

The State Teachers College of Colorado

MANUAL TRAINING AND VOCATIONAL EDUCATION BULLETIN

DEPARTMENT OF INDUSTRIAL ARTS
AN OULINE OF THE COURSES OFFERED



SUMMER TERM OPENS JUNE 16 AND CLOSSES
JULY 25, 1913.

GREELEY, COLO.

Bulletin of The State Teachers College of Colorado
SERIES XII MARCH, 1913 No. 83

Entered at the Postoffice Greeley, Colorado, as Second Class Matter

DEPARTMENT OF INDUSTRIAL ARTS

ANNOUNCEMENT OF COURSES. MANUAL
TRAINING, DRAFTING, BOOK-BINDING,
PRINTING, ART METAL



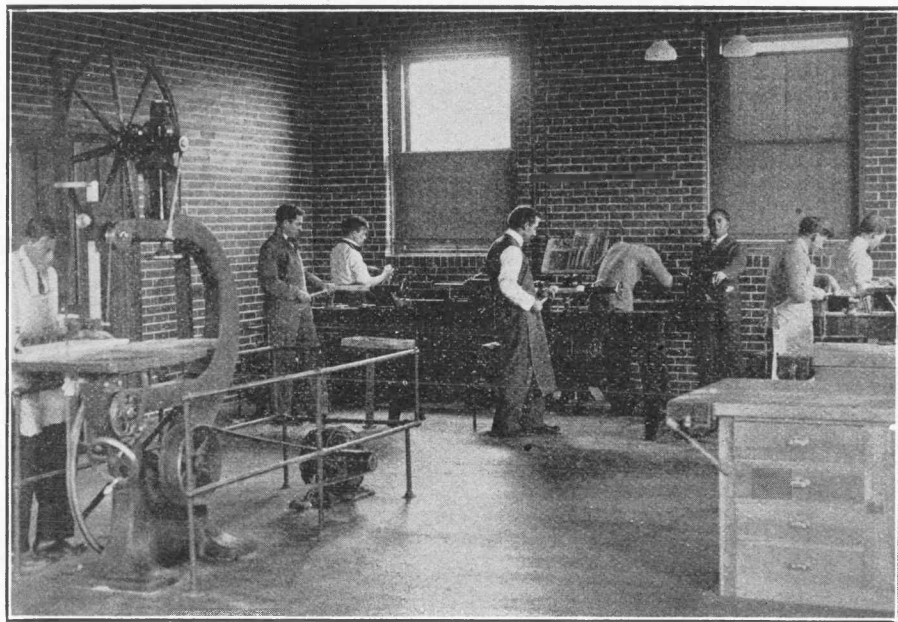
GREELEY, COLORADO

NOTE:—For general bulletin of the Summer Term of 1913,
write to

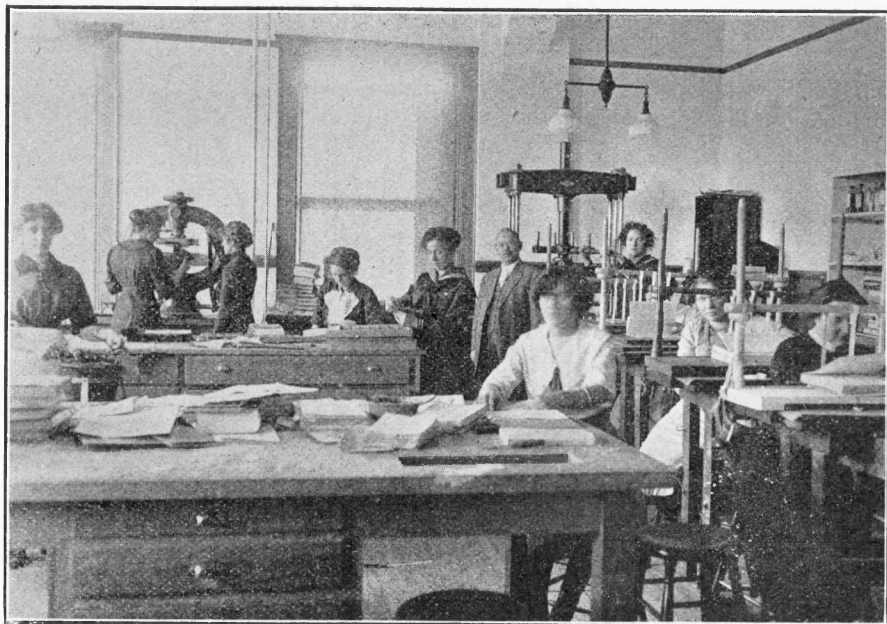
THE STATE TEACHERS COLLEGE
GREELEY, COLORADO.



