

AN ABSTRACT OF THE THESIS OF

Maurice Walton Davis for the M.S. in Ind. Ed.
(Name) (Degree) (Major)

Date Thesis presented July 16, 1947

Title THE 1940 STATUS AND POST WAR OUTLOOK OF INDUSTRIAL
EDUCATION IN CALIFORNIA JUNIOR COLLEGES

Redacted for privacy

Abstract Approved _____
(Major Professor)

From the earliest days of history until the advent of the machine age, the family for the most part was self-sufficient. Each family grew its own food, made its own clothing, and educated its own children.

But with the inventing of machines and the subsequent rise of centers of trade and industry, the problem of education fell to the state.

The problem as stated in this thesis is to determine the status of industrial education in the junior colleges of California in 1940 and their plans for the post-war period. This survey is limited to junior college classes which are operated only during the daylight hours, and is not concerned with evening, evening trade extension, adult education, or other specialized groups of junior college students.

To accomplish this purpose a questionnaire was sent to 43 California junior colleges. For various reasons, such as the failure to adequately supply the information requested, all but the questionnaires from 25 schools were disqualified. The majority of the tables in this thesis have been developed from this material.

As an institution, the junior college in California is young; but its development has been rapid and its popularity great. Both the popularity and the development are due largely to the splendid cooperation given the junior college by the state colleges and universities.

As conceived the junior colleges were designed to serve a quadruple purpose. They should not only provide free preparatory training for the more professional work of the universities, but also a two-year terminal education for the large percentage of students who would otherwise end their education illy prepared at the end of their high school years.

In addition to this the junior colleges must serve to popularize the education at college level and guide students into fields fitted to their capabilities and the needs of the community.

Industrial programs in the junior colleges of California fall mainly under three classifications: 1) avocational, 2) vocational, 3) a combination of the first two.

The first of these programs (avocational) finds its legal basis in Section 1750b of the School Laws of California. Under the provisions of this law any high school meeting the necessary requirements could establish a junior college department and administer courses equal in grade to those offered by the lower division at the University of California. Among the specific courses authorized are mechanical and industrial arts.

Vocational Education in the junior colleges of California as in other sections of the country has been an outgrowth of the authorization of federal appropriations for the partial support of such subjects by the Smith-Hughes Act of 1917. As originally planned this law was intended for support of classes of "less than college grade," but adaptations have been made so that certain of the junior college classes fit into this classification.

A summary of a few of the more important elements of the survey are listed below:

1. "Industrial Arts" was used in 1940 to define the industrial program in 24 per cent of the schools questioned.
2. "Vocational Education" was used in 1940 to define the industrial program in 24 per cent of the schools questioned.
3. A total of 40 per cent of the schools questioned expected to change terminology in the post-war period.
4. Eighty per cent of the schools questioned planned strictly vocational programs in the post-war period.
5. A total of 18 industrial courses is to be dropped and 77 industrial courses are to be added in the post-war period.
6. The field of metal working shows the largest expansion with 14 courses being added.
7. The average junior college of those questioned can expect an average increase in enrollment of 450 students.
8. Eighty-four per cent of the schools questioned offer industrial courses on an elective basis.

9. Eighty-three per cent of the industrial teachers were on a full-time basis in 1940.

10. The greatest need for teachers in the post-war period is in the automotive field.

11. Seventeen schools required trade experience in 1940; 23 schools will require trade experience in the post-war period.

12. Thirteen administrators felt that trade experience for industrial teachers was more important than an equal amount of graduate work. Eleven felt that graduate work and trade experience were of equal value.

13. Nineteen schools plan to enlarge their industrial plants in the post-war period. None plan a decrease.

14. Very few hobby groups are maintained by junior college industrial departments.

15. Forty-four per cent of the schools questioned gave occupational courses in 1940; forty-eight per cent did not.

16. Fifty-two per cent of the administrators preferred occupations material combined in shop subjects.

THE 1940 STATUS AND POST WAR
OUTLOOK OF INDUSTRIAL EDUCATION IN
CALIFORNIA JUNIOR COLLEGES

by

MAURICE WALTON DAVIS

A THESIS

submitted to

OREGON STATE COLLEGE

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE

July 1947

APPROVED:

Redacted for privacy

Head of the Department of Industrial Arts

In Charge of Major

Redacted for privacy

Chairman of School Graduate Committee

Redacted for privacy

Dean, Graduate School

ACKNOWLEDGMENT

To Professor George B. Cox, the writer owes a debt of gratitude for his constructive criticism concerning the method of conducting the survey, and for his guidance and suggestions in the preparation of this thesis.

Acknowledgment is also made to Doctor R. J. Clinton, who gave so willingly of his time in offering suggestions and constructive criticism in the early stages of this thesis.

Due acknowledgment is made to the superintendents and teachers of industrial subjects in the junior colleges of California, without whose help in filling out questionnaires this survey would not have been possible.

Finally, the author wishes to give due credit to his wife, Carlin P. Davis, for her inspiration and assistance in conducting the survey and compiling and evaluating the material.

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Statement of Problem	2
Significance of Problem	5
Method and Procedure of Study	7
Limitations of Study	10
II. THE JUNIOR COLLEGE IN CALIFORNIA	13
The Origin of the California Junior College	13
The Basis for the Industrial Programs in the California Junior Colleges	22
III. THE TABULAR RESULTS OF THE STUDY	30
Introduction	30
IV. GENERAL SUMMARY OF THE TABULAR RESULTS OF THE STUDY	53
Terminology	53
Course Content	54
Enrollment	55
Teaching Staff	57
Shop Size	60
Hobby Groups	60
Occupational Study	61
BIBLIOGRAPHY	64
APPENDIX	67

LIST OF TABLES

TABLE	PAGE
I. Returns from Return-Reply Post Cards and Questionnaires 43 California Junior Colleges	9
II. Junior Colleges and Their Enrollment 1919-20 to 1941-42	20
III. California Junior Colleges Receiving Federal Aid Under the Smith-Hughes and George-Deen Acts 1939-40, and Fields for Which This Aid Was Given	29
IV. Names Given by 25 California Junior Colleges to Industrial Programs and Those Expecting Change in Terminology	31
V. Expected Changes in Terminology for Industrial Programs in 25 California Junior Colleges	32
VI. Industrial Courses Given in 25 California Junior Colleges in 1940 Which Are Not to be Included in Post-War Programs	33
VII. Industrial Courses to be Added to 25 California Junior College Curricula in Post-War Period	34
VIII. Types of Industrial Programs Offered in 25 California Junior Colleges in 1940 and Post-War Outlook	36
IX. School Enrollment for 1940 and Expected Post-War Enrollment as Compared to Industrial Department Enrollment for the Same Periods in 25 California Junior Colleges . . .	37
X. Average 1940 Enrollment for 22 California Junior Colleges and Expected Post-War Increases	38
XI. Average Number of Boys and Girls Enrolled in Industrial Courses in 25 California Junior Colleges in 1940 and Expected Post-War Increases	39

LIST OF TABLES (Cont.)

TABLE	PAGE
XII. Most Popular Industrial Courses Offered in 25 California Junior Colleges in 1940 With Anticipated Course Popularity in Post-War Period	40
XIII. Elective and Non-Elective Courses Offered in 25 California Junior Colleges	42
XIV. Industrial Staff Sizes in 1940 and Anticipated Needs in the Post-War Period With Subject Areas in Which Needs Are Expected in 25 California Junior Colleges	43
XV. Number of Full-Time and Part-Time Industrial Staff Members in 25 California Junior Colleges in 1940	45
XVI. Anticipated Industrial Staff Requirements in the Post-War Period for 25 California Junior Colleges	45
XVII. Industrial Subjects in Which There is an Expected Need for Additional Teachers in 25 California Junior Colleges in the Post-War Period	46
XVIII. Relative Importance of Trade Experience and Amount Required in 1940 With Requirements in Post-War Period for 25 California Junior Colleges	48
XIX. Shop Sizes of 25 Junior Colleges in California With Expected Increases or Decreases in the Post-War Period	49
XX. Hobby Groups Offered in 25 California Junior Colleges in 1940 and Groups to be Added in Post-War Period	51
XXI. Industrial Occupational Course Summary for 25 California Junior Colleges and Expectations for Post-War Period	52

LIST OF MAPS, DIRECTORIES, AND CHARTS

	PAGE
Location of California Junior Colleges	8
Directory of California Junior Colleges	12
Choices in Junior College	19

THE 1940 STATUS AND POST WAR
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CALIFORNIA JUNIOR COLLEGES

CHAPTER I
INTRODUCTION

From the days of the caveman through the periods known as ancient history and the middle ages, to the days when America was young and settlers were fighting both the savages and the elements, the family as such existed for the most part as a unit.

The father taught the son, and the mother taught the daughter. Agriculture was the chief industry. People lived by what the land and the forest produced. A poor harvest meant a lean winter. If the land produced, the people prospered.

In those days the boy had little need for formal training. As long as he could be taught to plant, harvest, hunt, and perhaps trade a little with his neighbors his needs and those of his family could be supplied.

But gradually there came a change. Newly invented engines began to turn the once hand-operated machines. Men in boats carried these manufactured articles to far-off countries, and returned with new

ideas and raw materials.

These new machines and the increased demand for manufactured goods brought about many remarkable changes. Many families who once worked the soil, and passed it on to their children, now worked long hours in factories and mills. The father no longer had time to teach his son and the family unit was not sufficient within itself.

