

CALIFORNIA BULLETIN  
STATE TEACHERS COLLEGE

INDUSTRIAL  
ARTS



CALIFORNIA, PENNSYLVANIA

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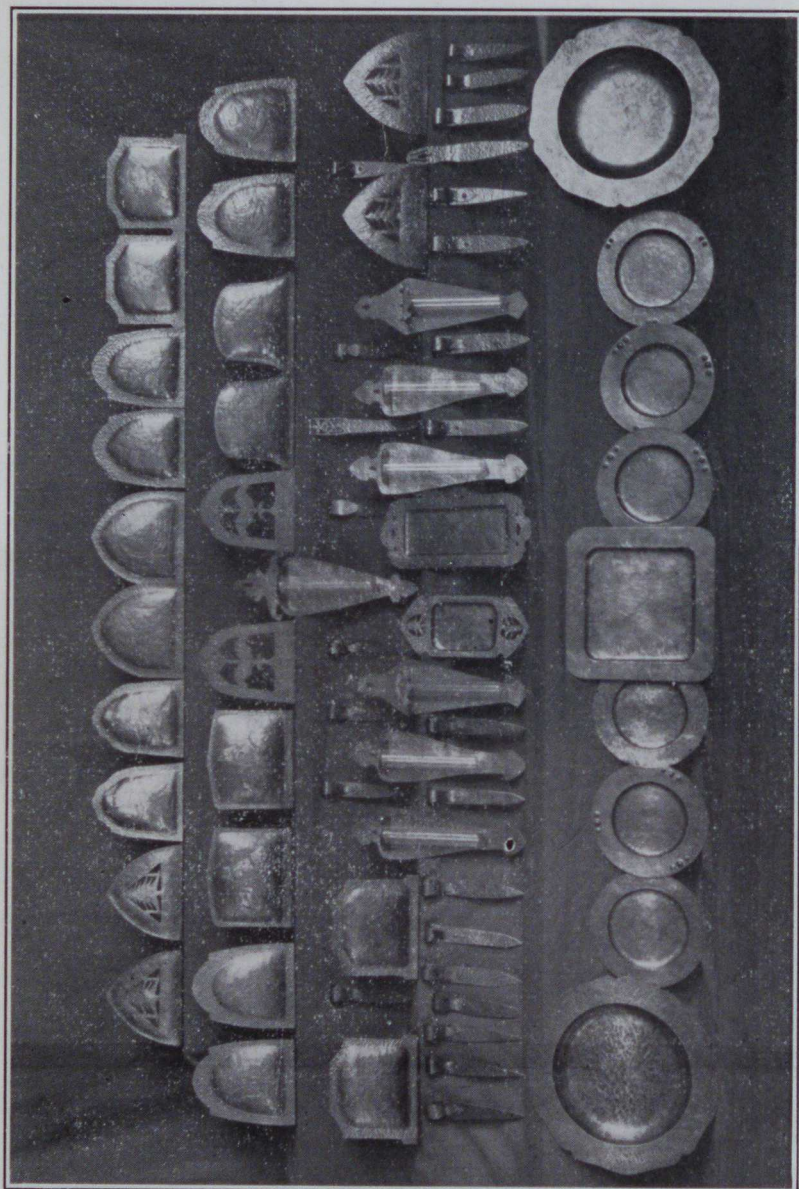
1932

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NUMBER 2



ART METAL PROJECTS

## The Department of Industrial Arts

**T**HE State Teachers College at California has as its specialty in the state's educational program the training of the teachers of industrial arts. Students completing the four year curriculum leading to a degree of Bachelor of Science in industrial arts are qualified to teach industrial arts in the public schools of Pennsylvania. Opportunity is given for specialization in the unit shop such as printing, woodwork, electricity, machine-shop, drafting, sheet metal, and general metal.

WELL trained, experienced instructors are in charge of the work, and California is prepared to send into the industrial arts field, teachers who have a sound philosophy of education, and who are intelligent, skilled and thoroughly competent to do superior work.

### Location

**C**ALIFORNIA is located on the Monongahela River, thirty-five miles south of Pittsburgh. Pennsylvania Highway Number 88 passes through California. This highway connects the National Highway Number 40 with Pittsburgh which may be reached by automobile in an hour.

THE Monongahela Valley contains the richest bituminous coal deposits in the world. This fact together with the river and the two railway systems, which provide adequate facilities for transportation, has made this valley the leading manufacturing district in Pennsylvania.