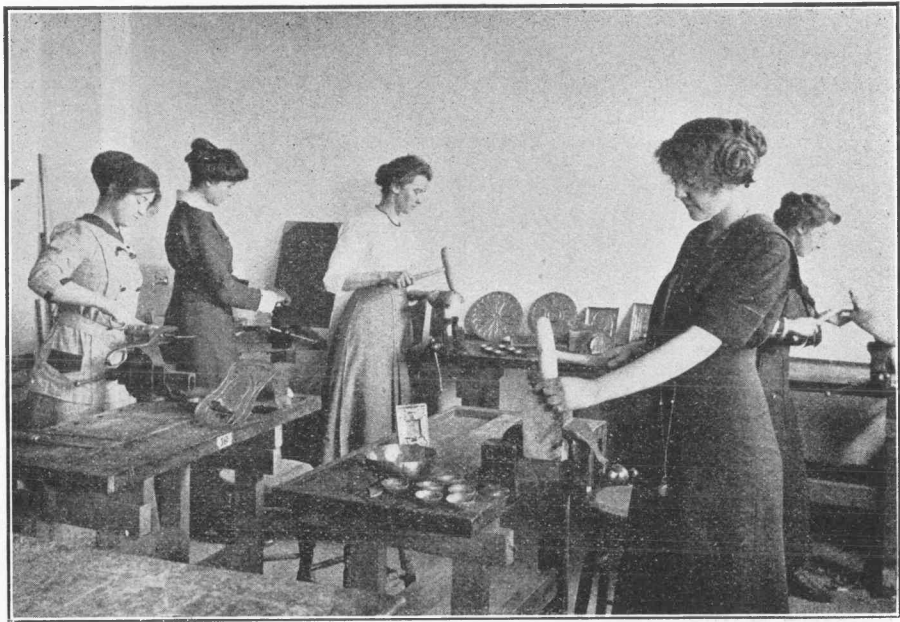
Guggenheim Hall of Industrial Arts.



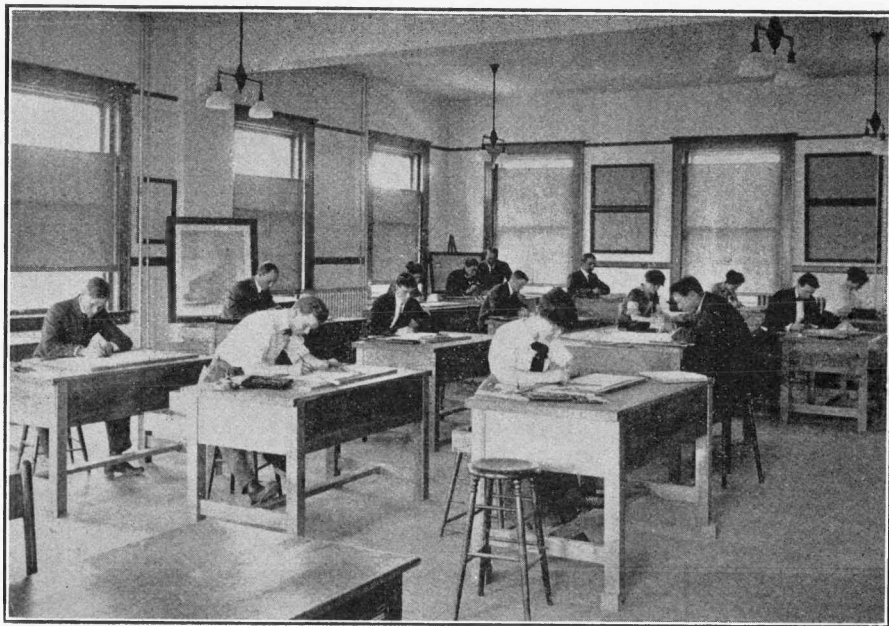
Turning—College.



