice and Pattern Making

B. E. E. and E. E. Engineering College University of Minnesota; with D. & D. Electric Manufacturing Co. Minneapolis Minn., 1895; Consulting Steam and Electrical Engineer, Minneapolis, Minn., 1896-7; graduate student University of Minnesota, 1900.

*137 S. Madison Ave.*

## X NORVAL GIBSON FELKER

Director of Commercial School

Graduated Bryant & Stratton Business College, Louisville, Ky. Instructor in same, 1886-90; Vice-President, Woodbury Business College, Los Angeles, Cal., 1891-8; President same, 1898-1903.

*755 E. Walnut St.*

## VIRGINIA PEASE

Director of Grammar School

Graduated Franklin Academy, Malone, N. Y.; Instructor in English, Annie Wright Seminary, Tacoma, Wash., 1890-2; Principal North Ontario Public School, 1892-6; Teacher Pasadena Public Schools, 1896-1904; Principal Garfield School, Pasadena, 1902-4.

*297 Center St.*

## \*PAUL BOEHNCKE

Associate Professor of German and Latin

Student Friedrich Wilhelm Gymnasium, Stettin, Germany, 1878-80; student Omaha High School, 1885-8; student University of Southern California, 1889-90; Architectural Draughtsman and Superintendent of Construction, 1893-7; student Boynton Normal, Los Angeles, 1898; Teacher, Public School, Elizabeth Lake, California, 1898-1900.

## BENJAMIN FRANKLIN STACEY

Associate Professor of History

A. B. and B. D., Lombard College, 1898; M. A., University of Arizona, 1903; Scholar, University of Chicago, 1898-1900; Fellow, *ibid*, 1900-1; Instructor in Economics and Philosophy, University of Arizona, 1902-4.

*The Anderson, N. Raymond Ave.*

## X HARRY CLARK VAN BUSKIRK

Associate Professor of Mathematics

Ph. B., Cornell University, 1897; special mention in Mathematics; Instructor in the University Preparatory School, Ithaca, N. Y., 1898-1904; Assistant Principal University Preparatory School, 1900-1904.

*280 Arcadia St.*

\* Absent on leave, school year 1904-5 studying at Leland Stanford Jr. University.



### PEARL BLANCHE FISHER

Instructor in French and Assistant in Free-Hand Drawing

Student, Mary Institute, St. Louis, Mo.; student in Paris, France, and in Lacaze Institute, Lausanne, Switzerland; graduated Normal School Throop Polytechnic Institute, 1897.

*1227 W. Seventh St., Los Angeles.*

### \* HARRY DAVIS GAYLORD

Instructor in Mathematics and Wood Carving

Graduated Pasadena High School, 1893; student in Art, Throop Polytechnic Institute, 1894-6; Teacher Private Classes in Carving, 1896-9.

### WALTER WILLIAM MARTIN

Instructor in Wood Working

Graduated Rockford High School, Rockford, Ill., 1898; graduated Normal School, Throop Polytechnic Institute, 1900.

*754 Locust St.*

### CLARA JUDSON STILLMAN

Instructor in Grammar School Subjects

Graduate of Terry Kindergarten Institute, Bridgeport, Conn., 1878; student Henniker, N. H., Academy, 1878-9; Inspector and Instructor, Public Schools, Arizona, 1881-5; Instructor, Public School, Coronado, California, 1895-9.

*256 S. Madison Ave.*

### CLARA SOUTHWICK

Instructor in Grammar School Subjects

Graduated High School, Chicago, 1893; Instructor Public Schools, Chicago, 1893-8; graduated Normal School, Throop Polytechnic Institute, 1899.

*385 S. Euclid Ave.*

### CLARA FRANCENA RANDALL ✕

Instructor in Elocution and English

Graduated Boston University, Boston, Mass.; Instructor in Elocution and English, Leland and Grey Seminary, Townshend, Vermont, 1879; Instructor in Elocution, Vermont Female College and Conference Seminary, Montpelier, Vermont, 1879-81; Instructor in Elocution and English Literature, High School, Peoria, Illinois, 1881-89; Instructor in English Literature, High School, Rockford, Illinois, 1889-1901.

*401 Oakland Ave.*

### ANNIE HOLMES

Instructor in Grammar School Subjects

Student-teacher, National School, Holyhead, Wales, 1885-6; student in Normal Training Department, San Diego Commercial College, 1893-5; student, University of California, 1898-9; Instructor in San Diego County Schools, 1895-8 and 1899-1902.

*60 S. Euclid Ave.*

### ERNEST ALLEN BATCHELDER

Instructor in Design and Grammar School Drawing

Graduated Massachusetts Normal Art School, 1899; Director of Drawing, Public Schools, Adams, Mass., 1899-1901; Instructor in Theory of Design, Harvard University, Summer Session, 1901.

*258 N. Vernon Ave.*

\* Absent on leave, school year 1904-5, studying at Harvard University.

## CLARENCE ARTHUR QUINN

Instructor in Forging

Graduate, Normal Department of the Stout Manual Training School, Menominee, Wis., 1897; Instructor in Shops and Mechanical Drawing, same 1898-1899; Instructor in Manual Training, Minneapolis, Minn., 1900; Instructor in the Manual Training High School and Director of Manual Training in the grade schools of Eau Claire, Wis., 1901-1902.

*675 N. Fair Oaks Ave.*

## CHITA KRAFT

Instructor in Spanish and German

A. B., Leland Stanford Jr. University, 1903.

*423 Lincoln Ave.*

## HARRY TRUMBULL CLIFTON

Instructor in Mathematics and Mechanical Drawing

Ph. B., Sheffield Scientific School, Yale University, 1895; post graduate, Yale University, 1895-6; in Traffic Department, New York Telephone Co., 1897-1900.

*871 N. Lake Ave.*

## ARTHUR CLAUDE BRADEN

Instructor in Physical Culture

Student of Physical Culture and Heavy Gymnastics, Y. M. C. A. Gymnasium, Cedar Rapids, Iowa, 1892-6; student, High School, Cedar Rapids, Iowa, 1896-7; student, High School, Pasadena, Cal., 1897-1900; Physical Director, Y. M. C. A., Sacramento, Cal., 1901; Physical Director, Oakland, Cal., 1902; Acting Physical Director, Y. M. C. A., in San Francisco, Cal., 1903; student in General Gymnastics with M. C. O'Brien, San Francisco, Cal., 1902-3; member American Physical Directors.

*521 Belvidere St.*



## ELLA VICTORIA DOBBS

Instructor in Manual Arts

Graduated Manual Training, Normal School, Throop Polytechnic Institute, 1900; Supervisor Cardboard Construction, Los Angeles Public Schools, 1900-1; Instructor in Sloyd ibid, 1901-2; Acting Instructor Normal Manual Arts, Throop Polytechnic Institute, 1902-3; Supervisor Manual Training, Helena, Montana, Public Schools, 1903-4.

*66 S. Los Robles Ave.*



## MABEL COWDREY HIMROD

Instructor in Domestic Art

Student, High School, Brooklyn, N. Y.; graduated Normal Domestic Science, Pratt Institute, Brooklyn, N. Y., 1895; Director of Domestic Art, Y. W. C. A., Pittsburg, Pa., 1895-8; graduated Normal Domestic Art, Pratt Institute, 1899; Instructor in Sewing, Hampton Institute, Va., 1899-1900; Instructor in Dressmaking, Pratt Institute, 1900-1; Director Domestic Art and Instructor in Domestic Science, Berea College, Ky., 1901-3.

*373 S. Catalina Ave.*



## VESTINA SCOBAY

Instructor in Music and English

Graduated High School, Chicago; pupil of Ella L. Krum in voice culture; pupil of William L. Tomlins in voice culture, expression and method; studied with Louise Robyn, harmony and piano; studied with Elizabeth Nash, physical culture; assistant to William L. Tomlins in Chicago Settlement, 1903; Instructor in Music and Elementary School Subjects, Stevan School, 1902-4.

*53 N. Catalina Ave.*



## CHESTER MARSHALL

Instructor in Latin

A. B., Muskingum College, Ohio, 1895; A. M., ibid, 1904; graduate student, Harvard University, 1900-1; Professor of Latin, Muskingum College, 1901-4.

\* Resigned November, 1904.



### NELLIE ALEXANDRA WARD

Instructor in Wood Carving

Graduated, Academy, Throop Polytechnic Institute, 1904.

*53 Pepper St.*

### \* MARIAN ELSIE CRAIG

Instructor in Latin

Student Western Reserve University, 1898; A. B., Pomona College, 1903;  
graduate student, University of California, 1903-4.

*509 E. Walnut St.*

### FRED RALLS WOODBURY

Assistant Instructor in Wood Working

Graduated, Academy, Throop Polytechnic Institute, 1902.

*425 S. Euclid Ave.*

### HILDA WOOD

Assistant in Zoology

Graduated, Academy, Throop Polytechnic Institute, 1902.

*408 S. Orange Grove Ave.*

### JAMES COLLINS MILLER

Assistant in Manual Arts

Graduated High School, Regina, Canada, 1898; graduated Territorial Normal School, Canada, 1899; teacher Rural Schools, 1899-1903; graduated Macdonald Manual Training School, 1903; Instructor in Manual Training, Nose Creek, Alberta, Public Schools, 1902-3.

*114 Chestnut St.*

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### ERNEST BRYANT HOAG

Lecturer in Biology

B. S., Northwestern University, 1892; A. B., Leland Stanford Jr. University 1894; A. M., Northwestern University, 1902; M. D., *ibid*, 1902; Instructor in Biology, Throop Polytechnic Institute, 1895-8; Instructor in Biology, Michigan State Normal School, 1899-1900; Instructor in Biology, Northwestern University, 1900-2.

*101 N. Los Robles Ave.*

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### EDWARD SPAULDING WARREN

Musical Director, Mandolin and Guitar Club

Pupil of Blakeslee, Chicago; special instruction from Abt, Seigel, Weeks and others.

*351 Congress St.*

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### FACULTY COUNCIL

W. A. EDWARDS, Chairman

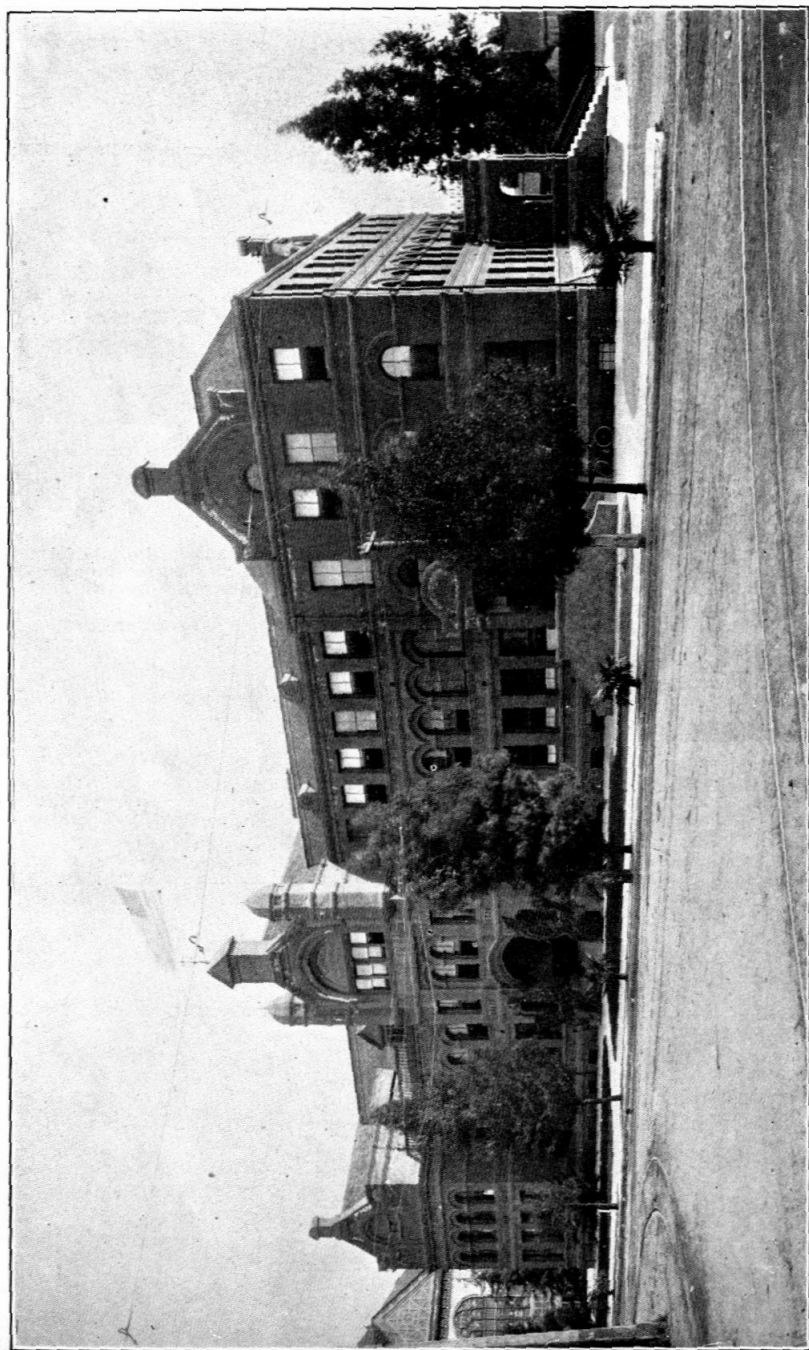
A. H. CHAMBERLAIN

MRS. JENNIE COLEMAN

R. E. FORD

W. K. GAYLORD

L. H. GILMORE



EAST HALL

## GENERAL INFORMATION

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### HISTORICAL

Throop Polytechnic Institute was founded by Hon. Amos G. Throop in 1891, and during the remainder of his life received his consecrated energy and hearty support, and at his death the greater part of the remaining accumulations of his life were bequeathed for its maintenance. Articles of incorporation were filed September 23d; the first Board of Trustees was organized October 2d. The doors of the Institute were opened to students November 2d. It was established to furnish the students of both sexes and of all religious opinions a liberal and practical education, which, while thoroughly Christian, should be absolutely non-sectarian in character. A clause of the charter provides that a majority of the Board of Trustees "shall not belong to any one religious denomination or sect, and the institution shall be maintained and administered as an undenominational and non-sectarian school."

Polytechnic Hall, containing shops and laboratories, was built in 1892; East Hall, containing offices, recitation rooms, laboratories, etc., was built in 1893. In 1900 a commercial school was added in response to a large demand, and in order to accommodate this school and to relieve the crowded condition of other schools it became necessary to build another wing to East Hall. In 1904 further enlargement became necessary, and a two-story brick addition was made to West Hall, while all the shops were overhauled and extensive improvements made. These changes were made possible by the generous action of citizens in subscribing a fund of about \$1200 for the work. A little later a complete equipment of lockers was put in East Hall.

An out-door gymnasium, with a fine equipment of apparatus, was added in the autumn of 1904.

August 2, 1904, Miss Susan H. Stickney, of Pasadena, generously donated to Throop Institute the handsome structure at the junction of Fair Oaks and Lincoln Avenues known as the Stickney Memorial Building, with the sole condition that the property be occupied by the art department of the Institute and for no other purpose. The large-hearted gift was accepted with this understanding. The building is entirely devoted to the work of the Art Department, and is found to be admirably suited to the requirements of the school.

### ELDRIDGE M. FOWLER TRUST FUND

Long-cherished plans for increasing the endowment fund were realized in October, 1904, through the thoughtful liberality of the



late Mr. E. M. Fowler, who had subscribed the sum of \$25,000 upon condition that a like amount should be given by a limited number of other people. This was done, and the fund of \$50,000 is in the hands of a board of trustees created for the purpose of managing it in such manner that the income only shall be used for the maintenance of the Institute. This board is made up from the members of the board of trustees of Throop Institute. The donors of the second \$25,000 who thus made available the \$50,000 fund are Mr. William Morgan, Mrs. Clara B. Burdette, Mr. William Stanton, Dr. Norman Bridge, Mr. H. T. Kendall, Mr. J. S. Torrance, Mr. J. D. Thomson and the F. and W. Thum Company, all of Pasadena, and one other. It is the hope and expectation of those interested in securing a liberal endowment for the Institute that this first \$50,000 will speedily be augmented by the addition of at least as much more.

#### OLIVE CLEVELAND FUND

Upon the death of Miss Olive Cleveland, in 1903, an agreement made with her by the Institute became operative. It is to the effect that the income from a piece of property devised by her to this Corporation shall be used in perpetuity to aid needy boys and girls in obtaining an education at Throop Institute. The particulars relating to this generous bequest may be learned upon application at the business office of the Institute.

#### LOCATION

Pasadena is generally acknowledged to be one of the most beautiful residence cities in California. It is situated within ten miles of the city of Los Angeles, at the head of the San Gabriel Valley and at the base of the picturesque San Gabriel Mountains. In beauty and healthfulness, in the culture of its homes, and in its high social and moral tone, Pasadena has no superior on the Pacific Coast. It is reached by the Santa Fe, the Salt Lake, the Southern Pacific and the Pacific Electric railways. Students living along these lines are enabled to make the daily trips to and from the Institute in seasonable hours and at reasonable rates.

#### SCHOOLS

The Institute comprises five schools: the Grammar School, the Academy, the Commercial School, the Normal School and the College.

#### LIBRARIES

The books belonging to the Institute are located with reference to convenience of students, special libraries being placed in the various department rooms. A general assortment is found in the main library room, in East Hall. The library also receives regularly

several periodicals, selected with special reference to the work of students.

The Pasadena Public Library, to which students have access, is situated near the Institute.

#### ACCREDITING

The Institute is included in the list of schools accredited by the State University. The Leland Stanford Jr. University accepts the certificates of the Institute and similar privileges are accorded to its graduates by various eastern institutions.

#### ADMISSION

Applicants for admission to any School of the Institute will be required to furnish satisfactory evidence of good moral character and of honorable dismissal from the schools with which they were last connected. They are also urged to bring such statements from previous teachers concerning studies completed in other schools as will be helpful in determining their classification.

#### HOURS

The daily exercises begin at 9 o'clock in the morning and continue until 3:25 in the afternoon, with an intermission from 11:50 to 12:50. Chapel exercises occupy the time from 10:20 to 10:30, and all students are expected to attend regularly.

#### REPORTS

Reports of the progress of each student are sent to parents every four weeks, and oftener if advisable because of unsatisfactory work.

#### DISCIPLINE

It is taken for granted that students enter the Institute with serious purposes and that they will cheerfully conform to such regulations as may be made by the Faculty. The moral tone of the school is exceptionally good, and cases requiring severe discipline seldom occur. Any conduct harmful to the moral standing of the school will render a student liable to dismissal. Parents may at any time be asked to withdraw from the Institute students whose work is unsatisfactory by reason of ~~any~~ lack of diligence

#### ATHLETICS

Encouragement is given to athletics, and the athletic organizations are under the immediate care of a joint committee of students and Faculty. Membership in these organizations is subject to forfeiture for failure in any regular line of school work.

The athletic grounds include a basket-ball court, two tennis courts, a field for baseball and foot ball and an eight-lap training track.

An out-door gymnasium provided with a good equipment of apparatus is now in use.

#### SOCIETIES

Several literary and debating societies are maintained by the students of the Institute with the co-operation of the Faculty, and are doing good work. They afford an opportunity for training in debating, essay writing, declamation, extempore speaking, parliamentary practice, etc.

A Camera Club and a Mandolin and Guitar Club find also a hearty support among the students of the Institute.

#### PUBLICATIONS

The Institute publishes each year a Catalogue, and the Reports of the President of the Board of Trustees, the President of the Institute and the Secretary. Any of these may be obtained free of charge on application to the Secretary. The Polytechnic, a monthly paper devoted to the interests of the Institute, is published by the students.

#### EXHIBITION DAY

The last day of the spring term, including evening, is devoted to an exhibition of the work of the year in the different departments. Articles made in the shops and studios remain in the charge of the various instructors until the close of Exhibition Day, when they may be claimed by their respective owners.

#### SCHOLARSHIPS

Through the generosity of some of the citizens of Pasadena a number of free scholarships have been founded for the benefit of worthy and needy students. The trustees have, in addition to those who are now enjoying these scholarships, a list of worthy applicants, and any person desirous of extending the influence of the school in this way may obtain full information from the Secretary.

#### PRIZES

Commencing 1905 a first prize of fifteen dollars, and a second prize of ten dollars, offered by Mr. Fitz E. Beach, will be awarded each year to the first and second best in contest in declamation, held in commencement week, the contestants being selected from the students in the Academy and Commercial School. Similar prizes offered by Mr. Geo. H. Coffin were won in 1904 by Greenleaf Woodbury and Veva Beeson.

#### TUITION

The tuition fee in the grammar school is \$75 a year, in all other departments \$85 a year, payable in advance at the beginning of each term as follows:

	GRAMMAR SCHOOL	ALL OTHERS
First Term - - - -	\$30 00	\$35 00
Second Term - - - -	30 00	35 00
Third Term - - - -	15 00	15 00



Students in attendance less than the school year pay as follows: In the grammar school \$30, in all other departments \$35, for each entire term, and a proportionate share of this amount plus 20 per cent. for the fraction of any term, except that no reduction is made in the tuition of any student entering during the first three weeks of any term.

No refund is made in the tuition of any student who may leave school before the end of the term for which he has paid.

Those taking but one period of study per day, pay \$12.50 per term in the grammar school, \$14 in all other departments; those taking but two periods per day are charged double these rates. The full tuition is paid by those taking more than two periods per day.

