

**SOME CRITERIA FOR ESTABLISHING
AND MAINTAINING AGRICULTURAL
DEPARTMENTS**

JOHN SEYMOUR FULLER

Some Criteria For Establishing And Maintaining
Agricultural Departments In The
Secondary Schools Of
Arizona

by

John Seymour Fuller

Submitted in partial fulfillment of the
requirements for the degree of

Master of Arts
in the College of Education of the
University of Arizona

1932

Approved:
J. W. Lawson
Aug. 9, 1932

E9791
1932
14

TABLE OF CONTENTS

LIST OF TABLES	iv
LIST OF FIGURES	iv
Chapter	
I. INTRODUCTION	1
The Problem	
Definition of Terms	
Origin of the Problem	
Reason for Making the Study	
The Data	
Procedure and Findings	
Conclusions	
II. THE DUTY OF THE HIGH SCHOOL	13
Development of Vocational Agricultural Education	
Differentiation of Types of Agriculture in College and High School	
Difficulties in Getting Agriculture Universally Accepted by High Schools	
Vocational Education as an Investment	
Changes in Curriculum Come Slowly	
College Dominance	
Progressive Movements in Education	
High School Courses of Study Are Being Modified To Meet Needs.	
Vocational Education Stimulated by Federal Aid	
Effectiveness of Agricultural Instruction	
It Is The Duty of the High School to Offer Vocational Agriculture	
Summary	
III. THE TYPES OF VOCATIONAL EDUCATION NEEDED IN ARIZONA	30
Distribution of Wealth	
Persons Engaged in Various Industries In Arizona	
Occupational Classification	
Basis of Determining Vocational Educational Needs	
High Schools Classified According To Relative Importance of Agriculture	
The High Schools' Vocational Offering	
The Agricultural Offering	
Summary	
IV. VOCATIONAL AGRICULTURE IN THE SALT RIVER VALLEY	43
The Need for Vocational Agriculture	
The Amount of Vocational Agriculture Offered	
Ability of the Schools to Offer Vocational Agriculture	
Summary	

TABLE OF CONTENTS Continued

Chapter		
V. CONCLUSIONS AND RECOMMENDATIONS.		50
The Duty of the School		
The Types of Vocational Education Needed in Arizona		
The Vocational Training Arizona High Schools Are Offering		
The Vocational Agriculture Offered in Agri- cultural Districts		
The Need, Effort, and Ability to Offer Voca- tional Agriculture In the High Schools in Salt River Valley		
Some Recommendations		
Some Criteria		
BIBLIOGRAPHY		58
APPENDIX		71

LIST OF TABLES

Table	Page
I. Assessed Valuation in Arizona by Per Cent. For 1929	31
II. The Number and Per Cent. of Persons Engaged in Various Vocations in Arizona	33
III. Schools Listed According to the Relative Import- ance of Agriculture.	36
IVa. Arizona High Schools Where Agriculture is the Principal Industry and Their Vocational Offerings.	38
IVb. High Schools and Their Vocational Offerings Where Agriculture is a Minor Industry or is Relatively Unimportant	39
V. Schools In Districts Where Agriculture is A Major Industry and the Classes in Vocational Agriculture for 1930-31 and 1931-32.	41
VI. Information About High Schools in Maricopa County, 1930-31.	44
VII. High Schools In The Salt River Valley Arranged According to the High School Tax Rate, 1930-31 . .	48
VIII. High Schools in the Salt River Valley Arranged According to the Per Pupil Cost, 1930-31.	48

LIST OF FIGURES

Figure	Page
1. Per Cent. of Boys in the Schools That Are From Farms	44
2. Per Cent. of Farm Boys That Were Taking Classes In Agriculture during 1930-31.	46
3. Number of Boys Taking Agriculture during 1930-31 . .	46

CHAPTER I

INTRODUCTION.

The Problem.--The problem attempted in this study is to determine some criteria for establishing and maintaining vocational agricultural departments in the secondary schools of Arizona. An effort has been made to determine (1) the duty of the high school, (2) the major types of vocational education that boys and girls in the various high school districts of Arizona need, (3) the extent to which Arizona high schools are meeting these needs, and (4) the relative amount of vocational agriculture instruction that is needed and offered in those high schools which are located in agricultural districts. In addition a special case study of the high schools in the Salt River Valley was made to compare the need, the effort and the ability of the schools to offer classes in vocational agriculture.

After determining the duty, the vocational needs, and the extent to which vocational education is offered in the various high schools, in the agricultural districts, an attempt is made to formulate some criteria for establishing and maintaining agricultural departments in the high schools in Arizona.

No attempt is made in this study to determine the relative emphasis that should be given to curriculum constants. Only the types of vocational education which should be the curriculum variables are considered.

Definition of Terms.--Criteria are measuring rules by which one can determine the correctness of his judgments, conclusions, or practices.

Vocational curricula are those prescribed courses of study whose prime objective is to fit students to successfully pursue a gainful occupation. The major types of vocational curricula appropriate for secondary schools, as considered in this study, are home making, commercial or business, agriculture, trades and industries, and college preparatory. The college preparatory curriculum is considered vocational in so far as it is pre-vocational or pre-professional.

A vocational agriculture department, as considered in this study, consists of one or more agricultural classes taught by teachers specifically qualified and prepared for the work. A qualified teacher has sufficient native ability, farm experience, scientific and educational training to successfully teach farm boys to become better farmers.

Secondary schools may be either junior or senior high schools.

Origin of the Problem.--The original function of secondary schools was to prepare the select few for the college. With the spread of the idea that real democracy means equal opportunity for all the public has begun to realize that everyone, regardless of the class to which he happens to belong, has the right to demand that the state supply the education that meets his¹ needs.

Secondary education should be determined by the needs of the group to be served. The National Education Association, in an effort to determine the function of secondary education, appointed a commission to make an investigation. In 1918 their report, "Cardinal Principles of Education", was published. There were seven cardinal objectives presented, and the committee suggested that those subjects taught in schools should contribute directly to health, command of the fundamental processes, worthy home membership, citizenship, ethical character, worthy use of leisure time, and vocational efficiency. The first five mentioned were suggested as constants to be required of all students. Vocational education was classified as a curriculum variable, to be emphasized and varied according to the pupil's vocational needs. Subjects contributing to worthy use of leisure

1 Kingsley, Clarence D. "Committee Chairman. "Cardinal Principles of Secondary Education", Bureau of Education Bulletin 1918 No. 35, Pp. 5-23

time were classified as free electives, to be selected by any or all students as they so desired.

With the recommendation of this committee there began a vigorous attempt on the part of educational leaders to assist secondary school principals in reorganizing their courses of study to more nearly accomplish these objectives.

Leaders interested in vocational education had also been busy for some time encouraging Congress to appropriate money to be used in stimulating the introduction of vocational educational training into the high schools, and in 1917 the Smith-Hughes Act was passed. This made funds available to all the states that wished to accept the provisions of the act. Arizona's Legislature was in session at the time the national act was passed, and immediately accepted its provisions and appropriated money to match the federal funds. A state board, a director, supervisors, and teacher-trainers were appointed; and teachers were immediately selected and put into training for the new work. Some of the teaching done by these hurriedly trained teachers proved unsatisfactory and they were not re-employed. Certain of the schools, whose principals objected to the standards set up by the supervisors, withdrew from federal aid, but continued to offer the type of instruction they desired.

At the present time the majority of the larger high schools in agricultural districts are

offering agricultural instruction, while others with apparently similar needs are not. Some smaller high schools are offering one or more classes of vocational agriculture. Others, in districts where agriculture is of equal importance, are apparently making no attempt to introduce the work.

Reason For Making The Study.--This fact of uniformity in the vocational offerings of Arizona's high schools has caused considerable comment among educators interested in vocational education. The author of this study, became interested in the problem, and has endeavored to contribute something toward its solution. By determining some criteria for establishing and maintaining vocational agricultural departments, he hopes to give to those who are, or should be, interested in vocational education a basis for recommending its introduction into those high schools whose courses of study are not now adapted to the needs of their students.

Previous Studies.--Before the present study was begun no complete survey of the state had been made to determine the need for vocational agricultural education or to discover the effort Arizona high schools are making to meet these needs.

In the summer of 1931, Mr. Halbert W. Miller completed his study entitled "Constructing Courses of Study in Vocational Agriculture for High

Schools of Arizona". He found that no definite plan had been followed by high school principals who have introduced vocational agricultural curricula into their schools, and suggested that some centralized agency formulate such a plan to be used as a guide for schools needing this type of education. He also found that the majority of farm boys entering high school returned to the farms, and that farm boys in vocational agricultural classes were slightly above the average intelligence in those schools considered in his study.²

Several surveys of individual school districts in Arizona have been made by Dr. E. L. Larson of the University of Arizona, assisted by committees of students, to determine the suitability of their curricular offerings on the basis of their students's needs. In the Casa Grande survey the committee recommended that a vocational agricultural curriculum be introduced and that the school offer four different curricula; college preparatory, business, home making, and agriculture. In a similar survey of Wilcox the same curricula were recommended. The Marana survey recommended but three curricula, college preparatory, home making, and agriculture. Surveys of Wickenburg and Tombstone were also made. Tombstone was advised that since its program of studies was

² Miller, Halbert W. "Constructing Courses of Study in Vocational Agriculture For High Schools of Arizona"; Master's Thesis, Colorado Agricultural College.

adapted to students of abstract intelligence, and since the per pupil cost was very high, a complete reorganization of the course of study should be made. The committee suggested that certain subjects be discontinued and that the new program of studies include business organization and management, problems of democracy, animal and poultry production, and general mathematics.

The Data.--The data in this study pertain chiefly to the vocational training needs of boys and girls of high school age, and the extent to which Arizona high schools are endeavoring to meet these needs. The duty of the high school was determined by obtaining the view point of America's leading secondary education authorities relative to the function of the secondary school and its vocational educational responsibilities. Two important groups of data which indicate vocational educational needs were secured, one from the report of the "Fifteenth Census of the United States", where the vocational opportunity is determined by finding the per cent. of persons engaged in the various industries in Arizona; and the other from the "Arizona Year Book for 1930", which gives the major industries of each community in which a high school is located, and the locality from which it draws students. Additional data relative to the need for vocational agricultural instruction were obtained from a questionnaire sent to the principals of high schools in agricultural districts.

The extent to which Arizona high schools are endeavoring to meet the various vocational needs of their students was determined by listing each school with its subjects that should contribute toward success in the major vocations. These data were obtained from the Arizona Educational Directories for 1930-31 and 1931-32, and from the records in the office of the State Department of Vocational Education. In a special study of the schools in the Salt River Valley, the number and per cent. of farm boys, the number of agricultural classes, and the number of boys studying agriculture were determined from a questionnaire. (See Appendix.)