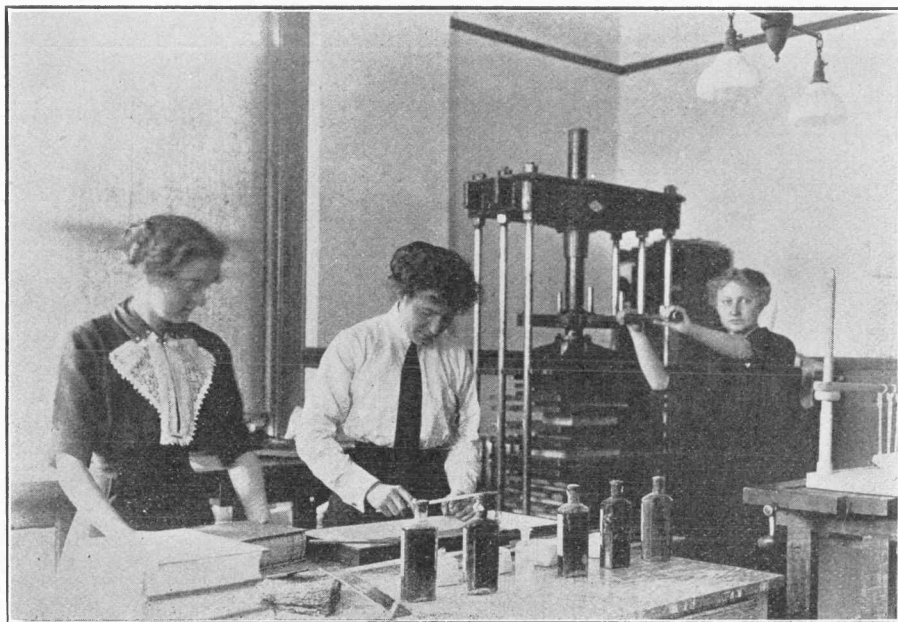
Bookbinding—College.



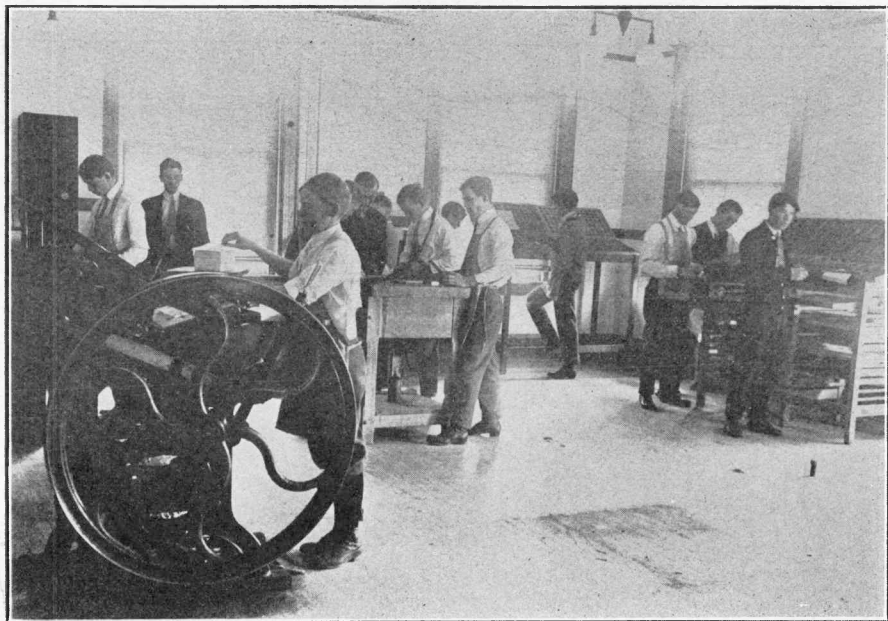
Art Metal—College.