#### SHOP AND LABORATORY FEES

Fees are required in the following work, payable at beginning of each term:

Chemistry .....	\$5 00
Clay Modeling .....	1 25
Cooking, Academy.....	6 00
Cooking, Grammar School.....	3 50
Cooking, Normal .....	6 00
Electrical Engineering .....	1 25
Forging .....	4 00
Free-hand Drawing and Painting, either or both.....	50
Manual Arts, Grammar Grades.....	1 50
Manual Arts, Normal.....	3 00
Biology .....	1 00
Pattern and Machine Shop.....	2 50
Physics .....	1 00
Sewing or Dressmaking, either or both.....	50
Typewriter, Use of.....	1 00
Wood Carving, (1st year, 1st term).....	50
Wood Shop.....	1 50

In wood carving, drawing, painting, sewing and dressmaking, students will furnish their own materials, and in all other work where extra large or unusually costly articles are desired, the material for the same will be paid for by the student.

Breakage and damage done to buildings, books, furniture, equipment, etc., or any tools lost, will be charged to the student responsible for the same.

#### LOCKER FEES

The Institute is provided with individual lockers for the safe keeping of books and other personal property, the use of which is compulsory for all students except those of the Grammar School. Gymnasium lockers are also in place. Locker fees are 40 cents per term, with 25 cents additional as a deposit for key, the latter to

be repaid upon return of the key. Two pupils may use the same locker at 60 cents per term and 25 cents deposit for each key.

#### DIPLOMA FEES

College .....	\$5 00
Normal School.....	1 25
Commercial School.....	1 25
Academy .....	1 25

Term bills are payable strictly in advance, and students must submit the Secretary's receipt for the same to each instructor, whose classes they may seek to enter.

#### BOARDING HALL FOR BOYS

The Institute maintains a Boarding Hall for a limited number of boys and young men, where comfortable rooms, excellent table board and the careful supervision of a member of the Faculty living in the house, insure a good home for its occupants. The cost of these accommodations and all charges for tuition and fees, ranges from \$350 to \$425 per school year, according to room chosen.

#### BOARD

Good board elsewhere can be obtained at from \$6 to \$7 per week. Any change in boarding place must be immediately reported at the office.

#### TEXT-BOOKS

The text-books used in the classes of the Institute may be purchased at the Institute book store, on the second floor of East Hall, at less than the usual retail prices.



POLYTECHNIC HEADING, DRAWN BY STUDENT

## BUILDINGS

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### POLYTECHNIC HALL

Polytechnic Hall is a two-story brick building with a frontage of 148 feet on Fair Oaks Avenue and 80 feet on Chestnut Street. During the past year, a complete overhauling and re-equipment of the shops



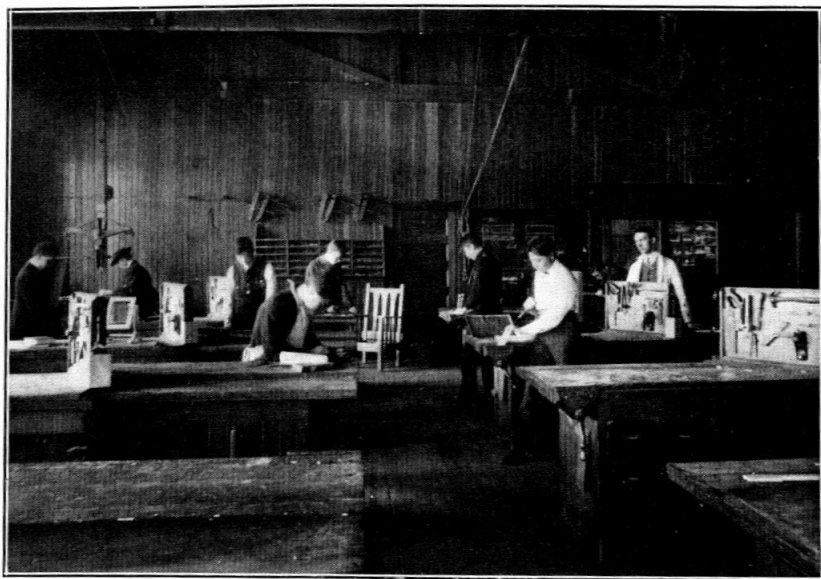
POLYTECHNIC HALL

and laboratories has been accomplished, and a new wing has been added to the building—giving ample and satisfactory accommodation to all departments.

### WOOD SHOP

The wood shop, located on the second floor, has recently been refitted and enlarged, and now contains twenty-nine benches with





WOOD SHOP

corresponding tool and locker equipment. A power jig-saw and grindstones are also in this room.

#### PATTERN SHOP

The pattern shop is equipped with fifteen benches with tools and lockers, together with an outfit of moulder's tools, flasks, etc., so that patterns may be tested in the sand.

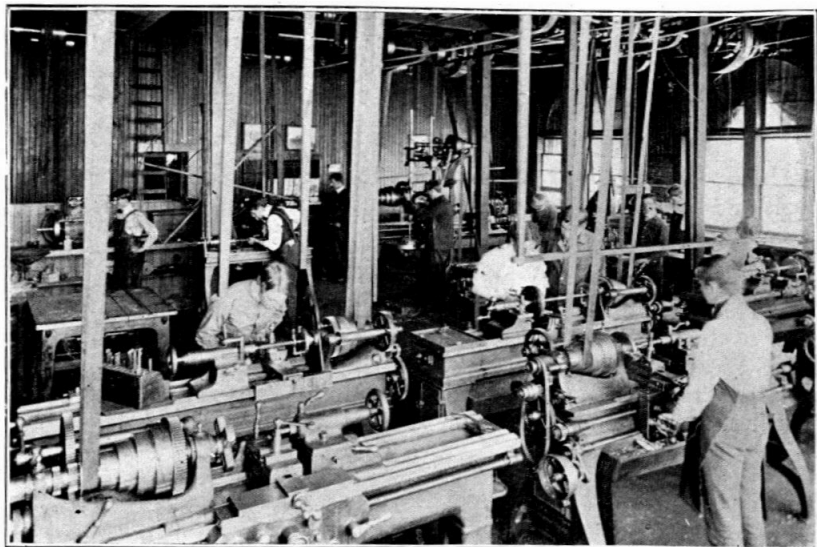
#### LATHE ROOM

Adjoining both wood shop and pattern shop, and available for the use of either, is the lathe room with an equipment of thirty wood-turning lathes, also one large pattern-maker's lathe with double end head-stock.

#### MACHINE SHOP

The machine shop is located in a large room on the first floor. The equipment for all classes of machine shop practice is ample, and of a high grade. The machines are, without exception, of the best and most substantial type, and include a planer, shaper, milling machine, drill presses, saw, fourteen lathes, of various sizes, grinders, etc.

A twenty-horse power electric motor, furnishing power for the different shops, is located in this department.



MACHINE SHOP

## FORGING SHOP

The forging shop is equipped for twenty-one students. A complete re-equipment, with down draft forges, makes this shop remark-



FORGING ROOM

ably light and attractive. Five sets of Buffalo quadruple forges, with down draft hoods, one single forge with natural overhead draft together with anvils, drill presses, emery grinder and the usual outfit of small tools, comprise the equipment of this department.

#### TOOL ROOM

A stock and tool room adjacent to all shops, contains the small tools and supplies needed in the various departments. An attendant is constantly in charge.

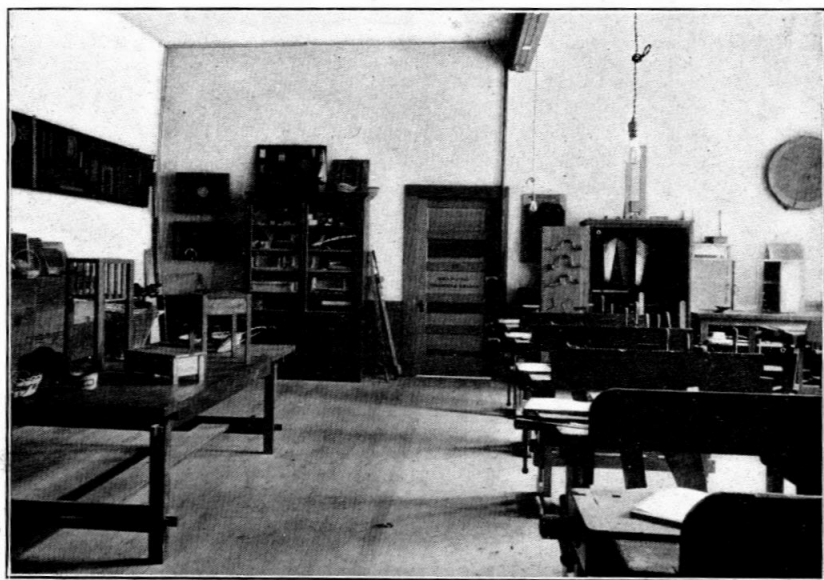
#### MANUAL ARTS—GRAMMAR GRADES

This department is accommodated in two rooms on the second floor of the new wing of Polytechnic Hall. One room has equipment for elementary work in cardboard, basketry, bookbinding, etc., while a larger room with locker room adjacent has an equipment of benches, tools, etc., suitable for work in wood.

#### MANUAL ARTS ROOM—NORMAL SCHOOL

The room used for normal sloyd and manual training work is fitted with all necessary tools and equipment. Models, exercises and drawings of English, Swedish and German courses, and from American schools, as well, are supplied for comparative study.

The library of the department includes the best works on psychology, education and manual training subjects.



MANUAL ART ROOM—NORMAL SCHOOL



## WOOD CARVING ROOM

The wood carving room is a well lighted room on the first floor and is furnished with tools, benches and lockers for the use of the students, and cases for the exhibition of work.

A good selection of charts and casts of historic ornament is available in this and other art rooms of the Institute.

## GRAMMAR SCHOOL DRAWING ROOM

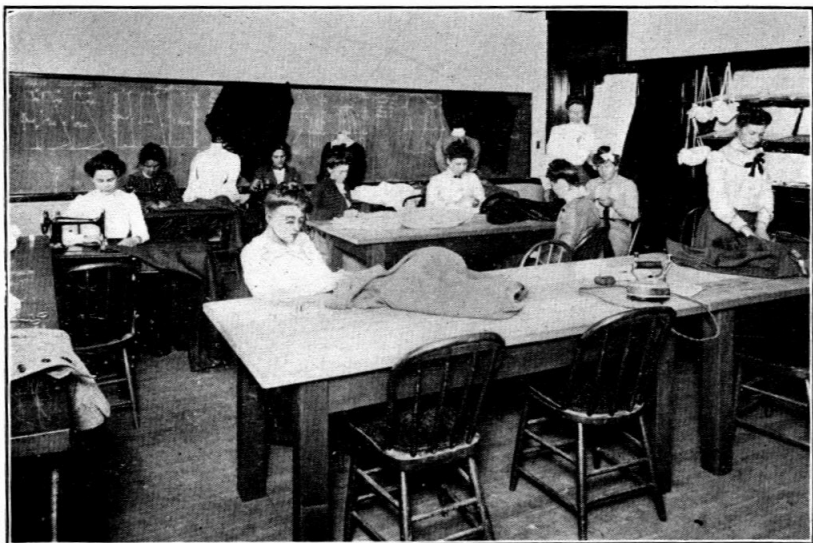
A large, well-lighted room on the first floor is devoted to the drawing work of the pupils of the Grammar School.

## MECHANICAL AND ARCHITECTURAL DRAWING DEPARTMENT.

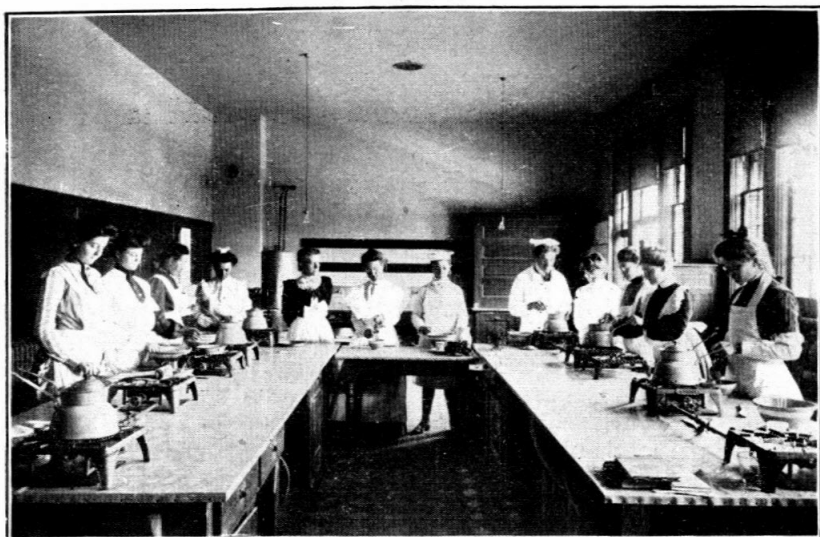
This department occupies a suite of three rooms on the second floor of the south wing. A main drawing room with ample lighting arrangements, contains tables for twenty students, with lockers for each student's tools and materials. Adjoining is a drawing room for advanced classes, with like equipment, and a lecture or library room containing the mechanical library, models, drawings and casts, for use of students. Arrangements for blue printing are found in the advanced drawing room.

## DEPARTMENT OF DOMESTIC ART

This department occupies two well-lighted rooms on the first floor, equipped with large tables, sewing machines, electric iron and pressing-boards, dress forms and tables containing drawers for the individual use of the students.



SEWING ROOM



COOKING ROOM

## DEPARTMENT OF DOMESTIC SCIENCE

The cooking room is located on the first floor and is supplied with tables upon which are gas stoves. The drawers contain cooking utensils, mixing and measuring dishes, stirring-spoons, kitchen knives and forks, etc., while in cupboards beneath is a full assortment of stove and kitchen furnishings. A large dust-proof cupboard, containing meal and flour bins, dish closets, etc., a large water-heater, a gas range, a refrigerator, and cupboards for furnishings are also provided.

The department also occupies an adjacent room both for lectures and recitations, and also for the luncheons and dinners which individual students are required to serve from time to time as evidence of their proficiency.

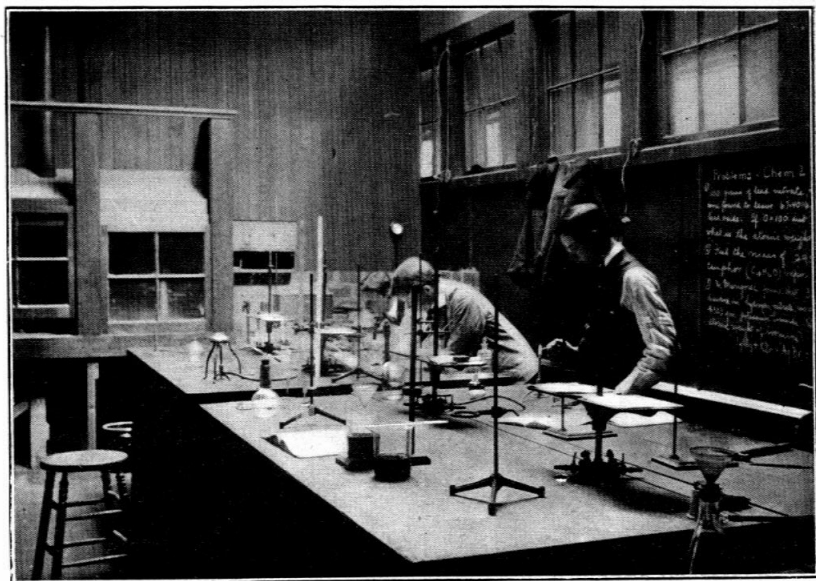
## CHEMICAL LABORATORIES

The laboratory for general chemistry, 19x27, is found on the second floor of Polytechnic Hall. It is furnished with benches and lockers for 48 students and supplied with apparatus and chemicals for thorough work in experimental chemistry.

The laboratory of analytical chemistry and assaying, 12x30, is adjacent to the laboratory for general chemistry and is capable of accommodating 10 students. It is furnished with roomy lockers, and a full supply of apparatus, chemicals, balances, furnaces, etc., for rapid and accurate work in chemical analysis and assaying.



LABORATORY OF GENERAL CHEMISTRY



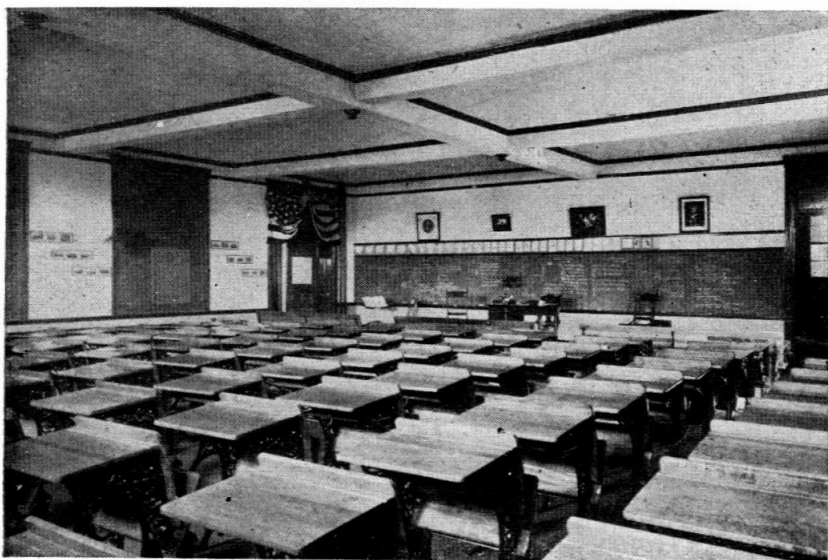
ANALYTICAL LABORATORY

The library of the department is kept in a room next to the laboratories, and contains about 75 valuable reference books, the number of which is being constantly increased. The Journal of the Society of Chemical Industry is regularly received by the department.

The library room contains a large working collection of minerals, furnishing much valuable material for the students in chemistry, mineralogy and assaying.

## EAST HALL

East Hall is a large three-story brick building on Chestnut street and Raymond avenue. In addition to the rooms described below, it contains a reception room, the offices of President, Business Manager and Dean, the general library, a large assembly room, various recitation rooms, etc.



GRAMMAR SCHOOL

GRAMMAR SCHOOL

The entire lower floor of the west wing of East Hall is devoted to the Grammar School. On the south is a large, well-lighted assembly hall with a seating capacity of about one hundred; it connects with two recitation rooms on the north and with another on the east. All rooms are seated with desks and fully equipped with all necessary appointments. The pupils of this School are provided with cloak and lunch rooms in the well-lighted basement.

## PHYSICAL AND ELECTRICAL ENGINEERING LABORATORIES

The Physical Laboratory is a large, well-lighted room, fitted with gas and water pipes, electric wires, tables, lockers, cases, etc. This room is used for the elementary work in physics.

The Electrical Engineering Laboratory is a large room with cement floor, heavy piers of brick and cement, work-benches and cases. It is piped for gas and water and is wired for electric light and power. Here are found the facilities for precise work in advanced physics and electricity, in the solid foundations and freedom from outside disturbances.

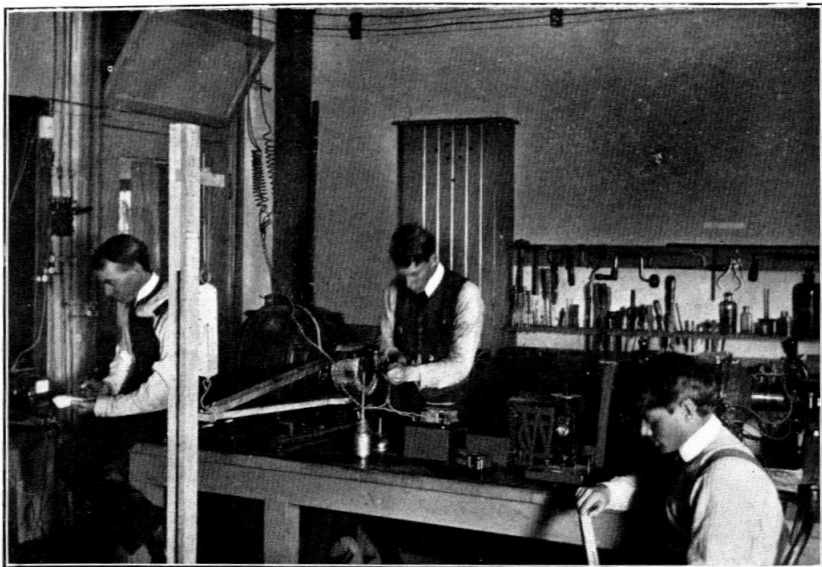
In addition to much other apparatus in the two laboratories may be mentioned the following: Becker balance, micrometer calipers, aneroid and mercurial barometers, spectroscope, revolving mirror, compound microscope, Deprez-D'Arsonval mirror galvano-



PHYSICAL LABORATORY

meter with three coils of different resistances, Thompson tripod galvanometer, universal tangent galvanometer, scales and telescopes, resistance boxes, Queen portable testing set, quadrant electrometer, one-third microfarad condenser, adjustable condenser for alternating current work reading up to five microfarads, standard cells, slide-meter bridges, large induction coil, X-ray tube, Prony brakes, cradle dynamometer, steam engine indicator, Amsler planimeter, speed indicator, direct and alternating current voltmeters and ammeters, Sie-





STUDENTS TESTING INDUCTION MOTOR IN ELECTRICAL ENGINEERING LABORATORY

mens electro-dynamometers, wattmeters, direct and alternating current dynamos and motors including an experimental dynamo fitted with commutator and collecting rings so that it may be used as a generator of direct and alternating currents as well as a synchronous motor and a rotary converter, auto-transformer adjustable for various voltages, switch board, storage cells, Bunsen and Joly photometers, arc, incandescent and Nernst lamps. A large dark room for use in photometry adjoins the Electrical Engineering Laboratory.

The library of this department is situated in the Physical Laboratory. Some of the leading periodicals are kept on file and frequent additions are made of the latest works on physics and electrical engineering.

#### COMMERCIAL SCHOOL

The Commercial School occupies the entire second floor of the west wing of East Hall, and contains all the furnishings, fittings and offices, including a bank, required by the best business and stenographic colleges.



COMMERCIAL SCHOOL ROOM

## BIOLOGICAL LABORATORY

The Biological Laboratory is on the second floor. It faces the north and is lighted by large windows. There are tables, lockers, five glass aquaria, two observatory bee-hives, book-cases and shelves, with other accommodations necessary for the use of students in the different fields of natural science. Each table is supplied with its own gas burner.