Additional information on the average daily attendance and average per pupil cost was obtained from the 10th Biennial Report of the State Superintendent of Public Instruction. Data on school persistence and per cent. of high school students taking various high school subjects were obtained from Bureau of Education Bulletins.

Procedure and Findings.--The first step in the study was to determine the duty of the high school. This was done by reading the current educational literature. A great number of books, bulletins, and magazines were read, and from the writings of the foremost secondary education authorities the conclusion was reached that it is the function of the school to prepare each

pupil so that he can best take advantage of those opportunities open to him.³ After this conclusion was reached an attempt was made to determine the vocational educational needs of the boys and girls who should be in Arizona high schools. From the 1930 census it was found that 23.4 per cent. of those persons engaged in the various industries in Arizona were in agriculture, 18.4 per cent were working in commercial and business enterprises, 31.1 per cent. were in the trades and industries, and only 8.4 per cent. were in the professions. In Arizona 78.5 per cent. of the women over 15 years of age are married or have been married, hence the assumption is made that these women are, or should be, home makers.

If the high schools of Arizona are accepting the newer philosophy of education and giving vocational training in proportion to needs and vocational opportunity, we should expect their vocational offering to be in proportion to the number engaged in these various occupations.

Arizona's principal industries are agriculture and stock raising, mining, and lumbering. Some districts are supported primarily by agriculture, others by mining, and still others by lumbering or by the employment furnished by the railroad. A few districts

³ Larson, E. L., and Committee, "The Sasa Grande Survey", (1930), P. 23.

have several major enterprises, hence it was necessary to determine the principal industries of each school district. This information was available in the "Arizona Year Book for 1930", and with some verification the various districts were classified according to the importance of agriculture in each. The towns were listed according to the following classification: (1) Those in which agriculture is the principal industry, (2) those where it is a minor industry, and (3) those where it is relatively unimportant.

After thus classifying the various high school districts it seemed appropriate to arrange them in order according to average daily attendance and then check to see what types of vocational education each offered and determine whether emphasis was being placed upon the types of vocational education that the major enterprises of the community would suggest. A check was made to determine the relative emphasis given each type of education, as indicated by the order in which they seem to be introduced. This was done by starting with the smaller schools and comparing their vocational offering with those schools just larger.

The order of importance and preference given the various types of vocational education in schools in communities where agriculture is the principal or major enterprise, was as follows: 1st--college preparatory,

2nd--commercial, 3rd--home making, 4th--agriculture, and 5th--trade and industries. Most of the smaller schools in outlying agricultural districts, where the students could not attend college or secure commercial employment without leaving home, were offering college preparation subjects first, commercial courses second, and occasionally some home making courses. Agriculture and farm mechanics are offered only in the larger schools.

In the Salt River Valley, where agriculture is the principal industry and of equal importance in all the high school districts, except perhaps Phoenix, the per cent. of boys coming from farms ranged from 46 per cent. in Tempe to 96 per cent. in Tolleson. In general, the larger the town the lower is the per cent. of farm boys. There was little uniformity in the efforts of the schools to offer vocational agricultural education. With the exception of Peoria, all the smaller schools, having the greater relative need for the work, are evidently making the least effort to offer it. The high school tax rate seemed to have very little bearing upon their agricultural offerings. Peoria, with the highest tax rate, is offering the same number of agricultural classes as is Gilbert, which has the lowest, and is not a much larger school. The smaller schools have the greater per capita cost, however, probably because of smaller classes.

Conclusions.--As the result of this study the following conclusions were reached: (1) It is the duty of the high school to offer the types of education, including vocational education, that the students need. (2) The major types of vocational education needed for the principal industries of Arizona are home making, agriculture, business, and trades and industries. (3) High schools in Arizona are not giving relative emphasis to the types of vocational education needed. (4) Even in agricultural districts when agriculture is offered it receives less emphasis than courses which prepare for college or for business or commercial work. (5) In the Salt River Valley the agricultural offering is not at all uniform and does not approach what would be expected if it were based upon need or ability of the school to offer the instruction.

CHAPTER II

THE DUTY OF THE HIGH SCHOOL.

The high school's present obligation to offer vocational education has been the outgrowth of a general demand made by the public and educational leaders, that school administrators recognize that it is the function of the high school to give the types of vocational education that their students need.

Development of Vocational Agricultural Education.--When the college land grant act of 1862 was passed, there were practically no agricultural studies offered in the secondary schools, and it was generally supposed that the Agricultural Colleges would meet the need for agricultural education. As the latter developed, however, the tendency was to confine the teaching of agriculture to the junior and senior years. The result was that many students who enrolled for the agricultural course left without having received any instruction in agriculture. After 1900 there was considerable public sentiment, especially among the farming class, that instruction in agriculture should be introduced into secondary and elementary schools. As a result many teachers went to the agricultural colleges for short courses, and

a considerable number of students in the long-term courses went from the agricultural colleges to teach in the high schools.⁴

Because of the introduction of the short-unit courses in the agricultural colleges, and because there were yet relatively few high schools and other preparatory schools easily accessible to farm children, the idea grew that students from elementary schools should be admitted to the agricultural colleges.⁵ Many of these colleges encouraged eighth grade graduates to attend, and as a result much of their instruction soon became of secondary grade.⁶ In 1915-16 the Bureau of Education listed 24 land-grant institutions that were giving secondary courses in agriculture.⁷

During the same period, from 1900 until 1915, the high schools were introducing instruction in agriculture,⁸ and it soon became evident that most of the secondary instruction was to be given by them.⁹ In an effort to promote vocational agricultural instruction in secondary schools a number of states provided special

-
- 4 True, Alfred Charles. "A History of Agricultural Education in The United States 1785-1925", Pp. 322-24
5 Ibid. P. 273
6 Ibid. P. 274
7 Monahan, A. C., and Dye, C. H. "Institutions in the United States Giving Instruction in Agriculture 1915-16", Bureau of Education Bulletin 1917 No. 34, Washington, D. C., Government Printing Office, (1917), P. 14
8 True, Alfred Charles. Op. Cit. P. 350
9 Ibid. P. 379

county and district schools, and by 1908 secondary agri-
cultural education had become very popular. The inclusion
of it in the Smith-Hughes Act of 1917 was really the out-
come of an active movement which had been in progress for
more than a decade.

Differentiation of Types of Agriculture
in College and High School.

--Since the colleges had assumed the responsibility of training both practical farmers and agricultural leaders, the two duties soon began to conflict. Some of them tried to relieve the situation by eliminating their secondary courses of study, while others permitted their strictly agricultural classes to predominate. There has since been a gradual differentiation of the duties of high schools and colleges, until at present the high schools are teaching vocational agriculture and the agricultural colleges are teaching more of the basic sciences. The college is becoming the nucleus of agricultural education, with its chief duty to prepare men and women for responsible posts in agricultural research, teaching, and extension; the most important of which require graduate training. They are really educating young men away from the farms, rather than training

10 Cubberly, Ellwood P. "State School Administration",
P. 390

11 True, Alfred Charles, Op. Cit. P. 356

12 Shepardson, Whitney H. "Agricultural Education In The
United States",
P. 45

13 Ibid. Pp. 72-73

14 Ibid. P. 117

15

them to become farmers.

The high school, on the other hand, is endeavoring to teach vocational agriculture to the farm-reared boys, who can make immediate application of what they learn with their home projects and supervised farm practice.¹⁶ Thus the boys secure the necessary experience, capital, and business training to start farming for themselves early in life, and are protected from the temporary inducement of working at jobs, which are immediately more attractive, yet have not the ultimate possibilities that farming has. Since farming has become a business, it requires the same procedure in accumulating working capital as does other business. If this capital can be accumulated before the obligations of maintaining a home become burdensome, the boys have a much better chance to become financially successful farmers.¹⁷

Difficulties in Getting Agriculture

Universally Accepted by High Schools.---There has been considerable reluctance on the part of various communities to commit themselves to vocational education because of the strength of the traditional academic curriculum.¹⁸ They seem to be handicapped by the tradition that schools are

15 Lapp, John A., and Mote, Carl H. "Learning to Earn",
P. 21

16 Cubberly, Ellwood P., Op. Cit. P. 390

17 Fuller, John S. "Our Agricultural Education Program",
The Signal, Vol. II, No. 8 (April and May, 1931), P. 9

18 Briggs, Thomas Henry. "The Great Investment", P. 105

respectable only when preparing students for institutions
of higher learning. Their administrators have a faith in
education as a means of social conservatism, based on the
theory that their schools are discharging some function
of vocational education. They defend such schools by
citing those pupils whose native abilities and favorable
extra-school environment have enabled them to choose and
win leadership in the choice vocations, while large pro-
portions of their youth, who could not profit by the high
school course of study, after many years of drifting,
have finally settled into the vast army of semi-skilled
and untrained workers. The primary waste is not money,
but human life, the lives of the children while they are
in school and afterward because of inadequate and per-
verted preparation.

Vocational Education As An Investment.--

We cannot afford not to spend liberally for vocational
education. The expense should be regarded as a very
profitable investment rather than a burden. President
Hoover has said,

-
- | | | |
|----|---|--------|
| 19 | Briggs, Thomas Henry. Op. Cit. | P. 103 |
| 20 | Snedden, David, "What's Wrong With American Education", | P. 19 |
| 21 | Snedden, David. "Sociological Determination of Objec-
tives in Education", | P. 66 |
| 22 | Snedden, David. "What's Wrong With American Education", | P. 269 |
| 23 | Dewey, John. "School and Society", | P. 77 |
| 24 | Cubberly, Ellwood P. Op. Cit. | P. 399 |

"We cannot in fairness continue to provide specialized education free to the few who propose to enter the professions, while denying education to the many for common vocations.

"There is in fact no better economy than the economy of adequate training for the pursuit of agriculture, commerce, industry, and the home. Our youth must enter into these pursuits and it is on all counts in the public interest that they be well trained for them. To provide such training is clearly a public responsibility. Education in general, including vocational education for the youth, is Democracy's most important business". 25

The state supports free public schools to perpetuate itself and to promote its own interests. This is a long term investment and not a benevolence. The open question then becomes, what kind of education shall be provided and how far shall it be extended?²⁶ In our devotion to cultural education we must not lose sight of the fact that no person can ideally be a good citizen unless he is equipped by nature and training to make a good living.²⁷ It should also be remembered that all subjects can be made cultural and that the value of an education must ultimately be measured by the extent to which it equips students for meeting the issues of life. Some subjects are supremely important while others are most trivial. An appreciation of relative values is the

25 Schmidt, G. A. "New Methods in Teaching Vocational Agriculture"., P. 6
26 Briggs, Thomas Henry. Op. Cit. Pp. 8-12
27 Ibid. P. 46

28

beginning of wisdom.