### Observation Trips

**C**ALIFORNIA'S advantageous location enables its students to make frequent visits to modern industrial plants. Some of the regularly scheduled trips include the Carnegie Steel Mills and By-Product Coke Ovens at Clairton; the Seamless Steel Tube Plant at Stockdale; the Zinc Smelter

and Wire Mills at Donora; the Macbeth-Evens Glass Manufacturing Company at Charleroi; the Bee-Hive Coke ovens at Brownsville, and the bituminous coal mines at California.

## Opportunity for Summer Employment

**S**TUDENTS specializing in industrial arts are required to work in some industrial plant during the summer recess in order that they may become familiar with industrial processes and shop management as well as receive vocational information which will enable them later to direct students who seek vocational and educational guidance.

## Floor Space and Equipment

**T**HE various industrial arts shops are modern in every respect: well lighted, adequately ventilated, and equipped with the most modern machinery. The total floor area is more than 12,000 square feet.

## Half Day Sessions

**A**LL shop and drawing periods are one half day in length. This arrangement is much more satisfactory than the double period usually devoted to such courses. It saves the "time out" for changing clothes, checking tools, and other shop routine. It provides adequate time for demonstration and shop work during the same period. It enables students taking courses in house-wiring and carpentry to do work on actual jobs which may be off the campus instead of doing practice exercises in the shop.

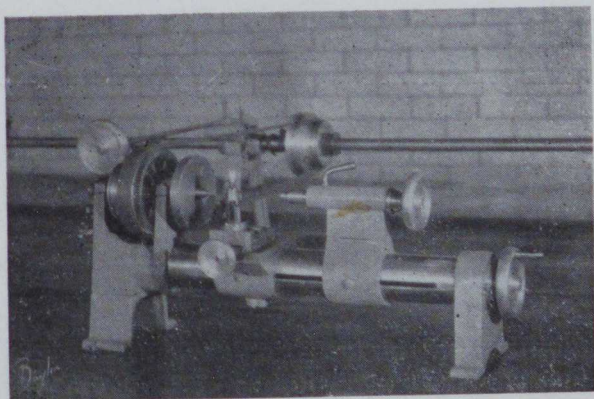
## Correlation of Shop and Drawing Courses

**T**HE various shop and drawing courses are highly correlated and are given concurrently which makes drawing interesting and functional and which also makes the shop courses unified and more definite. In inter-related courses

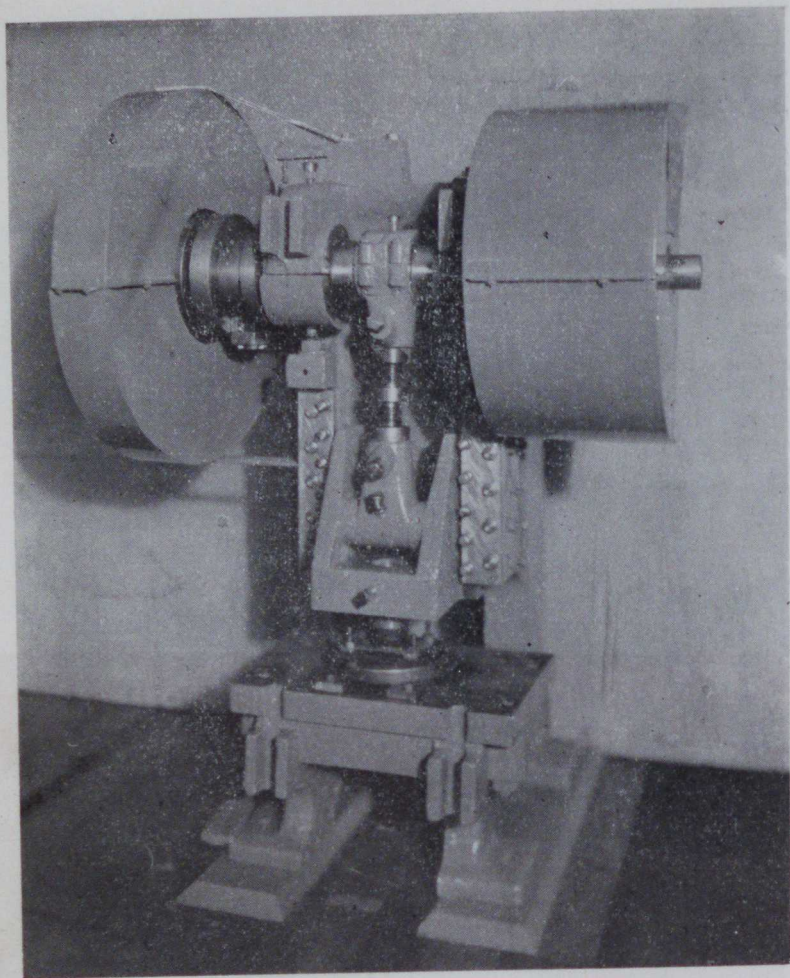
of this type, all of the time spent in the drafting room is devoted to practical shop problems, while the shop period may be devoted to actual production instead of the explanation of blue prints and instruction sheets.