The laboratory is furnished with Bausch and Lomb compound microscopes, dissecting microscopes, a microtome, camera lucida, steam and sterilizing ovens, an incubator and other appliances required in the higher grades of work.

There are good collections in mineralogy, botany, zoology and archaeology, mostly adapted to practical use of students and available for comparison and study. A large increase has lately been made by the purchase of the collection of the late Dr. John Dickinson of Los Angeles. Many books and specimens of the late Dr. E. W. Claypole have been added to the collections, most of which are arranged for reference in special sets of cases and drawers.

## SOCIETY HALL

The various literary and art clubs of the Institute share in the use of a large hall on the third floor. This hall is attractively furnished with substantial and artistic furniture designed and built by members of the Gnome Club.

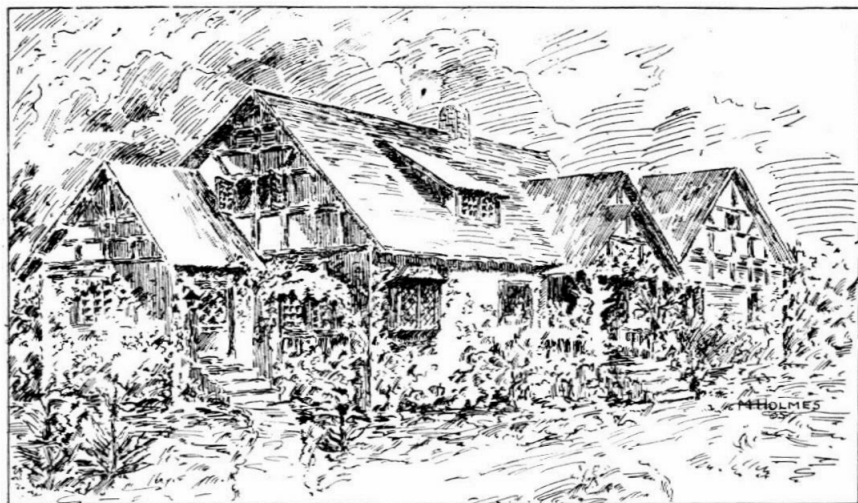
## GYMNASIUM

A large, well-lighted room in the basement is occupied by

the classes in physical culture. It is provided with dumb-bells, Indian clubs, horizontal bar and other gymnasium apparatus.

There is also an out-door gymnasium provided with a good equipment of apparatus.

### STICKNEY MEMORIAL BUILDING



PEN AND INK DRAWING OF STICKNEY MEMORIAL HALL BY SECOND YEAR ACADEMY STUDENT

Classes in the Art Department are now occupying Stickney Memorial Building, just across the street from Polytechnic Hall. This ivy-covered Shakespearian structure is an inspiration to all the students who are constantly adapting its artistic lines, both interior and exterior, to sketches made in the different media, pencil, pen and ink, wash drawings.

#### FREE-HAND DRAWING, PAINTING AND DESIGNING ROOMS

Two large rooms on the lower floor are used by the classes in drawing and painting, and are well provided with all necessary equipment for this work as well as other appliances for lectures, recitals, etc., namely: lecture platform, screen for lantern slides, piano, curtains, rooms for costumes. A pantry and kitchen, with all facilities for social functions are at the disposal of the students.

#### CLAY MODELING ROOMS

The various rooms on the second floor are occupied by the classes in clay modeling. These rooms contain numerous plaster casts, models, lockers, vats for clay, and revolving stands used in working from the living model, when the work must be turned and viewed from every point in process of construction.

# SCHOOLS

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## GRAMMAR SCHOOL

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### COURSE OF STUDY

The regular Grammar School course covers a period of five years beginning with the fourth grade. A small preparatory class is formed each year to which are admitted pupils not quite ready for fourth grade work. Pupils are admitted to any grade upon the presentation of credentials from the schools they last attended, showing that the work of the previous grade has been satisfactorily completed.

#### ARITHMETIC

**PREPARATORY CLASS.**—Notation and numeration; combinations to 100; fundamental operations, multiplication, division; special drill in addition; Roman numerals to 100; fractions, halves, thirds and fourths; measures, inch, foot, yard, pint, quart, gallon. Walsh's Elementary Arithmetic used as a guide.

**FOURTH GRADE.**—Notation and numeration, combinations of numbers. Multiplication and division by numbers of two and three figures. Measures of weight and time. Fractional work continued. Walsh's Elementary Arithmetic completed.

**FIFTH GRADE.**—Common fractions completed; special attention given to analyzing and solving problems and to business fractions. Mental arithmetic.

**SIXTH GRADE.**—Decimal fractions and measurements involving their use; measurements correlated with manual arts, measurements with common business applications; checks; receipts; bills; percentage. Mental arithmetic.

**SEVENTH GRADE.**—Measurements. Metric system. Percentage; interest; banking transactions. Ratio and proportion. Powers and roots.

**EIGHTH GRADE.**—Partial payments; banking transactions; insurance; taxes; bonds; stocks. General review of arithmetic. The use of the algebraic equation and elementary geometry.

#### ENGLISH

The course in English aims to cultivate: First, the power to communicate thought both orally and in writing; second, the development of the power to read; third, the love of good literature. To this end, in addition to the school work, each pupil is required to read at least three books a year, and to memorize a few of the beau-

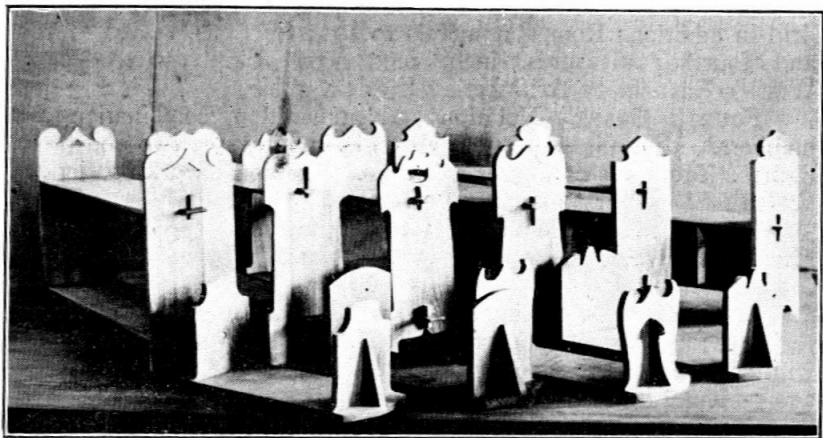
tiful short poems and ballads in which he may become interested; making his selections from lists furnished by the teacher. The work in English, as outlined, includes that usually classified under the four heads: literature, grammar, reading and spelling, and is as far as possible closely related to the work of the other departments.

PREPARATORY CLASS.—Literature. Based on stories of the siege of Troy and story of Ulysses, Bible stories, Aladdin, Siegfried, selected poems. Language. Use of period, question mark, capitals, common abbreviations; letter writing; dictation.

FOURTH GRADE.—Literature. Stories of ancient Rome, Bible stories, Jungle Book, King Arthur and His Court, selected poems. Language. Mother Tongue, Book I.

FIFTH GRADE.—Literature. Wonder Book, the Great Stone Face, Macaulay's Lays, selected poems, Mother Tongue, Book I.

SIXTH GRADE.—Literature. Heroic Ballads, Bell of Atri, Ways of Wood Folk, selected poems, St. Francis of Assisi, Mother Tongue, Book II.



SLOYD WORK FROM ORIGINAL DESIGN, SEVENTH GRADE

SEVENTH GRADE.—Literature. Stories of feudal period, City of Florence, guilds, Burroughs' Birds and Bees, Industries of Today, selected poems, Mother Tongue, Book II.

EIGHTH GRADE.—Literature. Lay of the Last Minstrel, selected poems, special study of certain American and English authors, Sketch Book, English Grammar.

#### GEOGRAPHY

In following this course as outlined, the pupil gains a comprehensive idea of the growth and progress of a country along the lines





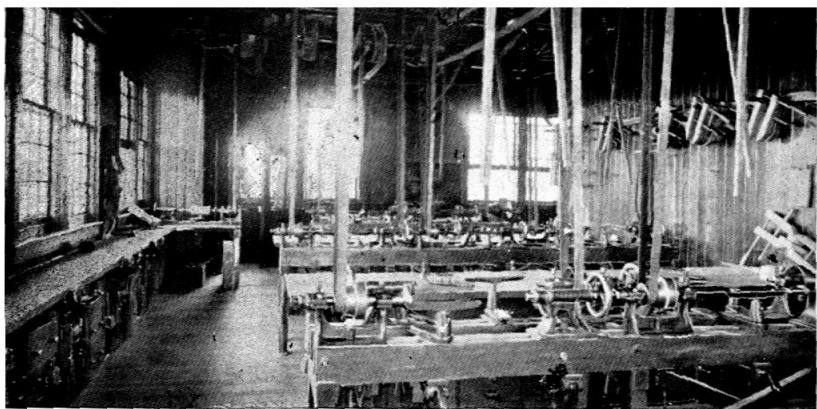
DRAUGHTING ROOM.



COOKING ROOM.



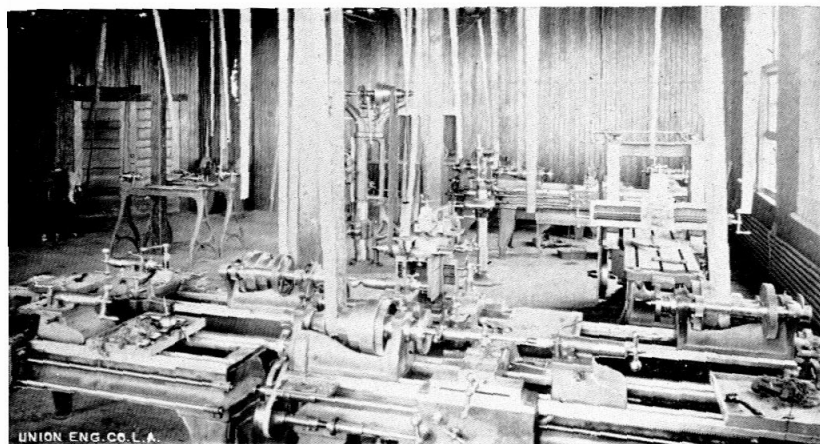
SEWING ROOM.



PATTERN SHOP.



FORGING SHOP.



MACHINE SHOP.

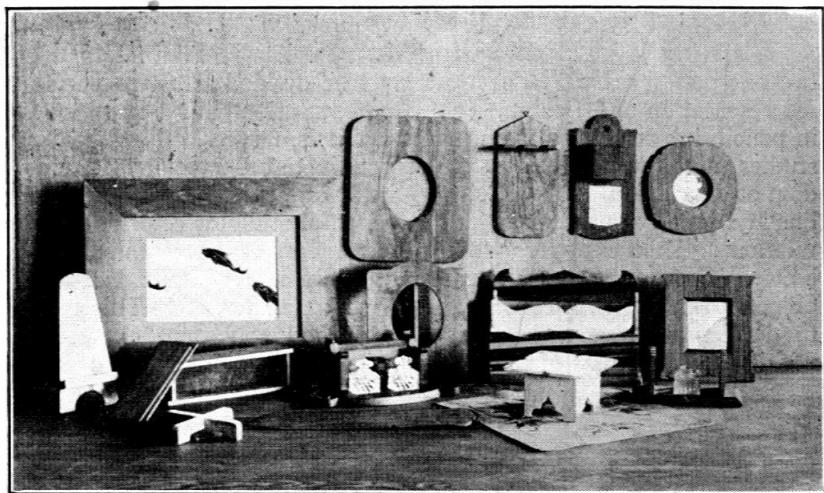
of agriculture, mining, manufacturing and commerce by a careful study of the climate, soil, minerals, position and peoples.

FOURTH GRADE.—Tarr and McMurray's Geography, Book I; sand modeling; map modeling of Los Angeles county; map drawing of Los Angeles county.

FIFTH GRADE.—Tarr and McMurray's Geography, Book I; map modeling and product map of California.

SIXTH GRADE.—Tarr and McMurray's Geography, Book II; outline section maps of United States; map and modeling of North America.

SEVENTH GRADE.—Tarr and McMurray's Geography, Book III; product maps of the continents; map modeling and product map of the United States.



EXAMPLES OF SLOYD WORK, FIFTH, SIXTH AND SEVENTH GRADES

#### HISTORY

The foundation for United States history as taught in the eighth grade is laid in grades preceding. In the knowledge of famous characters as types of the peoples those characters represent, the students readily see causes whose influence is felt in early United States history.

FOURTH GRADE.—Stories of famous characters selected from ancient and medieval history.

FIFTH GRADE.—Continuation of fourth grade work; stories of the 16th century.

SIXTH GRADE.—History stories in connection with the geography of the United States.

EIGHTH GRADE.—Montgomery's American History; Ivanhoe Historical Note-book, Part I.

#### SCIENCE

One lesson in elementary science is given each week in each grade. All pupils are obliged to take this course. Instruction is given by specialists in the various sciences

FOURTH, FIFTH AND SIXTH GRADES.—Elementary work in natural science.

SEVENTH GRADE.—Elementary chemistry.

EIGHTH GRADE.—Elementary physics.

#### DRAWING

Drawing is given in each grade. Pupils are allowed to take but one period a day. The work may be divided into two parts—Representation and Design. (a) Representation.—Free-hand work in pencil, ink and color from plants, animals, figures, objects, action studies, illustrative sketches, etc., to cultivate observation and freedom of expression. (b) Design.—Study of elementary principles of line and area composition, with more careful study of color and tone relations. In the upper grades a close correlation is maintained between the art and manual training departments; pupils designing objects to be by them constructed in wood, leather, etc. This tends to develop creative ability with simple and consistent expression within the limitations of the material chosen for the work.

#### MANUAL ARTS

ELEMENTARY COURSE.—Including first three grades. (a) Reed Basketry.—Large free movements to give control of the hands, strengthen the fingers and develop sense of form. (b) Weaving.—Various materials used in making mats, rugs, pillows, etc. Special attention given to study of textiles, color combinations and artistic design. (c) Paper and Cardboard Construction.—Progressive work in measurements, elements of construction, mechanical and freehand drawing.

SIXTH, SEVENTH AND EIGHTH GRADES.—Bench Work.—A definite but elastic course is planned beginning with simple tool operations and leading to such problems as enter into the construction of plain furniture and other useful articles. Wood is the principal material used, combined, when convenient, with leather, sheet metal, and other media. Pupils are required to make working drawings for all projects and individuality in design, decoration and finish is

encouraged. Instruction is given in the care of tools, characteristics, preparation and finish of materials, their source of supply and commercial value. All handwork is related as closely as possible to the work in the other departments, especially to drawing, arithmetic and geography.

**DOMESTIC ECONOMY.**—(a) Sewing.—The course in sewing includes the elementary stitches in hand sewing and their application in the making of simple and useful articles. (b) Cooking.—A course in this department is offered to students in the Eighth Grade.

#### MUSIC

**FOURTH AND FIFTH GRADES.**—Physical exercises; ear training; breathing; vocalizes and solfeggios; scale building; interval and scale drill from chart and dictation; two part music introduced.

**SIXTH GRADE.**—Review of previous work and continued study along same lines; vocalizes and solfeggios; two part songs.

**SEVENTH GRADE.**—Physical exercises; review of all keys; solfeggios and vocalizes; three part songs and exercises; introduction of bass clef.

**EIGHTH GRADE.**—Review of work in all previous grades, three and four part songs. Since the body as well as the voice should express harmony, and because harmonious bodily expression makes for freedom in vocal utterance, physical training is given in all grades in connection with the music work. This training is in the form of a series of exercises necessary to secure proper poise of the body, and control and flexibility in the use of its members, a result not attained from exercises given for strength only. A brief study of the lives of great musicians is begun in the Fourth and completed in the Eighth Grade. Special attention is given in all classes to song interpretation and rhythm.

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## ACADEMY

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### REQUIREMENTS FOR ADMISSION

Students holding a certificate of graduation from a California grammar school, or any other school of equivalent grade, will be admitted without further examination. All other applicants will be subject to examination in arithmetic, grammar, English, geography and United States history.

In arithmetic the examination will be upon the following subjects: fundamental operations, factoring, greatest common divisor,



least common multiple, fractions, denominate numbers, applications of percentage, involution, evolution, mensuration, and the metric system; in grammar and English, upon composition, spelling, punctuation, use of capital letters, elements of English grammar and the analysis of the sentence, Lady of the Lake and Evangeline.

### COURSES OF STUDY IN THE ACADEMY

The diploma of graduation is granted upon the completion of one of the following courses:

	CLASSICAL	LITERARY	SCIENTIFIC
FIRST YEAR	English 1 Algebra Latin 1 { Drawing, Free-hand { and Mechanical Manual Training	English 1 Algebra { German 1, French 1, { or Latin 1 { Drawing, Free-hand { and Mechanical Manual Training	English 1 Algebra Physical Geography { Drawing, Free-hand { and Mechanical Manual Training
SECOND YEAR	English 2 Plane Geometry Latin 2 { Drawing, Free-hand { and Mechanical Manual Training	English 2 Plane Geometry { German 2, French 2 { or Latin 2 { Drawing, Free-hand { and Mechanical Manual Training	English 2 Plane Geometry Zoology or Botany { Drawing, Freehand { and Mechanical Manual Training
THIRD YEAR	English 3 History 1 Latin 3 Drawing Manual Training	English 3 History 2 { German 1, or { French 1 Drawing Manual Training	English 3 { German 1, or { French 1 Chemistry 1 Drawing Manual Training
FOURTH YEAR	History 3 and 4 { Zoology, Botany, { Chemistry 1, or { Physics 1 Latin 4 Drawing Manual Training	History 3 and 4 { Zoology, Botany, { Chemistry 1, or { Physics 1 { German 2, or { French 2 Drawing Manual Training	History 3 and 4 Mathematics 2 and 4 Physics 1 German 2, or French 2 Drawing

Arabic numerals in the above table refer to subjects outlined on pages 33 to 47.

A subject selected may not be dropped after two weeks from the time of choice, and must, thereafter, be pursued until successfully completed. In special cases, for reasons satisfactory to the Faculty Council, this regulation may be set aside.

Work in physical culture is required of all girls and they are expected to provide themselves with suits for this purpose, which may be done at small expense.

If Latin, French or German be chosen it must be pursued for not less than two years to receive credits for the work. In the lit-

erary course two years of Spanish may be substituted for two years of Latin.

Considerable freedom of choice is allowed in the selection of manual training work indicated in table above. Boys, however, are recommended to select Shop-work 1, 2, 3, 4, 5, 6.

No one is permitted to take more than one manual training course (two periods daily) at a time, except in the case of an advanced student making up back work.

In the first two years free-hand drawing is taken five periods per week, either the first or second half of each year, and mechanical drawing five periods per week for the other half.

In the last two years the student may elect either free-hand or mechanical, taking the one elected five periods per week throughout the year.

In special cases courses may be arranged substituting book subjects for manual training work. A diploma of graduation certifying that fact will be granted to any student completing such a course.

To a limited extent subjects from the commercial course may be substituted for subjects named above and physical culture for other manual work.

When substitutions are allowed in the above regular courses, sufficient work must be done for graduation to earn a total equivalent of 32 general credits; 3 manual credits are taken as the equivalent of 2 general credits and not more than 12 manual credits may be accepted toward graduation. The credits, general or manual, earned by each subject are indicated in the tabulated statement on page 63. Credits earned by college subjects will not be accepted toward graduation from the academy.

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## SUBJECTS AND METHODS OF INSTRUCTION IN THE ACADEMY

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### MATHEMATICS

1. ELEMENTARY ALGEBRA.—Fundamental operations, simple equations, factors, factor theorem, fractions, simultaneous equations, involution, evolution, theory of indices, surds, simple quadratic equations, ratio, proportion. Text-book: Hall and Knight's Algebra for Colleges and Schools. Five periods per week throughout the year.

2. HIGHER ALGEBRA.—Theory of indices, surds, simultaneous quadratic equations, theory of quadratic equations, indeterminate equations of the first degree, inequalities, variation, arithmetical, geometrical, harmonical, and other simple series, permutations and combinations, the binomial theorem for a positive integral exponent, logarithmic calculations. Text-book: Hall and Knight's Algebra for Colleges and Schools. Five periods per week first half year.

3. PLANE GEOMETRY.—Books I to V, inclusive, in Beman and Smith's New Plane and Solid Geometry. Five periods per week throughout the year.

4. SOLID GEOMETRY.—Course as given in Beman and Smith's New Plane and Solid Geometry. Five periods per week second half year.

In both Plane and Solid Geometry special attention is given to the demonstration of original theorems and to the solution of original exercises.

5. TRIGONOMETRY.—The course comprises plane and spherical trigonometry. Problems from text-books proven in the field, also solved by the class. Five periods per week first half year.

#### ENGLISH

All regular students are required to take instruction in English during three years of the Academic course. Frequent and varied written exercises are required. Special attention given to spelling, punctuation, paragraphing, and the forming of a plain natural style. Much care given to oral reading, especially in English 1 and 2. The following subjects are made the basis of study:

1. FIRST YEAR WORK.—Alhambra, Classic Myths, Horatius, Vision of Sir Launfal, Lockwood and Emerson's Composition to page 179, Chap. 8. Collection of material for theme. Five periods per week throughout the year.

2. SECOND YEAR WORK.—Merchant of Venice, Sir Roger de Coverley, Ancient Mariner, Tam O'Shanter, Deserted Village, American Scholar, Fortunes of the Republic, Lincoln's Gettysburg Speech, Second Inaugural Address, Lockwood and Emerson's Composition completed. Five periods per week throughout the year.

3. THIRD YEAR WORK.—Silas Marner, Vicar of Wakefield, Comus, Lycidas, Elegy, Eve of St. Agnes, the Odes, Keats, Shelley, The Bard, Tintern Abbey, Laodamia, Transcript from Euripides, Alexander's Feast. Five periods per week throughout the year.