The school should deal with every normal youth on the theory that when he becomes mature he must earn his own living. We must also keep in mind that work will require the greater portion of his time and energy. Clear-sighted men and women, whose primary interest is general human welfare, maintain a wholesome attitude toward all useful vocations. We cannot honestly hold up the professions as goals for all our students when we know that fully ninety per cent. of them will be compelled to enter the other vocations. If every man and woman were a college graduate the useful and productive labors of the world would still be necessary. The inequalities of honor and reward for various means of livelihood will never be removed through the impossible plan of lifting all people into the professions, but rather through lifting the vocations to the approved social level of the professions.

Changes In Curriculum Come Slowly.--

Changes in curriculums generally follow from ten to fifteen years behind their advocates. This accounts for our finding sincere and earnest directors of schools, which should be preparing for vocations, still regarding their main function, the preparation of boys and girls

-
- 28 Morgan, Arthur E. "What Is a Cultural Subject?", School and Society, XX (Nov. 29, 1924), Pp. 696-697
29 Bobbitt, Franklin. "How To Make a Curriculum", P. 55
30 Ibid. Pp. 61-63
31 Charters, W. W. "Curriculum Construction", Pp. 6-13

32
for college.

College Dominance.--It is recognized that in the past, and at present, the curricula and activities of the secondary schools are largely dictated by the colleges. In their bigotry and blind faith in arbitrary and formal entrance requirements, they have regulated the secondary schools' courses of study by specifying what courses must be taken in preparation for college. They have failed to recognize that they could obtain just as good students by selecting those who show superior intelligence as measured by abilities in oral and written speech, good habits of study, and earnestness of purpose, as by the present entrance requirement methods used by most schools. If they would adopt some other scheme, such as the judicious use of carefully kept school records, and mental tests, they could easily select those students who are best fitted to enter college. The smaller secondary schools could then meet their entrance requirements, and still adapt their courses of study to render greater service to a larger group of students.

If we could remove the paternalism of the colleges, the secondary schools could quickly reorganize and abolish some of the conventional college entrance

32 Eaton, Theodore H., "Education For Vocations", P. 6

33 Chapman, J. Crosby, and Counts, George S. Op. Cit.

Pp. 452-453

Proctor, William Martin, "Curriculum Revision and College Entrance Requirements", School Review, XXXV (June, 1927)

Pp. 411-416

requirements. Such a hope will never be possible, however, as long as our high school teachers and administrators secure their entire training through the narrow, college-³⁴ preparatory and college route. Practical experience is required of trade and industrial teachers before the Federal Board for Vocational Education will reimburse their sal-³⁵ aries. Similar requirements should be made for all vocational teachers. Most of our school teachers have done little in their lives other than attend or teach school, hence it can only be expected that they will neglect the³⁶ needs of all except the college preparatory group.

It is high time that the American high school issue its declaration of independence from college domination and set forth with determination to serve its³⁷ own community first. This would suggest the removal of many of the entrenched college preparatory subjects as requirements for high school graduation. In fact many of the smaller high schools should not offer classes in foreign languages, algebra, geometry and the exact sciences until after they have included those subjects of more interest and greater value to all students. Their first duty is to the large majority who will enter the non-

-
- 34 Chapman and Counts, Op. Cit. Pp. 452-453
35 Wright, J. C. "Statement of Policies", Bulletin No. 1, Federal Board for Vocational Education, Washington, D.C., Government Printing Office, (May, 1922), P. 43
36 Wooden, H. Z. "Curriculum Adjustment In Small High Schools", School Executive Magazine, V, (Dec., 1930) Pp. 163-165
37 Proctor, William Martin, Op. Cit. P. 416

professional vocations. Any serious critic may well doubt whether the usual foreign language, physics, mathematics and classical English literature, taught in high schools have any functional value whatever, for the majority of students, but the teachers of such subjects can supply an abundance of rationalized propoganda propounding the functional value of them.³⁸ If we are ever to change the situation it will require the re-educating of a large per cent. of our present teachers and administrators to the newer and more progressive philosophy of education.

Progressive Movements in Education.--

Fortunately some of our educational leaders see the inadequacy of the old academic educational methods in meeting the needs of our present society, and they are helping to re-examine, reformulate, and extend our educational program. A few, who have the necessary intellectual liberalism, are no longer thinking in terms of subjects, text books, recitations, and examinations, but are suggesting that we educate students through a carefully guided series of normal life experiences. Their objective is to help students properly adjust themselves to their environment by guiding each successive step as they meet life's problems.³⁹ They propose that we teach boys and girls

38 Snedden, David. "Functional Approaches To The Study of Educational Purposes and Values", School and Society, (January 13, 1931), P. 781
39 Bobbitt, Franklin, "Difficulties To Be Met In Local Curriculum Making", Elementary School Journal, XXV (May, 1925), Pp. 653-663

rather than subjects and that we teach them to do better the worth-while things that they will probably do anyway. In constructing the curriculum they suggest that we first determine our objectives, and then arrange our program of studies to accomplish them.⁴⁰ It is not refinement of existing subjects that is most needed, but rather the radical re-construction of the entire school curriculum.⁴¹ It seems wonderfully strange that our secondary schools, here in America, away from where any important language other than English need be spoken, should continue to spend enough money teaching foreign and dead languages to give all their students a vocational education. It would be much better if they would emphasize such teachings as would enable girls to become makers of beautiful homes, and teach a boy how to make the extra dollar that will buy not only bread, but the luxuries for his family.⁴² In order that one may live worthily he must first live.⁴³ Increased earning power is almost the only means of attaining that larger, fuller life, higher social status,

-
- 40 Harap, Henry. "Curriculum Making In Small Towns", Journal of the N. E. A., XVIII (May, 1929) Pp. 145-146
- 41 Ruggs, Harold. "The Foundation and Technique of Curriculum Construction", 26th Yearbook of the National Society for the Study of Education, Bloomington, Illinois, Publishing Co., (1926), Pp. 147
- 42 Sutton, Willis A. "The Obligation of Vocational Education to Business", Bulletin No. 6, Indianapolis, Indiana, American Vocational Education Inc., January, 1931) P. 8
- 43 Dewey, John. "Democracy and Education", P. 296

and the enriched spiritual existence to which people are
entitled.⁴⁴

High School Courses of Study Are Being Modified To Meet Needs.--There has been considerable public sentiment for several years demanding a change in the secondary school's course of study. This is evidenced by the great number of new courses that have been introduced into the high school curricula. The objective is that students will secure functioning information; develop those habits, attitudes, and ideals that will help them to become more efficient citizens. The public high school is also rapidly reorganizing its offering so as to include those subjects that will prepare for occupational life. Even the subject matter is undergoing a reorganization, and the plan is that each subject will make maximum contributions toward the best of pupil outcomes.⁴⁵ Any subject that is required of secondary school students should contribute directly to those knowledges and abilities⁴⁶ that all people should possess. This implies that college preparatory subjects should not be required of all students because they are pre-vocational for a small group. Those subjects that make direct contributions toward health,

-
- 44 Broune, T. E. "State Program in Vocational Education", N. E. A. Addresses and Proceedings, LXVII (1924), P. 953
45 Davis, Jessie B. "College Entrance Requirements", School and Society, XXI (May 30, 1925), Pp. 639-641
46 Spalding, F. T. "Can The Small High School Improve Its Curriculum?", School Review, XXXIX (June, 1931) P. 427

worthy use of leisure time, and vocational efficiency should receive major emphasis.

Vocational Education Stimulated By Federal Aid.--The expression of public sentiment through legislative action signified that there has been intense interest in vocational education. The Smith-Hughes Act which was approved February 23, 1917, provides for a cooperative arrangement between the Federal Government and the various States for the promotion and financing of vocational education. In order for this plan of cooperation to become effective it is necessary that each state, through legislative action, accept the provisions of the national vocational act and create or designate a state board for the administration of vocational education as the state's cooperative and administrative agency. Arizona's legislature, in session at the time of the passing of the Federal Act accepted it and designated the State Board of Education as the State Board of Vocational Education. A Director and Supervisors were appointed and money was immediately made available for schools that wished to qualify. Any school district in the State of Arizona may still organize schools or classes in accordance with the provisions of the act, and in accordance

47 Miller, Halbert W. "Arizona State Plan for the Administration of Vocational Education Under the National Vocational Education Act, 1927-1932", Arizona Department of Vocational Education, P. 3

with the rules and regulations of the State Board, and receive reimbursement on the salaries of their vocational teachers. Many Arizona schools have accepted this subsidy and have introduced one or more types of vocational education. Vocational agriculture, as one of the vocational subjects, is taking a prominent place in some of the schools in agricultural communities, and has served a definite need in the training of farmers.

Effectiveness of Agricultural Instruction.---There has been some debate as to the effectiveness of the agricultural instruction, but recent studies made in thirty-seven of the States indicate that from 60 to 75 per cent. of the students given vocational instruction in agriculture are now in agricultural work, while a very few of those who had the opportunity and did not select the instruction have become farmers. Another interesting point is that vocationally-trained farmers make a more rapid advancement into managerial positions and soon become partners or owners of farm enterprises. In fact vocational education in agriculture has shown a high degree of effectiveness in selecting students who are to become farmers, and in giving them the type of training that will increase their vocational efficiency.

48 Myers, Charles Everett, "Effectiveness of Vocational Education in Agriculture", Vocational Education Bulletin No. 82, Agr. Series No. 13, Washington, D. C., U. S. Government Printing Office, (July 1928), P. 39

Although much progress has been made in vocational education we are still far from the goal hoped for by our educational leaders. If the high schools of the United States were fulfilling the full measure of their responsibility we would not find one half of our farm boys, who are of school age, out of school. Even in Arizona, according to the United States Census for 1930 there are 4,086 farm boys between the ages of 14 and 20 who are not in school. Perhaps our high schools do not offer courses adapted to the needs and interests of these boys and perhaps some of them were driven out of high school because they were required to take subjects they did not like or could not profit by taking. If we ever hope to enroll and retain those out-of-school students we will first have to offer them the subjects that fit their needs. Students when asked why they attend high school generally say that it is because they hope to get training that will help them make more money for a better living. The professions can only absorb about ten percent of our citizens, hence we should expect the high schools to place a similar emphasis on college preparatory subjects.