The boy who was once an apprentice gradually found himself without a teacher. The master, whose job it was in earlier times to feed, clothe, house, and train the boy, gradually became no more than an employer who hired men for specialized jobs. The man who best could carve did naught but carve; the man who could assemble parts did little else.

And so it came to pass that the task of education fell upon the state.

Today we live essentially in an age of machines. With each passing year greater and greater specialization and more and more training are required of youth who seek the better jobs in modern industrial society.

Statement of Problem

The problem as defined for this thesis is to determine the status of industrial education as of 1940, in the junior colleges of California, and to

investigate the opinions of the heads of the industrial programs of those schools as they apply to the future. The investigation will cover in particular the subjects listed below:

1. Terminology as it applied in 1940, and anticipated changes
2. Nature of the work given in the industrial programs of the junior colleges as to vocational or avocational tendencies
3. Enrollment trends as to increase or decrease
4. Popularity of industrial courses among boys and girls
5. Number and percentage of total enrollment (boys and girls) taking industrial subjects
6. Number of industrial subjects required of students in 1940
 - a. Terminal students
 - b. College preparatory students
 - 1) liberal arts, law, etc.
 - 2) engineering, technical
7. Number of credits in industrial subjects probably to be required in post-war period
 - a. Terminal students (as in No. 6)
8. New subjects to be included in the post-war period
9. Number of full-time and part-time teachers of industrial subjects in the California junior colleges in 1940
10. Anticipated increase or decrease in the need for teachers in the post-war industrial program
11. Possible areas in which the increase (or decrease) in need for teachers is expected

12. Degree in which trade experience is required of industrial teachers
13. In what subjects trade experience is required, if any
14. Possibility of increase or decrease in requirements of trade experience
15. Relative importance of trade experience as compared with an equal amount of graduate work at an accredited university or college
16. Average square feet of floor space devoted to industrial program in 1940
17. Anticipated needs in increased space in the post-war period
18. Fields requiring increased floor space in post-war period
19. Number of hobby groups sponsored by industrial program in 1940
20. Determination of most prevalent hobby groups for this age level
21. Anticipated increase or decrease in hobby groups in post-war period
22. Extent to which occupational study was a part of industrial program in 1940
23. Extent to which occupational courses were separate from regular shop classes in 1940
24. Occupational courses to be given in post-war period
25. Preference or non-preference for occupational study separate from regular shop subjects

Significance of Problem

One of the chief faults of modern general education is its lack of appeal to the clientele it is intended to serve. During adolescence, the student is by nature restless and irreceptive to any program which does not involve some degree of activity. In recent years, considerable progress has been made away from the feeling that "It matters not what we teach a boy, Hennessy, so long as he does not like it."

Education, to be successful, must be dynamic; it must be filled with continual changes. To progress, the student must have advancement. To advance, he must understand the world in which he lives, its past, and its possible relation to the future.

Life for the student today is governed by machines, and his relations with his fellow workers by democratic principles. To understand the relationship between democratic principles such as the ability to work together, individual initiative, respect for the rights and feelings of others, and other elements of good citizenship, there must be special training.

In addition to his obligation to society, the student also has a responsibility to himself. He must select an occupation and prepare himself for it.

He must choose it wisely, for the happiness of himself and his future family may depend upon his choice.

Too, machines are gradually taking over a greater and greater number of jobs once performed by man. As this change comes about, a larger and larger amount of leisure time can be expected. The social intelligence of the individual is measured by the degree to which he is able to adapt himself to his industrial society.

To this end, industrial education is dedicated. If administrators of industrial programs, teachers of industrial subjects and others interested in the advancement of industrial education are to have any knowledge of what is being done by their associates, and of what is expected for the future as a source of new ideas for progress, numerous studies must be made and evaluated.

It is with this purpose in mind that this study is being made.

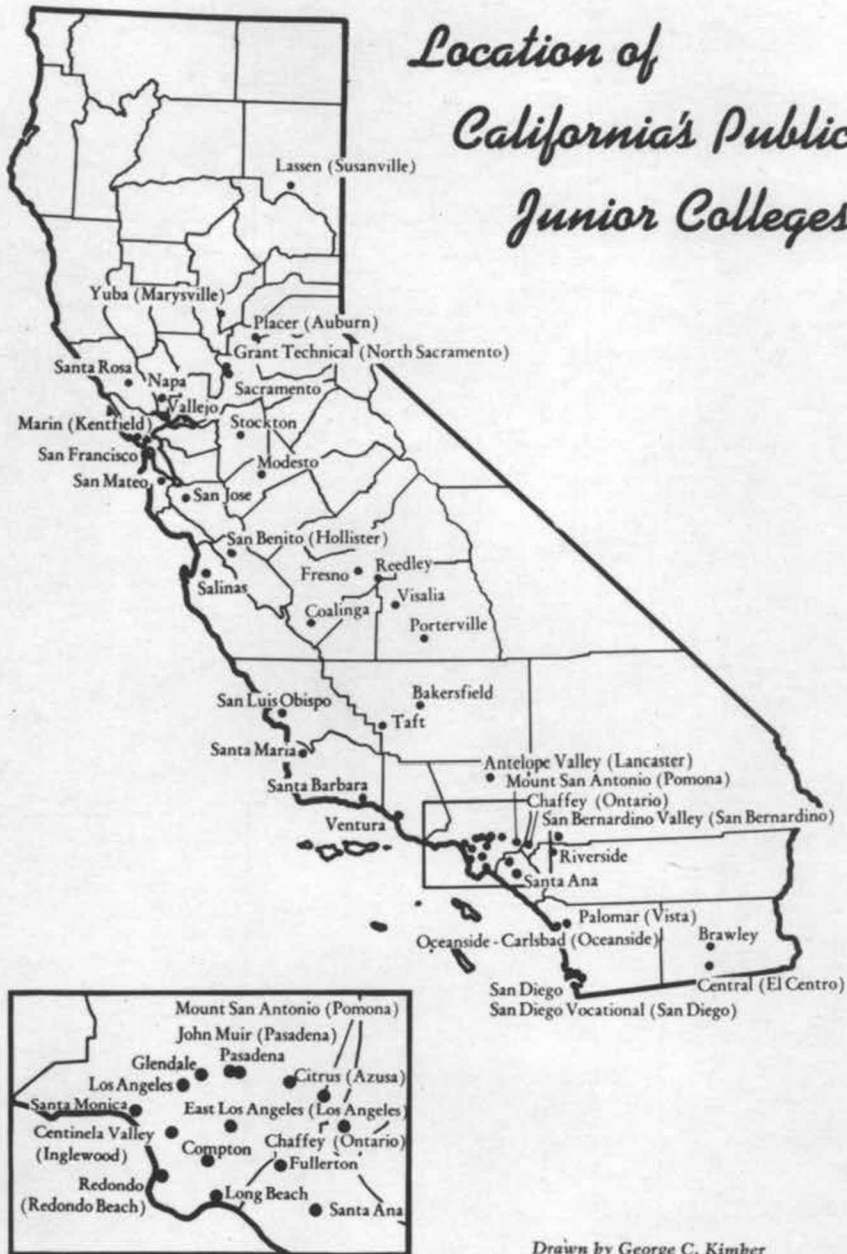
Method and Procedure of Study

In order to obtain the pledge of support from as many as possible of the directors of industrial education in the junior colleges of the state, a return-reply post card¹ was sent to each. Of the 43 return-reply post cards sent out, 37 or 86 per cent of the directors responded, indicating a willingness to assist in the study.

Following this, a letter of transmittal¹ and two copies of the questionnaire¹ (one to be filled out and returned, the other for the director's file) were sent to each who had pledged support. After thirty days a second letter¹, personally typed and addressed, and a second set of questionnaires were mailed to those who had not yet responded. The comic post card found in the appendix was sent to the remaining few who had failed to answer after an additional two weeks. The following table summarizes the results.

¹A copy may be found in the appendix.

Location of California's Public Junior Colleges



Drawn by George C. Kimber

PUBLISHED BY THE
CALIFORNIA STATE DEPARTMENT OF EDUCATION
SACRAMENTO
MAY, 1947

TABLE I
Returns from Return-Reply Post Cards
and Questionnaires
43 California Junior Colleges

	Number	Per Cent
Schools That Responded to Return-Reply Post Card	37	86.0
Schools That Filled Out Questionnaire Complete	25	67.5
Schools Partially Filling Out Questionnaire and Offering Explanation	7	19.0
Schools That Responded to Return-Reply Post Card but Did Not Fill Out Questionnaire	5	11.6

The following explanations were offered for not completing the questionnaire:

1. Junior college temporarily suspended.
2. Local junior college temporarily suspended and to be replaced by new district junior college.
3. (a) No vocational classes offered as such in the junior college in 1940-41.
(b) Vocational Education now contained in technical institute division of city college.

(c) In 1940 junior college industrial program was a part of the Trade-Extension Evening High School.

4. Junior college entirely college preparatory.

5. (a) Junior college and state college combined.

(b) Junior college liberal arts students and teacher-training students all in same class.

6. No industrial program offered in 1940.

7. (a) Was not in existence until after 1942.

(b) Did not participate in vocational program other than War Production Training until after May, 1944.

Limitations of Study

This study is limited entirely to a survey of the industrial program in the public junior colleges of California. It is further limited to those schools which operate during the daylight hours. It does not include such programs as offered by evening junior colleges, special trade-extension classes, those involving both junior college and teacher training students, and other specialized groups.