4. FOURTH YEAR WORK.—Julius Caesar, Macbeth, Macaulay's Essay on Clive (for reading), Warren Hastings, Burke on Conciliation, Macaulay on Reform, Webster's Reply to Hayne, L'Allegro, Il Penseroso, Winter, Winter Morning Walk, Review Snow Bound, Carlyle on Burns, Burns' Poems, Byron's Chillon or Childe Harold, Tennyson's Passing of Arthur, Short History of English Literature. Five periods per week throughout the year.

#### ELOCUTION

1. ELEMENTARY COURSE.—The aim of this course is to instruct students how to remedy defective speech to articulate distinctly, to

see, to think, to understand, to feel; to appreciate noble literature; and to express thought and emotion by a natural and responsive use of voice and body.

#### HISTORY AND CIVICS

The aim of the work in this department is to give the student a general idea of the essential unity of history, an insight in the development of various nations and peoples along social, economic, religious and political lines, and a training in clear thinking and broad and discriminate reading. There are four courses offered; courses 3 and 4 being required of all students before graduating.

1. ANCIENT HISTORY.—The Eastern nations, Greece, and Rome, are studied with special reference to the character and development of their institutions, and their contributions to our modern civilization. Text-book: West's Ancient History, with assigned readings and reports. Five periods per week throughout the year.

2. MEDIAEVAL AND MODERN HISTORY.—Particular attention is given to the institutional and social life of the people; the rise of the many contemporaneous nations, and the varied forms of their progress from 800-1500, A. D.; and, since then, their marvelous expansion and interaction and development. Text-book: Thatcher and Schwill's General History of Europe, with assigned readings and reports. Five periods per week throughout the year.

3. AMERICAN HISTORY.—Attention is given here to the different ideas of colonization, the struggle of race elements for supremacy, the growth of national ideas and ideals, and the gradual development of social, religious, economic and political institutions. Text-book: Channing's Students' History of the United States, with assigned readings and reports. Five periods per week first two terms.

4. CIVICS.—The aim of this course is to give the student an idea of the structure and functions of our government, to familiarize him with the governmental affairs of the day, and to develop independent thought. Text-book: Ashley, American Government, with assigned readings and reports. Five periods per week last term.

#### LATIN

1. BEGINNING LATIN.—Special attention to forms and vocabularies; translation of the exercises from Latin into English and from English into Latin; structure of Latin sentence and comparison with English sentence-structure. Collar and Daniell's First Latin Book. Five periods per week throughout the year.

2. CAESAR.—With a generous amount of sight-reading; critical study of text, with translation into idiomatic English; prose composition; incidental study of history and geography throughout the

year. Allen and Greenough's Grammar, Allen and Greenough's Caesar, Moulton's Composition. Five periods per week throughout the year.

3. **CICERO'S ORATIONS.**—Textual study, as in Caesar, sight-reading and composition; historical allusions investigated; the system of Roman government; powers of officers; customs and occupations of the people; geography involved in the text is made an incidental topic of study. Allen and Greenough's New Cicero. Five periods per week throughout the year.

4. **VERGIL'S AENEID.**—Structure of the poem, with the theory and practice of scansion; translation into idiomatic English; study of the superstitious and religious rites of antiquity, as well as the myths and legends; minute word study and analysis. Allen and Greenough's text. Five periods per week throughout the year.

#### GERMAN

1. **FIRST YEAR WORK.**—Careful attention to correct pronunciation; thorough drill in forms, and on the principles of syntax; practice in translation at sight and hearing, in conversation and memorizing. Text-book: Joynes-Meissner's German Grammar, Wenckebach's Glückauf. Five periods per week throughout the year.

2. **SECOND YEAR WORK.**—Exercises throughout the year in conversation, translation and composition. Text-books: Joynes-Meissner's German Grammar; Immensee, Storm; Leberecht Hühnchen, Seidel; Der Bibliothekar, von Moser; Germelshausen, Gers-täcker; Harris' German Prose Composition. Five periods per week throughout the year.

3. **THIRD YEAR WORK.**—Reading of Schiller's Wilhelm Tell or Maria Stuart, Goethe's Egmont and selected poems. Special attention is also paid to rapid reading, conversation and advanced composition work, consisting of translation from English and the writing of original themes on topics suggested by the teacher or selected by the student. Five periods per week throughout the year.

#### FRENCH

1. **FIRST YEAR WORK.**—The grammar and vocabulary, reading French in order to obtain the pronunciation, a study of the verbs, and frequent dictations. French conversation required in class. Text-books: Abridged French Grammar, Fraser and Squair; Guer-ber's Contes et Légendes. Five periods per week throughout the year.

2. **SECOND YEAR WORK.**—Special study of the syntax and idioms and practice in French conversation. Text-books: French Syntax and Composition, Bouvet; Abbé Constantin, Ludovic Hal-



évy; *Le Voyage de Monsieur Perrichon*, Labiche and Martin; *Le Comte de Monte Cristo*, Dumas. Five periods per week throughout the year.

3. **THIRD YEAR WORK.**—Reading, composition and conversation. Text-books: *French Syntax and Composition*, Bouvet; *Colomba*, Prosper Mérimée; *Pechur d'Islande*, Pierre Loti; *La Chute*, Victor Hugo; *Le Cid*, Corneille; selected plays of Racine and Molière. Five periods per week throughout the year.

#### SPANISH

1. **FIRST YEAR WORK.**—Thorough drill in pronunciation and forms by means of much conversation; practice in translation at sight and hearing, and in memorizing. Text-books: *Garner's Spanish Grammar*, *Ramsey's Reader*. Five periods per week throughout the year.

2. **SECOND YEAR WORK.**—Exercises throughout the year in conversation; translation at hearing; essays; correspondence, reading of standard Spanish, both prose and poetry; review of forms; syntax. Text-books: *Garner's Spanish Grammar*; *Ramsey and Lewis' Exercises in Spanish Composition*, Part I; *El Pajaro Verde*, Valera; *Zaragüeta*, M. R. Carrión y Vital Aza; *El Capitán Veneno*; *Alarcón*. Five periods per week throughout the year.

3. **THIRD YEAR WORK.**—Continuation of study of Grammar. Study of *Ramsey and Lewis' Exercises in Spanish Composition*, Part II. Reading of *La Familia de Alvareda*, *Caballero*; *Electra*, Galdós; *El Nino de la Bola*, *Alarcón* or *Jose, Valdes*. Special attention is also paid to rapid reading, conversation and advanced composition work, consisting of translation from English and the writing of original themes on topics suggested by the teacher or selected by the student. Five periods per week throughout the year.

#### BIOLOGY

Carefully kept note and drawing books are called for in all courses. Reference and text-books are assigned as required.

1. **PHYSICAL GEOGRAPHY.**—An elementary course in general science dealing with the position of the earth in the solar system; the agents affecting the earth's surface, such as rivers, waves, tides and glaciers; climatic conditions and weather changes; geographical distribution of plants and animals, and the relation of these to their surroundings. The course includes laboratory work, and field trips to the mountains and sea shore. Text-book: *Tarr's New Physical Geography*. Five periods per week throughout the year.

2. **ZOOLOGY.**—The course in zoology consists of a careful study of several selected animals, such as the earth-worm, cray-fish, crane-

fly, star-fish, squid, toad and rabbit. Their structure, physiology and life-histories are treated of in the laboratory and lecture-room. Occasional field excursions are undertaken in order that the habits and haunts of living animals may be observed. Ten periods per week throughout the year.

3. BOTANY.—The course in botany is intended to give a general idea of the structure and relationship of plants. Special studies are made of certain selected types, from the one-celled forms to the flowering plants. Particular attention is paid to such groups as the algae and fungi, and to the higher plants which are of economic value. During the spring months some work is also done in naming and classifying our commonest native plants. Collecting trips therefore become a regular feature at that season. Ten periods per week throughout the year.

#### CHEMISTRY

I. GENERAL CHEMISTRY.—The first half-year's work consists of the study of the non-metallic elements and the essentials of chemical theory. Its principal aim is to develop scientific methods of observation and thought, to which the acquirement of the mere facts of chemistry is considered of secondary importance. To this end experiments are selected which require considerable care in manipulation, and to illustrate quantitative relations of substances so far as possible. The time spent in laboratory work is seven periods per week. The experimental work is individual, and careful notes must be daily submitted to the instructor for examination. Accompanying the laboratory work there are three recitations per week. Considerable attention is paid to the solution of problems.

The metals are studied in the second half-year and the principles of qualitative analysis are taken up near the end of the year. Occasional lectures are given on the metallurgy and industrial chemistry of the principal elements.

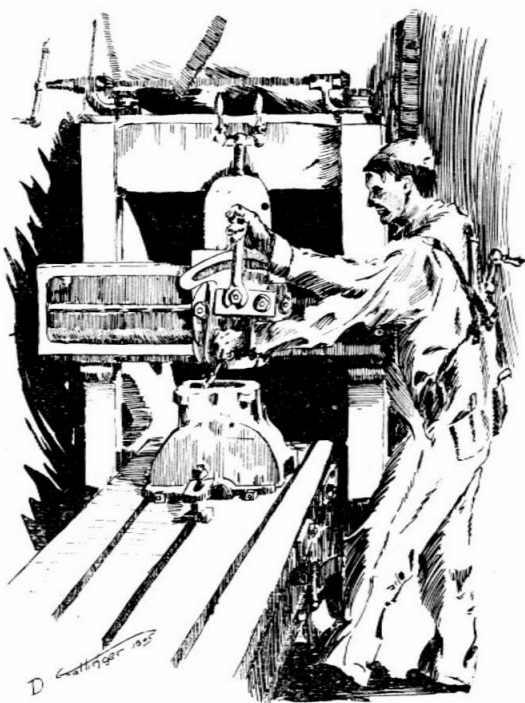
Text-books: Hessler and Smith's Essentials of Chemistry and Laboratory Manual. Preparation required: Algebra, Plane Geometry, English I. Students are strongly advised to defer beginning chemistry until the third year of their academy course.

#### PHYSICS

I. GENERAL PHYSICS.—Instruction is given by means of laboratory work with discussion of experiments performed and study of references to text and books in library. Experiments are performed by the student himself, and careful notes are required. Text-book: Elements of Physics, Sanford. Preparation required: Algebra and Plane Geometry. Ten periods per week throughout the year.

## FREE-HAND DRAWING

1. PERSPECTIVE.—Principles of perspective as applied in the drawing of simple type forms, beginning with cube, sphere, cylinder, etc., followed by objects based on type solids; perspective drawings of wood and iron-shop models. Relative proportion, and the study



PEN AND INK SKETCH FROM LIFE BY THIRD YEAR ACADEMY STUDENT

of values in light and shade are developed in the execution of drawings of still-life, corners of rooms, houses, etc. Five periods per week first or second half-year.

2. DESIGN AND LETTERING.—Systematic drill in the execution of curves and scrolls as applied to ornamental design; original application of scrolls to iron and wood designs. These designs are practical, and are wrought in iron or carved in wood by the student-designer. Lettering, as applied to book covers, posters, menus, etc. Pen and ink rendering of the leading styles of ornament. Five periods per week first or second half year.

3. CHARCOAL, PEN AND INK.—Drawing in charcoal, groups of still-life, and cast; flowers executed in pen and ink and water-color;

textile designing in color. This course includes a series of weekly lectures on art given during the winter term, discussing historic ornament, architecture, sculpture, and painting, illustrated by large posters, photographs and lantern slides. These lectures are not limited to art students, and others may if they desire it make arrangements to attend them. Five periods per week throughout the year.

4. CHARCOAL, WATER COLOR, SKETCHING.—Advanced work in charcoal from cast, full-length figure; sketching from life. Five periods per week throughout the year.

Special courses may be planned to meet the needs of advanced students.

#### MECHANICAL DRAWING

1. ELEMENTARY GEOMETRIC AND SHOP DRAWING.—Practice sheets of lines and circles; free-hand and geometric lettering; orthographic projections of simple models; elementary working drawings of wood-shop models drawn to scale; tracing and blue-printing; drawings of supplementary shop exercises. Five periods per week first or second half-year.

2. PROJECTION AND PERSPECTIVE.—Cavalier and isometric projections; methods of stretching paper and coloring drawings; orthographic projection of objects inclined to the plane of projection; patterns and developments; intersection of solids; fundamental principles of perspective; application of simple shadows. Five periods per week first or second half-year.

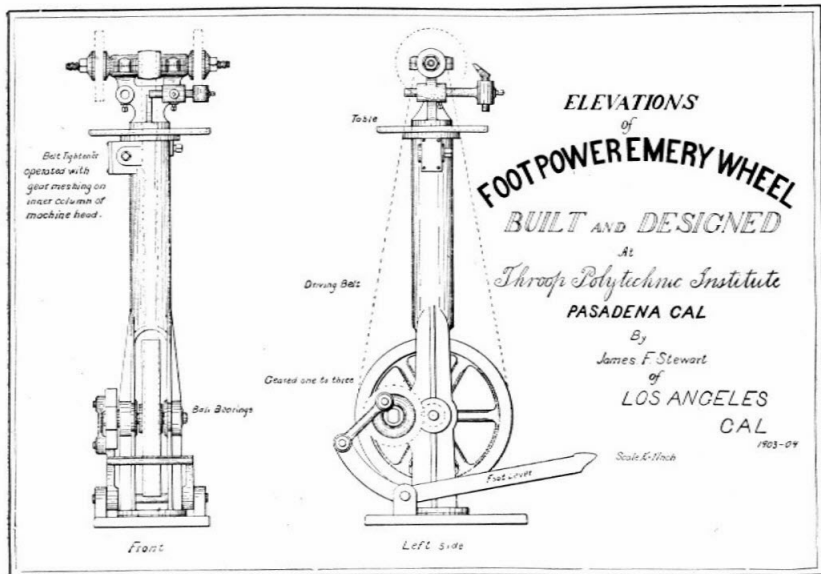
3. ARCHITECTURAL AND MACHINE DRAWING.—Complete set of plans of moderate priced cottage, perspective of house and of one room; projection of shadows; machine details, bolts, nuts, rivets, monkey wrench, machinist's vise with section details, sketches to be made first; details of machinery, lathe, drill, shaper, grinder or dynamo. Five periods per week throughout the year.



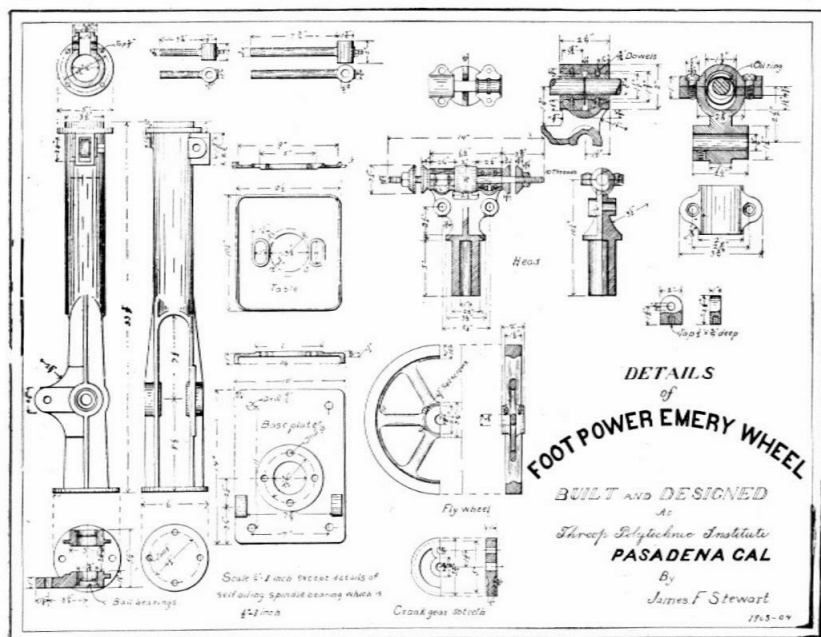
MADE BY STUDENT IN WOOD SHOP

4. KINEMATICS.—Mechanical movements, external and internal epicycloidal and involute gears, bevel gears, cams, eccentrics and useful geometric problems in connection therewith. Five periods per week throughout the year.

Special courses may be planned to meet the needs of advanced students.



DRAWING BY STUDENT



DRAWING BY STUDENT



TYPICAL EXERCISES IN WOOD WORKING

## SHOP-WORK

1. WOOD WORK.—This course consists of work in joinery, turning and cabinet making. Each article is complete and useful in itself and has been designed to secure a gradual growth in the difficulty of construction and at the same time present practical, useful and aesthetic elements.

The course in turning consists of progressive exercises involving center, face-plate, chuck-work and inside turning.

Near the close of the year each student either designs and constructs an ornamental piece of cabinet work under the direction of the instructor, or he may take advanced work looking to greater skill and practice in joinery.

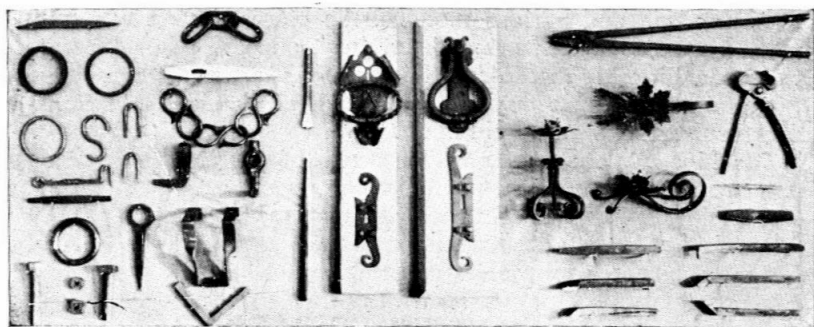
2. FORGING.—(a) Forge. Mechanism and care of forge; preparation of forge for fire; building and managing fire.

(b) Tools. Instruction in the care and use of tools.

(c) Processes. The processes involved in the year's work are: Drawing, bending, upsetting, different kinds of welding, punching, drilling, fullering, swaging, cutting cold, chipping, cutting hot, splitting, twisting, filing, brazing, hardening, tempering, and ornamental iron work.

(d) Tempering. Hardening in water and oil, tempering or





TYPICAL EXERCISES IN FORGING

drawing, temperatures and colors used, and processes in tempering tools for wood and iron work.

(e) Ornamental iron work. Simple pieces of ornamental iron work are wrought into the course during the year, preparatory to the more elaborate piece made at the close of the year. Preparation required: Wood Work, Algebra. Ten periods per week throughout the year.

3. **PATTERN-MAKING I.**—This course comprises a series of exercises embodying the principles governing pattern construction, with lectures and illustration of molding and other foundry practice having direct bearing upon pattern work.

The allowance for draft, shrinkage and casting finish are kept prominently before the student throughout the course, and with each succeeding model additional principles are brought out, comprising split patterns, simple and complex core-work, rib-work, segment-work, filleting, etc. Patterns may be actually tested in the molding sand, as the pattern shop has, as an adjunct, properly furnished molding benches and brass furnace. Some work in molding is required of every student.

Preparation required: Algebra, Plane Geometry, Forging. Ten periods per week first term.

4. **PATTERN-MAKING II.**—A continuation of the work begun in Pattern-making I. See also Machine-shop Practice II. Preparation required: Pattern-making I. Ten periods per week first term.

5. **MACHINE-SHOP PRACTICE I.**—In bench and vice work the student takes up chipping, filing, scraping, polishing, laying out of work, etc.

As a preparation for work on machines, a careful investigation of each machine is required, to familiarize the student with

its construction and various motions, the office of each bolt, nut, handle, gear wheel, etc., being determined, and the general design compared with other machines. The care of machines is considered at this point, and a systematic study is made of the needs of the machine for successful and rapid operation.

Machine work is begun with a series of exercises illustrating the principal processes, as plain turning, facing, thread-cutting, inside boring and threading, turning of tapers, hand tool and chuck work of all kinds. At different stages of the course work is given on the shaper, planer, drill-presses and milling machines. Text-books are not used. Students are expected to provide themselves with calipers and scale. Preparation required: Machine-shop Pattern-making I. Ten periods per week last two terms.

6. MACHINE-SHOP PRACTICE II.—This course and Pattern-making II continue the work begun in previous courses, and embrace exercises illustrating more complicated processes and a large amount of practical work in actual construction of machines. During each year there are constructed various pieces of machinery, all of the work on which is done by the students. Preparation required: Machine-shop Practice I. Ten periods per week last two terms.

#### WOOD-CARVING

This work aims to give practical application to the principles gained in drawing and modeling.

1. ELEMENTARY CARVING.—Instruction in the care and use of tools; exercises to illustrate the principles of carving; application of these principles in designing and ornamenting furniture, in chip-carving, incising and low relief in historic arts.

Students are required to make the working drawings as well as the designs for the decoration of all work.

Lectures on the general structure of wood, its preparation for use, and the special qualities necessary to render it suitable for carving. Ten periods per week throughout the year.

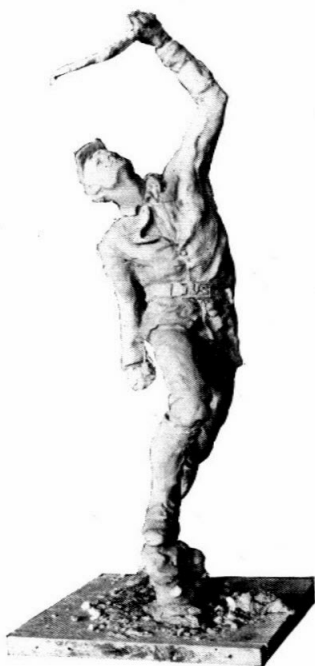
2. ADVANCED CARVING.—Low and high relief in historic styles, introducing the additional feature of grotesque figures. Ten periods per week throughout the year.

#### CLAY MODELING

This work is of great value in comprehending the facts of form; as drawing is but the representation of form, the student is made stronger in drawing by coming in contact with the realities of form, viz., length, breadth and thickness.