It Is the Duty of The High School to Offer Vocational Agriculture.--There are high schools

-
- 49 Chapman and County, Op. Cit. P. 451
50 Gould, S. E. and Davis, A. A. "Some Reasons Why High School Pupils Choose Certain Subjects", School Review, XXXVII (October, 1929), Pp. 605-609
51 Bobbitt, Op. Cit. P. 62

in Arizona in regions where agriculture is a major enterprise whose curricula do not include classes of agriculture. This does not seem consistent with the modern view point of the responsibility of the high school to the community. The reason for placing vocational agriculture in the Smith-Hughes Act was to help the high school put an agricultural education within the reach of all farm boys. They are not required to go away to school, but can get real vocational agricultural training while living at home, gaining practical farm experience, and accumulating working capital with which to start farming for themselves. The farm boy in his formative years, with a rich background of farm experience, cannot always wait until after finishing high school and college before starting farming for himself. Those getting their agricultural education in college seldom return to the farm, unless they have a farm to which to return. They choose the professions and generally become research specialists, extension workers, or agricultural teachers. Boys taking agriculture in departments approved and given Federal and State aid, should be fourteen years old or over and have at least six months of farm experience each year in project work or supervised

-
- 52 Lane, C. H. "Vocational Education in Agriculture 1917-1927", Bulletin No. 134, Agr. Series No. 35, Washington, D. C., Government Printing Office, (Dec. 1928) P. 2
- 53 Fuller, John S., "Agriculture in The High School", The Arizona Teacher, XX, No. 9 (May, 1932), P. 8
- 54 Fuller, Op. Cit., The Signal, P. 9

55

farm practice, and are thus educated through normal life experiences, meeting and solving each problem as it arises in their progress toward their vocational goal.

Summary.--Vocational agriculture is being put into the high schools, where agricultural instruction is needed, as fast as the local high school administrators and board members are made to realize that it is the duty of their school to offer the types of vocational education adapted to the needs of the boys and girls in their community. Only those types of education can be justified, as a public expense, that pay good dividends to society. The high school can no longer be justified as a college preparation and selective agency, when only a small per cent. of the students can ever hope to attain the distant goal for which the process is arranged.

The high schools are making some progress toward introducing vocational educational curricula into their courses of study, but if they are to make the transition within the next decade the old fashioned teachers and administrators must either be eliminated or re-educated to the newer and more progressive philosophies of education.

55 Broyles, William A. "Graduate Work In Agricultural Education", Research Series Vol. III, No. 1, The Penn. State College, School of Agriculture, (June 8, 1926), Pp. 7-8

CHAPTER III.

THE TYPES OF VOCATIONAL EDUCATION NEEDED IN ARIZONA.

The number of persons engaged in various industries gives a much different picture of the relative importance of each than does the valuation of the wealth in the industry. In this study the need for vocational education is determined by the types of industry that people are engaged in. The high school districts are classified according to the principal industries in the communities where they are, and an effort is made to determine what types of education they need and what kinds they are offering.

Distribution of Wealth.--Arizona is generally spoken of as a mining state, and when judged from the basis of taxable wealth this is true. In 1929 the mines were assessed at 41.45 per cent. of the total taxable property in the state. At present their valuation is reduced by recent reductions in the valuation of farm lands indicate that the percentage may continue to remain similar to the 1929 assessment.

The principal industries of Arizona may be determined either by the tax burden borne by each, or by the number of people engaged in them. Since Arizona's educational system is based upon the doctrine that taxes will be collected where the wealth is and children will be educated where the children are, the latter method of determining which are the principal industries in Arizona should be used.

TABLE I

ASSESSED VALUATION IN ARIZONA BY PER CENT.
FOR 1929.

Assessed Property	Per Cent.
Mining	41.45
Railroads	15.69
City Property	16.69
Lands and Improvements	11.91
Livestock	1.91
Merchandise	3.25
Public Utilities	2.92
Motor Vehicles	2.84
All Others	3.34

Persons Engaged in Various Industries

In Arizona.--According to the Fifteenth Census of the United States, as shown in Table II, 23.4 per cent. of the persons engaged in the various industries of the State of Arizona are in agriculture, 31.1 per cent. in trades and industries, 18.6 per cent. in commercial and business enterprises, and only 8.4 per cent. in the professions. There are a great number of other types of industries but the number in them is relatively small. Although home making is not classified as one of the industries the per cent. can be fairly accurately determined by using the number that are married. In Arizona 78.4 per cent. of the females over fifteen years of age are or have been married, and the assumption is that they are or should be home makers. Of the total employed in the industries of Arizona only 18.2 per cent. are women.

Occupational Classification.--The major vocations naturally fell into the following classification: Agriculture, business or commerce, trades and industries, and home making. This classification is made in the Smith-Hughes Act, and if high schools in Arizona wish State and Federal aid to assist them in promoting these types of vocational education they should apply to the State Supervisor of each. The original

TABLE II

THE NUMBER AND PER CENT. OF PERSONS ENGAGED IN VARIOUS VOCATIONS IN ARIZONA.

Type of Occupation	Total no. Employed	Per Cent.	Total Per Cent.
Agriculture	38,697	23.4	23.4
Trades & Industries			
Mining	17,566	10.4	
Building	8,082	4.8	
Metal Workers	3,776	2.2	
Manufacturing	2,686	1.5	
Steel & Iron Workers	2,240	1.3	
Garage Workers	2,013	1.2	
Automobile Factory	1,421	.8	
Wood Workers	1,167	.7	
Saw & Planing	1,165	.7	
Printing & Newspaper	897	.4	
<u>Public Utilities.</u>			
Railroad	7,994	4.8	
Other Transportation	2,686	1.5	
Tel. & Telegraph	1,517	.8	
			31.1
Commercial and Business			
Wholesale & Retail	17,329	10.4	
Hotel & Resturant	8,244	4.9	
Automobile Agencies	2,510	1.4	
Life Insurance & Real Estate	1,866	1.1	
Banking & Brokerage	1,500	.8	
			18.6
Professional Service	14,020		8.4
Domestic & Personal Service	7,980		4.8
Governmental Service	6,018		3.5
Recreational	1,791		1.0
A variety of others; Laundry, Other Trades, Forrestry & Fisheries, Chemical, Clothing, Bakeries, Slaughteries, Hand laborers, etc.			9.2

18.2 % of those engaged in these industries are women.

sponsors of the Smith-Hughes Act were interested primarily in trade and industrial education, but the bill could not be passed without the support of agricultural and home making enthusiasts, hence these subjects are included in the bill. Commercial education was not included in the appropriation, so it receives neither state or federal aid.

Basis of Determining Vocational

Educational Needs.--Before one can determine the type of vocational education that an individual needs he must first know fairly accurately the type of work that individual is most likely to follow. Since only the small per cent. of the boys and girls that should have the benefit of a high school education will attend college to be trained for the professions, and since most of them will enter the vocations open to them in the community in which they live, an effort should be made by those responsible for high school curricula, to determine the major vocations of the people in each community. We know that 75 per cent. or more of the girls will marry and become home makers, and that most of the boys in Arizona will engage in agriculture, business, or the trades and industries. The problem for Arizona's curriculum makers, then, is the determination of the enterprise

58 Phillips, Frank M. "Distribution of Pupils In Several Grades of Public High Schools", Bureau of Education Bulletin 1929 No. 35, Washington, D. C., P. 20

of the community which the high school serves.

High Schools Classified According To Relative Importance of Agriculture.--If vocational education is offered by the high school according to need, one should expect it to be of the types that will train for the major industries in the district and in proportion to the importance of each industry in that particular community. In the classification in Table III, agricultural districts are listed first and mining districts last, with the exception of Winslow, Holbrook, and McNary. Winslow and Holbrook are railroad and distribution centers on the Santa Fe Railroad; and McNary is a lumbering town. Those towns listed as districts where agriculture is a minor enterprise have a variety of industries, hence there should be a similar variety of emphasized vocational curricula.

The schools in each group are listed in the order of their average daily attendance, with the exception of those classified as Junior High Schools and Schools giving High School Work. The Tenth Biennial Report of the State Superintendent of Public Instruction did not include them among the high schools, but the teachers of these schools are giving instruction in some high school subjects. Valley Junior High School at Thatcher, and Pima Junior High School at Pima have vocational classes.

TABLE III.

SCHOOLS LISTED ACCORDING TO THE RELATIVE IMPORTANCE OF AGRICULTURE.

Dists. Where Agr. Is The Principal Industry.	: : a :A.D.A.	:Dists. Where Agr. Is A Minor Enterprise.	: : :A.D.A.
Phoenix ^b	3,349	Tucson	1,879
Mesa	726	Douglas	660
Yuma	399	Prescott	267
Glendale	311	Nogales	265
Safford	202	Flagstaff	150
Tempe	181	Kingman	127
Chandler	154	Clifton	108
Snowflake	142	Williams	60
Florence	142	Tombstone	51
Willcox	106	Wickenburg	41
St. Johns	102	Ashfork	21
Round Valley	97	Seligman	16
Gilbert	96	:	
Ft. Thomas	87	:	
Duncan	86	Dists. Where Agr.	
Peoria	85	Is Relatively	
Casa Grande	76	Unimportant.	
Benson	76	:	
Buckeye	72	Bisbee	610
Tolleson	71	Miami	369
Scottsdale	71	Globe	311
Marana	66	Jerome	280
Patagonia	50	Morenci	161
Pearce	39	Winslow	152
Bowie	35	Clarkdale	112
Camp Verde	34	Superior	103
St. David (Marcus)	34	Hayden	82
Pine	31	Ray	79
San Simon	25	Ajo	66
Litchfield	24	Holbrook	49
Parker	24	McNary	22
Gila Bend	14	:	
		:	
Jr.High Schools and Other Schools giving H. S. Work	:	:	
	:	:	
Valley Jr. High	:	:	
Pima Jr. High	:	:	
Payson	:	:	
Skull Valley	:	:	

a--A.D.A.-Average Daily Attendance.

b--Although Phoenix is located in the heart of the largest agricultural district in the state probably more persons are engaged in either business, or trades and industries, than in agriculture.

The High Schools' Vocational Offering.--

In an effort to determine the extent to which the high schools of Arizona are offering various types of vocational education Table IV is constructed. The schools were listed in the same order as in Table III and checks indicate each type of vocational education offered by them. College preparatory subjects were classified as vocational in that they also should be curriculum variables. They are really pre-vocational or pre-professional subjects to the 8.4 per cent. who enter the professions in Arizona. Subjects listed as others include journalism, mechanical drawing, manual training, and manual arts, all of which may have some vocational value.

All of the high schools, no matter how small, offer college preparatory subjects. The larger the school, the more vocational subjects that are offered. The order of preference seems to be commercial, home economics, manual arts, and then either agriculture or trades and industries, as the type of enterprises in the district suggest. Agriculture, although not very uniformly offered even in the agricultural districts seems to be given more nearly according to the need than trades and industries. (See Table IV.) This may be due to the difficulty in putting trade classes into the day school program or because of the feeling that industrial arts subjects are serving their needs.

TABLE IVa

ARIZONA HIGH SCHOOLS WHERE AGRICULTURE IS THE PRINCIPAL INDUSTRY AND THEIR VOCATIONAL OFFERINGS.