The field covered is narrowed further by the fact that the directory used contained only the names and addresses of forty-three colleges. Later directories, such as found on page 12 of this study, contain a number of additional schools which would likely have been eligible for questioning had their names been available at the time of the survey.

#

CHAPTER II

THE JUNIOR COLLEGE IN CALIFORNIA

The Origin of the California Junior College

The junior college movement in California, as in other sections of the United States, is primarily an outgrowth of the dissatisfaction expressed by the public, particularly the upper middle class (11, p.4). This dissatisfaction was concerned fundamentally with the inability of the typical four-year college or university to provide its graduates with a practical working knowledge that would fit the needs of the community in which they intended to live and work.

But this cause was not alone responsible. Other factors have contributed to the rapid and extensive establishment of junior colleges during and after World War I. These factors were stated by Eby and Arrowood (5, p.890-91) as follows:

1. The movement for standardizing higher institutions of learning brought about by the Carnegie Foundation was directly responsible for changing the status of many institutions struggling to be standard colleges. Numerous private colleges found they could not maintain the high standard of scholarship adopted by degree-granting institutions. The small institutions did not have funds adequate for efficient instruction in the upper years; and when they did offer such work, it was not accredited by the higher institutions.

2. Many professional schools required just two years of college training. This practice stimulated the colleges to restrict the level of their offerings to these two years.
3. The lowering of the age of high school graduation caused many people to favor local junior colleges in order to keep their children at home until they were more mature.
4. The long distance to the universities in many Western states favored the growth of the local junior colleges.
5. The popular demand for a higher finishing point than that afforded by the high schools was supplied by the junior college.
6. The increase in postgraduate work in the high schools favored the development of this new institution.
7. The increased expense of university attendance since the World War has caused many students to go to the junior colleges.
8. The tremendous increase in freshman and sophomore enrollment induced many large universities to favor the establishment of junior colleges.
9. The desire to keep its wealth within the local community aroused powerful interest in the local junior college.
10. The failure of the universities to adjust their methods and discipline to the needs of freshmen tended to encourage the establishment of junior colleges.
11. The desire for more personal attention to the needs of the individual student, the overcrowding of the university classes, and the lack of university dormitories have had far-reaching influence.

12. The demand of vocational preparation for the minor professions and for vocations above the high school level has also stimulated junior college development.

It was such demands as these that led such educators as Dr. Alexis F. Lange, for many years Dean of the School of Education of the University of California, to ask the following questions (9, p.465-79).

1. Shall the American university have its legs cut off, and, if so, where?
2. Shall the American four-year high school be stretched, and, if so, how much?
3. Shall certain American colleges have their heads cut off, and, if so, by whom?

The California junior colleges might not have received the warm reception accorded them had it not been for the wholehearted support granted by the leading four-year universities of the state.

Dr. David Starr Jordan, President of Stanford University, was another of the early leaders who had long felt that the primary purpose of the university was to train students in upper-division subjects.

As early as 1907 the California Legislature recognized the need of the high school to retain its students for an additional two years and so authorized the administration of certain courses corresponding in

grade to those given in the first two years or lower division of the state colleges and universities.

Fresno, in 1910, was the first high school to make the authorized extension. Its example was followed during the next three years by Santa Barbara, Los Angeles, Santa Monica, Fullerton, and Bakersfield (10, p.13).

However, it was not until 1917 that the junior college in California was backed by any real legislation. In that year the passage of Section 1750b of the School Laws of California authorized junior college departments to be organized as a part of any high school district with an assessed valuation greater than three million dollars. Such junior college departments were to be under the direct supervision of the local board of education of the high school district. The courses offered could be equal in grade to those required for the junior certificate at the University of California. It is interesting to note that enough significance was attached to such courses as mechanical and industrial arts to include them among the courses specifically authorized.

Under the provisions of a California law passed in 1921 a separate junior college district could be established, subject to the will of the people.

As these two-year extensions to the high school program became more common they gradually developed into our modern junior colleges, with a basic purpose of training young people for the more advanced work of the college or university. From this evolved the so-called college-preparatory function of the junior college.

A second function as stated by Frank W. Thomas, President of Fresno State College, (10, p.14-18) is that of popularizing education so as to improve its appeal to all of the children of all of the people. To do this the junior college must provide education which appeals to the needs of the community and the students it serves. The college-preparatory students must find the foundation courses which will enable them to continue on to the more advanced courses of the state colleges and universities. The business student must find courses suited to the particular businesses of his community, and the strictly vocational student must find instruction that will prepare him for a specific job. In addition all students must find a bit of the cultural background, refinement, and socialization which sets the college-trained student apart from the untrained and equips him the better to foster the democratic ideals of our unique American way of living.

As outlined in 1926 by Thomas, the third function of the junior college is "terminal." By terminal is meant the rounding off or drawing to a successful conclusion those previous educational experiences which help to train the student for a useful, productive life.

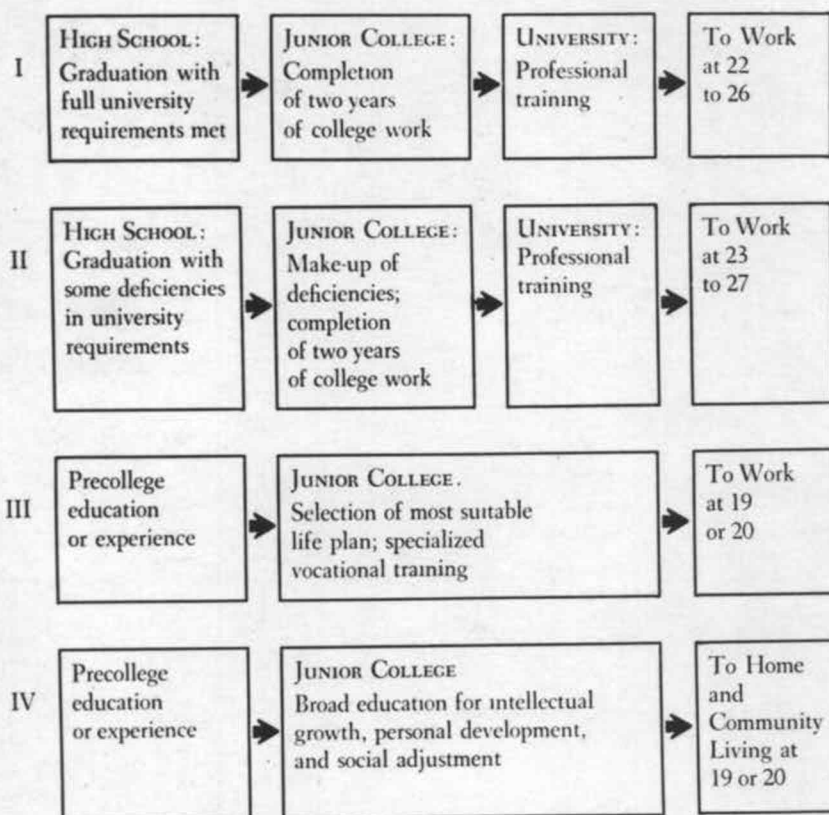
From a vocational point of view the end result should be a background of training that will permit the student to enter a trade or occupation with sufficient "know-how" to provide for himself and finally for a family. Trade-training and other vocational courses are offered for that specific purpose.

Industrial courses have still another value besides the vocational objective mentioned above. A number of junior colleges offer an alternative industrial-arts or avocational type program as a supplement to regular classes in general education. These classes are intended primarily as broadening courses and are governed in the most part by the aims and objectives as set forth in the bulletin Improving Instruction in Industrial Arts (12, p.51).

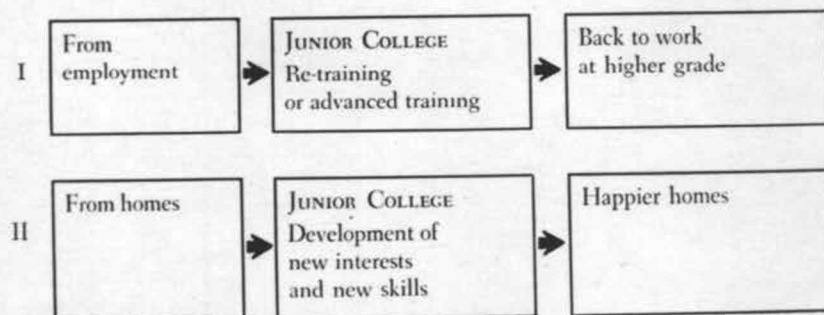
Briefly stated these objectives deal with the teaching of the use of the common tools; an appreciation of good workmanship and design; the development of cooperative attitudes; an interest in industry; an

Choices in Junior College

FOR YOUTH



FOR ADULTS



opportunity for self-expression; a worthy use of leisure time and other desirable characteristics. These are of value to both the terminal and college-preparatory students.

Table II

Junior Colleges and Their Enrollment
1919-20 to 1941-42 (13, p.25)

Year	Total Publicly Controlled	
	Number	Enrollment
1919-20	10	2,940
1921-22	17	4,771
1923-24	39	9,240
1925-26	47	13,859
1927-28	114	28,437
1929-30	129	36,501
1931-32	159	58,887
1933-34	152	55,869
1935-36	187	70,557
1937-38	209	82,041
1939-40	217	107,553
1941-42	231	100,783

The last of the main functions of the junior college is that of guidance. As the number of high school graduates increases and junior-college enrollments increase, as shown by Table II, the problem becomes more acute. So serious has become the problem among veteran students enrolled at this level that special centers have been set up for the specific

purpose of testing and evaluating their interests, abilities, and aptitudes. Too, as the number of high school graduates increases and the conventional four-year colleges become more congested, entrance requirements will become even more rigid. Evidence of this is already apparent. Some schools, where overcrowding is already evident, have closed their doors entirely to further registration while to others entrance is possible only for the small percentage that are able to pass exacting examinations.