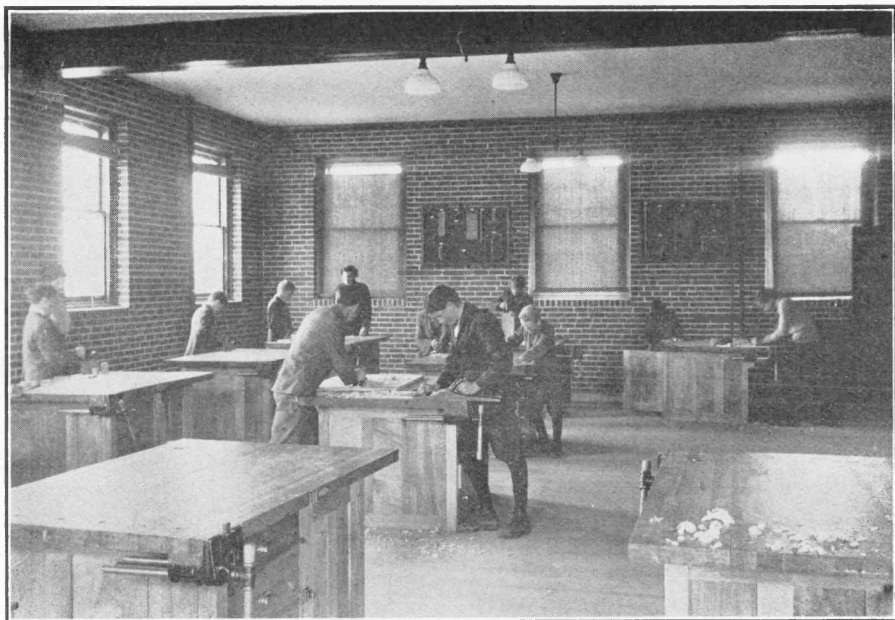
Mechanical Drawing—College.



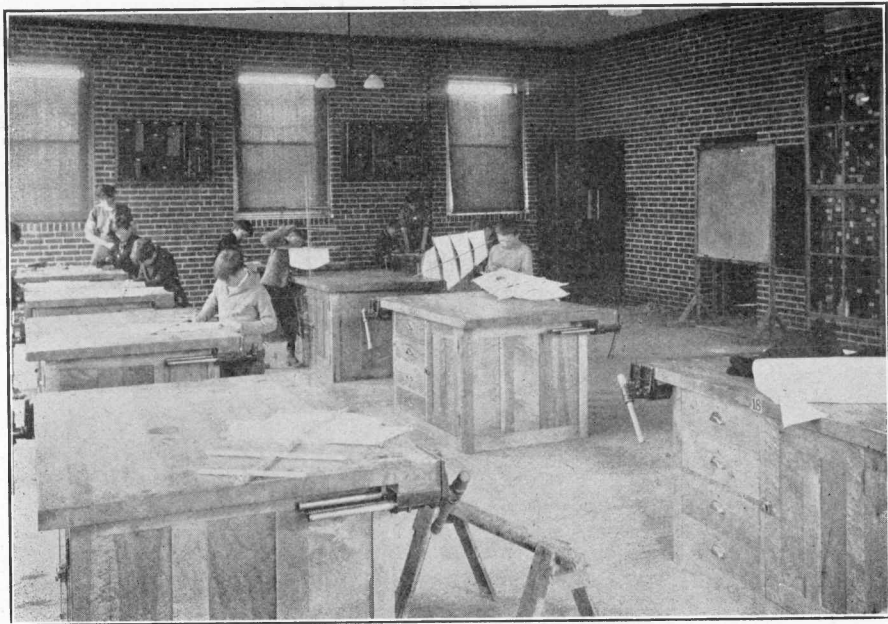
Bookbinding—College.



Printing—High School.



Woodworking—Elementary School.



Woodworking—Elementary School.

Bulletin of Manual Training and Vocational Courses.