Name of School	A.D.A. 1929-1930	Per Pupil Cost	Col Prep.	Vocational Subjects.				
				Bus. Com.	Home Ec.	T.& Ind.	Agr.	Oth ers
Phoenix	3,349	127.64	✓					
Mesa	726	111.61	✓	✓	✓	✓	✓	✓
Yuma	399	178.28	✓	✓	✓	✓	✓	✓
Glendale	311	176.98	✓	✓	✓	✓	✓	✓
Safford	202	159.17	✓	✓	✓	✓	✓	✓
Tempe	181	181.08	✓	✓	✓		✓	✓
Chandler	154	157.28	✓	✓	✓		✓	✓
Snowflake	142	184.59	✓	✓	✓		✓	✓
Florence	142	231.08	✓	✓	✓	✓	✓	
Willcox	106	231.26	✓	✓	✓	✓	✓	✓
St. Johns	102	160.64	✓	✓	✓	✓	✓	✓
Round Valley	97	168.27	✓	✓	✓		✓	
Gilbert	96	211.14	✓	✓	✓		✓	✓
Ft. Thomas	87	212.63	✓	✓	✓		✓	
Duncan	86	262.88	✓	✓	✓		✓	✓
Peoria	85	341.30	✓	✓	✓		✓	
Casa Grande	76	298.97	✓	✓	✓			✓
Benson	76	324.45	✓	✓	✓		✓	
Buckeye	72	155.07	✓	✓	✓			✓
Tolleson	71	273.07	✓	✓	✓			
Scottsdale	71	202.13	✓	✓	✓			✓
Marana	66	330.00	✓	✓	✓		✓	✓
Patagonia	50	299.65	✓	✓	✓		✓	
Pearce	39	225.60	✓	✓	✓			
Bowie	35	275.72	✓	✓	✓			
Camp Verde	34	113.35	✓	✓	✓			
St. David	34	398.19	✓	✓	✓		✓	
Pine	31	90.32	✓	✓	✓			✓
San Simon	25	319.03	✓	✓	✓			
Litchfield	24	316.33	✓	✓	✓			
Parker	24	332.59	✓	✓	✓			
Gila Bend	14	366.08	✓	✓	✓			✓
Valley Jr. Hi.			✓	✓	✓		✓	
Pima Jr. Hi.			✓	✓	✓		✓	
Payson			✓	✓	✓			✓
Skull Valley			✓	✓	✓			

TABLE IVb

HIGH SCHOOLS AND THEIR VOCATIONAL OFFERINGS WHERE AGRICULTURE IS A MINOR INDUSTRY OR IS RELATIVELY UNIMPORTANT.

Name of School	A.D.A.	Per Pupil Cost	Col. Prep.	Vocational Subjects				
				Bus. Com.	Home Ec.	T.& Ind.	Agr.	Oth ers
Tucson	1,879	89.79	✓	✓	✓	✓		✓
Douglas	660	107.06	✓	✓	✓			✓
Prescott	267	140.59	✓	✓	✓			✓
Nogales	265	137.10	✓	✓	✓	✓		✓
Flagstaff	150	220.08	✓	✓	✓			✓
Kingman	127	238.76	✓	✓	✓			✓
Clifton	108	183.71	✓	✓	✓	✓		✓
Williams	60	487.00	✓	✓	✓			✓
Tombstone	51	459.82	✓	✓	✓			✓
Wickenburg	41	230.60	✓					✓
Ashfork	21	258.02	✓	✓				
Seligman	16	408.44	✓	✓				✓
Bisbee	610	130.47	✓	✓	✓			✓
Miami	369	162.97	✓	✓	✓	✓		✓
Globe	311	153.18	✓	✓	✓			✓
Jerome	280	195.13	✓	✓	✓			✓
Morenci	161	153.50	✓	✓		✓		✓
Winslow	152	161.00	✓	✓	✓	✓		
Clarkdale	112	304.70	✓	✓	✓	✓		✓
Superior	103	207.65	✓	✓				✓
Hayden	82	260.83	✓	✓	✓			
Ray	79	138.39	✓	✓				✓
Ajo	66	344.97	✓	✓				
Holbrook	49	378.96	✓	✓	✓			✓
McNary	22	324.96	✓	✓				✓

Data taken from the Arizona Educational Directory and the Tenth Biennial Report of the State Superintendent of Public Instruction.

The Agricultural Offerings.--Although Table IVa gives those schools which offer agricultural instruction, Table V is introduced to show the number of classes and total number of boys in vocational agriculture in each school for the years 1930-31 and 1931-32. Only those schools in districts where agriculture is the principal or major enterprise are listed and arranged in order according to their average daily attendance. In the year 1930-31 Mesa, Safford, St. Johns, and Round Valley had agricultural classes but were not approved for Federal and State aid. In 1931-32 Tempe and Tolleson introduced some agriculture; and Mesa, St. Johns, and Round Valley were approved by the State Department of Vocational Education.

With the exception of Safford and Tempe there seems to be a fairly uniform effort on the part of the larger high schools to give classes in vocational agriculture. Most of them employ one full-time teacher of agriculture who teaches three double periods. Casa Grande and Buckeye are the exceptions in the middle-sized group, neither attempting any type of agricultural instruction. The medium-sized schools have a higher per cent. of farm boys than some of the larger ones. Tolleson and Scottsdale are two of the fairly small high schools with a high per cent. of farm boys that are apparently making little effort to offer vocational agriculture. St. David

TABLE V.

SCHOOLS IN DISTRICTS WHERE AGRICULTURE IS A MAJOR INDUSTRY
AND THE CLASSES IN VOCATIONAL AGRICULTURE FOR
1930-31 and 1931-32.

School	A.D.A. 1928-29	1930-31		1931-32	
		Boys In Agr.:	No. of Classes	Boys In Agr.:	No. of Classes
Phoenix	3,349	105	: 6	118	: 7
Mesa	726	:	:	52	: 3
Yuma	399	31	: 3	36	: 3
Glendale	311	27	: 3	35	: 4
Safford	202	:	:	:	:
Tempe	181	:	:	:	:
Chandler	154	19	: 3	17	: 3
Florence	142	21	: 2	22	: 2
Snowflake	142	35	: 3	38	: 3
Willcox	106	11	: 1	19	: 2
St. Johns	102	:	:	27	: 2
Round Valley	97	:	:	24	: 2
Valley Jr. Hi.		60	: 3	54	: 3
Gilbert	96	24	: 3	29	: 3
Ft. Thomas	87	16	: 1	20	: 2
Duncan	86	22	: 3	:	:
Peoria	85	20	: 3	29	: 2
Benson	76	20	: 2	48	: 2
Casa Grande	76	:	:	:	:
Buckeye	72	:	:	:	:
Pima Jr. Hi.		28	: 3	45	: 3
Tolleson	71	:	:	:	:
Scottsdale	71	:	:	:	:
Marana	66	14	: 2	:	:
Patagonia	50	18	: 2	16	: 2
Pearce	39	:	:	:	:
Bowie	35	:	:	:	:
Marcus	34	9	: 1	8	: 1
Pine	31	:	:	:	:
San Simon	25	:	:	:	:
Litchfield	24	:	:	:	:
N. Yuma	24	:	:	:	:
Gila Bend	14	:	:	:	:
Payson		:	:	:	:
Skull Valley		:	:	:	:

The number of classes and number of boys enrolled in vocational agricultural classes was obtained from the State Department of Vocational Education.

(Marcus) is the only one of the extremely small schools attempting to meet the vocational needs of its farm boys.

Summary.--The major types of vocational education needed in Arizona are home making, agriculture, trades and industries, business, and the professions. Although those engaged in the professions form a much smaller group than any of the others, we find pre-professional education in the form of college preparatory subjects receiving the major emphasis; business and commercial education is apparently considered second in importance; home making third; and either agricultural or trade and industrial subjects last. Agricultural education is needed in those districts where it is the principal or major enterprise. The majority of the larger high schools in the agricultural districts have one full-time teacher of agriculture; most of those of average size have one agricultural teacher who is teaching 2 or 3 classes; only 2 of the smaller schools are offering instruction in agriculture.

CHAPTER IV.

VOCATIONAL AGRICULTURE IN THE SALT RIVER VALLEY.

In order to determine whether schools in the Salt River Valley are offering vocational agriculture according to their need or their ability to support the instruction, a questionnaire was sent to the principal of each school and the necessary information was secured. Additional data on high school tax rate and per pupil cost were secured from the County School Superintendent.

The Need for Vocational Agriculture.--

The Salt River Valley is the largest and most important agricultural district in the state. All of the towns, except perhaps Phoenix, are supported primarily by this basic industry;- farming. One frequently wonders just what per cent. of the people are engaged in the principal industry which supports a town, and also what per cent. of the school children will enter each of the various vocations. Generally about 75 per cent. of the boys who live on farms remain and follow the occupation of their fathers.⁵⁹

Table VI shows the number of boys in school and the number and per cent. whose fathers are farm-

59 Op. Cit. Federal Board Bulletin No. 82, Agr. Series
No. 13, P. 14.

TABLE VI.

INFORMATION ABOUT HIGH SCHOOLS IN MARICOPA COUNTY,
1930-31

Name of the H.S. District	Total enrolment	No. of Boys	No. of Farm Boys	% Farm Boys	Number taking Agr.	% of Farm boys taking Agr.	No. of Classes in Agr.
Phoenix...	4232	2115	402	.19	105	.26	6
Mesa.....	639	348	226	.65	52	.23	3
Glendale..	332	189	124	.67	27	.22	3
Tempe.....	240	115	53	.46	0	0	0
Chandler..	231	105	66	.63	19	.29	3
Gilbert...	146	78	52	.67	24	.46	3
Buckeye...	142	73	41	.56	0	0	0
Peoria....	118	55	45	.82	20	.44	3
Tolleson..	107	52	50	.96	0	0	0
Scottsdale	100	42	36	.85	0	0	0
Litchfield	38	23	15	.65	0	0	0
Gila Bend.	25	16	8	.50	0	0	0

Information for this table taken from a questionnaire.

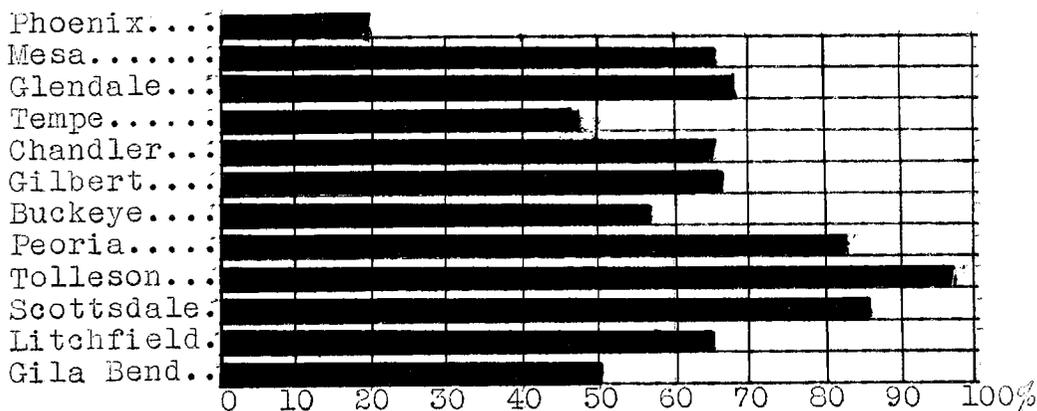


Fig. 1 Per cent. of boys in the schools that are from farms.

ers, the number of agricultural classes, and the number of boys enrolled in the agricultural classes. These percentages reveal a wide variation, but in general, the smaller the town the greater the per cent. of farm boys.