STUDENTS WORK IN WOOD  
CARVING'



MODELED FROM LIFE BY SECOND  
YEAR ACADEMY STUDENT



WALL FOUNTAIN MODELED BY FIRST YEAR  
ACADEMY STUDENT



PORTRAIT BUST, MODELED FROM LIFE BY  
THIRD YEAR ACADEMY STUDENT

1. **ELEMENTARY MODELING.**—Modeling of fruit, flowers and sprays of foliage from nature and cast; different styles of historic ornament from cast, and original designs; portrait relief from cast; mask and head from cast; animals, such as Barye's lions and panthers. Ten periods per week throughout the year.

2. **ADVANCED MODELING.**—Modeling portrait busts from cast; full-length figure from cast; portrait busts from life; lectures on antique and modern sculpture. Ten periods per week throughout the year.

3. **POTTERY.**—Modeling of vases, etc., glazing and firing. Use of the best modern colors and glazes. Practical instruction in the use of the kiln. Five periods per week throughout the year.

#### DOMESTIC ART

This department provides a systematic course in plain sewing, dressmaking, and millinery, covering a period of two years.

The course of work is carefully graded, not only to insure a thorough knowledge of the subject, but to develop habits of order, accuracy, and self-reliance. Each pupil is required to keep a notebook in which she records a description of the work accomplished.

1. **PLAIN SEWING.**—The pupil makes a book of exercises, covering the full course in hand sewing and consisting of basting, hemming, gathering, darning, patching, machine practice, drafting, cutting and making underskirts and drawers; drafting, fitting and making dress without lining and shirt waist; cutting from paper patterns and making corset cover and night dress. The materials for the exercises are furnished by the school. Materials for the garments are furnished by the pupil, who makes the garments for herself. Free-hand Drawing 1 must be taken either previous to this course or in the same year with it. Ten periods per week throughout the year.

2. **DRESSMAKING.**—The use of a dress-cutting system is taught, and each pupil is required to draft, cut, and make a woollen dress for herself. Preparation required: Plain Sewing. Free-hand Drawing 2 must be taken previous to Dressmaking or in the same year with it. Ten periods per week first half year.

3. **MILLINERY.**—Renovating felt and straw hats, velvets, silks, and ribbons; binding and wiring hats; cutting and putting on facings, both plain and shirred; fold and bow making; practice trimming; making wire and buckram frames, sewing straw, making and trimming final hat. Pupils will be expected to bring in two old hats, one felt and one straw, for practice work. Preparation required: Plain Sewing. Ten periods per week second half year.

## DOMESTIC SCIENCE

I. COOKING I.—(a) The fundamental principles of cookery and practice in the preparation of vegetables, soups, meats, cereals, biscuits, eggs; cost of materials; care of kitchen; serving a simple dinner.

(b) Instruction in the preparation of more complicated dishes; bread, fish, oysters, poultry, etc.; setting and serving a table.

(c) Entrees, salads, desserts, pastry, cake and creams; jellies, canning of fruits and vegetables.

(d) Menus; marketing; giving of entire breakfasts, lunches, and dinners.

Instruction is given in the development of odors and flavors of foods; food for the sick; food adulterations; the cheapest and most wholesome foods; physiology of digestion and a general plan of household work.

Throughout the year dietaries and nutrition will be kept constantly in mind, the object being as much to study the scientific principles of food as to prepare palatable viands.

Books required: Mrs. Rorer's Cook Book, blank books for chemistry notes. Ten periods per week throughout the year.

## PHYSICAL CULTURE

I. GENERAL COURSE.—The course in physical culture aids students in maintaining a high standard of vitality, corrects bad postures, develops larger lungs, better control, greater strength. It consists of carefully graded exercises with wands, Indian clubs and dumb-bells, breathing gymnastics, instruction on horizontal and parallel bars, ground tumbling and general athletics. Most of this work is given in the open air.

There are separate classes for girls and for boys, and all girls are required to take the course unless excused for cause. Ample time is allowed for change of costume.

There is throughout the most careful supervision to prevent any possible overstrain.



POLYTECHNIC HEADING, DRAWN BY STUDENT

## COMMERCIAL SCHOOL

### REQUIREMENTS FOR ADMISSION

Students having passed the studies of the eighth grade are admitted to the course in this school, but the Commercial student who has graduated in a high school, or even a college course of studies, will be greatly advantaged thereby, and may omit any subjects in the Commercial Course already covered by preparation.

### COURSE OF STUDY IN THE COMMERCIAL SCHOOL

It requires two years to complete the regular course in the Commercial School and on its completion a diploma of graduation is granted. Should the student elect to take only a part of this course a certificate is given naming the work satisfactorily completed.

Students in the Commercial School have superior advantages for securing thorough drill in the English branches as well as the privilege of taking one or more periods of manual training, thus better fitting them to meet in an intelligent way the requirements of a business life. Typewriting, penmanship and commercial geography may be taken either in the first or second year of the course.

<i>First Year</i>	$\left\{ \begin{array}{l} \text{Bookkeeping 1} \\ \text{English and Spelling} \\ \text{Arithmetic 1} \\ \text{Penmanship 1} \\ \text{Stenography 1} \end{array} \right.$	<i>Second Year</i>	$\left\{ \begin{array}{l} \text{Bookkeeping 2} \\ \text{Stenography 2} \\ \text{Commercial Geography 1} \\ \text{Civil Government} \\ \text{Commercial Law 1} \\ \text{Finance 1} \\ \text{Typewriting 1} \end{array} \right.$
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### SUBJECTS AND METHODS OF INSTRUCTION IN THE COMMERCIAL SCHOOL

#### BOOKKEEPING

I. GENERAL BOOKKEEPING.—(a) Class and personal instruction in the nature of transaction and accounts, journalizing, and recording transactions.

(b) Opening, conducting and closing accounts and books of accounts, use of the journal, cash-book, sales-book, invoice-book, ledger, special column books, and auxiliary books in retailing and wholesaling.

(c) Conducting a business with a cash capital, constructing, passing, filing and disposition of business papers and vouchers.

Text-book: Sadler Rowe Co.'s Budget System, in which the student from beginning is inducted into and practices the duties of an office accountant.

Five periods per week throughout the year.



2. **ADVANCED BOOKKEEPING.**—(a) Finish budgets, practice single entry bookkeeping, change to double entry books. Commission house bookkeeping is given an important place in the course.

(b) **BANKING.**—A full set of banking books, papers and vouchers illustrating a bank in its daily routine as presented in the modern illustrative bookkeeping. During the course the student devotes some time to the practical work of banking in our Banking Department, where an ideal set of bank books is used. The student is taught to balance pass books, and also receives instruction regarding the nature and work of a clearing house.

Ten periods per week throughout the year.

#### STENOGRAPHY

The range of work in stenography is carefully planned to meet the requirements of every line of business, office practice, legal forms, court proceedings, and to lay for the persevering student a foundation on which to build a successful future as a highgrade verbatim reporter.

The Benn Pitman System of Phonography is taught. "A system," according to the report of the Commissioner of Education, "which is more generally used than any other in this country, and may be called the American System."

1. **ELEMENTARY STENOGRAPHY.**—Instruction in the principles of shorthand writing, completion of the manual of phonography dictation including letters and selected matter and reading from notes, drills in the uses of simple phrases, etc. Text-book: The Phonographic Amanuensis, Pitman and Howard. Five periods per week throughout the year.

2. **ADVANCED STENOGRAPHY.**—General dictation and verbatim reporting, advanced phrasing, legal forms, business forms and correspondence, journalism. Speed drills in dictation and reading from notes. Five periods per week throughout the year.

#### TYPEWRITING

The principal object of the instruction of typewriting is to train the pupil to a correct and scientific method of fingering and to write by touch. This is the only proper method of operating the typewriter, and is easy to learn when one has proper instructions at the beginning. Various kinds of office practice work, commercial and business papers, attorneys' briefs and other legal papers, business letters, specifications, etc., manifolding and filing, letter press copying. Text-book, Fuller. Five periods per week throughout the year.

#### ARITHMETIC

1. **BUSINESS ARITHMETIC.**—(a) Special daily drill for accuracy and speed in the practice of the fundamental rules.

(b) Interest, percentage, commission, discounts, etc.

(c) Daily drill on practical problems applying to all features of commercial work. A short daily drill is also given in rapid calculations. The old, slow and routine methods are displaced by the new and practical business methods.

Text-book: Goodyear and Marshall. Five periods per week throughout the year.

#### CIVIL GOVERNMENT

I. ELEMENTARY CIVIL GOVERNMENT.—Introduction to the study of commercial law. Bringing the student in touch with the laws by which we are governed as a nation. This subject is supplemented by current events of the day.

Text-book: Fitch's New Civil Government. Five periods per week during the first term.

#### COMMERCIAL LAW

I. ELEMENTARY COMMERCIAL LAW.—The aim of this subject is to fit students for the exigencies of daily life. The attempt is not to make lawyers of the students, but to have them so understand the general law of business as to enable them to avoid legal complications. Text-book, Gano. Five periods per week during the second term.

#### FINANCE

I. FINANCE.—The teaching of finance is to awaken in the students an interest in public and private funds; to learn the nature and uses of money; to inquire (1) What funds are, (2) How funds are obtained, (3) The institutions and agencies employed in funding operations. Text-book: First Lessons in Finance, Cleveland. Five periods per week during the third term.

#### PENMANSHIP

I. PLAIN PENMANSHIP.—Students are taught a plain legible style of penmanship, which the business world demands. There is no other accomplishment that is of greater assistance to a young person in securing employment in a business office than a graceful, rapid handwriting. The students frequently engage in competitive drills in which speed and quality are made the chief aim.

Five periods per week throughout the year.

#### COMMERCIAL GEOGRAPHY

I. ELEMENTARY COMMERCIAL GEOGRAPHY.—The purpose of commercial geography is to bring the student in touch with and to impart a knowledge of the commercial resources of the world, man-

ufacturing centers, routes of transportation, government revenues and a general acquaintance with products and wares.

Text-book, Adams. Five periods per week throughout the year.

#### ENGLISH AND SPELLING

I. COMMERCIAL ENGLISH.—A special course in English for commercial students. The object of the instruction is the immediate improvement of the student's written and spoken language. Spelling is made an important part of the course. Text-book: Seventy Lessons in Spelling, Williams and Rogers. Five periods per week throughout the year.

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## NORMAL SCHOOL

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#### REQUIREMENTS FOR ADMISSION

Admission to this School can be gained by persons holding teachers' certificates, by graduates of High or Normal Schools or Colleges, and by others giving satisfactory evidence of attainments necessary to secure a teacher's certificate in this State.

Students properly qualified may, with the approval of the Faculty omit certain book subjects, and select such other work as will gain the necessary number of credits for graduation.

#### COURSES OF STUDY IN THE NORMAL SCHOOL

The time necessary to obtain a diploma in any department of the normal school is two years. The recognition of the diploma is general and certificates to teach are granted to those holding diplomas.

While the school does not guarantee positions to its graduates, it assists them in every possible way. More than fifty graduates of the school are at present engaged in teaching manual training, domestic economy or art.

	MANUAL TRAINING	DOMESTIC ECONOMY	FREE HAND DRAWING AND DESIGNING
FIRST YEAR	FIRST HALF Psychology Free-hand Drawing 5 Mechanical Drawing 5 Manual Training 1	Psychology Free-hand Drawing 6 <b>Mechanical Drawing 5</b> Applied Biology Cooking II Sewing I	Psychology Free-hand Draw. 6 and 7 Mechanical Drawing 5 Clay Modeling 3
	SECOND HALF Psychology Free-hand Drawing 5 Mechanical Drawing 5 Manual Training 1 Clay and Pottery 5	Psychology Free-hand Drawing 6 Applied Biology Cooking II Sewing I	Psychology Free-hand Draw. 6 and 7 Mechanical Drawing 5 Clay Modeling 3
SECOND YEAR	FIRST HALF Pedagogy Free-hand Drawing 7 Manual Training 2 and 3 Theory and Methods Practice Teaching	Pedagogy Free-hand Drawing 7 Cooking III Sewing II Theory and Methods Practice Teaching	Pedagogy Free-hand Drawing 8 Clay Modeling 4 Theory and Methods Practice Teaching
	SECOND HALF History of Education Manual Training 3 and 4 Wood Carving 3 Theory and Methods Thesis	History of Education Free-hand Drawing 7 Cooking III Sewing II Theory and Methods Practice Teaching Thesis	History of Education Free-hand Drawing 9 Clay Modeling 4 Theory and Methods Practice Teaching Thesis

## SUBJECTS AND METHODS OF INSTRUCTION IN THE NORMAL SCHOOL

### EDUCATION

1. **ELEMENTS OF PSYCHOLOGY.**—This course aims to give a general introduction to psychology. A study of the laws of psychology will be taken up and the educational implications made. The relation of the work to school practices and the principles that determine successful teaching will be studied. Recitations and practical work. Five periods per week throughout the year.

2. **PEDAGOGY.**—This course aims at special investigation and research. Constant reference will be made to the educational phases of the subject, and topics most intimately related to teachers and school officers will be taken up. Methods of studying various school conditions, measurement of mental, moral and physical qualities, the curriculum, relative values of studies, examinations, experimentation and question in child-study and treatment of statistics will come within the range of this course. Research work, recitations, reports, discussions and lectures. Five periods per week throughout the year.

3. **HISTORY OF EDUCATION.**—The history and principles of education, their relation to our present-day conditions. The educa-

tional epochs of the past will be taken up and their relation to social, industrial and educational evolution discussed. The fundamental principles will be traced out and their philosophic bases criticised. Practical work, assigned readings, reports, and lectures.

4. **THEORY AND METHODS.**—Methods of teaching the special subjects in the department in which the student is working. Organization, equipment and management of departments and schools, etc. Investigation of schools and methods.

5. **PRACTICE TEACHING.**—Practice is given in teaching pupils of the various primary and grammar grades, under the supervision of the department directors and the Director of the Normal School. No candidate is given a diploma until he has demonstrated, in the practice school of the Institute, his ability to teach.

#### FREE-HAND DRAWING

5. **PURE AND APPLIED DESIGN.**—This course will give practice in the elements of pure design (first term) to be followed (second term) by applied design in working out problems for elementary wood construction, wood carving, iron work, etc., also design problems suitable for pottery forms. The aim throughout will be to show a natural correlation between design upon the one hand and the various constructive problems upon the other.

6. **DESIGN AND COMPOSITION.**—The principles of design and composition as applied to straight and curved line designs; landscape composition; surface patterns; book covers; wood, metal and textile designs.

7. **PRINCIPLES OF PERSPECTIVE.**—Drawings and sketches artistically rendered to illustrate the principles of cylindric, rectangular and oblique perspective; model and blackboard drawing; brush work; charcoal; designing; history of art; lectures on historic ornament, sculpture and painting. This course includes a series of weekly lectures on art given during the winter term, discussing historic ornament, architecture, sculpture and painting, illustrated by large posters, photographs and lantern slides.

8. **DRAWING IN CHARCOAL.**—Still-life and cast; head and full-length figure from cast; pose drawing, thirty-minute sketches from life.

9. **WATER COLOR.**—Studies of flowers and still life, also applied design; history of art; lectures on history of architecture, sculpture, painting and ornament.

#### MECHANICAL DRAWING

5. **GENERAL COURSE.**—Principles of working drawings, plans, elevations, sections, scales; orthographic and isometric projections;

perceptive; architectural drawing; domestic architecture; tracing, lettering and blue-printing.

#### DOMESTIC SCIENCE

2. COOKING II.—Foods. History of food products, practical work in cooking and serving breakfasts, dinners and luncheons. Special Biology and Cooking II must be taken in the same year.

3. COOKING III—(a) Chemical and physiological classification of foods; evolution of the home; dietaries; a study of national foods; home and public hygiene.

(b) Bills of fare; the dish and table decoration; dietaries; food adulterations.

#### DOMESTIC ART

4. PLAIN SEWING.—The pupil makes a book of exercises covering the full course in hand sewing, and consisting of basting, hemming, gathering, darning, patching, machine practice, drafting, cutting and making underskirt and drawers; drafting, fitting and making dress without lining and shirt waist; cutting from paper patterns and making corset cover and night dress. The materials for the exercises are furnished by the school. Materials for the garments are furnished by the pupil, who makes the garment for herself. Free-hand Drawing I must be taken either previous to this course or in the same year with it. Ten periods per week throughout the year.

5. DRESSMAKING.—The use of a dress-cutting system is taught, and each pupil is required to draft, cut and make a woollen dress for herself. Preparation required: Plain Sewing. Ten periods per week first half year.

6. MILLINERY.—Renovating felt and straw hats, velvets, silks and ribbon; binding and wiring hats; cutting and putting on facings, both plain and shirred; fold and bow making; practice trimming, making wire and buckram frames, sewing straw, making and trimming final hat. Pupils will be expected to bring in two old hats, one felt and one straw, for practice work. Preparation required: Plain Sewing. Ten periods per week second half year.

#### BIOLOGY

12. SPECIAL BIOLOGY.—This course is required of all students in Domestic Science.

(a) A review of elementary botany, plant structure and function, with a special study of food plants.

(b) Laboratory work in plant physiology.

(c) Review of elementary inorganic chemistry, with lectures and laboratory practice.



(d) Elementary lecture course in organic chemistry.

(e) Physiological Chemistry, including review of elementary physiology, physiology of man as related to that of other mammals and of lower vertebrates, chemistry of the tissues and functions of animals and plants.

Six periods per week throughout the year.

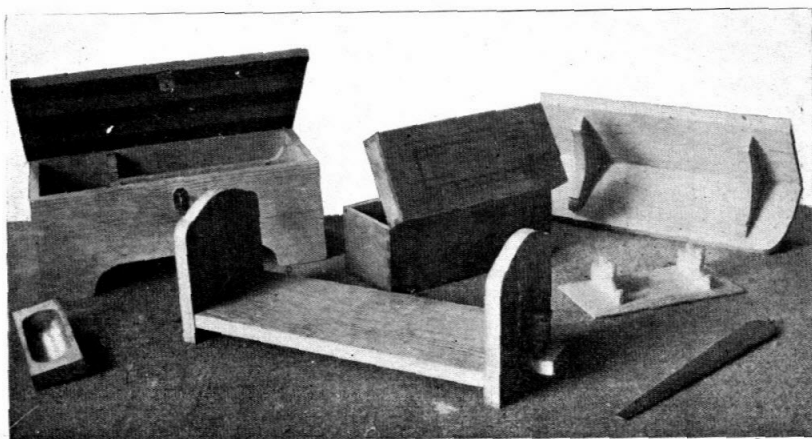
#### MANUAL TRAINING

1. ELEMENTARY MANUAL TRAINING.—Work suitable for the Primary Grades. Paper construction; weaving and textiles; basketry with raffia, reed, and native materials; wire work; thin wood processes. Constant reference will be made to the design and thought sides as well as to the constructive phases. The connection of the work with the problems of real life will be discussed.

2. WORK FOR GRAMMAR GRADES.—This course deals mainly with the problem of bench work in wood. Cardboard work, bent iron work and decorative carving will be taken up. A number of suggested models are made, such as are suitable for the grammar grades, and in addition each student designs and constructs original models.

3. ADVANCED COURSE.—This is a special course in secondary school-work, comprising advanced work in joinery and cabinet making, inlaying, veneering, wood turning, forging and finishing.

4. HISTORY, PHILOSOPHY, AND METHODS IN MANUAL TRAINING.—This course will run parallel with the practical work taken up and will consider the object and place of manual training; relative value of the different phases and processes of hand work and their



TYPICAL MANUAL TRAINING EXERCISES—NORMAL SCHOOL

adaptability to the various grades of the elementary school; the organization, equipment, and supervision of departments and schools.

#### WOOD CARVING

3. **NORMAL COURSE.**—Elementary work in exercises and small articles aiming to give a thorough knowledge of the foundation principles and a comprehensive view of the purpose and practice of carving as applied to elementary schools. Course 5 in design will be applied in this work.

#### CLAY MODELING

3. **NORMAL MODELING I.**—Modeling of fruits, flowers, etc., from nature and cast; ornament and plant forms; head from cast in relief and in the round.

4. **NORMAL MODELING II.**—Modeling full-length figure from cast; portrait bust from life.

5. **CLAY MODELING AND POTTERY.**—Dealing with natural forms, fruits, etc. The industrial and art sides brought out through the more common pottery forms; work both by hand and at the wheel.

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## COLLEGE

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### REQUIREMENTS FOR ADMISSION

The requirements for admission to the college are as follows:

(1) The completion of one of the Academy courses outlined on page 32; or (2) the completion of a course in an accredited high school or an approved preparatory school; or (3) passing an examination upon English 1, 2 and 3 and Mathematics 1 and 3 and any ten of the following subjects, as outlined on pages 33 to 47. Physical Geography, Botany, Zoology, Physics 1, Chemistry 1, Latin 1, Latin 2, Latin 3, Latin 4, German 1, German 2, French 1, French 2, History 1, History 2, History 3 and 4, Mathematics 2 and 4. Any applicant offering Latin, French, or German, must present at least two years of each.

### COURSES OF STUDY IN THE COLLEGE

The following tables show the work required of students for the degree of B. S. in each department. To the subjects named below must be added elective work to make a total equivalent

of 32 General credits. Three Manual credits are taken as the equivalent of 2 General credits and not more than 12 Manual credits may be offered toward graduation. The credits, General or Manual, earned by each subject are indicated in the tabulated statements on pages 63 and 65.

Although courses in Mechanical, Civil and Mining Engineering are not outlined below, considerable work is given in these branches of engineering and their collateral subjects. It is also the purpose of the Institute to extend the work along these lines as demand for it arises.

Arabic numerals below refer to the subjects described, pages 33 to 47 and 57 to 62.

The Institute reserves the right not to organize classes in any given subjects unless at least eight students elect said subject.