What then are these less-qualified students to do? The answer lies almost entirely in the lap of the public junior college. In California the problem is multiplied many fold by the huge influx of population advanced greatly by war conditions. With war plants now closed hundreds are seeking reeducation for new occupations. The problem is solved in some schools by the hiring of specially qualified personnel whose primary duty is to segregate, classify, and finally suggest possible fields for student training where overcrowding is not so apparent and job opportunities seem to fit their capabilities.

As an institution, the junior college in California is young; but its development has been rapid and

its popularity great. Both the popularity and the development are increasing, due largely to the splendid cooperation given the junior colleges by the state colleges and universities.

As conceived, the junior colleges were designed to serve a quadruple purpose. They should not only provide free preparatory training for the more professional work of the universities, but also a two-year terminal education for the large percentage of students who would otherwise end their education illy prepared at the end of their high school years. In addition to this they must serve to popularize the education at college level and guide students into fields fitted to their capabilities and the needs of the community.

The Basis for the Industrial Programs in the California Junior Colleges

As shown in Table VIII page 36 the industrial programs of the junior colleges fall mainly under three classifications: (1) avocational, (2) vocational, and (3) a combination of the first two.

The first of these, the function of which has already been discussed in an earlier section of this thesis, finds its legal basis in Section 1750b of the School Laws of California. This section entitled

"Junior College Courses" authorizes the high school board of any high school district meeting the requirements for the establishment of a junior college program to prescribe junior college courses of study not to exceed two years in length. Said courses of study may include such subjects as required for the junior certificate at the University of California and such other subjects as mechanical and industrial arts, household economy, et cetera.

Vocational education for the most part, in the junior colleges of California as in other sections of the country, has been an outgrowth of the authorization of federal appropriations for the partial support of such subjects by the Smith-Hughes Act of 1917 and the supplementary George-Deen Act of 1936. As originally written, however, the Smith-Hughes Act specified that such funds were to be used toward the educating of students "over 14 years of age," who have entered upon or who are preparing to enter upon the work of the farm, trade or industry, homemaking, or distributive occupations. The courses given should be of "less than college grade." The problem then arises as to how these classes are to be administered by a "college."

As interpreted by the Vocational Division of the Office of Education the statement does not mean that the "school" need be of less than college grade, but that the "courses" offered should be of "less than college grade." To meet these requirements the following stipulations have been drawn up by that office (6, p.30).

1. College entrance requirements are not made prerequisites for admission
2. The objective of the training program is to prepare for advantageous employment in industry
3. The training program does not lead to a degree
4. The program is not required to conform to conditions governing a regular college course
5. The instructors meet all the provisions of the state plans as to qualifications

Under the provisions of The California Plan for Trade and Industrial Education (2, p.22-3), junior colleges in California operating unit day trade or technical institute programs may choose any one of the three plans offered below, or a combination thereof.

Plan A-I

Under this classification approved programs must be maintained for not less than fifteen clock hours per week, given in periods of not less than three consecutive hours in any one

day, of manipulative instruction, and not less than five clock hours per week of trade and related technical instruction. All of such manipulative and related and trade technical instruction must be given by the trade teacher, or by another teacher holding a vocational arts type credential in the same trade or occupation as that of the trade teacher in charge of the class. The balance of school time is devoted to general educational activities.

Plan A-II

Under this classification approved programs may be maintained in an approved trade school with a selected group of students taking instruction to lead to gainful employment under the trade instructor for six clock hours a day, or for a minimum of thirty clock hours a week in the manipulative skills of the trade, the trade and related technical subjects, trade problems, etc., and such general education as is necessary for the development of trade students. This group of students must take the full trade training program for the full six clock hour school day, taught by the trade teacher. Students may not be enrolled for a portion of the six clock hours, only.

Plan B

Under this classification approved programs must be maintained for not less than fifteen clock hours per week, given in periods of not less than three consecutive hours in any one day, of manipulative, trade and related technical instruction. This instruction must be given under one trade instructor with no segregation of time for the manipulative, trade or related technical instruction, and with the trade and related technical instruction taught on the job. The balance of school time is devoted to general educational activities.

Institutions operating under Plan A-I or Plan A-II can expect to be reimbursed at a rate not to exceed \$1,000 per teacher unit. For Plan B, reimbursement will not exceed \$720 per teacher unit. A teacher unit is allowed for each 1080 clock hours of actual manipulative instruction, related and trade technical instruction, and academic instruction during the school year. An additional provision is that no reimbursement will be allowed unless the time requirements of the particular plan in operation are actually met. In California the school year is considered to consist of 180 days. Six times this amount, or 6 hours per day will provide the 1080 hours required for a teacher unit.

Another type of vocational program common to the junior colleges of California, but more so at the high school level, is that of Trade and Industrial Cooperative Education. Under this plan (2, p.16-17) trade and industrial students may spend half-time on the job and half-time in school. In practice, at most junior colleges, the student spends a half-day in school and a half-day at work. There is a further stipulation that the student, while in school, must devote fifty per cent of the time to trade and related technical instruction, counselling with the coordinator, and

trade problems; and fifty per cent of the time to general education courses, commonly those of the usual high school or junior college type -- mathematics, science or social science and English.

In practice over a period of one year the co-operative vocational student spends approximately 180 half-days in school or 90 full days, thus meeting the half-time "in school" requirement.

A trade teacher (not the coordinator of trade and industrial cooperative education courses) to qualify under one of the three plans mentioned above must hold a valid Class A Credential in Trade and Industrial Occupations (3, p.43-46). The chief requirements for a credential of this type are 22 units of professional work as prescribed by the California State Department of Education at either the University of California at Berkeley or Los Angeles, and three years of paid experience as a journeyman worker or supervisor in the particular field or area in which the credential is sought. This journeyman experience is presumably based upon a four-year apprenticeship training program or its equivalent, making a total of seven years experience necessary in most fields.

California junior colleges receiving federal reimbursement under the provisions of the Smith-Hughes and George-Deen Acts are shown in Table III.

TABLE III

California Junior Colleges Receiving Federal
Aid Under the Smith-Hughes and George-Deen Acts,
1939-40, and Fields for Which This Aid
Was Given (6, p.247)

Bakersfield Junior College	Sacramento Junior College
Trades and industries	Business education,
Central Junior College	trades and industries
Business education	Salinas Evening Jr. Coll.
Chaffey Junior College	Trades and industries
Business education,	Salinas Junior College
trades and industries	Agriculture
Citrus Junior College	San Bernardino Valley Jr.
Trades and industries	College
Coalinga Extension Center	Business education,
Trades and industries	trades and industries
Compton Junior College	San Diego Vocational Jr.
Trades and industries	College
Fresno City Junior Coll.	Trades and industries
Home economics, trades	San Francisco Jr. College
and industries	Business education,
Fullerton Junior College	trades and industries
Trades and industries	San Luis Obispo Jr. Coll.
Glendale Junior College	Home economics
Trades and industries	San Mateo Junior College
Lassen Junior College	Business education, home
Trades and industries	economics, trades and
Long Beach Junior College	industries
Trades and industries	Santa Ana Junior College
Los Angeles City College	Trades and industries
Trades and industries	Santa Maria Junior College
Modesto Evening Jr. Coll.	Home economics
Home economics, trades	Taft Junior College
and industries	Trades and industries
Modesto Junior College	Ventura Evening Jr. Coll.
Agriculture, business	Business education,
education	trades and industries
Pasadena Junior College	Ventura Junior College
Business education,	Agriculture
home economics	Visalia Junior College
Pomona Junior College	Trades and industries
Trades and industries	
Riverside Junior College	
Trades and industries	

CHAPTER III

THE TABULAR RESULTS OF THE STUDY

Introduction

As previously mentioned in Chapter I this study was conducted by mailing a two-page questionnaire¹ to the directors and supervisors of industrial subjects in 43 California junior colleges. For the purpose of clarity the results of these questionnaires have been presented in tabular form and appear on the following pages. Where tables have been found unusually long or their contents involved, individual breakdown charts have been made for the complicated areas.

For the sake of reference it will be well to note that the tables have been placed as nearly as possible to the order in which the questions appear in the questionnaire.

Information pertinent to the various tables may be found under appropriate headings in Chapter IV.

¹A copy of the questionnaire may be found in the appendix.

TABLE IV

Names Given by 25 California Junior Colleges
to Industrial Programs and
Those Expecting Change in Terminology

Names	No.	Other Names	No.
Mechanic Arts	3	Trade & Industrial Ed.	1
Industrial Arts	6	Technical Education	1
Industrial Educa- tion	4	Liberal Arts, Including Semi-Professional Trng.	1
Vocational Educa- tion	6	Semi-Professions	1
		Business & Technical	1
		Industrial Arts & Voc.	1
		Forestry & Lumbering	1
Total 19		Total 6	
Expect Changes in Above-Mentioned Names	8	Expect Changes in Above-Mentioned Names	2
Total Expecting Change in Terminology			10*

*See Table V for expected changes.