The Amount of Vocational Agriculture Offered.---One would normally expect the number of agricultural classes in each of the Salt River Valley schools to be in proportion to the number of boys coming from farms, but the figures show that some of the schools with a relatively high per cent. of farm boys are making little effort to give agricultural instruction. The tendency seems to be for them to either hire one full-time agricultural teacher or not to give any agricultural work. The smaller schools apparently need instructors that can teach agriculture part time. They should also encourage more farm boys of their community to study agriculture. A combination of agriculture and farm mechanics would fill the teaching schedule of a teacher in Scottsdale, Buckeye, Tolleson, or Tempe.

Schools and communities frequently differ in their attitude toward offering vocational agriculture, and this general attitude is evidenced by the per cent. of farm boys taking the agriculture that is offered. Figure 2 and Table VI show that in Peoria and Gilbert a larger per cent. of the farm boys are taking agriculture than in some of the larger schools. Figure 3 show, graphically,

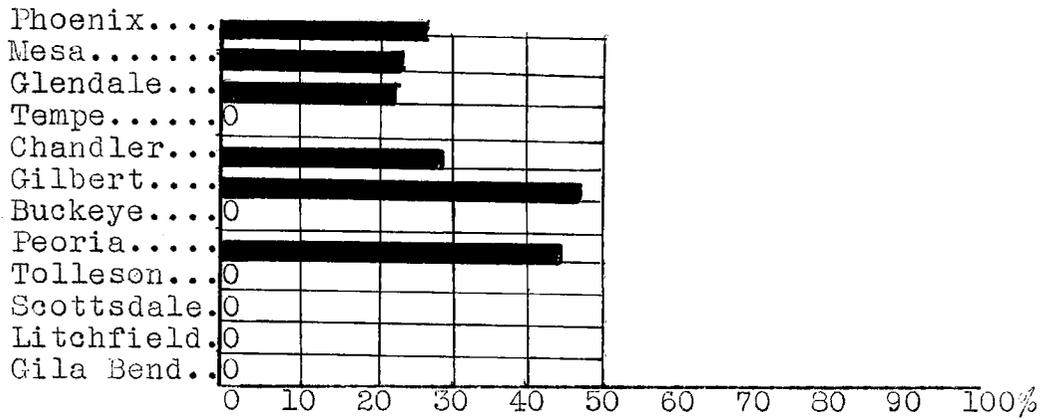


Fig. 2.-- Per cent. of farm boys that were taking classes in Agriculture during 1930-31.

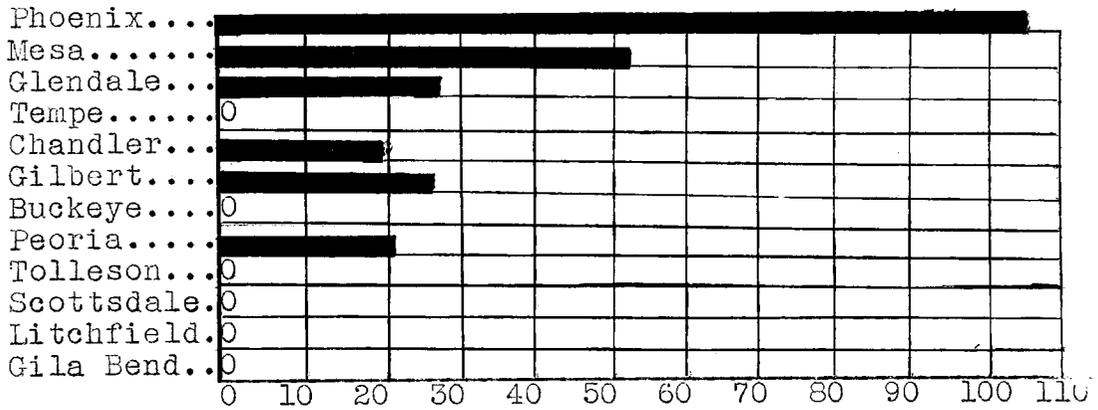


Fig. 3.-- Number of boys taking Agriculture during 1930-31.

the number of boys registered in vocational agriculture classes in each school.

Ability of the Schools to Offer Vocational Agriculture.---The ability of a school to offer additional curricula is generally determined by the tax burden, and the efficiency of the school by the per pupil cost. If the high schools in the Salt River Valley, even though they are in the most important agricultural district of the state, do not consider the agriculture curricula of prime importance, an effort should be made to determine whether or not they can offer it in addition to their present courses. This comparison has been attempted, and in Table VII the Valley schools have been listed in order according to their tax rate. Peoria has the highest tax rate, and Gilbert, which is only slightly larger, has the lowest. Both have a full time agricultural teacher. Tolleson and Scottsdale have relatively low high school tax rates yet do not offer vocational agricultural classes.

The per pupil cost of the various schools is shown in Table VIII. The schools are arranged in order from the highest to the lowest. Litchfield is the smallest high school and has the highest per pupil cost, and Phoenix is the largest high school with the lowest per pupil cost. In general one may expect that the smaller schools will have the higher per pupil cost. If agriculture is offered in the smaller schools it will probably be

TABLE VII.

HIGH SCHOOLS IN THE SALT RIVER VALLEY ARRANGED ACCORDING TO THE HIGH SCHOOL TAX RATE, 1930-1931.

School	H.S. Tax Rate 1930-31	A.D.A. 1929-30	No. Voc. Agr. Classes 1930-31
Peoria	1.43	85	3
Litchfield	1.15	24	0
Chandler	.88	154	3
Glendale	.87	311	3
Tempe	.76	181	0
Buckeye	.75	72	0
Mesa	.73	726	3
Tolleson	.69	71	0
Scottsdale	.69	71	0
Phoenix	.54	3,349	6
Gilbert	.51	96	3

TABLE VIII.

HIGH SCHOOLS IN THE SALT RIVER VALLEY ARRANGED ACCORDING TO THE PER PUPIL COST, 1930-1931.

School	Per Pupil Cost 1930-1931	A.D.A. 1929-30	No. Agr. Classes 1930-31
Litchfield	370.72	24	0
Peoria	282.72	85	3
Tolleson	277.65	71	0
Buckeye	221.66	72	0
Scottsdale	199.87	71	0
Glendale	197.21	311	3
Tempe	191.50	181	0
Gilbert	181.25	96	3
Chandler	169.26	154	3
Mesa	155.60	726	3
Phoenix	138.93	3,349	6

necessary to have it supplant some subject of less value.

Summary.---A relatively high per cent. of the boys in the high schools of the Salt River Valley come from farms and should be given an opportunity to get a vocational agricultural education. The smaller high schools have a greater per cent. of farm boys, and should strive much harder to satisfy the vocational needs of their students than they are doing at present. Some of the high schools in the Valley are making little or no attempt to offer agriculture classes, although the need is evident. Those schools having agricultural curricula do not have a much higher tax rate than those that do not offer it. The per pupil cost in the smaller schools is generally higher and if agricultural curricula are introduced it may be necessary for them to discontinue subjects of less vocational value. The offering of vocational agriculture might increase their enrollment sufficient to introduce the work, or Federal and State aid could be secured to help with the extra expense. Small schools can use an agricultural teacher in their faculty to advantage by having him teach farm mechanics, or some related academic subject such as biology or general science, in addition to the vocational agriculture.

CHAPTER V.

CONCLUSIONS AND RECOMMENDATIONS.

The Duty of the School.--It is the function of the school to prepare each pupil so that he can best take advantage of the opportunities open to him, and it should provide those activities that will best enable him to successfully enter the vocation in which he has both interest and ability. The school should emphasize each type of vocational education in direct proportion to the students' needs, and attach the same social approval to equal attainment in each. To most effectively perform its duty, the school must train each pupil in the vocation he will pursue. The same set of activities will not effectively train one to do different things.

The Types of Vocational Education Needed in Arizona.--In Arizona the great majority of the men are engaged in either agriculture, business, and trade or industrial enterprises, and most of the women marry and become home makers. If the secondary schools accept their responsibility and attempt to educate all

their students for these vocations we should expect the most students and most classes in those subjects which train for the predominating industries in each community. In Arizona, we should expect most of the high school girls to be registered in classes in home making; most of the boys in the small high schools in agricultural districts to be registered in agricultural classes. In the larger towns a relatively high per cent. of boys should be taking classes either in commercial and business subjects or in the trades and industries. Because so few enter the professions, professional training should be left primarily to the colleges. The high schools should emphasize each type of vocational education in proportion to their students' needs.

The Vocational Training Arizona High Schools Are Offering.--All of the high schools in Arizona are attempting one or more types of vocational or pre-vocational education but college preparatory subjects predominate. The vocational offering indicates that the high schools recognize their duty to the professional group first, to the business group second, to home makers third, to the agricultural group fourth, and to those in the trades and industries last. Most of Arizona high schools are making a feeble attempt to meet the vocational training needs of some of those whom they should serve.

The Vocational Agriculture Offered in Agricultural Districts.--Instruction in vocational agriculture should be emphasized in proportion to the relative importance of agriculture in the community. The most important agricultural regions in Arizona are;- (1) the Salt River Valley, (2) Yuma Valley, (3) Gila Valley, (4) the San Carlos irrigation district, (5) Duncan Valley, and (6) valleys in Navajo County. There are other agricultural districts such as Willcox, St. David, and Benson in Cochise County; Patagonia in Santa Cruz County; Marana in Pima County; Camp Verde and Skull Valley in Yavapi County; St. Johns in Apache County; and Pine and Payson in Gila County. There are a number of other towns where agriculture, or agriculture and stock raising are the most important enterprises, but if agriculture is to be offered in any of the schools, it should predominate where agriculture is the most important.

All but two of the larger schools in the agricultural districts are giving classes in vocational agriculture but the amount of work is not uniform. Marcus High of the very small schools is the only one attempting to give the work. Casa Grande, Buckeye, and Duncan of the middle sized schools are not offering vocational agriculture. Tolleson, Scottsdale and Marana of the fairly small schools have no agricultural instruction. In general, it may be said that most of the larger and

average sized schools in agricultural districts are attempting to meet the vocational needs of the farm boys, but their offerings do not approach the need as indicated by the relative importance of the industry. Most of the smaller schools are apparently not able to offer a variety of vocational curricula so continue to cater to the colleges and the professions.