## Original Work

A few examples of original projects designed and built by students are shown in this bulletin. Original problems are an integral part of each shop and drawing course. Students are given every opportunity for creative work. The general shop affords an opportunity for the student to design and make projects requiring work with many different materials.



SIX INCH ENGINE LATHE  
Senior High School project designed by students



PUNCH PRESS  
Designed and built by students

# The Four Year Industrial Arts Curriculum

## First Year

First Semester		Second Semester	
	Credits		Credits
English I	3	English II	3
History of Industrial Arts	2	Physics I	3
Mathematics I	3	English Activities	3
Drawing and Design I	2	Drawing and Design II	2
Shop I (Wood)	4	Shop II (Sheet Metal)	4
Physical Education I	1	Physical Education II	1
Industrial Safety and Hygiene	2		

## Second Year

Literature I	3	Literature II	3
Introduction to Teaching	3	Psychology I	3
Drawing and Design III	2	Drawing and Design IV	2
Shop III (Printing)	4	Shop IV (Machine)	4
Elective*	3	Elective*	3

## Third Year

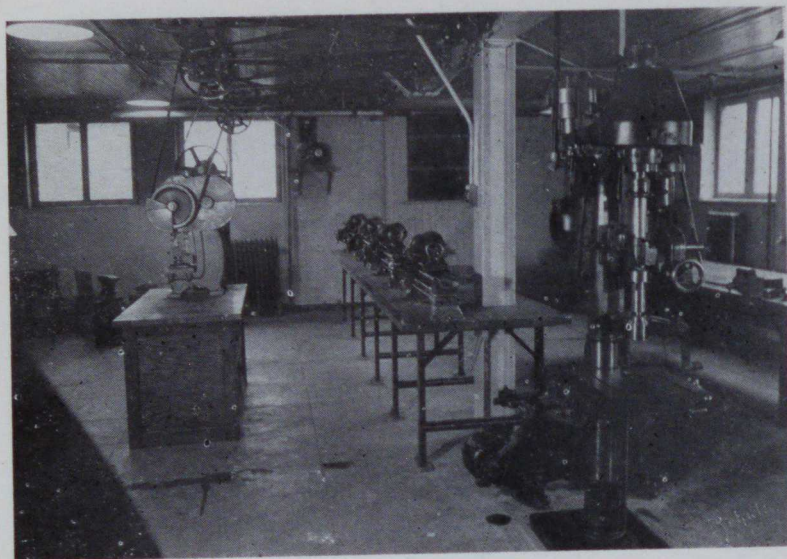
Social and Industrial History	3	Teaching of Industrial Arts	2
Problems of the Junior High School	3	Educational Sociology	3
Drawing and Design V	2	American Government	3
Shop V (Electric)	4	Drawing and Design VI	3
Elective*	3	Shop VI (Elective)	4
		Elective*	3