TABLE V

Expected Changes in Terminology for
Industrial Programs in 25
California Junior Colleges

From	No.*	To
Mechanic Arts	1	Industrial Technical Vocational Education
Industrial Arts	1	Vocational Education
	1	Technical Institute
	1	More Vocational
	1	Not Sure
Industrial Education	1	Separation of Vocational and Industrial Classes
Vocational Education	1	Vocational and Technical Institute Program
	1	Occupational Institute and Practical Arts Courses
Liberal Arts, Including Semi-Professional Training	1	Semi-Professional Training Leading to a Vocation
Industrial Arts and Vocational Forestry and Lumbering	1	Increase in Offerings to Include More Machine and Mechanic Offerings
Total		10

*Number of schools expecting change.

TABLE VI

Industrial Courses Given in 25 California
Junior Colleges in 1940 Which Are Not to be
Included in Post-War Programs

Courses to be Dropped	Number of Schools
I. <u>Aircraft</u> (Related)*	
A. Aircraft Sheet Metal	1
B. Aircraft Lofting	1
C. Aviation Engine Service and Maintenance	1
D. Aircraft Service and Maintenance	1
E. Airplane Repair	1
II. <u>Automotive</u> (Related)*	
A. Automotive Shop Practice and Theory	1
III. <u>Electrical</u> (Related)*	
A. Electrical Technology	1
IV. <u>Metals</u> (Related)*	
A. Machine Shop	1
B. Metallurgy	1
C. Metal Technology	1
D. Welding	2
V. <u>Wood</u> (Related)*	
A. Patternmaking	2
VI. <u>Building Trades</u> (Related)*	
A. Paint Technology	1
VII. <u>Forestry, Agriculture, Mining, Etc.</u>	
A. Petroleum Technology	1
B. Mining	1
VIII. <u>Miscellaneous</u>	
A. Practical Technology	1
Total	18

*"Related" in these table headings does not mean that trade related material is taught, but that subjects listed below are related to main heading.

TABLE VII

Industrial Courses to be Added to 25
California Junior College Curricula
in Post-War Period

Courses to be Added		Number of Schools	
I.	<u>Aircraft (Related)*</u>		
	A. Aeronautics	2	
	B. Aviation	2	
	C. Aviation (Flying)	1	
	D. Aviation (Ground School)	1	
	E. Aviation Mechanics	1	
	F. Aircraft Structures	1	
	G. Aircraft Maintenance	1	
	H. Aircraft Engines	<u>1</u>	10
II.	<u>Automotive (Related)*</u>		
	A. Auto Mechanics	6	
	B. Diesel Electric	1	
	C. Diesel Engine Maintenance	1	
	D. Diesel Engines	1	
	E. Gas Engines	<u>1</u>	10
III.	<u>Building Trades (Related)*</u>		
	A. Carpentry	3	
	B. Carpentry and Building Trades	2	
	C. Construction Trades	1	
	D. Contractors Aid	1	
	E. Painting	1	
	F. Plumbing	<u>1</u>	9
IV.	<u>Boat Building</u>		
	A. Boat Building	<u>1</u>	1
V.	<u>Ceramics</u>		
	A. Ceramics	<u>1</u>	1
VI.	<u>Chemical (Related)*</u>		
	A. Chemical Technology	1	
	B. Laboratory Operations	<u>1</u>	2

(Continued)

TABLE VII (Cont.)

Courses to be Added		Number of Schools	
VII.	<u>Cosmetology</u>		
	A. Cosmetology	<u>1</u>	1
VIII.	<u>Distributive Occupations</u>		
	A. Meat Cutting	<u>1</u>	
	B. Filling Station	<u>1</u>	2
IX.	<u>Drawing, Drafting, Engineering, Etc.</u>		
	A. Architectural Drafting	3	
	B. Civil Engineering Aid	1	
	C. Commercial Art	1	
	D. Design	1	
	E. Navigation	1	
	F. Engineering Drawing	<u>1</u>	8
X.	<u>Electricity (Related)*</u>		
	A. Electricity	2	
	B. Electricity and Radio	3	
	C. Electronics	2	
	D. Electronics and Radio	1	
	E. Radio	<u>1</u>	9
XI.	<u>Forestry, Agriculture, Mining, Etc.</u>		
	A. Agriculture	1	
	B. Vocational Agriculture	1	
	C. Oil Well Production	1	
	D. Petroleum Technology	<u>2</u>	5
XII.	<u>Metal (Related)*</u>		
	A. Bench Metal	1	
	B. Forging	1	
	C. Machine Shop	6	
	D. Metallurgy	1	
	E. Sheet Metal	3	
	F. Sheet Metal and Welding	1	
	G. Tool Making and Design	<u>1</u>	14

(Continued)

TABLE VII (Cont.)

Courses to be Added		Number of Schools	
XIII.	<u>Photography (Related)*</u>		
	A. Photography	<u>1</u>	1
XIV.	<u>Printing (Related)*</u>		
	A. Printing	<u>1</u>	1
XV.	<u>Refrigeration and Air Conditioning</u>		
	A. Refrigeration and Air Conditioning	<u>1</u>	1
XVI.	<u>Miscellaneous</u>		
	A. Practical Arts and General Crafts	1	
	B. Mechanical Arts	<u>1</u>	2
		Total	77

*"Related" in these table headings does not mean that trade related material is taught, but that subjects listed below are related to main heading.

TABLE VIII

Types of Industrial Programs Offered
in 25 California Junior Colleges in 1940 and
Post-War Outlook

	Vocational	Avocational	Split
1940	15	9	1
Post-War Outlook	20	3	2

TABLE IX

School Enrollment for 1940 and Expected Post-War Enrollment
as Compared to Industrial Department Enrollment
for the Same Periods in 25 California Junior Colleges

	School Enrollment		Industrial Department Enrollment					
	Total 1940	Ex- pected Post- War	1940			Post-War		
			Total	Boys	Girls	Total	Boys	Girls
1.	2,900	3,600	325	300	25	450	375	75
2.	1,100	3,000	500	400	100	---	---	---
3.	--- ^a	---	150 ^a	100 ^a	50 ^a	500 ^a	300 ^a	200 ^a
4.	500	600	50	50	0	---	---	---
5.	698	1,200	40	30	10	---	---	---
6.	850	1,000	200	200	0	---	---	---
7.	6,500	7,000	1,100	1,100	0	1,250	1,250	0
8.	725	1,000	None	0	0	---	---	---
9.	171	200	55 ^e	50	5	85	75 ^f	10 ^f
10.	---	---	50 ^c	40	10	200	174 ^f	26 ^f
11.	3,190	5,000	200	178	22	---	---	---
12.	2,466	3,600	Figures Not Available			Undetermined		
13.	1,699	1,200	724	691	33	---	---	---
14.	1,289	1,200	284	284	0	250	240	10
15.	1,239 ^b	5,000	50	50	0	3,000 ^b	2,500 ^b	500 ^b
16.	245 ^b	---	40% ^b	25% ^b	45% ^b	50% ^b	50% ^b	50% ^b
17.	450	800	75	20	55	---	---	---
18.	350	400- 500 ^g	60	60	0	100	100	0
19.	485	800- 1,000 ^g	---	---	---	---	---	---
20.	1,070	1,200	20	20	0	200	200	0
21.	700	1,000	25	25	0	200	200	0
22.	240 ^d	318 ^f	40	40	0	---	---	---
23.	285	200	25	25	0	20	20	0
24.	1,500	1,800	450	450	0	600	450	150
25.	150	200	50	50	0	---	---	---
	28,557	38,468	4,323	4,063	260	6,355	5,584	771

^aSchool disqualified because of combination of junior college and state college classes.

^bSchool disqualified because of lack of information on questionnaire.

^cOnly industrial department enrollment shown.

^dDetermined from: Good, Carter V., Editor. A guide to colleges, universities, and professional schools in the United States. Washington, D. C., American Council on Education, 1945, pp. 8-14.

^eEstimate.

^fDetermined from average percentage increase in enrollment shown by other schools.

^gAverage used.

--- Figures not given in questionnaires.

TABLE X

Average 1940 Enrollment for 22* California
Junior Colleges and Expected Post-War Increases

	Average Number of Students	Per Cent
Average Junior College Enrollment in 1940	1298	
Average Junior College Enrollment Expected in Post-War Period	1749	
Average Increase Per School	451	
Percentage of Increase Expected Per School in Post-War Period Over 1940 Average Enrollment		35

*Three junior colleges disqualified for reasons shown in Table IX.

TABLE XI

Average Number of Boys and Girls Enrolled in
Industrial Courses in 25* California Junior Colleges
in 1940 and Expected Post-War Increases

Boys	Average Number of Students	Per Cent
Average Number of Boys Enrolled Per School in Industrial Courses in 1940	203 ¹	
Average Number of Boys Expected to Enroll Per School in Industrial Courses in the Post-War Period	508 ²	
Average Increase Per School	305	
Percentage Increase Over 1940 Enrollment		250
<u>Girls</u>		
Average Number of Girls Enrolled Per School in Industrial Courses in 1940	12 ¹	
Average Number of Girls Per School Expected to Enroll in Industrial Courses in the Post-War Period	71 ²	
Average Increase Per School	59	
Percentage Increase Over 1940 Enrollment		577

*Averages have been based upon number of schools reporting as shown in Table IX.