The Need, Effort, and Ability to Offer Vocational Agriculture In The High Schools In the Salt River Valley.--The Salt River Valley is the most important agricultural district in the state and all of its high schools should have agricultural departments. Their offerings, however, are less uniform than those of the other high schools in agricultural districts throughout the state. The financial ability to offer agriculture is apparently not the cause for the irregularity because those not offering it have relatively low tax rates and have access to Federal subsidy. The smaller schools have the higher per pupil cost, which might suggest that if they introduce agricultural curricula it be substituted for some other subject of less vocational need. This might not be necessary, however, if they secured Federal and State aid for the vocational work.

Some Recommendations.--The old conceptions of education that the duty of the high school is to direct all students toward the professions, with the

consequence that most of them will be eliminated to enter the generally less esteemed vocations untrained, should be discarded; and the more modern and progressive conception, that the duty of the high school is to direct and train boys and girls in those vocations in which they have interest and ability, should be accepted.

In those high schools in Arizona that are not meeting the vocational training needs of their students the courses of study should be reorganized and the emphasis placed upon each curriculum should be in proportion to the vocational expectancy of those students who enter or should enter the high school rather than upon the vocational expectancy of those who survive their present courses of study.

In the smaller high schools located in districts where agriculture is the principal industry the agriculture and home making curricula should be given major emphasis. Business and college preparatory curricula should be introduced and emphasized according to the numbers of students who need them and the ability of the district to support the additional work.

Moderately sized towns, located in agricultural districts, generally need (a) home making, (b) agriculture, (c) commercial, (d) college preparatory, and (e) trades and industrial curricula. The larger the town in any type of district, the greater will be the

per cent. of the people engaged in business and industrial enterprises. In schools located in these larger business and industrial centers one should find business and industrial curricula receiving the major emphasis.

Suggestions to principals wishing to adapt a high school course of study to the needs of boys and girls in their schools and communities are: (1) Make a survey of the community and determine the major industries, and vocational opportunities of the students who are of high school age; (2) determine as accurately as possible the per cent. of students that can be attracted to the high school and the per cent. that will probably enter each of these vocations; (c) meet with the school board and determine such policies as are based upon the most modern and progressive educational philosophy and practices; (4) reorganize the high school course of study and offer the types of curricula that will most nearly fit the students needs; (5) attach equal social approval to equal achievement in the different vocations.

Do not hold up the professions as the most desirable of vocations. Subjects required of all students must be justified because of their universal value; college preparatory subjects are only needed by the few students who are preparing to go to college. Curriculum variables are the vocational subjects, and they should receive emphasis in similar proportion to the student's needs.

Some Criteria.---After reading a large number of articles, books, bulletins, monographs, theses, and surveys, and after making this study, the author offers the following criteria as guides for those who wish to successfully establish vocational agricultural departments in their schools.

1. The high school should be a democratic institution open and attractive to all the boys and girls in the community.

2. It is the duty of the high school to offer the types of education that most nearly fit the needs of the students.

3. It is the function of the high school to prepare students so that they can best take advantage of the opportunities open to them.

4. Students should be encouraged and directed into those vocations in which they have interest, ability, and opportunity.

5. Equal social approval should be given to equal achievement in all vocations. Service to society and to themselves is the basis of determining the value of vocations. A democracy fixes no scale of social recognition to be accorded to the various professions or occupations.

6. The value of any subject should be based upon its contribution to the development in

students of the proper ideals, attitudes, habits, and appreciations.

7. A high school subject can only be justified as a public expense, when it pays good dividends to society.

8. Subjects required of all students must be of universal value to them.

9. Vocational curricula should be varied and adapted to the needs of students according to their vocational expectancy.

10. The emphasis given any curricula should be in proportion to the student's vocational needs.

11. Agricultural curricula should be given in all high schools that are in agricultural communities, where there are a sufficient number of farm boys that can be interested in a class to justify the instruction.

12. The education that best prepares one for life should also be the best preparation for college.

BIBLIOGRAPHY.

ARTICLES.

- Alltucker, M. M.
"Making a Living Curriculum",
Journal of the National Educational Association,
XIV (October, 1925), 222.
- Briggs, Thomas H.
"Jeremiah Was Right",
N. C. A. Quarterly, VI (December, 1931), 272-282.
- Bobbitt, Franklin.
"Difficulties to be Met in Local Curriculum Making",
Elementary School Journal, XXV (May, 1925), 653-663.
- Bobbitt, Franklin.
"What Understanding of Human Society Should Education
Develope?",
Elementary School Journal, XXV (December, 1924), 290-301.
- Broome, Edwin C.
"The Development of the High School Curriculum",
National Educational Association (1928), 823.
- Browne, T. E.
"State Program in Vocational Education",
National Educational Association, Addresses and
Proceedings, LXVII (1929), 953-954.
- Burke, J. E.
"Differentiation in Curricula to Meet Individual Needs",
School and Society, XXVII (March 3, 1928), 271-273.
- Chapman, Paul W.
"Education for Work",
School Executives Magazine, L, No. 6, (February, 1931),
289-290.
- Cooper, Wm. John.
"Some Responsibilities of the American Secondary
Schools of Tomorrow",
School and Society, XXX (December 14, 1929), 802-804.
- Counts, George S.
"Who Shall Make the Curriculum?",
School Review, XXXV (May, 1927), 332-339.

- Davis, Jessie B.
"College Entrance Requirements",
School and Society, XXI (May 30, 1925), 639-643.
- Douglass, Harl R.
"The Contribution of Research to Secondary School
Curriculum Construction",
School and Society, XXXII, No. 822 (September 27, 1930)
411-416.
- Edmonson, J. B.
"Why Pupils Fail in High School",
School Review, XXXIII (July, 1925), 402-404.
- Engle, T. L.
"A Comparative Study of Pupils in Academic, Commercial
and Vocational Curriculums",
School Review, XXXIX (November, 1931), 655.
- Fuller, John S.
"Agriculture in the High School",
The Arizona Teacher, XX, No. 9 (May, 1932), 257-259.
- Fuller, John S.
"Our Agricultural Education Program",
The Signal, II, No. 8 (April-May, 1931), 9-11.
- Fuller, John S.
"The Story of Roy Dobson",
The Signal, II, No. 5 (January, 1931), 7-8.
- Gould, Silas E. and Davis, Robert A.
"Some Reasons Why High School Pupils Choose Certain
Subjects",
School Review, XXXVII (October, 1929), 602-614.
- Harap, Henry.
"Next Steps in Curriculum Making",
The Elementary School Journal, XXXI, No. 1 (September,
1930), 16-24.
- Harap, Henry.
"Curriculum Making for Small Towns",
Journal of the National Educational Association,
XVIII (May, 1929), 145-16.
- Harap, Henry.
"Critique of the Present Status of Curriculum Making",
School and Society, XXV (February 19, 1927), 207-16.
- Horn, Ernest.
"Curriculum Problem Attacked Scientifically",
National Educational Association, (1925), 812-15.

- Job, L. B.
"Discarding The Dead Wood of Tradition",
School Executive Magazine, LI (January, 1932),
- Judd, Charles H.
"The Curriculum: A Paramount Issue",
National Educational Association Proceedings, (1925)
805-11.
- Lane, M. R.
"Bibliography of Occupational Studies Made During
the Year 1927-1929",
Vocational Guidance Magazine, VII (April, 1929),
314-316.
- Larson, Emil L.
"The Arizona Program of Curriculum Construction",
The Arizona Teacher, XX, No. 9 (May, 1932), 252-253.
- Lehman, Harvey C. and Witty, Paul A.
"Social Forces Affecting The Curriculum",
Educational Review, (February, 1928), 74-86.
- Lowman, Harmon L.
"The Work of The Curriculum Constructor",
Education, XLIX (April, 1929), 473-478.
- McGoldrick, Joseph.
"What the College Expects of the High School in
Citizenship Training",
Education, LII (May, 1932)
- McMurry, Charles A.
"Bridging the Gap Between School and Life",
Review of Reviews, LXXIII (March, 1926), 299-302
- Morgan, Arthur E.
"What Is A Cultural Subject?"
School and Society, XX (November 29, 1924), 696-697.
- Proctor, William Martin.
"Curriculum Revision and College Entrance Requirements",
School Review, XXXV (June, 1927), 411-16.
- Pyle, W. H.
"Educational Waste",
School and Society, XXVIII, (November 10, 1928), 590-1.
- Sawyer, W. C.
"Value of Vocational Courses In A Small School",
The Signal, II, No. 4 (December, 1930), 3-4.

Scott, Z. E.

"A Cooperative Plan for Curriculum Revision",
National Educational Association Proceedings, (1925)
834-838.

Singleton, Rollo E.

"Effect of Vocational Agriculture Training Upon
Work In College",
Agricultural Education, III, No. 12 (June, 1931),
183 and 196.

Smith, H. J.

"Occupational Descriptions and Their Uses",
Vocational Guidance Magazine, VII (May, 1929), 361-7

Snedden, David.

"The Hurtful Influence of Scholars on Useful Educations",
School and Society, XXXI (February 1, 1930), 133-8.

Snedden, David.

"Functional Approaches to The Study of Educational
Purposes and Values",
School and Society, XXXIII (January 13, 1931), 777-81.

Spaulding, F. T.

"Can The Small High School Improve Its Curriculum?"
School Review, XXXIX (June, 1931), 423-38.

Stone, Wm. H.

"Confusion At The Educational Crossroads",
School and Society, XXVI (July 9, 1927), 31-35.

Stewart, W. F.

"A View of the Program of Vocational Education In
Agriculture",
National Educational Association, Address and Pro-
ceedings, (1929), 965-6.

Tubbs, Eaton V.

"Some Problems In Curriculum Making",
Education, LII (February, 1932).

Ward, David A.

"Vocational Courses and The Junior High School",
School and Society, XXV (June 18, 1927), 711-16.

Weeks, Arland D.

"The Curriculum and Democracy",
The Journal of the National Educational Association,
XIV, No. 3, 81-82.

Windes, Eustace E.

"Education For The Vocation of Agriculture",
School Life, X, No. 1 (September, 1924), 6-7.

Withers, John W.
"Adapting The Curriculum to Individual and Community
Needs",
National Educational Association Proceedings, (1925),
815-26.

Wooden, H. Z.
"Curriculum Adjustment In Small High Schools",
School Executives Magazine, V (December, 1930),
163-165 Cont. 193-194.

BOOKS.

Allen, F. J.
"A Guide To the Study of Occupations",
Cambridge, Harvard University Press, (1925), Pp. xv - 197

App, Frank.
"Farm Economics, Management and Distribution",
Philadelphia, J. B. Lippincott Co., (1924), Pp. 700.

Bagley, William Chandler.
"School Discipline",
New York, The Macmillan Co., (1923), Pp. xiv - 259.