## Fourth Year

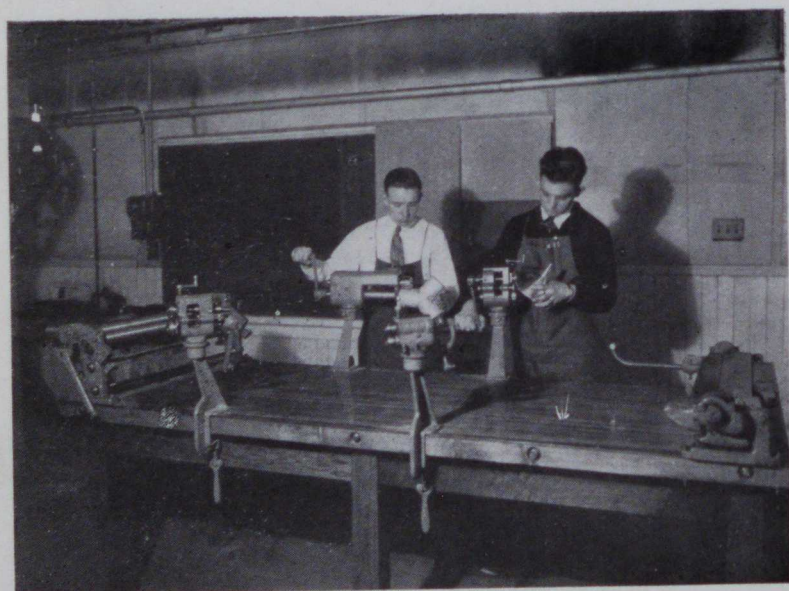
Guidance	2	Observation and Practice Teaching	12
Drawing and Design VII	2	Administration and Shop Layout	2
Shop VII (Elective)	4	Industrial Economics	2
Shop VIII (Elective)	4		
Technique of Teaching	2		
Elective*	3		

\*The elective shall be a second major and shall be either mathematics or science.





CORNER OF THE GENERAL METAL SHOP



SHEET METAL MACHINE BENCH

# Outline of Courses

## HISTORY OF INDUSTRIAL ARTS

A general survey of the development of manual and industrial education in Europe with accounts of the influence of certain European movements in America. The social, economic, political, and intellectual tendencies and developments underlying industrial arts education.

2 Hours per week

2 credits

## ADMINISTRATION OF INDUSTRIAL ARTS AND LAYOUT

A course dealing with the aims and objectives of industrial arts; junior high school philosophy and the industrial arts; problems relating to the development of the curriculum and to the organizing and administering of the various courses of study; the advantages and disadvantages of various types of shop organization, such as the general shop and the unit shop; shop space, location, and equipment; and the place of educational and vocational guidance in the industrial arts curriculum.

2 hours per week

2 credits

## TEACHING OF INDUSTRIAL ARTS

A consideration and evaluation of the various modern techniques of teaching industrial arts and their application to both unit and general shops. Each class carries on one or more experiments dealing directly with teaching procedure.

2 Hours per week

2 credits

## DRAWING AND DESIGN I

The use of drawing instruments, lettering, projections giving the fundamentals of mechanical drawing, orthographic projection, sectional representations, isometric drawing, tracings, and blueprint making.

4 hours per week

2 Credits

## DRAWING AND DESIGN II (Sheetmetal drafting)

This course includes practical problems in sheetmetal drafting including parallel line developments, radial developments, and triangulation. Practical work-shop problems, such as arise in every-day practice are presented. Actual trade and school projects form the subjects of the problems given. Shop ventilating and exhaust systems are designed as well as sheetmetal appliances for the home and sheetmetal toys suitable for junior high school boys.

4 Hours per week

2 credits

## DESIGN III (Printing design)

Given in correlation with printing. The purpose of this course is to study the principles of design and color and application to the print job. The alphabet; type selection; arrangement; color; designing of invitations, book covers, block prints, greeting cards, title pages, and booklets.

4 hours per week

2 credits

## DRAWING AND DESIGN IV (Machine design)

An advanced course in mechanical drawing with special emphasis on machine design, tracing, blueprint making, and commercial drawing practices. Each group, three to five students, will design a machine or appliance suitable for a school shop or a home workshop. Machines, such as wood lathes, engine lathes, jig saws, etc., will be designed and built in the general shop by the students designing them. Examples of this type of work may be found in the drop hammer, punch press, six inch engine lathe, and small motor shown elsewhere in this bulletin.

4 hours per week

2 credits

Note: Drawing and Design courses run concurrently with shop courses and are correlated directly with them.

## DRAWING AND DESIGN V (Architectural drafting)

Includes the drawing of architectural details, such as water tables, cornices, window and door construction, also floor plans, elevations, and perspective sketch of a five or six room house including the interior details. A careful study of plans and specifications is taken up in connection with the drawing.

4 periods per week 2 credits

## DRAWING AND DESIGN VI (Industrial arts design)

The purpose of this course is to present the history and to develop an understanding of design of good furniture, pottery, and art metal. Principles of structural composition, analysis of examples of furniture, pottery, wrought iron fixtures, and products of related crafts.