	CHEMISTRY	ELECTRICAL ENGINEERING	BIOLOGY
FIRST YEAR	Chemistry 1 English 4 Mathematics 5, 6 French 1, or German 1	Physics 2 Mathematics 5, 12 English 4 Drawing—Mechanical Shop-work 1	Vertebrate Anatomy and Physiology Physics 1, or Chem. 1 French 1, or German 1 English 4
SECOND YEAR	Chemistry 2, 3 Physics 2 Mathematics 7 French 2, or German 2	Electrical Engineering 1 Mathematics 7 Chemistry 2, 3 Drawing—Mechanical Shop-work 2	Vertebrate Embryology Chemistry 2, 3 French 2, or German 2
THIRD YEAR	Chemistry 4, 5, 6, 7 Mathematics 8 Mineralogy	Electrical Engineering 2, 3 Mathematics 8 Drawing—Mechanical Shop-work 3, 4	Systematic Vertebrates Entomology Mineralogy
FOURTH YEAR	Chemistry 8, 9, 10	Electrical Engineering 4, 5 Mathematics 12	Geology Ecology Ornithology Bacteriology

## SUBJECTS AND METHODS OF INSTRUCTION IN THE COLLEGE

### MATHEMATICS

In all the courses given below, stress will be laid on such parts of mathematics as are of especial help in scientific work.

6. SURVEYING.—(a) Plane Surveying. Surveying with chain alone; with compass and chain; leveling with "Y" level; making profiles of elevations and grades. Adjustment of transit and level. Plotting the field work, also field work done from plottings.

(b) HIGHER SURVEYING.—Trigonometrical Surveying. Running railroad preliminary lines; setting slope stakes; plotting cross-

sections; calculating cut and fill, running grade lines for irrigating ditches or roads.

(c) FIELD ENGINEERING.—Theory and practice of laying out curves, side-tracks; economic principles of railway location and construction. Henck's and Searle's Field Books are used.

(d) LAND SURVEYING.—Plotting field work, using various methods of representing topography, calculation of areas by latitudes and departures, also by use of the planimeter. Henck's and Searle's Field Books are used.

Ten periods per week throughout the year.

7. ANALYTIC GEOMETRY.—Analytic Geometry of two dimensions, Analytic Geometry of three dimensions. Five periods per week throughout the year.

8. CALCULUS.—Differential and Integral Calculus. Five periods per week throughout the year.

9. DIFFERENTIAL EQUATIONS.—A course in Differential Equations with especial reference to such applications as occur in Physics and Engineering. Five periods per week throughout the year.

10. ALTERNATING CURRENTS.—Mathematical theory of alternating currents in electricity. Five periods per week throughout the year.

11. DESCRIPTIVE GEOMETRY.—Five periods per week throughout the year.

12. THEORETICAL AND APPLIED MECHANICS.—This course is intended for all students in Engineering. Analytical and graphical methods for the study of the statics and dynamics of bodies as practically illustrated in beams of wood and iron under loads, of the stresses in framed structures, of the action and work done by machines, etc., are employed in connection with experimental tests. The study of work-measuring machines, or dynamometers, is a prominent feature of the course. There is also an elementary study of hydraulics, with special reference to both the disposal and disposition of water by drainage systems and its utilization as a source of power. Instruction is given by lectures and classroom work and experimental work in the laboratory. Preparation required: Mathematics 10. Ten periods per week throughout the year.

#### ENGLISH

5. DEVELOPMENT OF ENGLISH LITERATURE.—Written exercises throughout the course. Stopford A. Brooke's History of English Literature will be made the basis of study, with the reading of the following: Hall's Beowulf, Chaucer's Prologue, Book II Spen-

ser's *Faerie Queen*, Bacon's *Essays*, Lodge's *Rosalind*, Thayer's *Best Elizabethan Plays* (except *Duchess of Malfi*), *Pilgrim's Progress*, Milton's *Paradise Lost*—Books I and II, Sheridan's *Rivals*. Preparation required: English 4. Five periods per week throughout the year.

## LATIN

1, 2, 3 and 4, as outlined on pages 35 and 36.

## GERMAN

1, 2 and 3, as outlined on page 36.

## FRENCH

1, 2 and 3, as outlined on pages 36 and 37.

## EDUCATION

1, 2 and 3, as outlined on pages 52 and 53.

## BIOLOGY

Carefully kept note and drawing books are called for in all courses. Reference and text-books are assigned as required.

4. VERTEBRATE ANATOMY AND PHYSIOLOGY.—This course requires a detailed study, by dissection, of the anatomy of selected vertebrates, such as the skate, frog, bird and cat. Experiments are made to ascertain the functions of the various animal tissues and organs. Preparation required: Course 2, Physics 1. Ten periods per week throughout the year.

5. VERTEBRATE EMBRYOLOGY.—The development of the chick forms the main subject of this course, though some study is devoted to the shark, salamander and mammal. Special attention is paid to histological technique in the preparation of serial sections and surface views of embryos. Preparation required: Course 4, Chemistry 1. Ten periods per week throughout the year.

6. SYSTEMATIC STUDY OF VERTEBRATES.—The principles of classification are discussed and applied; methods of collecting and preserving specimens are tested in the field; and the life habits and means of artificial propagation of such commercially important animals as fishes are investigated. Preparation required: Courses 1, 2. Five periods per week throughout the year.

7. GENERAL ORNITHOLOGY.—The study of birds in its many phases is conducted with a view to its practical as well as scientific value. The important relation of birds to agriculture is investigated experimentally. Featherstructure, moult, migration, distribution, classification, habits, and preparation of study skins are treated of in the field, laboratory and lecture-room. Preparation

required: Courses 1, 2. Ten periods per week throughout the year.

8. ECONOMIC ENTOMOLOGY.—This course consists in the laboratory and field study of insects in general, but more especially of those which in California prove so injurious to the farmer and orchardist. Preparation required: Courses 2, 3. Five periods per week throughout the year.

9. PLANT AND ANIMAL ECOLOGY.—This is the study of the relation of living things to their surroundings. The effects of temperature and humidity (that is, climate) in determining the distribution of plants and animals is abundantly illustrated on our nearby mountains and plains. The practical bearing of this subject comes in the mapping of crop zones. Preparation required: Courses 1, 2, 3. Five periods per week throughout the year.

10. BACTERIOLOGY.—A study of available forms of bacteria, their life-histories, disease-producing powers or their uses, and their growth characters, including the technique of sterilization, preparation of culture-media, staining, etc. Practical experiments are carried on with local milk and water supplies. Preparation required: Courses 2, 3, 9, Chemistry 1, Physics 1. Ten periods per week throughout the year.

11. GEOLOGY.—This course deals first with the surface features of the earth and the great agents of construction and destruction now going on. Later in the year a study of the geological succession of rocks and the plants and animals represented, is undertaken. The work is carried on in the recitation room, laboratory and field. Preparation required: Courses 1, 2, Physics 1, Chemistry 1. Five periods per week throughout the year.

#### CHEMISTRY.

1. Course outlined on page 38.

2. QUALITATIVE ANALYSIS.—Preliminary work, analysis of unknowns, including minerals and industrial products. Critical study of processes of analysis. Text-book: A. A. Noyes' Qualitative Chemical Analysis. Students are also advised to procure Treadwell's Qualitative Analysis. Preparation required: Chemistry 1 and Physics 1. Nine periods per week for thirty-six weeks.

3. PRINCIPLES OF GENERAL CHEMISTRY.—A course in general descriptive and physical chemistry with special attention to its connection with chemical analysis. Given in connection with Course 2. Text-book: H. C. Jones' Principles of Inorganic Chemistry. One period per week for thirty-six weeks.

4. INORGANIC PREPARATIONS.—Methods of preparation and purification of organic chemicals, starting with raw materials. Tests



for impurities. Discussion of reactions. Preparation required: Chemistry 2 and 3. Text-book: Thorp's Inorganic Preparations. Six periods per week for twelve weeks.

5. ORGANIC CHEMISTRY.—Recitations on typical members and reactions of the various groups of carbon compounds. Laboratory work upon class reactions. Text-book: Remsen's Organic Chemistry. Preparation required: Chemistry 2, 3. Two periods per week throughout the year. Laboratory work eight periods per week for twenty-four weeks.

6. QUANTITATIVE ANALYSIS I.—Typical determinations in gravimetric and volumetric analysis. Discussion of methods and solution of stoichiometric problems. Text-book: Talbot's Quantitative Analysis. Preparation required: Chemistry 2, 3. Ten periods per week for twenty-four weeks.

7. ASSAYING.—Fire assay for gold, silver and lead. Volumetric assay for copper and silver. Preparation required: Chemistry 5. This course must be accompanied by mineralogy. Ten periods per week for twelve weeks.

8. QUANTITATIVE ANALYSIS II.—Advanced work, comprising analysis of industrial products, minerals, milk, water, foods, air, etc. Preparation required: Chemistry 6. Twenty periods per week for eighteen weeks.

9. INDUSTRIAL CHEMISTRY.—Lectures and readings on important chemical industries, inorganic and organic. Two periods per week for eighteen weeks.

10. HISTORY OF CHEMISTRY, and reading of French and German chemical literature. Preparation required: German 2, Chemistry 2. Two periods per week for eighteen weeks.

11. MINERALOGY.—This course offers a detailed study of the elements of mineral analysis, the first half of the year being devoted to the study of the type forms and the second to a more systematic study of the sub-groups of minerals. The work is largely practical, analysis of unknowns receiving an important place. Text-book: Crosby's Mineralogical Tables. Preparation required: Biology 1, Chemistry 1. Five periods per week throughout the year.

#### PHYSICS

2. GENERAL ADVANCED PHYSICS.—This course is intended for those who wish to continue their work in physics or pursue the work in electrical engineering. Recitations are accompanied by laboratory work, consisting of a series of physical measurements intended to supplement Physics 1.

General Physics, Hastings and Beach, and a Manual of Experiments in Physics by Ames and Bliss are used as texts. Preparation required: Physics 1 and Chemistry 1. Ten periods per week throughout the year.

#### ELECTRICAL ENGINEERING

1. **ELECTRICITY AND MAGNETISM.**—It is the purpose of this course to give a thorough grounding in the principles of electricity and magnetism to serve as a foundation for the following courses in electrical engineering. Instruction is given by study of the text with references to books in the library and by work in the laboratory comprising chiefly such experiments as determination of horizontal component of the earth's magnetism and galvanometer constants; measurement of resistance, current, electromotive force, capacity, self and mutual induction; study of the magnetic qualities of iron and characteristic curves of dynamos and motors. Text-book: Electricity and Magnetism, Jackson. Preparation required: Physics 2 and Mathematics 5. Ten periods per week throughout the year.

2. **POWER MEASUREMENTS.**—Theory and use of steam engine indicator, cradle dynamometer and Prony brake; efficiency tests of dynamos and motors, photometry. Text-book: A Laboratory Manual of Physics and Applied Electricity, Nichols, Vol. II, Part I. Preparation required: Electrical Engineering 1. Ten periods per week first half year.

3. **DYNAMO DESIGN.**—The derivation and practical application of the formulas used in the design of dynamos and motors. Text-book: Dynamo Electric Machines, Wiener. Preparation required: Electrical Engineering 1. Ten periods per week second half year.

4. **ALTERNATING CURRENTS.**—Study of alternating currents by analytical and graphical methods accompanied by work in the laboratory. Text-books: Alternating Currents, Franklin and Williamson. A Laboratory Manual of Physics and Applied Electricity, Nichols, Vol. II, Part II. Preparation required: Calculus and Electrical Engineering 3. Ten periods per week first two terms.

5. **ELECTRICAL TRANSMISSION AND DISTRIBUTION OF POWER.**—In this course the usual methods of instruction are supplemented by visits to the various electrical plants in the vicinity and by talks from men engaged in commercial electrical work. Preparation required: Electrical Engineering 4. Ten periods per week last term.

## TABULAR ARRANGEMENT OF SUBJECTS

## ACADEMY

M or G in "Credit" column indicates whether the subject earns Manual (M) or General (G) credits.

	KIND OF WORK	PERIODS PER WEEK	NUMBER OF WEEKS	NUMBER OF CREDITS	PREPARATION REQUIRED
Algebra .....	Rec.	5	36	2. G	Algebra
Higher Algebra.....	Rec.	5	18	1. G	
Plane Geometry.....	Rec.	5	36	2. G	
Solid Geometry.....	Rec.	5	18	1. G	Plane Geometry Algebra and Solid Geom'y
Trigonometry.....	Rec.	5	18	1. G	
English 1.....	Rec.	5	36	2. G	English 1 English 2 English 3
English 2.....	Rec.	5	36	2. G	
English 3.....	Rec.	5	36	2. G	
English 4.....	Rec.	5	36	2. G	English 3
Elocution.....					
History 1.....	Rec.	5	36	2. G	
History 2.....	Rec.	5	36	2. G	English 3 History 3
History 3.....	Rec.	5	24	1.3 G	
History 4.....	Rec.	5	12	0.7 G	
Latin 1.....	Rec.	5	36	2. G	Latin 1 Latin 2
Latin 2.....	Rec.	5	36	2. G	
Latin 3.....	Rec.	5	36	2. G	French 1 French 2
French 1.....	Rec.	5	36	2. G	
French 2.....	Rec.	5	36	2. G	
French 3.....	Rec.	5	36	2. G	German 1 German 2
German 1.....	Rec.	5	36	2. G	
German 2.....	Rec.	5	36	2. G	
German 3.....	Rec.	5	36	2. G	Spanish 1
Spanish 1.....	Rec.	5	36	2. G	
Spanish 2.....	Rec.	5	36	2. G	
Physical Geography.....	Rec.	5	36	2. G	Zoology
Zoology.....	Lab.	10	36	2. G	
Botany.....	Lab.	10	36	2. G	
Chemistry 1.....	Rec.	7	36	2. G	Algebra and Geometry English 2 Algebra and Geometry English 2
Physics 1.....	Lab.	7	36	2. G	
F. H. Drawing 1.....	Draw.	5	18	0.5 M	
F. H. Drawing 2.....	Draw.	5	18	0.5 M	Freehand Drawing 1 Freehand Drawing 2 Freehand Drawing 3
F. H. Drawing 3.....	Draw.	5	36	1. M	
F. H. Drawing 4.....	Draw.	5	36	1. M	
Mech. Drawing 1.....	Draw.	5	18	0.5 M	Mechanical Drawing 1 Mechanical Drawing 2 Mechanical Drawing 3
Mech. Drawing 2.....	Draw.	5	18	0.5 M	
Mech. Drawing 3.....	Draw.	5	36	1. M	
Mech. Drawing 4.....	Draw.	10	36	1. M	Wood Work
Wood Work.....	Shop	10	36	2. M	
Forging.....	Shop	10	36	2. M	
Pattern-shop Practice I.....	Shop	10	18	1. M	Pattern-shop Practice I Pattern-shop Practice II Machine-shop Practice I Machine-shop Practice II
Pattern-shop Practice II.....	Shop	10	18	1. M	
Machine-shop Practice I.....	Shop	10	18	1. M	
Machine-shop Practice II.....	Shop	10	18	1. M	Freehand Drawing 1 Plain Sewing, F. Draw'g 2 Freehand Drawing 1
Plain Sewing.....	Shop	10	36	2. M	
Dressmaking.....	Shop	10	18	1. M	
Millinery.....	Shop	10	18	1. M	Clay Modeling 1
Cooking.....	Shop	10	36	2. M	
Clay Modeling 1.....	Shop	10	36	2. M	
Clay Modeling 2.....	Shop	10	36	2. M	Wood Carving 1
Wood Carving 1.....	Shop	10	36	2. M	
Wood Carving 2.....	Shop	10	36	2. M	
Physical Culture.....	Gym.	5	36	1. M	

## COMMERCIAL SCHOOL

	KIND OF WORK	PERIODS PER WEEK	NUMBER OF WEEKS	NUMBER OF CREDITS	PREPARATION REQUIRED
Bookkeeping 1.....	Rec. Book.	10	36	2. G	Bookkeeping 1
Bookkeeping 2.....	Rec. Book.	10	36	2. G	
Stenography 1.....	Rec. Dict.	5	36	1. M	Stenography 1
Stenography 2.....	Rec. Dict.	5	36	1. M	
Typewriting.....	Type.	5	36	0.5 M	
Civil Government.....	Rec.	5	12	0.7 G	
Commercial Law.....	Rec.	5	12	0.7 G	
Finance.....	Rec.	5	12	0.7 G	
Arithmetic.....	Rec.	5	36	2. G	
Penmanship.....	Writ.	5	36	0.5 M	
English and Spelling.....	Rec.	5	36	2. G	
Commercial Geography.....	Rec.	5	36	2. G	

## NORMAL SCHOOL

	KIND OF WORK	PERIODS PER WEEK	NUMBER OF WEEKS	NUMBER OF CREDITS	PREPARATION REQUIRED
Psychology.....	Rec.	5	36	2. G	English 3, History 3 and 4 Psychology Pedagogy Psychology and Pedagogy
Pedagogy.....	Rec.	5	18	1. G	
History of Education.....	Rec.	5	18	1. G	
Theory and Methods.....	Rec.	5	36	2. G	
Practice Teaching.....	Teach.	5	18	1. G	
Freehand Drawing 5.....	Draw.	5	18	0.5 M	
Freehand Drawing 6.....	Draw.	10	36	2. M	
Freehand Drawing 7.....	Draw.	10	36	2. M	
Freehand Drawing 8.....	Draw.	15	18	1.5 M	
Freehand Drawing 9.....	Draw.	5	18	1.5 M	
Mechanical Drawing 5.....	Draw.	5	36	1. M	
Special Biology.....	Lab. Rec.	6	36	1.7 G	
Cooking II.....	Rec. Cook	13	36	2.6 M	
Cooking III.....	Rec. Cook.	8	36	1.6 M	
Sewing I.....	Sew.	10	36	2. M	
Sewing II.....	Sew.	10	36	2. M	
Manual Training 1.....	Shop	18	36	3. M	
Manual Training 2.....	Shop	15	36		
Manual Training 3.....	Shop				
Manual Training 4.....	Shop				
Wood Carving 3.....	Shop	10	18	2. M	
Clay Modeling 3.....	Shop	8	36	1.6 M	
Clay Modeling 4.....	Shop	8	36	1.6 M	
Clay Modeling 5.....	Shop	5	18	0.5 M	

## COLLEGE

	KIND OF WORK	PERIODS PER WEEK	NUMBER OF WEEKS	NUMBER OF CREDITS	PREPARATION REQUIRED
Surveying.....	Field Rec.	10	36	2. G	Trigonometry
Analytic Geometry.....	Rec.	5	36	2. G	Trigonometry
Calculus.....	Rec.	5	36	2. G	Analytical Geometry
Differential Equations.....	Rec.	5	36	2. G	Calculus
Descriptive Geometry.....	Rec. Draw.	5	36	2. G	Solid Geometry
Mechanics.....	Lab. Rec.	10	36	2. G	Calculus
English 5.....	Rec.	5	36	2. G	English 4
Vertebrate Anatomy and Physiology.....	Lab. Rec.	10	36	2. G	Biology 2, Physics 1
Vertebrate Embryology.....	Lab. Rec.	10	36	2. G	Biology 4, Chemistry 1
Systematic Study of Vertebrates.....	Lab. Rec.	5	36	2. G	Biology 1, 2
General Ornithology.....	Lab. Rec.	10	36	2. G	Biology 1, 2
Economic Entomology.....	Lab. Rec.	5	36	2. G	Biology 2, 3
Plant and Animal Ecology.....	Lab. Rec.	5	36	2. G	Biology 1, 2, 3
Bacteriology.....	Lab. Rec.	10	36	2. G	Biology 2, 3, 9, Chemistry 1, Physics 1
Geology.....	Lab. Rec.	5	36	2. G	Biology 1, 2, Chemistry 1, Physics 1
Qualitative Analysis.....	Lab. Rec.	7 2	36	1.8 G	Elementary Chemistry Physics 1
General Chemistry.....	Read. Rec.	1	36	0.2 G	Qualitative Analysis
Inorganic Preparations.....	Lab.	8	12	0.5 G	Qualitative Analysis
Organic Chemistry.....	Lab. Rec.	8 2	24 36	1.5 G	General Chemistry
Quantitative Analysis I.....	Lab. Rec.	8 2	24	1.7 G	Qualitative Analysis
Assaying.....	Lab. Rec.	8 2	12	0.3 G	Quantitative Analysis I
Quantitative Analysis II.....	Lab. Rec.	20 2	18	2. G	Quantitative Analysis I
Industrial Chemistry.....	Read. Rec.	5	18	1. G	Qualitative Analysis
History of Chemistry.....	Read. Rec.	1	12	0.2 G	General Chemistry Organic Chemistry
Mineralogy.....	Lab. Rec.	5	36	2. G	Biology 1, Chemistry 1
Physics 2.....	Lab. Rec.	7 3	36	2. G	Physics 1, Chemistry 1
Electricity and Mag- netism.....	Lab. Rec.	10	36	2. G	Physics 2, Mathematics 5
Power Measurements.....	Lab. Rec.	10	18	1. G	Electricity and Magnetism
Dynamo Design.....	Draw. Rec.	10	18	1. G	Electricity and Magnetism
Alternating Currents.....	Lab. Rec.	10	24	1.7 G	Mathematics 8, Dynamo Design
Transmission and Dis- tribution of Power.....	Lab. Rec.	10	12	0.3 G	Alternating Currents

# LIST OF STUDENTS

1904-1905.