The lines of work outlined in this bulletin deal only with the two groups of subjects named on the first page of this bulletin. Special bulletins dealing with other subjects and groups classified under the head of Industrial Arts may be obtained by corresponding with the secretary of the school. The bulletins now ready are those dealing with the courses offered in domestic science and art. Other bulletins will be issued from time to time as demands may require, dealing with new phases of subjects introduced.

The department of Industrial Arts is devoted to the technic of fundamental processes in manual training, including vocational courses in such subjects as bookbinding and printing.

BUILDINGS.

The Guggenheim Hall of Industrial Arts is devoted entirely to these lines of work, housing all but the domestic science and art, and elementary agriculture. These lines of work are carried on in the Administration and Library Buildings. We also have a complete greenhouse, cold frames, gardens, and nurseries for illustrative, experimental and practical work. Students desiring to major in any of these subjects or groups of subjects may do so by making proper arrangements with the Dean of Industrial Arts. Details regarding major and combination majors may be obtained from the regular college bulletin.

WOODWORK.

All courses in woodwork are given from the standpoint of the preparation of the individual taking them for the teaching profession. For that reason, stress is laid upon the general organization of materials in all courses. The application of the work done to the needs of the children in the various grades of the elementary and secondary school are important subjects for discussion in all courses.

1. **Junior College Elementary Woodwork**—This course is designed for beginners. However, those who may have had some

work may with profit take such a course. It is designed to give a general knowledge of tools and materials and a fair degree of skill in their use. Such subjects as laying out of work, best methods of procedure in the execution of products contemplated are discussed in detail. The course is not organized along hard and fast lines but is so adjusted that it is possible for a student to see further applications in other work that might be done. In fact it is organized with a view to giving an acquaintance with the fundamental underlying principles of manual training in illustrating the possible applications of these principles in selected technical work allied in a variety of ways to as large a degree of subjects as possible. The course also includes mechanical and free-hand drawing and their application to constructive design.

2. Junior College Intermediate Woodwork—This course is designed for those who wish to become better prepared for the work in woodwork and tools. It includes constructive design, the principles of cabinet making, and furniture construction and wood finishing. The different important constructive joints are discussed and applied wherever possible in cabinet work done in the class.

14. Junior or Senior College Advanced Woodwork—A continuation of Course 2. 5 hours. Spring Term.

Prerequisite: Courses 1, 2.

4. Junior College Elementary Wood Carving—This course includes preliminary exercises in the care and use of tools, and aims to give a general training in the practical application of the fundamental principles of art in drawing, design, clay modeling, and historic ornament, as applied to the special work of wood carving. The regular course in design should be taken in connection with this work. 5 hours.

5 Junior or Senior College Advanced Wood Carving—This course is a continuation of Course 4 and is conducted in the same manner. The work gives a greater opportunity for self-expression in the designing and carving of larger and more complicated objects, and keeps in mind the practical application of the fundamental principles enumerated in the elementary course. One Term. 5 hours.

Prerequisite: Course 4.

19. Junior College Wood Turning—This course is designed for those who wish a more comprehensive knowledge of the art.

The course will consist of talks, discussions, and practical work regarding various phases of the work, such as turning of patterns between centers, face plate turning, finishing, care of tools, preparation of materials, upkeep of lathes, speeds necessary for turning different diameters. 5 hours. Any term.

20. Senior College Pattern Making—The topics discussed in this course will consist of the following: woods best suited for various kinds of work, glue, varnish, shellac, dowels, draft, shrinkage, and finish.

The practical work will consist of patterns for both hollow castings, building up, and segment work. 5 hours.

ART METAL.

8. Junior College Elementary Art Metal—This is a laboratory course dealing with the designing and constructing of simple artistic forms in sheet brass and copper.

The aim is to create objects of artistic worth.

The purpose is to realize in concrete form those qualities characteristic of good constructive design, such as fine proportion, elegance of form, and correct construction. 5 hours.

9. Junior or Senior College Advanced Art Metal—This course should be taken after Course 8, since it deals with more advanced ideas in metal work, and includes work in brass, copper, bronze, and German silver.

The course deals largely with the designing, decorating, and artistic coloring of metals.