4 hours per week 2 credits

## DRAWING AND DESIGN VII

(The making of individual instruction sheets)

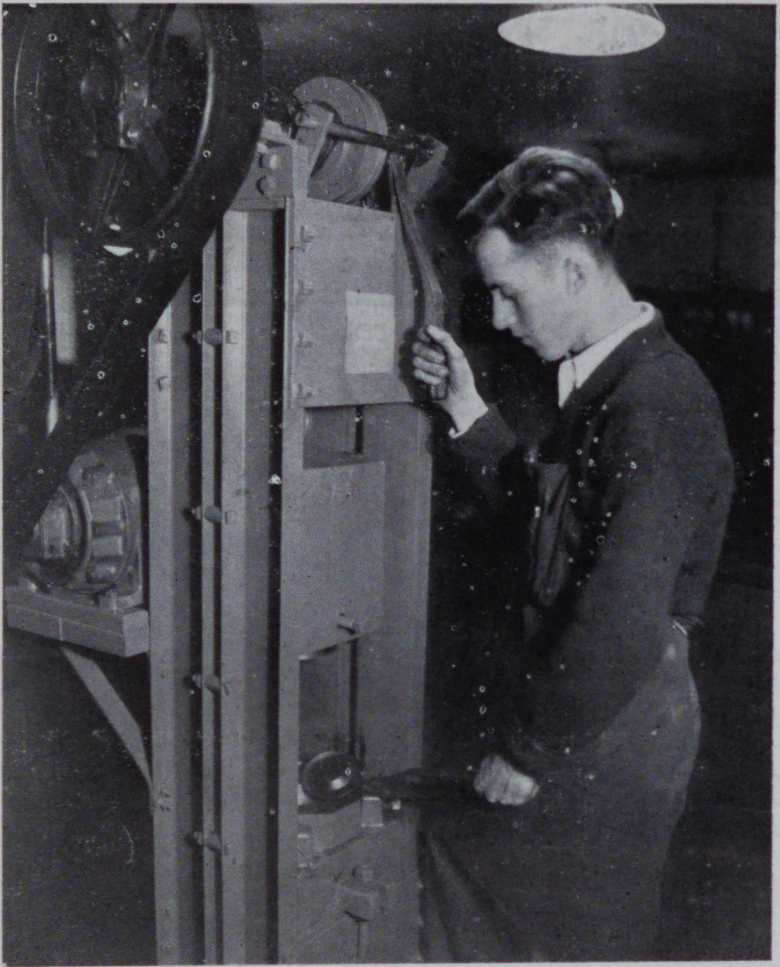
A course dealing with the essential elements involved in the preparation of instruction sheets and in the methods necessary in their successful use. It points out clearly the different types of sheets, their essential characteristics, and the conditions under which each may be used. Students prepare instruction sheets for the various general shop units. Schematic diagrams, wall charts, and blackboard drawing are also included in this course.

4 hours per week 2 credits

2

2

2



DROP HAMMER  
Designed and built by students



THE WOOD SHOP

18

18

18

## SHOP I (Woodwork)

This course deals with the fundamentals of woodworking including the use of bench tools, the operation of woodworking machinery, and wood turning. Projects suitable for the junior high school grades are made by the students. Considerable time is devoted to the various types of finishes best suited to each particular kind of wood, organization of instructional material, shop planning, the arrangement of woodworking equipment, and shop safety.