¹Twenty-one schools reporting.

²Eleven schools reporting.

TABLE XII

Most Popular Industrial Courses Offered in 25
California Junior Colleges in 1940 With Anticipated
Course Popularity in Post-War Period

Most Popular Industrial Course 1940		Post-War		Ind. Courses Yes No
Boys	Girls	Boys	Girls	
Aeronautics	Cosmetology	Aeronautics	Cosmetology	X
Mach. Shop	-----	-----	-----	X
Woodwork	Toy Craft & Activity Program	General Metal	Art Metal & General Wood	*
-----b	0	-----	-----	---
Print Shop	Print Shop	-----	-----	X
Aeronautics	0	Radio	Cosmetology	X
Auto Mech.	0	Auto Mech. Electronics	0	X
No Classes		Mach. Shop	Crafts and Wood	**
Vocational Forestry	Homemaking	Vocational Forestry	Homemaking	X
Radio	Cosmetology	Radio	Cosmetology	X
Hotel and	Restaurant	Electronics	Design	X
Aircraft Engines	-----	-----	-----	X
Aircraft Const. & Maint.	Cosmetology	Construc- tion	Cosmetology	X
Airplane	0	Auto	Mechanical	X
Sheet Metal		Mechanics	Drawing	
Radio	0	Automotive Electrics	-----	X
Auto	Stenogs.	Auto	Stenogs.	X
Mach. Shop	Home Econ.	Aero. Shop	Home Econ.	X
-----	0	Weld. & Oil Well Mach.	0	X
Mech. Draw.	Agriculture	Agriculture	Agriculture	X
No Classes		Electricity	-----	X
Electricity	0	Radio	0	X

(Continued)

TABLE XII (Cont.)

Most Popular Industrial Course 1940		Post-War		Ind. Courses Elective	
Boys	Girls	Boys	Girls	Yes	No
Aircraft	0	Gas Engine	-----	---	
Drawing		Maint. and			
		Repair			
Auto and	0	Auto and	0	X	
Mach. Shop		Mach. Shop			
Mechanics	0	-----	0	X	
Petroleum	0	Pet. Tech. &	0	X	
Technology		Aviation			

* Some required.

** Except for freshmen who must take General Shop --
9 weeks in each: metal, wood, electricity, and
drawing.

^b -School disqualified -- lack of information on
questionnaire.

0-No girls enrolled in classes offered.

TABLE XIII

Elective and Non-Elective Industrial Courses
Offered in 25 California Junior Colleges

	Number	Per Cent
Schools Reporting Industrial Programs on an Elective Basis	21	84
Schools Reporting Industrial Programs on an Elective Basis Except for Freshmen*	1	4
Schools in Which Some Courses Are Required But Not Specifically Listed	1	4
Schools Reporting Industrial Programs on a Non-Elective Basis	0	0
Schools not reporting	2	8
Total	25	100

*Courses elective except for freshmen who must take General Shop -- 9 weeks of each: metal, wood, electricity, and drawing.

TABLE XIV

Industrial Staff Sizes in 1940 and Anticipated
Needs in the Post-War Period With Subject Areas
in Which Needs Are Expected in 25
California Junior Colleges

School	1940		Anticipate Need For More Teachers in Post-War Period		Subjects or Areas in Which Need is Expected
	Full Time	Part Time	Yes	No	
1.	5	0	X		Electronics & Radio Ind. Electricity Auto Mechanics Machine Shop
2.	10	0	X		Agriculture, Merchan- dising, Technology
3.	2	1	X		Metal, Automotive
4.	1	2	X		Mechanics
5.	0	4	?*		?*
6.	2	1	X		Building Trades, Radio Cosmetology
7.	6	13	X		Auto Mechanics, Drafting
8.	0	0	X		Wood, Drawing, Aeronautics
9.	2	5	X		Mechanics
10.	4	0	X		Diesel, Cosmetology, Business
11.	8	18	X		All Areas
12.	3	0	X		Aircraft Engines
13.	13	0	X		Electricity, Refrig- eration Construction Agriculture
14.	5	2		X	
15.	0	2	X		All Areas
16.	3	5	X		Commercial, Mechanics
17.	0	4	X		Aeronautics, Auto Mechanics, Agricul- ture, Shop
18.	4	1	X		Welding & Carpentry
19.	0	5	X		Agriculture, Aviation Mechanics, Auto Mechanics

(Continued)

TABLE XIV (Cont.)

School	1940		Anticipate Need For More Teachers in Post-War Period		Subjects or Areas in Which Need is Expected
	Full Time	Part Time	Yes	No	
20.	1	0	X		Electricity, Machine Shop
21.	1	0	X		Radio, Drafting Diesel
22.	4	0	X		Gas Engines, Auto Mechanics
23.	4	0		X	-----
24.	5	0	X		Agriculture, Weld- ing, Carpentry
25.	0	4	X		All
	83	67	23	2	Totals

*Undecided.

TABLE XV

Number of Full-Time and Part-Time Industrial Staff Members in 25 California Junior Colleges in 1940

	Number	Per Cent
Number of Full-Time Teachers in 1940	83	55
Number of Part-Time Teachers in 1940	67	45
Total Teachers and Percentages	150	100

TABLE XVI

Anticipated Industrial Staff Requirements in the Post-War Period for 25 California Junior Colleges

	Number	Per Cent
Number of Schools Anticipating Industrial Staff Additions in Post-War Period	22	88
Number of Schools Not Anticipating Industrial Staff Additions in the Post-War Period	2	8
Number of Schools Undecided as to Anticipated Need For Industrial Staff Additions in Post-War Period	1	4
Total Schools and Percentages	25	100

TABLE XVII

Industrial Subjects in Which There is an
Expected Need for Additional Teachers
in 25 California Junior Colleges
in the Post-War Period

Course in Which Need is Expected		Number of Teachers
I. <u>Aircraft</u> (Related)*		
A. Aeronautics	1	
B. Aviation Mechanics	2	
C. Aircraft Engines	<u>1</u>	4
II. <u>Automotive</u> (Related)*		
A. Auto Mechanics	6	
B. Diesel	2	
C. Gas Engines	<u>1</u>	9
III. <u>Building Trades</u> (Related)*		
A. Building Trades	1	
B. Carpentry	2	
C. Construction Trades	<u>1</u>	4
IV. <u>Cosmetology</u>		
A. Cosmetology	<u>2</u>	2
V. <u>Drawing, Drafting, Engineering, Etc.</u>		
A. Drafting	2	
B. Drawing	<u>1</u>	3
VI. <u>Electricity</u> (Related)*		
A. Electricity	2	
B. Electronics and Radio	1	
C. Radio	2	
D. Industrial Electricity	<u>1</u>	6
VII. <u>Forestry, Agriculture, Mining, Etc.</u>		
A. Agriculture	4	
B. Agriculture Shop	<u>1</u>	5

(Continued)

TABLE XVII (Cont.)

	Course in Which Need is Expected	Number of Teachers	
VIII.	<u>Metal</u> (Related)*		
	A. Bench Metal	1	
	B. Machine Shop	2	
	C. Welding	<u>2</u>	5
IX.	<u>Refrigeration and Air Conditioning</u>		
	A. Refrigeration and Air Conditioning	<u>1</u>	1
X.	<u>Woodworking</u> (Related)*		
	A. Wood	<u>1</u>	1
XI.	<u>Miscellaneous</u>		
	A. Merchandising	1	
	B. Technology	1	
	C. Business	1	
	D. Commercial	1	
	E. Mechanics	<u>1</u>	5
		Total	45**

*"Related" in these table headings does not mean that trade related material is taught, but that subjects listed below are related to main heading.

**Three schools reported a need for teachers in all areas of their industrial program. As no specific areas of instruction were specified, however, the number of teachers cannot be included in the total.

TABLE XVIII

Relative Importance of Trade Experience and Amount Required in 1940
With Anticipated Requirements in Post-War Period for
25 California Junior Colleges

	Trade Experience Required in 1940		Subjects or Areas	Anticipate Trade Required Post-War		How Many Yrs.	Subjects or Areas	Relative Importance of Trade Exp. as Compared to Graduate Work		
	Yes	No		Yes	No			More	Less	Equal
1.	X		Machine Shop	X		7	All Voc. Subjects			X
			Cosmetology							
2.	X		Aeronautics	X		--	-----			X
			Auto Mechanics							
3.	X		Machine Shop	X		7	All Voc. Subjects			X
			Machine Shop							
			Automotive							
4.		X	-----		X	--	-----			X
5.	X		Printing	X		3-5	Same as Previously Shown			X
			Auto Shop							
			Electric Shop							
			Carpentry							
6.		X	-----	X		7	All Voc. Subjects	X		
7.	X		All	X		Min. 2	All	X		
8.		No Classes		X		3	Carpentry, Auto, Machine Shop	X		
9.	X		Forestry	X		Probably 5	All			X
10.	X		Related & Specific Trade Subj.	X		7	All Voc. Subjects			X
11.	X		Smith-Hughes Classes	X		7	All Smith-Hughes Classes	X		
12.	X		All	X		?	All			X
13.	X		Some for All	X		---	Varies With Job - Some Req. for All Smith-Hughes			X
14.	X		All Smith-Hughes Shops	X		7	Smith-Hughes	X		
15.		X	-----	X		6	All	X		
16.	X		Commercial	X		2	Commercial	X		
			Auto Mechanics				Auto Mechanics			
17.	X		All	X		5	All	X		
18.	X		Petrol. Well Mach. Welding, Auto Mech., Carpentry	X		3-5	Same as Previously Shown			X
19.		X	-----	X		?	Aviation Mechanics	X		
							Auto Mechanics			
20.		X	-----	X		2	All Shops	X		
21.	X		Electricity	X		7	Radio, Diesel	X		
22.		X	-----	Perhaps		?	-----	---	---	---
23.	X		Auto Mechanics	X		7	Auto Mechanics			X
			Machine Shop				Carpentry			
24.	X		All Vocational	X		7	All Vocational	X		
25.	---	---	-----	X		---	-----	X		