It also includes a short course in the chemistry of metal colors, and the use of lacquers for protection.

Simple artistic jewelry is made the basis for the constructive work in this course. 5 hours.

MECHANICAL DRAWING.

10. Junior College Elementary Mechanical Drawing—This course is designed to give a knowledge of the use of drawing instruments and materials, geometrical drawing, elements of projections, straight lines, and circles; problems involving tangents

and planes of projections, development of surfaces; elementary isometric and oblique projections, simple working drawings and lettering. 5 hours.

11. Junior or Senior College Advanst Mechanical Drawing—

This course includes intersections, the cycloid, epicycloid, hyper-cycloid, and involute curves; their application to spur and bevel-gear drawing; developments, advanst projections, lettering, and line shading. 5 hours.

Prerequisite: Course 10.

12. Junior or Senior College Architectural Drawing—

This course includes designs, plans, elevations, and longitudinal sections of framing, doors, windows, sills, rafters, etc., in bilding construction in its application to work for barns, outbildings, and residences. It also includes the making of tracings, blue-prints, and specifications. 5 hours.

Prerequisite: Course 10.

13. Junior or Senior College Advanst Architectural Draw-

ing—This course is a continuation of Course 12 and deals with the drawing of plans for cement, brick, and stone structures, culminating in a complete set of plans and specifications of a residence or a public bilding of moderate cost. 5 hours.

Prerequisite: Courses 10 and 12.

17. Junior or Senior College Elementary Machine Design—

In this course is treated the development of the helix and its application to V and square threads; conventions of materials, screw threads, bolts and nuts, rivets, keys, etc. Sketches, drawings, and tracings are made from simple machine parts, such as collars, face plates, screw centers, clamps, brackets, couplings, simple bearings and pulleys. Standardized proportions are used in drawing couplings, hangers, valves, etc. 5 hours.

Prerequisite: Course 10.

18. Senior College Advanst Machine Design—

This course is a continuation of Course 17 and deals with the following subjects: Transmission of power and motion by belts and

pulleys, gears, and cams. The following curves are developed in their application to the construction of gears: cycloid, epicycloid, hypercycloid, and the involute. Sketches, details, and assembly drawings are made of intricate pieces of machinery, such as globe valve, vise, head stock of lathe, and such shop machinery as lathes, band saws, motors, and gas and steam engines. 5 hours.

Prerequisite: Courses 10 and 17.

THEORY COURSES.

3. Junior College Course in Woodwork for Elementary Schools—In this course the following topics are discussed: Equipment, materials, kinds of work, methods in teaching, methods in recitation, presentation of lessons, organization of classes, and the outlining of the work for the elementary school.

15. Junior College Project Design—This course has for its aim the planning of objects suitable for the elementary school.

Complete artistic working drawings will embody the best possible principles of artistic design, of things possible of execution in the elementary school, together with a short valuable bibliography of sources from which information was obtained.

6. Junior or Senior College Industrial Work in Elementary Schools—This course includes the history and development of the manual training notion in its application to elementary school work from economic and pedagogic standpoints. Such topics as listed below are discussed: European systems, projects, exercises, models, and the general development of elementary manual training in the United States.

7. Senior College Industrial Art in Secondary and Trade Schools—In this course the following topics will be discussed: Industrial arts, secondary and trade schools in foreign countries, and the industrial and trade school movement in the United States. The course also includes a brief bibliography of articles that each student has read and reported on in class.

16. Senior College Furniture Design—This course deals with the following topics: The history of furniture as interpreted by the great pieces representing the great periods in furniture construction as a basis for the designing of artistic sets of furni-

ture that might be suitable for working out in a woodwork shop equipt for secondary scools.

PRINTING.

Printing was introduced into the Industrial Arts Department of the scool to giv the students a fair conception of the fundamentals of the trade and to giv them a start in the right direction if they expect to follow that trade as a livelihood. Quite frequently the question is askt: "Why should printing be taken? I do not wish to be a printer.' For the benefit of these people, a few fundamental points are quoted below:

1. Printing is one line of industrial work in which the student is given an opportunity to work out his own personal ends, the work being organized in such a way that it wil appeal to him from the standpoint of doing for others and not for himself, the work being organized strictly for the many. The student works with the same thoughts in mind as does the artist or sculptor, to do something that will satisfy and please many. Working with this idea in mind, the student becomes acquainted with all forms of work, and by so doing, all printing of a nature suitable for the carrying on of various lines of work in school is being printed.