8 hours per week

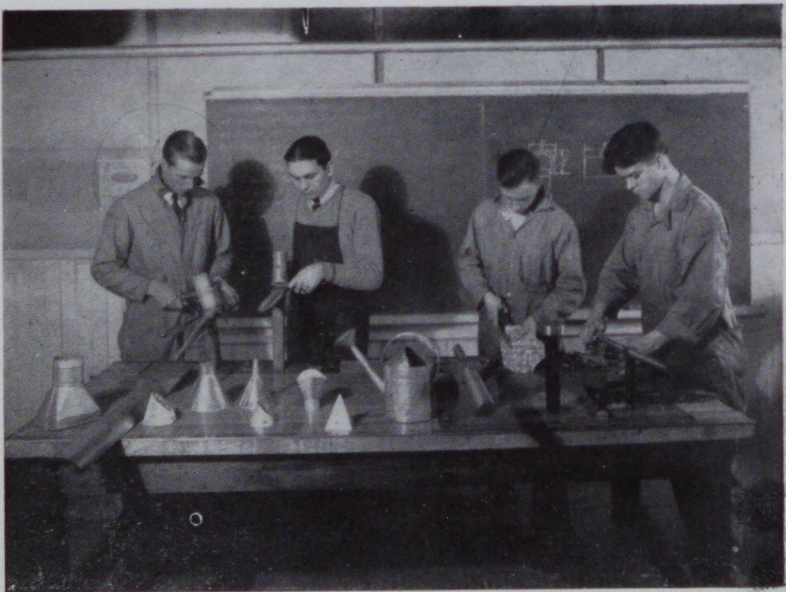
4 Credits

## SHOP II (Sheetmetal)

This course and the sheetmetal drafting course are given during the same semester. The student is required to develop the pattern for each project to be made in the shop. Instruction is given in the fundamental processes such as seaming, riveting, clipping edges for wiring and seaming, wiring, forming, and soldering. Projects suitable for junior and senior high school boys are worked out and shop equipment such as guards and exhaust hoods are made in this course.

8 Hours per week

4 Credits



SHEETMETAL AND ARTMETAL STAKE BENCH



THE PRINT SHOP

### Shop III (Printing)

Fundamentals of typography, setting straight matter and simple display jobs, proofing, care of type and materials, job press lockup and imposition, feeding, running, and care of the platen press.

8 hours per week

4 credits

### SHOP IV (Machine Shop)

Lathe work; straight and taper turning; boring; reaming; planing; slotting; milling; tool grinding; uses of measuring instruments; external and internal threading; machine construction; tool making; heat treatment. Build equipment designed in Drawing and Design IV. Shop safety.

8 hours per week

4 credits



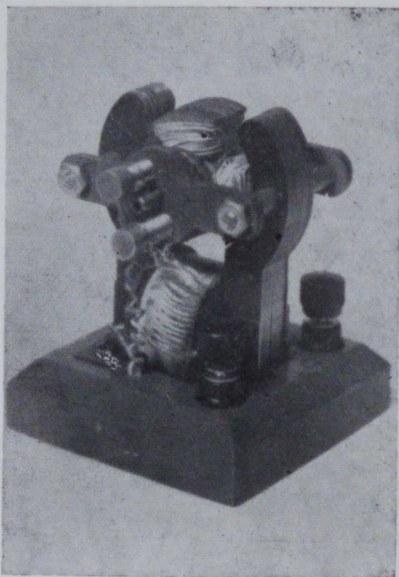
## SHOP V (Electricity)

A combined recitation and shop course involving the essentials of electricity, including theory and practice. The theory includes all of the fundamental principles of electricity.

The practical shop-work includes various types of splicing, soldering and tapping of splices, bell systems, annunciators, fire and burglar alarms, automatic door openers, constant ringers, relays, master control circuits, telephone and telegraph circuits, and storage batteries. House wiring circuits of various types are installed. Types of fittings and uses of each. Underwriters code. Practice in the use of the more important electrical measuring instruments.