TABLE XIX

Shop Sizes of 25 Junior Colleges in California
in 1940 With Expected Increases or Decreases
in the Post-War Period

School	1940 Size Sq. Ft.	En- large	Keep Same	De- crease	Name of Shop
1.	24,000	X			Machine Shop Auto Mechanics Aero. Hangar Electronics Practical Arts
2.	-----		X		
3.	5,000	X			All New Shops
4.	-----		X		
5.	700-1,000 ^a		X		
6.	6,000	X			All New Shops
7.	40,000	X			Machine Shop Auto Shop Upholstery Aeronautics All New Shops Wood, Metal, Auto, Electric, Drawing Mechanics and Building Trades Radio and Tool Making Nearly All
8.	-----	X			
9.	4,500	X			
10.	8,000	X			
11.	15,000/ Floriculture	X			
12.	-----	X			Aviation
13.	18,400	X			Vocational Lab.
14.	34,560		X		All Shops
15.	1,200	X			15 New Shops
16.	12,000	X			Mechanics
17.	10,000	X			Aeronautics, Auto Mechanics, Welding Woodshop, Radio Aviation
18.	-----	X			
19.	6,000	X			All New Shops
20.	1,100	X			Electricity and Machine Shop

(Continued)

TABLE XIX (Cont.)

School	1940 Size Sq. Ft.	En- large	Keep Same	De- crease	Name of Shop
21.	900	X			Radio and Diesel
22.	8,000	X			-----
23.	17,500		X		-----
24.	92,000	X			Aeronautics Mechanical Engineering
25.	11,250		X		-----
Total Number of Square Feet					<u>316,260</u>
Average Number of Square Feet per School					<u>16,698</u>

^aAverage used.

TABLE XX

Hobby Groups Offered in 25
California Junior Colleges in 1940
and Groups to be Added in Post-War Period

	Number of Hobby Groups 1940	Name	Hobby Groups to be Added Post War
1.	2	Woodwork, Metal Craft & Lapidary Work	Practical Arts General Crafts
2.	0	-----*	-----*
3.	3	Model Making Archery	Undecided
4.	0	-----	-----
5.	0	-----	-----
6.	0	-----	Undecided
7.	2	Air Coeds Photo Club	Undecided
8.	0	-----	Shop Club
9.	0	-----	-----
10.	0	-----	-----
11.	0	-----	-----
12.	0	-----	-----
13.	0	-----	-----
14.	0	-----	-----
15.	1	Radio	Many
16.	4	Aeroplane, Ski- making, Archery Motor Club	Undecided
17.	0	-----	-----
18.	2	Metal, Woods and Aeroplane	-----
19.	0	-----	Undecided
20.	0	-----	Undecided
21.	0	-----	-----
22.	0	-----	-----
23.	0	-----	-----
24.	0	-----	-----
25.	0	-----	-----

*No response.

TABLE XXI

Industrial Occupational Course Summary for 25 California
Junior Colleges and Expectations for Post-War Period

	Yes	No	No Re- sponse	Number of Schools
1. Occupational Study a Part of Industrial Program in 1940	11	12	2	
2. Occupational Study Separate from Regular Shop Classes in 1940	9	6	1	
3. Number of Schools Pre- ferring Occupational Material Combined in Shop Subjects	13		7	
4. Number of Schools Preferring Occupa- tional Material in Separate Classes	2			
5. Number of Schools Pre- ferring Combined Method of Nos. 3-4 Above	3			
6. Occupational Courses to be Given in Post-War Period				
a) Gen. Occupations Courses				2
b) Auto Mechanics Occupations				2
c) Aircraft Occupations				2
d) Air Conditioning, Heat- ing, Refrigeration				1
e) General Commerce Occupations				1
f) Oil Well Mechanics Occupations				1
g) Welding Occupations				1
h) Carpentry				1

CHAPTER IV

GENERAL SUMMARY OF THE TABULAR RESULTS OF THE STUDY*

Terminology

1. In 1940 "Industrial Arts" was used to define the industrial programs in six or 24 per cent of the schools questioned.
2. In 1940 "Vocational Education" was used to define the industrial programs in six or 24 per cent of the schools questioned.
3. In 1940 "Industrial Education" was used to define the industrial programs in four or 16 per cent, and "Mechanic Arts" in three or 12 per cent of the schools questioned.
4. Each of the six remaining schools or 24 per cent used various other names.
5. A total of ten or 40 per cent of the 25 junior colleges questioned expected changes in terminology in the post-war period.

*Averages and percentages, et cetera, are based entirely upon the number of schools reporting as shown in the particular chart or table upon which the summary was based. Most tables are based upon the returns from 25 schools. However, some tables are based upon the returns from as few schools as 11.

Course Content

1. Eighty per cent of the 25 schools questioned expected to have strictly vocational programs in the post-war period.
2. Twelve per cent or three schools expect to offer avocational industrial programs in post-war period.
3. Two or 8 per cent expect to offer a combination of vocational and avocational subjects in the post-war period.
4. A total of 18 courses is to be dropped in the post-war industrial programs of the schools questioned.
5. A total of 10 courses is to be dropped in the aircraft and metal working fields.
6. With the exception of patternmaking, which is being dropped by two schools, the remaining 8 subjects are single subjects being dropped by individual schools.
7. In all 77 courses are expected to be added to the post-war industrial programs of the 25 schools questioned.
8. The field of metal working shows the largest expansion, with 14 courses planned for the post-war period.

9. The aircraft and automotive fields rank next in order of expansion with 10 courses expected in each field for the post-war period.
10. The electrical and building-trades fields rank third, with 9 courses planned in each field for the post-war expansion.
11. Drawing and related subjects rank fourth with the planned addition of 8 courses in the post-war period.

Enrollment

1. The average junior college enrollment in 1940, for schools reporting, was 1298.
2. The average expected junior college enrollment in the post-war period for schools reporting is 1748.
3. The average increase per school is 450 or an increase of 35 per cent over the 1940 enrollment for schools reporting.
4. The total number of boys enrolled in industrial courses in 1940 was 4063.
5. The average number of boys enrolled in junior college industrial classes in 1940 was 203 each, for the schools reporting.
6. The average number of boys expected to enroll per school in industrial classes in the post-war

period is 508.

7. The average increase per school is 305 or an increase of 250 per cent over enrollments in 1940.
8. The total number of girls enrolled in junior college industrial classes in 1940 was 260.
9. The average number of girls per school enrolled in industrial subjects in 1940 was 12.
10. The average number of girls per school expected to enroll in industrial subjects in the post-war period is 71.
11. The average increase per school is 59 or an increase of 577 per cent over 1940 enrollments.
12. Aircraft industrial subjects were the most popular with junior college boys in 1940.
13. Electricity and radio are expected to be the most popular industrial courses for boys in the post-war period.
14. Cosmetology was the most popular industrial course for girls in 1940 and is expected to maintain its popularity in the post-war period.
15. Eighty-four per cent of the schools reported industrial courses on an elective basis.
16. One school reported some industrial subjects required, and one reported a General Shop requirement for freshmen.

Teaching Staff

1. There was a total of 150 full- and part-time industrial teachers in 1940.
2. Eighty-three or 55 per cent of the industrial teachers were on a full-time basis in 1940.
3. Sixty-seven or 45 per cent of the industrial teachers were on a part-time basis in 1940.
4. Twenty-two of the 25 schools reporting expressed a need for industrial teachers in the post-war period.
5. Two of the schools reporting expressed no need for industrial teachers in the post-war period, and one school was undecided.
6. The greatest need for industrial teachers in the post-war period is in the automotive field where 9 new positions are expected to be required.
7. The next greatest need for industrial teachers is expected to be in the field of electricity and radio.
8. Seventeen of the 23 schools responding required trade experience of their industrial teachers in 1940.
9. Six schools did not require their industrial teachers to have trade experience.

10. One school had no classes, and one did not respond.
 11. Twenty-three schools anticipate a trade requirement for their industrial teachers in the post-war period.
 12. One school was undecided and one will not require trade experience of its industrial teachers in the post-war period.
 13. Ten schools specified definite subjects in which they required trade experience.
 14. Four schools required trade experience of all industrial teachers.
 15. Three schools required trade experience of all vocational or Smith-Hughes trade teachers.
 16. Eighteen schools are expecting to require trade experience of industrial teachers in the post-war period.
 17. Nine schools or 50 per cent of the schools reporting are requiring 7 years of trade experience in post-war period (probably based upon the state requirement of three years journeyman and four years apprenticeship training for Smith-Hughes teachers).
 18. Three schools of those reporting were undecided as to the exact amount of trade experience to be required in the post-war period.
- Summarized*

19. Seven schools reported specific subjects in which trade experience is expected to be required in the post-war period.
20. The remaining schools of those reporting specified an anticipated trade requirement for all vocational or Smith-Hughes courses.
21. Thirteen school administrators reported feeling that trade experience for their industrial teachers was more important than an equal amount of graduate work.
22. Eleven school administrators felt that trade experience and an equal amount of graduate work were of equal importance to teachers of industrial subjects.
23. None of the administrators reporting felt that trade experience was of less importance than an equal amount of graduate work at a recognized university.
24. Because of the increasing number of schools switching from the industrial-arts type program to the Smith-Hughes vocational type program, it may be expected that there will be a lessening in the demand for industrial arts teachers in the junior colleges of California.