## COLLEGE.

Backus, Charles Shepherd.....	Pasadena
Benchley, Frank Keith.....	Fullerton
Blankenhorn, George Stevens.....	Pasadena
Corson, Anna Rowell.....	Pasadena
Daugherty, Robert Long.....	Pasadena
Gaylord, John Clarence.....	Pasadena
Grinnell, Elizabeth.....	Pasadena
Maxson, Edgar.....	Montebello
McQuiston, Henry.....	Pasadena
Mee, Charles Putnam.....	Los Angeles
Nichols, Lawrence.....	Girard, Penn.
Norton, Frank Edward.....	Pomona
Pimentel, Rafael.....	Oaxaca, Oaxaca, Mex.
Wakeham, Mary.....	Santa Ana
Wood, Hilda.....	Glendora

## NORMAL.

Adams, Mrs. Katharine Janet.....	Pasadena
Brownson, Mary Gladys.....	Pasadena
Dickey, Florence Ivah.....	Pasadena
Diffenbacher, Lulu Arnold.....	Los Angeles
Freeman, Agnes Eva.....	Riverside
Frost, Lillian.....	Los Angeles
Hawley, Josephine.....	South Pasadena
Howard, Grace Irene.....	Mondovi, Wis.
Junkin, Annie Maria.....	Los Angeles
Lamb, Jennie Merritt.....	Los Angeles
Langworthy, Amie Florence.....	Riverside
Marsh, Mabel.....	Los Angeles
Miller, James Collins.....	Regina, N. W. T., Can.
Moore, Laura Phebe.....	Los Angeles
Moore, Nevada Eleanor.....	Pasadena
Mosher, Mary Stratton.....	Berkeley
Nyce, Ida May.....	Pasadena
Pearson, Leo Earl.....	Los Angeles
Pope, Florence Lutitia.....	Du Quoin, Ill.
Snell, Harry Murtun.....	Calgary, Can.
Story, Estelle Cornelia.....	Rivera
Wolfsohn, Rachel.....	San Francisco
Yates, Lethe Darne.....	Pasadena

## ACADEMY.

Archibald, Charles Henry.....	Los Angeles
Armstrong, Margaret.....	Altadena
Bailey, LeRoy Harrison.....	Los Angeles
Baldwin, Eugene Irving.....	Pasadena
Barker, Huntington.....	Pasadena
Barker, Parrish.....	Pasadena
Barnollar, Gladys Ashcam.....	Long Beach
Barnwell, Reginald Huntington.....	Alhambra
Beck, Clarence.....	Chino
Beeson, Veva Odetta.....	Los Angeles
Behr, Ernst Edward.....	Pasadena
Belford, Andrew Alexander.....	Chicago, Ill.
Benton, Irving Wright.....	Pasadena
Bettannier, Eugene.....	Tropico

Bigelow, Orsa Adela.....	Chicago, Ill.
Bixby, Allen Bigelow.....	Pasadena
Bixby, Florence Lydia.....	Sierra Madre
Blakeslee, Laura Genevieve.....	Upland
Bland, Serena Lois.....	Pasadena
Blankenhorn, David Ferguson.....	Pasadena
Blattner, Helen Harland.....	Pasadena
Bloser, Bennie John.....	Los Angeles
Bowen, Clarence Winthrop.....	Oakland
Boynton, Ralph Henry.....	Los Angeles
Brooks, Donald Beresford.....	Pasadena
Brown, Arad Beach.....	Pasadena
Brown, LeRoy Gregg.....	Los Angeles
Brown, Norma Ina.....	Pasadena
Brugman, Vega Amend.....	Pasadena
Buck, Karl Phillip.....	Pasadena
Burnham, Roderick Deane.....	Pasadena
Caddagan, Donald Cornelius.....	Los Angeles
Cadieus, Mary Elma.....	Pasadena
Calkins, Frederic.....	Los Angeles
Cameron, Claire Vernon.....	McDonald, Penn.
Cannell, Thomas Arthur.....	Los Angeles
Canterbury, Harry Horton.....	Redlands
Carr, Vernon.....	Alhambra
Case, Carlos Cyrus.....	Pasadena
Champion, Clyde Walter.....	Alhambra
Clapp, Margaret Avice.....	Los Angeles
Clark, Dora Mabel.....	Pasadena
Coman, William Merriam.....	Pasadena
Comer, Fred Jabez.....	Los Angeles
Conant, Roland Hawthorne.....	Los Angeles
Coolidge, Rachel Abbie.....	Pasadena
Coonradt, Arthur Chapin.....	Yuma, Ariz.
Crow, Carl Sedgwick.....	Santa Barbara
Crowley, William Lucas.....	St. Louis, Mo.
Culver, Lucile.....	North Pasadena
Dake, Frank.....	Pasadena
Daley, Albert Cowles.....	Pasadena
Darch, Florence.....	Los Angeles
Dickinson, Grace.....	Pasadena
Dickinson, Helen.....	Pasadena
Dixon, Joseph.....	Escondido
Doak, Merton Scott.....	Altadena
Dodson, Harvey.....	Selma
Donnatin, George.....	Los Angeles
Donnell, Walter Blangeres.....	Pasadena
Doolittle, Florence.....	Pasadena
Douglass, Francis Archibald.....	Los Angeles
Downing, Kathryn Leonora.....	Pasadena
Dunning, Archie Muller.....	Pasadena
Dunning, Arthur.....	Pasadena
Dunwell, Frank.....	Los Angeles
Earley, Alice.....	Pasadena
Edmond, Elizabeth Clarke.....	Santa Monica
Edwards, Noel Condiff.....	Prospect Park
Eller, Kenneth Fletcher.....	Los Angeles
Enger, Thorborn Kjus.....	Christiania, Norway
English, Jay.....	Pasadena
Feuerborn, Ralph Daniel.....	Los Angeles



Fillmore, Hugh Hamilton.....	Los Angeles
Ford, Henry Morton.....	Pasadena
Frampton, Guy Ernest.....	Pasadena
Frey, Elmer Ernest.....	Pasadena
Frink, Clarence Harlow.....	Santa Barbara
Frohman, Philip Hubert.....	Pasadena
Gabriel, Arthur Coridon.....	Pasadena
Garland, Eldon Addison.....	Nordhoff
Gaylord, Ruth Louise.....	Pasadena
Gerberding, Thomas Robert Bard.....	Hueneme
Gibson, Merrill Essington.....	Los Angeles
Giddings, Blanche Elsie.....	Pasadena
Giddings, Joe.....	Pasadena
Glass, Dudley Richard.....	Redlands
Goodspeed, Bessie May.....	Pasadena
Graettinger, Darwin George.....	Ontario
Grant, Lillian.....	Los Angeles
Green, Thirza Nell.....	Pasadena
Guillou, Alfred Victor.....	Pasadena
Hall, Mary Lou.....	Pasadena
Hanson, Lloyd Chester.....	Pasadena
Harrah, Isabel.....	Newton, Iowa
Harrah, Mildred.....	Newton, Iowa
Harrison, Benjamin.....	Pasadena
Hayes, Marshall Crane.....	Lamanda Park
Hayes, Oliver Bliss.....	Lamanda Park
Healy, Earl.....	Pasadena
Heath, Marybel.....	Riverside
Henck, George Daniel.....	Los Angeles
Hertel, Anita Marion.....	Pasadena
Hester, George Knight.....	Pasadena
Holmes, Millan.....	Los Angeles
Humpheries, Gladys Ida.....	Sierra Madre
Hunt, LeRoy.....	Santa Barbara
Hunter, Paul Mallers.....	Chicago, Ill.
Hunter, Robert Edward.....	Pasadena
Hyde, George McDonnell.....	Pasadena
Jackson, Clifford.....	St. Louis, Mo.
Jones, Harriett Elizabeth.....	Pasadena
Judson, Clarence Bert.....	Los Angeles
Judson, Stanley Llewellyn.....	Los Angeles
Kelley, Edward Jefferson.....	Boston, Mass.
Kelsey, Lynn.....	Garvanza
Kiler, William Paulin.....	Los Angeles
Larralde, John Alfred.....	Los Angeles
Lee, Scott Mortimer.....	Los Angeles
Leistikow, Fred William.....	Grafton, N. Dakota
Lewis, George McDonald.....	Hynes, Cal.
Lewis, Guy Edward.....	Camarillo
Lifur, Frances.....	Shorb
Lisk, Anson.....	Pasadena
Lowe, Harry Leo.....	Pasadena
Lucas, Henry Laurence.....	Ontario
Ludy, Clarence Chester.....	Lamanda Park
Maas, Ida Marie.....	Alhambra
Macdonald, James Frederick.....	Seattle, Wash.
Macdonald, Leroy Fisher.....	Seattle, Wash.
Macomber, Laurence.....	Somerville, Mass.
Macready, George Alexander.....	Los Angeles

Manly, Harold Patterson.....	Pasadena
Marsh, Mabel.....	Macksburg, Ia.
Marshall, Kenneth Irving.....	Los Angeles
McBride, James Ackley.....	Pasadena
McDonald, Bert.....	Alhambra
McMechen, Elizabeth.....	Pasadena
Mears, Margaret.....	Pasadena
Meek, Blanche Frances.....	Los Angeles
Merrill, Everett Hardy.....	Los Angeles
Miller, Lloyd Rudolph.....	Lawrence, Kan.
Miller, Robert Bruce.....	Redlands
Miller, Robert Warren.....	Los Angeles
Moody, Graham Blair.....	Los Angeles
Moody, Wilbur Ladde.....	Los Angeles
Mooney, Wallace.....	Pasadena
Moreno, Jose Fidel.....	Torreón, Coah, Mex.
Morris, Harbron Williams.....	Carpenteria
Morris, Richard Woods.....	Carpenteria
Morris, Samuel Brooks.....	Pasadena
Nance, Willis.....	Los Angeles
Newton, Lyman.....	Globe, Arizona
Nichols, George Page.....	Pomona
Nichols, Kittie Agnes.....	Girard, Pa.
Nichols, Ross Martin.....	Pasadena
Nichols, Vernon Garrett.....	Pasadena
de Normandie, Harold.....	Los Angeles
Norris, Stella Lockhart.....	Sierra Madre
Northrop, Lowell Edwin.....	Los Angeles
Oneal, Charles Herbert.....	Pasadena
Osborn, Mary Elise Puddicombe.....	Los Angeles
Owen, Harry Samuel.....	Los Angeles
Painter, Robert Alden.....	Pasadena
Parker, Elizabeth Yager.....	Los Angeles
Parker, Pauline Mary.....	Los Angeles
Patterson, Robert Eugene.....	Burnett
Peabody, Dora Mildred.....	Pasadena
Phelps, George Miller.....	Los Angeles
Phelps, Robert William.....	Los Angeles
Pinger, Philip.....	St. Joseph, Mo.
Pittenger, Walter Ralph.....	Fallbrook
Poindexter, Robert Wade.....	Los Angeles
Procter, James Mitchell.....	Pasadena
Reed, Charles Allen.....	Portland, Ore.
Rice, Alta Lucile.....	Sierra Madre
Rice, Meta Cleora.....	Sierra Madre
Ridenour, Charles Kendal.....	Hackberry, Ariz.
Ritchey, Willis George.....	Pasadena
Schwerdtman, Paul.....	Los Angeles
Seargeant, Elizabeth Cordelia.....	Phoenix, Ariz.
Sharpe, Nathan Marble.....	Oak Park, Ill.
Sherman, William Milne.....	Chicago, Ill.
Shumway, Amos Wight.....	Los Angeles
Shutt, Herbert Abrom.....	Pasadena
Sickler, Helen Gwynne.....	Pasadena
Sinclair, Arthur Wells.....	Pasadena
Sinton, Bell.....	Colorado Springs, Colo.
Smith, Kate.....	Pasadena
Smith, Ward Spencer.....	Los Angeles
Sparkes, Pauline Victoria.....	Pasadena

Stambach, Elise.....	Anchorage, Ky.
Staples, Edna.....	Sierra Madre
Steinberger, James Milton.....	Sierra Madre
Stewart, Colin .....	Pasadena
Stewart, James Fitch.....	Los Angeles
Stokes, Frank .....	Alhambra
Stoney, George Allen.....	Los Angeles
Sturdevant, Harvey Robert.....	Los Angeles
Surbeck, Arnold.....	Santa Fe Springs
Swan, Carl Francis.....	Los Angeles
Swerdfeger, Geneva Mae.....	Lordsburg
Swigart, Laura Kathryn.....	Las Casitas
Tacquard, George Joseph.....	Hitchcock, Tex.
Tantau, George Blake.....	Pasadena
Taylor, Walter Penn.....	Pasadena
Theobald, Harrietta.....	Chicago, Ill.
Thompson, Laurence Kimball.....	Los Angeles
Thornburg, Hix.....	Sierra Madre
Tileston, Howard.....	St. Cloud, Minn.
Twycross, Convers Lilly.....	Sierra Madre
Ulrich, Julia Marie.....	Peoria, Ill.
Urquhart, Donald Ross.....	Duluth, Minn.
Vail, Walter L.....	Los Angeles
Van Scoyoc, Lloyd.....	Los Angeles
Vedder, Grace.....	Pasadena
Wadsworth, Katharine .....	Pasadena
Wadsworth, Mary Manter.....	Pasadena
Wakeham, Ernest.....	Santa Ana
Wakeham, William Helmor.....	Santa Ana
Waldron, Grace Winifred.....	Pasadena
Warren, Herbert Clifton.....	Glendora
Warren, Leslie Alexander.....	Glendora
Waterhouse, Gerald Condit.....	Pasadena
Watts, Dan Pike.....	Compton
Weatherston, Edward Kintchlow.....	Pasadena
Weeks, Ernest Waldo.....	Pasadena
Weimer, Donald Theodore.....	Keswick, Iowa
West, Edna Florence.....	Los Angeles
Whitcomb, Rae Cone.....	Pasadena
White, Mary Frances.....	Shreveport, La.
White, Mary Hazel.....	Olympia, Wash.
White, Natalie .....	Pasadena
Williams, Ralph Sargent.....	Pasadena
Williams, Thomas Grover.....	Sandy, Nevada
Williamson, William Roy.....	Los Angeles
Willis, Neva Corinne.....	Hollywood
Wilson, John Encell.....	Pasadena
Wilson, Lucian Hornbrook.....	Pasadena
Winsor, Charles Travis.....	Pasadena
Winsor, Samuel Wiley.....	Pasadena
Wood, Herbert Sidney.....	Los Angeles
Wood, Marjorie .....	Pasadena
Wood, Willard Selwyn.....	Glendora
Wood, William Stanley.....	Brooklyn, N. Y.
Woodbury, Greenleaf Moores.....	Pasadena
Woodville, Elizabeth.....	Long Beach
Wright, Adaline .....	Pasadena
Wright, Austin Charles.....	Pasadena

## COMMERCIAL SCHOOL.

Ainsworth, Sallie Elizabeth.....	Naco, Ariz.
Ainsworth, Vivian Mabel.....	Naco, Ariz.
Baird, James Rogers.....	San Jose
Beals, Delbert Samuel.....	Plano
Burbaw, John.....	Pasadena
Burrowes, Morgan.....	Fort Wayne, Ind.
Crowley, Frank Langston.....	Newberry Park
Dixon, James Benjamin.....	Escondido
Doty, Eilleen.....	Pasadena
Frink, Clarence Harlow.....	Santa BarBara
Fussell, Edwin Briggs.....	Pasadena
Gesme, Elmer Knute.....	Pasadena
Gillmor, James Henry.....	Patterson, N. J.
Gooding, Ralph Holmes.....	Kingman, Ariz.
Guirado, Neta.....	Pasadena
Hanson, Walter.....	Pasadena
Herard, Minnie.....	Elgin, Kan.
Higinbotham, Ethel Mae.....	Pasadena
Johnson, Earl.....	Pasadena
Johnson, Erma.....	Pasadena
Kirkham, John.....	Tropico
Lieberg, Harvey.....	Pasadena
Luce, Henry.....	Pasadena
Ludy, Edward.....	Lamanda Park
MacDowell, Eleanor Hillen.....	Pasadena
Magge, Paul Barnes.....	Pasadena
May, Ernest Crawford.....	Pasadena
McCormick, William Thomas.....	San Gabriel
McIntire, Augustus Wilson.....	Pasadena
Mercer, Robert Oakley.....	Pasadena
Moore, Leonard Lewis.....	Pasadena
Morse, Anna Belle.....	Pasadena
Notumeyer, Alice Louise.....	Pasadena
Ray, Birdie May.....	Needles
Russell, Franklin Jason.....	Chicago, Ill.
Sanborn, Howard.....	Tustin
Taylor, Archibald Allerton.....	Sully, Ia.
Thomas, Sadie.....	Pasadena
Ward, Frank.....	Pasadena
Ward, Nellie Alexandra.....	Pasadena
Whelan, Frederick.....	Pasadena
Wilber, Blanche Viola.....	Pasadena
Wynkoop, George Henry.....	Pasadena

## GRAMMAR SCHOOL.

Amsden, Edward Lorenzo.....	Pasadena
Banbury, William.....	Pasadena
Barker, Justin Neall.....	Pasadena
Barry, Edmund Drinan.....	Pasadena
Bennett, Everett.....	Pasadena
Bixby, Leland Harmon.....	Pasadena
Blow, Richard Tunstall.....	Pasadena
Borden, Harry Marmaduke.....	Alhambra
Bowles, Stanley Lloyd.....	Pasadena
Boyle, James Lee.....	Los Angeles
Braden, Agnes Emma.....	Pasadena
Brown, Frederick Walton.....	Pasadena
Brown, Marian.....	Pasadena

Burger, Florence Eula.....	Pasadena
Buxton, Jay Russell.....	Rialto
Chamberlain, Florence.....	Pasadena
Chapin, Ralph Owen.....	Pasadena
Chapman, Claude William.....	Los Angeles
Clapp, James Norton.....	Evanston, Ill.
Cleveland, Bertrand Landson.....	Los Angeles
Colton, George Raymond.....	Los Angeles
Conrey, John Houston.....	Pasadena
Cook, Inez Whiting.....	Glendora
Cook, Mary Lucile.....	Edina, Mo.
Crandall, Bessie Palmer.....	Pasadena
Crumb, Rowell Hanford.....	Pasadena
Cummings, Edwin Booth.....	Pasadena
Currier, LeRoy Sanborn Becker.....	Pasadena
Daniell, Reginald Averell.....	Lamanda Park
Daniels, Donald Potter.....	Chicago, Ill.
Davis, Charles Merritt.....	Pasadena
Doulton, Herbert Ronald.....	Santa Barbara
Duke, Woodward Washington.....	Pasadena
Dunham, Ahwood.....	Pasadena
Earley, George Curtis.....	Pasadena
Elbe, Violet Ida.....	Los Angeles
Ellinwood, Cornelia.....	Prescott, Ariz.
Ellinwood, Ralph Everett.....	Prescott, Ariz.
Engels, Basil Baird.....	Pasadena
Entenmann, Carl.....	Los Angeles
Fast, Perry Hirshel.....	Los Angeles
Felker, Edna.....	Pasadena
Felker, George Stuart.....	Pasadena
Finley, Charles.....	Santa Barbara
French, John Bedford.....	Chicago, Ill.
Gartz, Adolph Frederic.....	Chicago, Ill.
Gartz, Richard Crane.....	Chicago, Ill.
Godbe, Raymond.....	Los Angeles
Graves, Dorothy.....	Pasadena
Graves, Marcia Howard.....	Pasadena
Grimes, Zillah.....	Pasadena
Grover, Richard Blow.....	St. Louis, Mo.
Guernsey, Antoinette.....	Chicago, Ill.
Guernsey, Henry Bryant.....	Chicago, Ill.
Guillou, Rene.....	Pasadena
Harris, Madelein Mary.....	Pasadena
Herlihy, Harold Walter.....	Pasadena
Hill, Bruce Maxwell.....	Pasadena
Howe, Marian Sprague.....	Pasadena
Hunt, Charles Bordman.....	Pasadena
Jones, Lawrence Mortimer.....	Dallas, Texas
Jones, Ralph.....	Pasadena
Judd, George Thomas.....	Pasadena
Judd, Harriet Stewart.....	Pasadena
Juers, Norman.....	Pasadena
Keese, Richard Abbott.....	Los Angeles
Kendall, Charles Harrison.....	Pasadena
Kendall, Frances.....	Pasadena
Kirk, John Balderstone.....	Pasadena
Kirtland, Louis Augustus.....	Poland, Ohio
Kling, David.....	Pasadena
Kraft, Edward.....	Pasadena

Lambert, Louis Filanc.....	Los Angeles
Lewis, Pauline.....	Chicago, Ill.
Lynch, Viva Elinda.....	Pasadena
Marsh, Victor.....	Pasadena
Martin, Charles William.....	Allentown, Pa.
McLean, Alexander Rees.....	San Gabriel
McClure, Grace.....	Pasadena
McClure, Iva.....	Pasadena
Mears, Helen.....	Altadena
Meek, Chester Irving.....	Los Angeles
Merriam, Robert Clizbe.....	Pasadena
Miller, Robert Ellsworth.....	Pasadena
More, Lawrence.....	Gaviota
Morrison, Florence Catherine.....	Pasadena
Mumford, Henry Hume.....	Pasadena
Munn, Helen.....	St. Paul, Minn.
Murray, Mabel.....	Lamanda Park
Murray, Virginia.....	Lamanda Park
Northrup, Layton.....	Chicago, Ill.
Palmerlee, Lawrence Herbert.....	North Pasadena
Pedley, Eric Leda.....	Riverside
Pedley, Lionel Evered.....	Riverside
Peter, Clyde Herman.....	Pasadena
Porter, Herbert Hugh Knight.....	Pasadena
Procter, Gilbert.....	Pasadena
Randals, Charles Russ.....	Pasadena
Rankin, Roy Ansel.....	Ogden, Utah
Risdon, Edward Hamilton.....	North Pasadena
Rohne, Robert.....	Hartford, Ct.
Rose, Augustus.....	Los Angeles
Rudel, Amelia.....	San Gabriel
Rudel, Edward.....	San Gabriel
Rudel, Walter.....	San Gabriel
Scott, Lester Fremont.....	Los Angeles
Sewall, Edna.....	Alhambra
Sharpe, Allan.....	Oak Park, Ill.
Slavin, Matthew.....	Pasadena
Smith, Charles Warren.....	Pasadena
Smith, Joshua Clark.....	Pasadena
Smith, Leo Stafford.....	San Gabriel
Smith, Lucy Marceline.....	Pasadena
Spangler, Etherington Thomas.....	Pasadena
Stambach, Mahlon.....	Anchorage, Ky.
Sussmilch, Juliette.....	Rockford, Ill.
Taylor, Raymond Wheeler.....	Pasadena
Thompson, Samuel Halsey.....	Pasadena
Tomblin, Allan Eugene.....	Ocean Park
Tompkins, De Ronde.....	Pasadena
Treadwell, Edward Frederick.....	Pasadena
Tyler, Sidney Williams.....	Pasadena
van Rossem, Adriaan Joseph.....	Pasadena
van Rossem, Walter Johannes.....	Pasadena
Waller, Ehrnman Ellsworth.....	Pasadena
Waller, Encil Bower.....	Pasadena
White, Donald.....	Pasadena
White, Laurence Taggart.....	Pasadena
Wickman, Claude James.....	Los Angeles
Wotkyns, Margaret Prudentia.....	Long Beach
Wright, Edward Prescott.....	Pasadena

Wynkoop, Jesse Coover.....	Pasadena
Young, George Beaumont.....	North Pasadena

## SPECIAL.

Cameron, Sarah Palmer.....	St. Johnsbury, Vermont
Claypool, Emma .....	Pasadena
Claypool, Fay .....	Pasadena
Coburn, Mae Alice.....	Riverside
Cotton, Catherine Mary.....	Pasadena
Fertig, Roscoe Francis.....	Titusville, Pa.
Green, Waldron .....	Pasadena
Grosse, Margaret Irene.....	Pasadena
Harnett, Anne Hutchinson.....	Burnett
Hussey, Edith Hirrel.....	South Pasadena
Johnson, Kendrick .....	Pasadena
Kent, Frances Ruddock.....	Pasadena
Lawrence, Alfred Barnard.....	Pasadena
Merritt, Jessie .....	Pasadena
Patten, Callie .....	Pasadena
Peterson, Roger Victor.....	Los Angeles
Speer, Mamie .....	Covina
Taylor, Marian Harriet.....	Pasadena
Vaughn, Clara Vail .....	Pasadena
Wadsworth, Joseph Hilton.....	Pasadena

## SUMMARY.

	Male.	Female.	Total.
College .....	11	4	15
Normal School.....	3	20	23
Academy .....	178	71	249
Commercial School.....	29	14	43
Grammar School .....	101	32	133
Special .....	6	14	20
	328	155	483
Duplicates .....	1	1	2
Total number of students.....	327	154	481

## GRADUATES

1895.