8 hours per week

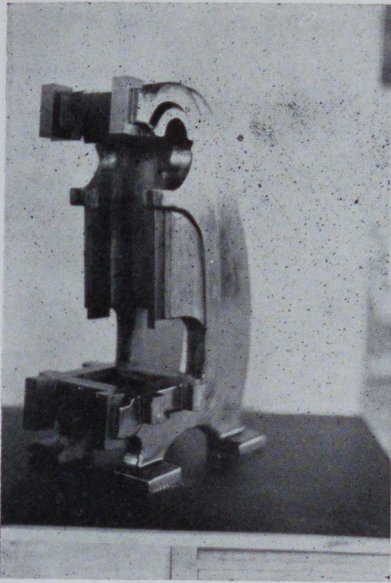
4 credits



ELECTRIC MOTOR  
Junior high school project  
designed by students

### ELECTIVE SHOP COURSES:

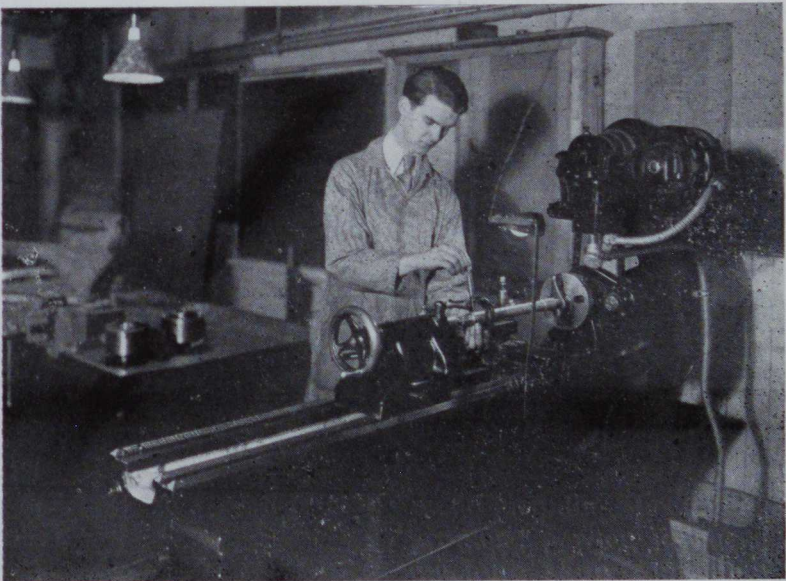
Elective shop courses are offered during the sixth, seventh, and eighth semesters. Basic courses are given during the first five semesters in five or more different shop units. The elective courses are for the purpose of specialization. An opportunity is given for the student to secure from eight to eighteen credits in any of the following; woodwork including wood turning, wood finishing, advanced cabinet making, pattern making, and carpentry; general



metal including sheetmetal, art metal, pewter, advanced machine shop, aluminum and pewter casting, tool making, heat treatment of steel, and forging; electric shop including advanced electrical theory and practice, motor design, and motor building; print shop including advanced composition, and color work, design, book binding, and school newspaper work.



PATTERN FOR PUNCH PRESS



ENGINE LATHE WORK

# Junior Mechanics



## Club Work

Practically every high school teacher in Pennsylvania is the sponsor of some club. Students in the Industrial Arts department are the co-sponsors for the Junior Mechanics in the Borough Schools of California. The Industrial Arts Students are responsible for all initiations, ritual, and degree work of the club. They take further part in the club by giving special talks and by assisting during the club period. Each graduate will be familiar with club work of all kinds and will be especially well prepared to inaugurate and carry on Junior Mechanics Club work.

### THE PURPOSE OF JUNIOR MECHANICS CLUB WORK

The purpose of Junior Mechanics Club work is to motivate all types of Industrial Arts work in the junior high schools by the granting of awards for the satisfactory completion of units of Industrial Arts work. The program fits into the present shop programs by setting up definite standards for the completion of each unit of work in such subjects as Woodworking, Mechanical Drawing, Printing, etc. Several units may be earned outside of school shops, such as---Photography, Gardening, Automobiling, etc.

### THE AWARDS

The boy in the seventh grade or higher grade may make application for admission into this Club. If accepted, he becomes a member and receives a Membership Pin. When he finishes one unit of work, as Printing, Art Metal, etc., he becomes eligible for the Master Junior Mechanic Degree and pin. When he completes five units of work he is awarded the Expert Degree and Pin. At the completion of ten units of work and several additional requirements, the Wizard Degree and Pin is awarded. The Wizard Degree Pin contains a profile of Thomas A. Edison.

# TENTATIVE CALENDAR FOR 1932-33

## SUMMER SESSION 1932

Registration Day	Monday, June 20
Session Ends	Saturday, July 30

## FIRST SEMESTER

Registration Day	9:00 A. M., Monday, September 12
Classes Begin	8:00 A. M., Tuesday, September 13
Thanksgiving Recess begins	12:00 M., Wednesday, November 23
Thanksgiving Recess Ends	12:00 M., Monday, November 28
Christmas Recess Begins	After last class, Friday, December 23
Christmas Recess Ends	12:00 M., Monday, January 2
First Semester Ends	12:00 M., Saturday, January 21

## SECOND SEMESTER

Second Semester Begins	8:00 A. M., Monday, January 23
Easter Recess Begins	After last class, Thursday, April 13
Easter Recess Ends	12:00 M., Monday, April 24
Classwork ends	4:00 P.M., Thursday, May 25
Senior Day - Ivy Day, Class Night	Friday, May 26
Alumni Day	Saturday, May 27
Baccalaureate Sermon	Sunday, May 28
Commencement	Monday, May 29

Note: The calendar of the training school does not coincide with that of the college. Senior Week Activities subject to local adjustment.



## ADMINISTRATIVE OFFICERS

ROBERT M. STEELE, Ph. D. *President*  
S. L. COOVER, A. M. *Director of Industrial Arts*