Shop Size

1. There was a total of 316,260 square feet of floor space devoted to industrial subjects in 1940.
2. The average number of square feet devoted to industrial subjects in 19 schools in 1940 was 16,698 square feet per school.
3. Nineteen schools plan to enlarge their shop facilities in the post-war period.
4. Six schools plan to keep their school shop facilities the same size as in 1940.
5. No schools plan to decrease the size of their industrial plant in the post-war period.
6. Five schools reported the building of all new shops.
7. Fourteen schools reported specific subject areas in which expansion was to take place.

Hobby Groups

1. Six or 24 per cent of the schools questioned maintained hobby groups in 1940.
2. Two schools specifically named hobby groups to be added in the post-war period.
3. One school planned to add "many" and 6 schools were undecided.

Occupational Study

1. In 11 schools or 44 per cent of those questioned, occupational study was a part of the industrial program in 1940.
2. In 12 schools or 48 per cent of those questioned, occupational study was not a part of their industrial program in 1940.
3. Two or 8 per cent of the schools did not respond.
4. In 9 schools or 36 per cent of those questioned, occupational study was separate from regular shop classes.
5. In 24 per cent or 6 of the schools questioned, occupational study was not separate from regular shop classes in 1940.
6. One school did not respond.
7. Thirteen or 52 per cent of the administrators questioned preferred occupational material combined in shop subjects.
8. Two administrators preferred occupational study in separate classes.
9. Three administrators or 12 per cent of those questioned preferred giving occupational material both in shop classes and special classes.

10. Seven or 28 per cent of those questioned did not respond.
11. Eight separate occupational courses are to be given in the post-war period.

QAC CONTENT

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APPENDIX

Date

Dear Sir:

It will be greatly appreciated if you will check and return the attached card, indicating your willingness to assist in a study of the status of industrial arts in the California junior colleges: 1940 with future outlooks, by completing a short questionnaire designed to help evaluate the problems involved.

Sincerely yours,

Maurice W. Davis

I shall be glad to cooperate in your study of the status of industrial arts in the California junior colleges: 1940 with future outlooks, to the extent of filling out a short questionnaire.

Signed _____

School _____

Address _____

Return-Reply Post Card

Card Number 1

LONG BEACH PUBLIC SCHOOLS
HAMILTON JUNIOR HIGH SCHOOL
STATE STREET AND ALAMITOS AVENUE
LONG BEACH, CALIFORNIA

68

Director of Industrial Education
Junior College
, California

Dear Sir:

Enclosed are the questionnaire forms you expressed a willingness to fill out for the co-operative study of the 1940 status and post war outlook of industrial education in California junior colleges. Please supply the necessary information and return in the enclosed self-addressed envelope.

An extra copy of this questionnaire is attached for your files, and for reference when a summary of this study is made available to all who participate, either in a professional magazine in our field, or in a personal report.

We wish to express our appreciation and thanks to you for your cooperation in this survey.

Yours very truly,

Maurice W. Davis
Teacher of
Mechanical Drawing

MWD:c

Letter of Transmittal

LONG BEACH PUBLIC SCHOOLS
Hamilton Junior High School
State Street and Alamitos Avenue
LONG BEACH, CALIFORNIA

69

Director of Industrial Education
Junior College
, California

Dear Sir:

In view of the fact that you expressed your willingness to cooperate in our study of the status of industrial education in the California junior colleges by signing and returning the initial post card, we forwarded to you two copies of our questionnaire. To date, we have received no response from you, and felt that perhaps you had misplaced the above-mentioned forms.

We are unable to draw this survey to a successful conclusion by the first part of June without your cooperation. It would be greatly appreciated, therefore, if you would fill out and return one of the enclosed questionnaires.

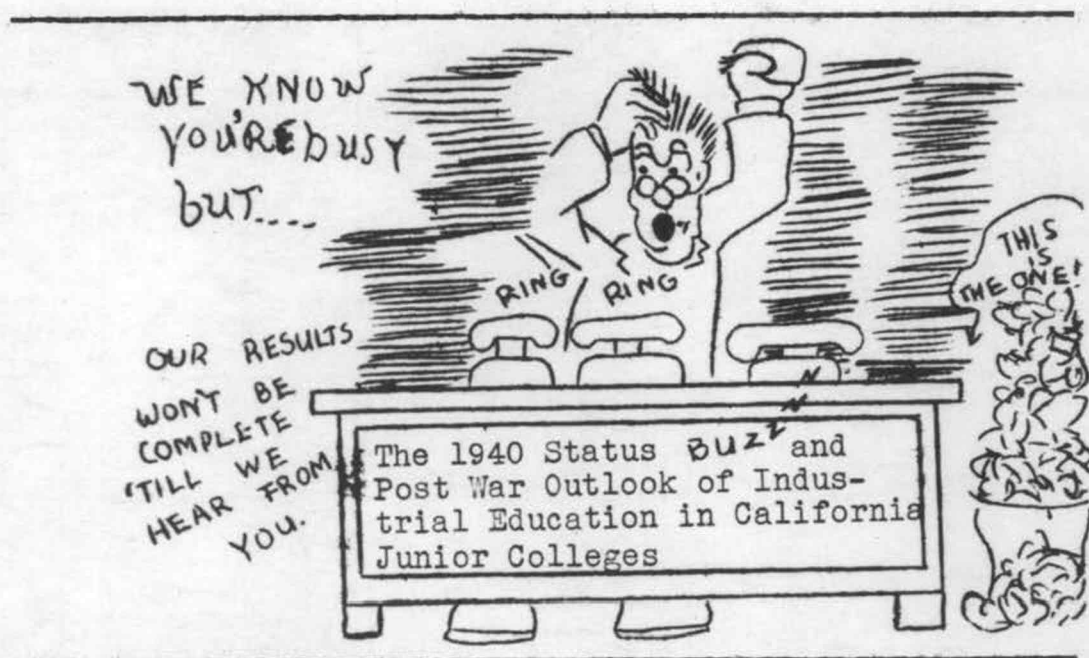
Very truly yours,

Maurice W. Davis
Teacher of
Mechanical Drawing

MWD:c

Second Letter of Transmittal

Brunniger



Comic Postcard

The Status of Industrial Education

71

In The California Junior Colleges:

1940 With Future Outlooks

Questionnaire

I.

1. Your name * _____
2. School _____

II. Terminology

1. What term would best define the industrial program of your school in 1940?
 - (a) Industrial Arts _____
 - (b) Mechanic Arts _____
 - (c) Industrial Education _____
 - (d) Vocational Education _____
2. Do you expect any change in terminology with respect to your industrial program in the post-war period? Yes _____ No _____
3. If so, what? _____

III. Course Content

1. Was your industrial program for the most part vocational _____ or avocational _____ in 1940?
2. Will your industrial program for the most part be vocational _____ or avocational _____ in the post-war period?

IV. Enrollment

1. What was the total enrollment in your school in 1940? _____
2. Expected total post-war enrollment. _____
3. How many were enrolled in your industrial program in 1940? Boys _____ Girls _____
4. Expected post-war enrollment in the industrial program. Boys _____ Girls _____
5. What industrial course had largest enrollment in 1940? Boys _____ Girls _____

*Name need not be supplied unless you wish a copy of the report summarizing this study. All information will be strictly confidential and the report will not mention names or places.

6. What industrial course do you anticipate will be most popular in the post-war period?

Boys _____

Girls _____

7. Is your industrial program on an elective basis? Yes _____ No _____

V. Staff

1. How many teachers were on your industrial staff in 1940? Full time _____
Part time _____
2. Do you anticipate a need for more teachers in the post-war period? Yes _____ No _____
3. If so, in what industrial subjects or areas? _____
4. In 1940 did you require trade experience of any of your teachers? Yes _____ No _____
5. If so, in what subjects? _____,
_____, _____,
6. Do you anticipate requiring trade experience in the post-war period? Yes _____ No _____
7. If so, how much? _____ year(s). In what subjects? _____,
_____, _____,
8. Do you consider trade experience for your teachers more _____, equally _____, or less _____ important than the same amount of graduate work at a recognized university?

VI. Shop Size

1. How many square feet of floor space did your industrial plant occupy in 1940? _____
2. Do you plan to enlarge _____, keep same _____, or decrease _____ the size of your plant in the post-war period?
3. If so, in what fields? _____,
_____, _____

VII. Hobby Groups

1. How many hobby groups did your industrial program sponsor in 1940? _____
2. Please list: _____,
3. What additional groups do you intend to add in the post-war period? _____,
_____, _____

VIII. Occupational Information

1. Was occupational study a part of your industrial program in 1940? Yes _____ No _____
2. Was occupational study separate from regular shop classes in 1940? Yes _____ No _____
3. What occupational courses do you intend to give in the post-war period? _____,
_____, _____,
_____;
4. Do you prefer to combine occupational material in course content of shop or give it as a separate course (underline preference).