## NORMAL SCHOOL.

Daniels, Esther C. (Mrs. Turner).....	Teacher of Sloyd, Los Angeles
Gower, Hattie F.....	Teacher of Sloyd, Los Angeles
Harris, Caroline E.....	Teacher of Sloyd, Los Angeles
Miller, Charles M.....	Teacher of Manual Training, State Normal, Los Angeles
Simcoe, Benjamin F.....	Teacher of Manual Training, San Francisco

## ACADEMY.

Allen, Robert S.....	Pasadena
Cariton, Don W.....	Paying Teller, First National Bank, Los Angeles
Doty, George F. (A. B., T. P. I.).....	
.....	Cashier, Merchants' National Bank, Santa Monica
Ferguson, Clarence, Vice-President, Los Angeles Leather & Finding Co., L. A.	

1896.

## COLLEGE.

Haynes, Diantha M., A. B.....	Student L. S. Jr. Univ.
Doty, George F., A. B.....	Cashier, Merchants' National Bank, Santa Monica

## NORMAL SCHOOL.

Beckwith, Kate B. (Mrs. Thos. E. Everett) .....	Tulare
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Burkhead, Ada H. (Mrs. Hale Weaver).....Grand Rapids, Mich.  
 Chamberlain, Arthur H. (B. S. and A. M., Columbia Univ.) Dean and  
 Professor of Education, T. P. I.....Pasadena  
 Johnson, Annette.....Teacher of Sloyd, Los Angeles  
 Keyes, Mrs. Helen B.....Hartford, Ct.  
 Matthews, Amanda.....Los Angeles  
 McLaren, Jennie.....Student, University of California, Berkeley  
 Riggins, Ara.....Missionary, Mexico

## ACADEMY.

Arnold, Ralph, (Ph. D., L. S. Jr. Univ.) Geologist and Paleontologist....  
 .....U. S. Geologic Survey  
 Conger, Lulu N.....Pasadena  
 Gray, Roy W.....Division Construction  
 Foreman, Pacific States Telephone and Telegraph Co., San Francisco  
 Menner, Ivy (Mrs. John Taggart).....Pasadena  
 Morrison, Margaret L.....Compton  
 Snyder, Blanchard M.....Head  
 Chemist and Assayer, British Columbia Copper Co., Greenwood, B. C.  
 Winslow, Edward F...Chief Train Dispatcher, C. R. & P. Ry., Estherville, Ia.

1897,

## COLLEGE.

Grinnell, Joseph, A. B. (A. M., L. S. Jr. Univ.)....Prof. of Biology, T. P. I.

## NORMAL SCHOOL.

Batchelder, Lizzie.....Teacher of Sloyd, Los Angeles  
 Blanchard, Ada F.....Teacher of Sloyd, Los Angeles  
 Cleveland, Ada C.....Teacher, Public Schools, Pasadena  
 Cook, Mary A.....Pasadena  
 Coombs, Sara C.....Teacher, Visalia  
 Fisher, Pearl B.....Instructor in French and Drawing, T. P. I.  
 Holbrook, Lucy M.....Bookkeeper, Worcester, Mass.  
 Mellish, Ida M.....Student of Art and Languages, Europe  
 Smith, Mary M...Teacher in Art Depart., State Normal School, San Diego  
 Wright, Charles H.....Architect, Boulder, Colo.

## ACADEMY.

Baker, Calvin .....Pasadena  
 Baker, Ruth Ellen.....Pasadena  
 Barker, James Edmund (S. B., Mass. Int. of Technology).....Los Angeles  
 Blick, Kate Fay, Dentist's Assistant.....Pasadena  
 Conger, Lyda Drowne (Mrs. Richard A. Vose)....Oklahoma City, Oklahoma  
 Conger, Ray Everett, Manufacturer.....Oklahoma City, Oklahoma  
 Farnsworth, John Arthur.....Bookkeeper, Los Angeles  
 Jewett, Frank Baldwin, (Ph. D., Univ. of Chicago).....  
 .....With American Telephone & Telegraph Co., Boston, Mass.  
 \* Johnston, Blanche.  
 McQuilling, William.....Secretary, Pasadena Land & Water Co.  
 Polkinhorn, Edwin J.....In business, City of Mexico, Mex.  
 Reed, John O.....Sugar Boiler, Beet Sugar Factory, Los Alamitos  
 Russell, Emma (Mrs. Frank C. Heath).....San Francisco  
 Stimson, Charles W.....Lumber business, Seattle, Wash.  
 Vose, Richard A.....In business Oklahoma City, Oklahoma

1898.

## COLLEGE.

Blackman, Roy Beebe, A. B..Supt. of Schools, Mangaldan, Phillipine Islands  
 Jewett, Frank Baldwin, A. B. (Ph. D., Univ. of Chicago).....  
 .....With American Telephone & Telegraph Co., Boston, Mass.

\*Deceased.

## NORMAL SCHOOL.

Elleau, Jeannete Marcelle (Mrs. Harold Simpson).....	Los Angeles.
Elleau, Pauline Margaret (Mrs. Frederick Rhoades).....	Seattle, Wash.
Faithful, Claude A., Teacher of Drawing, Los Angeles Polytechnic High School	
Hannah, Lillian .....	Ontario
Hunt, Genie A.....	Manual Training Teacher, Harvard School, Los Angeles
Jordan, Mabel (Mrs. Charles F. Denison).....	Pasadena
*Olson, Albert L. (A. B., T. P. I.).	
Russell, Emma (Mrs. Frank C. Heath).....	San Francisco
Sanders, M. Frances.....	Teacher of Sloyd, Los Angeles
Shields, Mrs. Alice.....	Teacher of Sloyd, Los Angeles
Webber, Marie Bambrick.....	Highgrove

## ACADEMY.

Beery, Mary Ellen.....	South Pasadena
Folsom, Harry G. (S. B., Mass. Inst. of Technology).....	
.....	Electrician with Pacific Electric Ry. Co., Los Angeles
Gaylord, Horace Amidon, (D. D. S., Baltimore Dental College).....	
.....	Dentist, Pasadena
Gaylord, Jas. Mason (B. S., T. P. I.)..	With Edison Electric Co., Los Angeles
Menner, Lottie Ethel (Mrs. Jas. D. Sheckler).....	Pasadena
Monroe, Grace Ellen (Mrs. John O. Reed).....	Los Alamitos
*Olson, Albert L. (A. B., T. P. I.).	
Poindexter, Charles Lawrence.....	Mining Engineer, Wickensburg, Ariz.
Sterrett, Roger Jordan.....	Supervisor of Drawing, Riverside
Wright, Rachel Edna (Mrs. Delos Jones).....	Pasadena

1899.

## NORMAL SCHOOL.

Barker, Katherine K.....	Teacher of Domestic Science, Los Angeles
Blanford, May.....	Teacher of Domestic Science, Los Angeles
Burnett, Grace (Mrs. Carl Raleigh).....	Los Angeles
De Yoe, Mrs. Rose J.....	Teacher of Domestic Science, San Francisco
Fordyce, Mabel.....	Altadena
Haller, Dora.....	Kindergarten Teacher, Los Angeles
Jordan, Mabel (Mrs. Chas. F. Denison).....	Pasadena
Read, Archie L.....	Denver, Colo.
Sabin, Jessie MacFarland.....	Pasadena
Southwick, Clara.....	Instructor in Grammar School, T. P. I.

## ACADEMY.

Bixby, William F.....	Student Rensselaer Polytechnic Institute, Troy, N. Y.
Clark, Adeline Orilla (Mrs. Lowrie B. Nevin).....	Wailua, Oahu, H. I.
Davidson, Leonard (B. S., T. P. I.).....	
.....	Teacher of Manual Training, Mechanic Arts High School, San Francisco
Fordyce, Mabel.....	Altadena
Raleigh, Carl.....	Los Angeles
Wood, Clifford H.....	Student, Los Angeles Medical College

1900

## COLLEGE.

Harris, Irving, A. B.....	
.....	Foreman of Machine Shop, Edison Electric Co., Los Angeles
*Olson, Albert, A. B.	

## NORMAL SCHOOL.

Anderson, Lucy J.....	Student, School of Education, Univ. of Chicago
Brooks, Ada M.....	Teacher of Kindergarten, Pasadena
Davidson, Leonard E. (B. S., T. P. I.).....	
.....	Teacher of Manual Training, Mechanic Arts High School, San Francisco

\*Deceased.

Dobbs, Ella V.....	Instructor in Manual Arts, Grammar School, T. P. I.
Gower, Mary L.....	Housekeeper, Los Angeles
Holton, Lola N.....	.....
.....	Special Teacher of Music and Drawing, Public Schools, Long Beach
Lyde, Louise.....	Teacher of Domestic Science, Oakland
Martin, Walter W.....	Instructor in Woodworking, T. P. I.
Metcalf, Stella (Mrs. H. S. Knapp).....	Bertrand, Neb.
Moore, Nellie.....	Teacher, Long Beach City Schools
Morgan, Mabel V.....	Teacher of Domestic Science, Los Angeles
Peabody, Sallie.....	Bookkeeper, Santa Ana
Pearce, Mrs. Susan.....	Teacher of Domestic Economy, Los Angeles
Toll, Mabel E.....	Baldwinsville, N. Y.
Van Hook, Kate.....	Teacher of Sloyd, Hiawatha, Kan.

## ACADEMY.

Jerauld, Edwin W.....	Machinist, Union Iron Works, San Francisco
Jewett, Pauline.....	Pasadena
Richards, Bessie E. (Mrs. V. Whitehead).....	Artist, Pasadena
Strong, Robert M.....	Student, Columbia University, New York City

## 1901.

## COLLEGE.

Davidson, Leonard E., B. S.....	.....
..	Teacher Manual Training, Mechanic Arts High School, San Francisco

## NORMAL SCHOOL.

Beckett, Alice M.....	Anaheim
Getchell, Mary E.....	Pasadena
Gibson, Annette M.....	Teacher of Sloyd, Los Angeles
Glick, Naomi.....	Terre Haute, Ind.
Gooch, Mrs. Emma A.....	Teacher, Sebastopol
Hazzard, Mrs. Jessica C.....	Teacher, State Normal School, Los Angeles
Johnson, Mrs. Carrie.....	Pasadena
Little, Mrs. Lulu P.....	Los Angeles
Miller, Ada J.....	Teacher of Sloyd, Los Angeles
Moore, Nellie.....	Teacher, Long Beach City Schools
Nicholson, Maude L. (B. S., T. P. I.).....	Doctor of Osteopathy, Pasadena
Parsons, Ellen N.....	Los Angeles
Ross, Donald A.....	Supervisor of Drawing and Manual Training, Bakersfield
Stevens, Elizabeth.....	Lincoln Park

## ACADEMY.

Burt, Dodge.....	Mining, Placerville
Daggett, Maud.....	Student, Art Institute, Chicago, Ill.
Eddy, Nathaniel N.....	Student, University of California, Berkeley
Fassett, John G.....	With N. Ontario Packing Co., Los Angeles
Holcomb, John Delaney.....	Dentist, Globe, Ariz.
Poage, Leland S.....	Student, Pomona College
Wood, Helen.....	Draughtsman, Pasadena

## COMMERCIAL SCHOOL.

Erwin, Hattie B.....	Los Angeles
Giddings, Joe.....	Student, T. P. I., Pasadena
Giddings, Levi W.....	Pasadena
Hartley, Ethel (Mrs. A. P. Smith).....	Pasadena
Menner, Lottie (Mrs. Jas. D. Sheckler).....	Pasadena
Pierce, Rollin W.....	Bookkeeper, Wilcox, Ariz.
Richardson, Allen.....	.....
Stonehouse, Nellie M.....	Bookkeeper, Pasadena

1902.

## COLLEGE.

Dyer, Kirk Worrell, B. S., Deputy City Treasurer and Tax Collector, Pasadena  
 Gaylord, James Mason, B. S. .... With Edison Electric Co., Los Angeles  
 Nicholson, Maude Louise, B. S. .... Doctor of Osteopathy, Pasadena

## NORMAL SCHOOL.

Gooch, Mrs. Emma A. .... Sebastopol  
 Gould, Marie Augusta. .... Pasadena  
 Holton, Lola N. .... Teacher of Music and Drawing, Long Beach  
 Junkin, Mary. .... Teacher of Sloyd, Los Angeles  
 Richards, Bessie Everett (Mrs. V. Whitehead). .... Artist, Pasadena  
 Ross, Donald A. .... Supervisor of Drawing and Manual Training, Bakersfield  
 Ross, Minnie Elizabeth. .... Teacher, Public Schools, Chino  
 Seegmiller, Frances Caroline. .... Teacher, Whittier

## ACADEMY.

Braddock, Fred Blackman. .... Druggist, Pasadena  
 Case, James Ovington. .... Electrician, Riverside Power Co., Riverside  
 \*Erickson, John August.  
 Giddings, Lawson Henry. .... L. H. Giddings Co., Pasadena  
 Gould, Judson Porter. .... Law Student, Los Angeles  
 Haskell, Beulah. .... Sloyd Teacher, Orphans' Home, Los Angeles  
 Hoose, James Harmon, Jr. .... Draughtsman, Los Angeles  
 Jerauld, Rodman Ernest. .... With Gaylord, Blick & Vore, Pasadena  
 Lescher, Royal William. ....  
 .... With Continental Engineering & Contracting Co., Buffalo, N. Y.  
 Linde, Eva (Mrs. Howard Thomas). .... Los Angeles  
 Paul, Albert. .... Bookkeeper, Los Angeles Farming & Milling Co., Los Angeles  
 Phillips, Virginia. .... Pasadena  
 Sidwell, Chester Clarence. .... In Automobile business, Redlands  
 Tweedy, James Knox. .... Los Angeles  
 Webster, Mabel (Mrs. John Fassett). .... Pasadena  
 Wood, Hilda. .... Student, College T. P. I.  
 Woodbury, Fred Ralls. .... Assistant Instructor in Woodworking, T. P. I.

## COMMERCIAL SCHOOL.

Bonner, Ella Louise (Mrs. Schmuck). .... Pasadena  
 Cole, Karl Jay.  
 Gammon, Harry Elder. .... Poultry Raiser, Pasadena

1903.

## COLLEGE.

Shoemaker, Richard Woolsey, B. S. ....  
 .... With Columbia Gas Engine Co., Los Angeles

## NORMAL SCHOOL.

Blanchard, Estelle. .... Teacher of Public Schools, Los Angeles  
 Colyer, Gertrude (Mrs. L. O. Atwood). .... Middleborough, Mass.  
 Fish, Carrie May. .... Pasadena  
 Greening, Susie Amanda. .... Teacher of Domestic Science, Los Angeles  
 Hahn, Ida. .... Pasadena  
 Heald, Oscar Leslie. .... Instructor in  
 Drawing and Mechanics, California Polytechnic School, San Luis Obispo  
 Howard, Celia Eleanora. .... Sewing Teacher, Long Beach City Schools  
 Wakeham, Blanche. .... Student, Univ. of California

## ACADEMY.

Bandini, Ralph. .... Student Leland Stanford Jr. Univ.  
 Bland, Rose Florence. .... Pasadena  
 Blankenhorn, George Stevens. .... With Western Iron Works, Los Angeles  
 \*Deceased.

Blankenhorn, Louis McLaughlin...Clerk, San Gabriel Valley Bank, Pasadena  
 Cartwright, Alexander Benjamin.....Student, Leland Stanford Jr. Univ.  
 Chase, Arthur Lo.....  
 .....Secretary, Amarillo Water, Light and Power Co., Amarillo, Texas  
 Crane, Elliott Simeon.....Shingle Manufacturer, Seattle, Wash.  
 Davis, Paul McDonnell.....Student, Leland Stanford Jr. Univ.  
 Doolittle, Harold Lukens.....Student, Cornell Univ.  
 Fussell, Edwin Briggs.....Student, Commercial School, T. P. I.  
 Gaylord, John Clarence.....Student, College, T. P. I.  
 Gosnell, Ira.....Coshocton, Ohio  
 Hampton, Charles.....Student, Mass. Inst. of Technology, Boston, Mass.  
 Haskell, Edward Eben.....Student, Leland Stanford Jr. Univ.  
 Heald, Oscar Leslie.....Instructor in  
 Drawing and Mechanics, California Polytechnic School, San Luis Obispo  
 Hill, Roland Varian.....Student, Leland Stanford Jr. Univ.  
 Hornby, Ralph Walter.....Pasadena  
 Lacey, Clara Louise.....Los Angeles  
 Mosteller, Roy William.....Ticket Agent, Pacific Elec. Ry., Pasadena  
 Mueller, Earl Walter.....Los Angeles  
 Niles, Porter Howe.....Pasadena  
 Price, Jacob Meday.....Student, Leland Stanford Jr. Univ.  
 Scudder, Jessie Ingram.....Pasadena  
 Squire, Guy Oliver.....Bookkeeper, Downey  
 Squire, Roy Ellis.....Student, Brownsberger, Los Angeles  
 Story, Henry Amos.....Los Angeles  
 Wyckoff, Ralph Fenton.....Student, Cornell Univ.

1904.

## COLLEGE.

\*Beardslee, James Louis, B. S.  
 McCutchan, Henry Chester, B. S.....Contracting Electrician, Long Beach

## NORMAL SCHOOL.

Adams, Gertrude.....Los Angeles  
 Babcock, Martha Maud.....Pasadena  
 Guillou, Alfred.....Pasadena  
 Haskell, Beulah.....Teacher of Sloyd, Los Angeles Orphans' Home  
 Nyce, Ida May.....Student, Normal School, T. P. I.  
 Parry, Geraldine.....Los Angeles  
 Simpkins, Mary Emily.....Teacher of Sloyd, Los Angeles

## ACADEMY.

Baker, Thomas Childrey.....Student, Leland Stanford Jr. Univ.  
 Belknap, Fred Roland.....La Cañada  
 Brackett, Ross Dudley.....Student, Leland Stanford Jr. Univ.  
 Brackett, William Franklin.....Student, Leland Stanford Jr. Univ.  
 Breer, Carl.  
 Brigden, Dwight.....Student, Pasadena  
 Cline, George Thomas.....Los Angeles  
 Daggett, Ethel Elizabeth.....Oak Park, Ill.  
 Dickey, Florence Ivah.....Student, T. P. I.  
 Fordyce, Grace.....Altadena  
 Hawley, Josephine.....Student, Normal School, T. P. I.  
 Koontz, John Andrew.....Student, Leland Stanford Jr. Univ.  
 Leahy, Richard Armstrong...Draughtsman, Baker Iron Works, Los Angeles  
 Macneil, Adela Robey.....Pasadena  
 Marshall, Hugh Gibson.  
 Mason, Edgar Elwin.

\*Deceased.

Maxwell, Guy Floyd.	
Morris, Charles Shoemaker.....	Student, Leland Stanford Jr. Univ.
Pearson, Leo Earl .....	Student, T. P. I.
Root, Virginia Vannette.....	Covina
Ryus, David Denslow, Jr.....	Lcs Angeles
Saline, Clara Elizabeth.....	Los Angeles
Schrock, Charles Irvin.....	Pasadena
Sherman, Henry Lancey.....	Student, Phillips Andover Academy
Stehman, John Miller.....	Student, Univ. of Ill., Champaign, Ill.
Wakeham, Margaret.....	Santa Ana
Ward, Nellie Alexandra.....	Acting Instructor in Wood Carving, T. P. I.
Waterhouse, Melicent Eda .....	Pasadena
Wood, Helen Beulah.....	Pasadena

## COMMERCIAL SCHOOL.

Boston, Flora Catherine.....	Pasadena
Brown, Anna Thelma.....	Union Savings Bank, Pasadena
Twinting, Bertha .....	Pasadena

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STICKNEY MEMORIAL BUILDING

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