2. Very few people stop to realize the academic value of having the pupils work in a printing shop. One of the first noticeable features is the relation of the printing to spelling. It is really surprising the number of persons who are unable to spell. The spelling lesson now becomes not a spelling lesson for the sake of spelling but spelling for a definit purpose or spelling in its application to the printing trade. Again, work in English the student finds fundamental in the organization of printing matter. It again becomes a case of english in its application to work. The correct use of words and their proper punctuation are lines that are constantly being workt out in practical printing.

Many other branches of work such as mathematics, mechanics, drafting, and free-hand drawing, are associated in very definit ways with the fundamentals of printing, aiding in

manipulation of machines and the artistic planning and arrangement of printed matter.

COURSES.

Courses are planned for the city schools and for the rural schools where they have a limited amount of equipment and are limited to one or two teachers. Below is a list of the courses worked out for the teacher and for the student who expects to become a teacher either in an extended or a limited way. Courses are also offered for individuals who expect to become professional printers.

PRINTING.

1. **Junior College Elementary Printing**—This course is intended primarily to acquaint the student, in a general way with the fundamental principles underlying the printing art. Much of the time is taken up with learning the technical points; as learning the different cases; materials, as stick, rule, leads, slugs, galleys; different parts of type and their uses, as nick, body, face, shoulder, ceriph, kerns, etc. Practice will be given in cleaning cases and setting straight hand composition, which will acquaint the student with proper justifications, spacing and leading out jobs, dumping, distribution, etc. Proper shop work will be given to make the student quite efficient in all these lines. Some time will be given also to press feeding.

2. **Junior College Intermediate Printing**—This course is designed to make the student more efficient in the lines already introduced, and at the same time to give him work which will be further advanced. In composition more time will be spent upon hand tabular matter, box heads, references, notes, spacing, leading, inserting rules, and inclosing in rules. Also some practice will be given in locking up forms and making ready on press. Designing of small matter will also be taken up.

3. **Junior or Senior College Advanced Printing**—Much time of this course is spent in actual shop practice to test the student's efficiency in handling all classes of work. Designing, proof reading, ad. composition, and imposition of forms, underlaying and overlaying on press will be made quite prominent items in the work.

4. Junior or Senior Elementary Machine Composition—

This course is given exclusively for those who expect to become efficient as Monotype machine operators. An entire period each day will be spent in studying the mechanism of the machines. The following period will be taken up in practice, operating the Monotype keyboard.

Prerequisite: 1, 2, 3.

5. Junior or Senior Intermediate Machine Composition—

This course is simply a continuation of 4. More time, however, will be given over to the adjustments on teaching the Monotype keyboard and caster, as well as the care of each machine. Practice will be given on the operation of the caster.

Prerequisite: Courses 1, 2, 3, 4.

6. Junior or Senior Advanced Machine Composition—

This course is designed to make the student become a capable combination Monotype operator-machinist. Outside of the general study, he will be given sufficient practice to enable him to operate both machines.

Prerequisite: Courses 1, 2, 3, 4, 5.

7. Rural School Printing—This course is not intended to make the student a practical printer, but to enable him or her to become acquainted with printing work that she may come into contact with during her teaching career. Emphasis will be placed upon proof reading, designing of menu cards, programs, window cards, advertisements, etc. This course will be given in conjunction with other technical printing classes in order that the work may be practical in every respect.

Prerequisite: Course 1.

BOOKBINDING.

Although Bookbinding, even in its most elegant form, can lay no claim to a place among fine arts, it can doubtless take rank as one of the most valued of decorative arts. The study of the same makes for appreciation of the beautiful and consequently elevates men and women to higher standards.

With the invention of printing, the character of Bookbinding gradually changed and a new period in the history of the Art commenst. It has been a calling for professional as well as amateurs among the leading nations of the world.

In this period of revival of the handicrafts and the introduction of vocational schools, Bookbinding has a leading place for many reasons. First of all as a scool exercise it is strictly within the limit of possibilities in the upper and high school grades. With the simple and inexpensiv tools of the primitiv bookbinder, there are splendid possibilities for carrying on this work.

In the grades, even the primary grades the simple book with folder or paper cover to preserve school exercises in writing—nature study—arithmetic—in art—is possible and is properly an outgrowth of regular professional binding. It makes for order in the pupil's mind and lays the foundation for his coming life, as well as cultivates the hoarding spirit, a desirable acquisition for the child mind.

For the college student and teacher it makes possible this fine vocation to come into play not only as a noble pastime but as a factor to enjoy the result—the home bound book for his or her library—who is there that does not love his books and with pride in his heart looks upon his bookshelves?

The courses that are offered are all plannd to meet these demands; namely, school room courses for all grades; the work as a full flegd amateur and lastly the teaching in a vocational direction—the preparation for professional work.

List of Equipment for Small Job-bindery.

- One No. 3 Standing Press.
- One 30-inch Board Shears.
- One 30-inch Lever Paper Cutter.
- One Lever Bench Embosser.
- One 24-inch Sawing Bench.
- One 24-inch Hand Backing Press.
- One T Drawer Type Cabinet.
- Two Fonts Alloy Type for Binders.
- One Lettering Pallet.

- One 21-inch Finish Press.
 One Backsaw, 12-inch.
 Assortment of Finish. Rolls of Stamps amounting to \$20.
 6 Pressing Boards 16x24 inches.
 6 Pressing Boards 10x13 inches.
 6 Pressing Boards 8x12 inches.
 3 Bone Folders.
 2 Paring Krives.
 2 Cutting Knives.
 One pair of Shears, one Compass.
 One Iron Square, one Backing Hammer.
 One Glue Kettle, one Glue Brush, one Paste Brush.
 One set of Brass Bound Boards to fit Standing Press.
 One Steel Polisher, one Gold Cushion 8x16 inches.
 One Gold Knife.

This equipment will cost about \$500.00.

List of Equipment for Amateurs and Teachers in Rural Scool.

One Plow and Press for trimming books and cutting paper, complete	\$12.75
One Cardcutter	12.00
One Copypress	3.00
One pair of Backing Boards	3.00
One Sewing Bench, 30 inches.....	2.00
One Finish Press, 21 inches.....	2.75
3 Pressing Boards, 10x13 inches.....	1.50
3 Pressing Boards, 8x12 inches.....	1.25
1 Backsaw, 12 inches.....	1.00
1 Bone Folder15
1 Cutting Knife25
1 Lettering Pallet	6.00
1 Glue Kettle	1.00
1 Glue Brush50
1 Paste Brush50
1 Backing Hammer	1.50
1 Gold Cushion	3.00
1 Gold Knife75
1 Paring Knife25

1 Pair of Shears	1.00
1 Compass50
	\$54.65

Assortment of Finish Tools (Rolls and Stamps).....	\$10.00
3 or 4 Fonts Alloy Type for Binders.....	5.00

This equipment will cost about \$70.00.

3 Courses are given:

Course 1. Elementary Bookbinding—Tools, machines, materials and their uses, mending, preparing, arranging the sections of a book, sawing out for 3 to 5 bands (tape or cord) sewing books on tape or cord, preparing end sheets, trimming the edges, gluing, hammering the backs into rounded forms, backing, cutting and fitting boards, headbanding and lining the backs. Cover materials, planning and making of covers, finishing, lettering of titles and labeling. All the steps necessary for the binding of full cloth-bound books.

Course 2. Intermediate Bookbinding—This course includes the binding of books in half morocco and full leather, including such processes as: Tooling in gold and blind, edge gilding and marbling, and the making of cardboard boxes, leather cases, etc.

Course 2. Advanst Bookbinding—Theoretical study of Bookbinding, together with practical work, a continuation of Course 2.

Courses for those who wish to be professional bookbinders can be arranged upon application.