Bobbitt, John Franklin.
"How to Make a Curriculum",
Boston, Houghton Mifflin Co., (1924), Pp. 292.

Briggs, Thomas Henry.
"The Junior High School",
New York, Houghton Mifflin Co., (1920), Pp. x - 350.

Briggs, Thomas Henry.
"The Great Investment",
Cambridge, Harvard University Press, (1930), Pp. x - 143.

Burton, William Henry.
"Supervision and The Improvement of Teaching",
New York, D. Appleton and Co., (1922), Pp. xx - 510.

Chapman, J. Crosby, and Counts, George S.
"Principles of Education",
Boston, Houghton Mifflin Co., (1924), Pp. xviii - 645.

Charters, W. W.
"Curriculum Construction",
New York, The Macmillan Co., Pp. xii - 352.

- Clement, John Addison.
"Curriculum Making In Secondary Schools",
New York, Henry Holt and Co., (1923), Pp. 534.
- Cocking, Walter D.
"Administrative Procedures In Curriculum Making for
Public Schools",
New York, Bureau of Publications, Teachers College,
Columbia University, (1928), Pp. vi - 120.
- Cox, Philip W. L.
"Curriculum Adjustment In The Secondary School",
Philadelphia, J. B. Lippincott Co., (1925), Pp. 314.
- Cubberly, Elwood P.
"Changing Conceptions of Education",
Boston, Houghton Mifflin Co., (1909), Pp. 69.
- Cubberly, Elwood P.
"State School Administration",
Boston, Houghton Mifflin Co., (1927), Pp. xix - 773.
- Cubberly, Elwood Patterson.
"Public School Administration",
Boston, Houghton Mifflin Co., (1922), Pp. xviii - 479.
- Cubberly, Elwood Patterson.
"Public Education In the United States",
Boston, Houghton Mifflin Co., (1919), Pp. xxv - 517.
- Davis, Calvin Olin.
"Junior High School Education",
Yonkers on the Hudson, New York, World Book Co.,
(1924), Pp. xi - 451.
- Dewey, John.
"School and Society",
Chicago, University of Chicago Press, (1900), Pp. 129.
- Dewey, John.
"Democracy and Education",
New York, The Macmillan Co., (1916), Pp. xii - 434.
- Dewey, John, and Dewey, Evelyn.
"Schools of Tomorrow",
New York, E. P. Dutton and Co., (1915), Pp. 316.
- Dewey, John.
"Democracy and Education",
New York, the Macmillan Co., (1916), Pp. xii - 434
- Douglas, Aubrey A.
"Secondary Education",
Boston, Houghton Mifflin Co., (1927), Pp. xxxiii - 649.

- Eaton, Theodore H.
"Education and Vocations",
New York, John Wiley and Sons, Inc., (1926), Pp. iii-vi -
300.
- Eaton, Theodore H.
"Vocational Education In Farming Occupations",
Philadelphia, J. B. Lippincott Co., (1923), Pp. 374.
- Gates, Arthur Irving.
"Psychology for Students",
New York, The Macmillan Co., (1923), Pp. xvi - 489.
- Hall, Granvill Stanley.
"Adolescence",
New York, D. Appleton and Co., (1904), Pp. 2v illus 25cm.
- Harap, Henry.
"The Technique of Curriculum Making",
New York, The Macmillan Co., (1928), Pp. xi - 315.
- Horn, John Louis.
"The American Elementary School",
New York, The Century Co., (1923), Pp. xvi - 422.
- Inglis, Alexander James.
"Principles of Secondary Education",
Boston, Houghton Mifflin Co., (1918) Pp. xvi - 741.
- Judd, Charles Hubbard.
"Psychology of High School Subjects",
Boston, Ginn and Co., (1915), Pp. ix - 515.
- Kilpatrick, William Heard.
"The Project Method",
New York, Teachers College, Columbia University,
(1919), Pp. 18p 23 cm
- Koos, Leonard Vincent.
"The American Secondary School",
New York, Ginn and Co., (1927), Pp. xii - 775.
- Koos, Leonard Vincent.
"The Administration of Secondary School Units",
Chicago, University of Chicago Press, (1917),
Pp. ix - 194.
- Lapp, John A. and Mote, Carl H.
"Learning to Earn",
Indianapolis, The Bobbs-Merrill Co., (1915), Pp. 421.
- Lyman, Rollo LaVerne.
"The Mind at Work",
Chicago, Scott, Foresman and Co., (1924), Pp. 349.

- McCall, William Anderson.
"How to Experiment in Education",
New York, The Macmillan Co., (1923), Pp. xiv - 281.
- Monroe, Paul.
"Principles of Secondary Education",
New York, The Macmillan Co., (1914), Pp. xxviii - 790.
- Monroe, Walter Scott, DeVoss, James Clarence, and Kelley,
Frederick James.
"Educational Tests and Measurements",
Boston, Houghton Mifflin Co., (1917), Pp. xxi - 309.
- Monroe, Walter Scott, and Weber, Oscar F.
"The High School",
Garden City, New York, Doubleday, Doran and Co.,
(1928), Pp. viii - 511.
- Moore, Ernest Carrol.
"What is Education?"
Boston, Ginn and Co., (1915), Pp. x - 357.
- Nutt, Hubert Wilber,
"The Supervision of Instruction",
Boston, Houghton Mifflin Co., (1920), Pp. xvi - 277.
- O'Shea, Metchel Vincent.
"The Child: His Nature and His Needs",
Valpariso, Indiana, Contribution of the Childrens
Foundation, (1924), Pp. ix - 516.
- Parker, Samuel Chester.
"Methods of Teaching In High School",
Boston, Ginn and Co., (1915), Pp. xxv - 529.
- Robinson, Edward Stevens, and Robinson, Florence Richardson.
"Readings in General Psychology",
Chicago, The University of Chicago Press, (1923),
Pp. xvi - 674.
- Rugg, Harold Ordway.
"Statistical Methods Applied to Education",
New York, Houghton Mifflin Co., (1917), Pp. xviii - 410.
- Rugg, Harold Ordway, and Shumaker, Ann.
"The Child-Centered School",
Yonkers on the Hudson, New York, World Book Co.,
(1928), Pp. xiv - 359.
- Schmidt, G. A.
"Efficiency In Vocational Education",
New York, The Century Co., (1928), Pp. 314.

- Schmidt, G. A.
"New Methods In Teaching Vocational Agriculture",
New York, The Century Co., (1924), Pp. 268.
- Shepardson, Whitney H.
"Agricultural Education In The United States",
New York, The Macmillan Co., (1929), Pp. viii - 132.
- Snedden, David.
"Vocational Education",
New York, The Macmillan Co., (1920), Pp. 587.
- Snedden, David.
"What's Wrong With American Education",
Philadelphia, J. B. Lippincott Co., (1927), Pp. 379.
- Snedden, David.
"The Problem of Vocational Education",
Boston, Houghton Mifflin Co., (1910), Pp. vi - 85.
- Snedden, David.
"American High Schools and Vocational Schools in 1960",
New York, Teachers College, Columbia University, (1931),
Pp. vi - 122.
- Snedden, David.
"Sociological Delimitation of Objectives in Education",
Philadelphia, J. B. Lippincott Co., (1921), Pp. 322.
- Starch, Daniel.
"Education Psychology",
New York, The Macmillan Co., (1919), Pp. ix - 473.
- Stevenson, John Alford.
"The Project Method",
New York, The Macmillan Co., (1922), Pp. xvi - 505.
- Thorndike, Edward Lee.
"Educational Psychology",
New York, Teachers College, Columbia University,
(1914), Pp. xii - 422.
- True, Alfred Charles.
"A History of Agricultural Education In the United
States 1785-1925",
Washington, U. S. Government Printing Office, (1929),
Pp. ix - 436.
- Warren, G. F.
"Farm Management",
New York, The Macmillan Co., (1921), Pp. xviii - 590.

MISCELLANEOUS MATERIAL

American Vocational Association Proceedings, at
Indianapolis, Vol. I, University of Illinois Bulletin
No. 50, (1927)

Broyles, William A.

"Graduate Work In Agricultural Education",
Research Series, Vol. III, No. 1, The Pennsylvania
State College Vol. XX, No. 22, (June 8, 1926),
Pp. 139.

Cocklin, W. D.

"Administrative Procedure In Curriculum Making for
Public Schools",
Teachers College, Columbia University Contribution
to Education No. 329, New York, Bureau of
Publication, Teachers College, Columbia Uni-
versity, (1928), Pp. 1 and 117-20.

Coggins, James K.

"Factors To Be Considered In Locating Departments of
Vocational Agriculture In the High Schools of
North Carolina",
Federal Board for Vocational Education, Monograph
No. 7, Washington, D. C., Government Printing
Office, (June, 1929), Pp. v - 13.

Evans, H. R.

"Bibliography of Industrive Vocations, and Trade
Education",
U. S. Bureau of Education Bulletin No. 22, Washing-
ton, Government Printing Office, (1915), Pp. 92.

Fifteenth Census of the United States,

U. S. Department of Commerce, Bureau of the Census,
(1930).

Hackett, J. A.

"The Literature of Curriculum Making",
26th Yearbook of the National Society of the Study
of Education Part I, Bloomington, Illinois,
Public School Publishing Co., (1926), Pp. 449-475.

Hearing Before the Committee of Education House of Rep-
resentatives, Seventieth Congress, First Session,

"A Bill To Provide for The Further Development of
vocational Education In the Several States",
(February 7, March 20 and 21, 1928), Pp. 87.

- Kingsley, Clarence D., Chairman
"Cardinal Principles of Education",
Department of Interior Bureau of Education, Bulletin
1918 No. 35, Washington, D. C., Government
Printing Office, (1918),
- Lane, C. H.
"Vocational Education In Agriculture 1917-1927",
Federal Board for Vocational Education Bulletin No.
134, Agricultural Series No. 35, Washington,
D. C., Government Printing Office, (December, 1928)
Pp. v - 40.
- Lane, C. H.
"The Place of Vocational Agriculture In The Present
Agricultural Situation",
Federal Board for Vocational Education, Monograph
No. 3, Washington, D. C., Government Printing
Office, (December, 1926), Pp. ii - 14.
- Larson, Emil L., and Committee.
"Casa Grande Survey",
Department of Education, University of Arizona, (Unpub.)
- Larson, Emil L. and Committee.
"Marana Survey",
Department of Education, University of Arizona,
(Unpublished).
- Larson, Emil L, and Committee.
"Tombstone Survey",
Department of Education, University of Arizona,
(Unpublished).
- Larson, Emil L., and Committee.
"Wickenburg Survey",
Department of Education, University of Arizona,
(Unpublished),
- Larson, Emil L., and Committee.
"Willcox Survey",
Department of Education, University of Arizona,
(Unpublished).
- Mann, Charles Riborg, for the National Advisory Committee
on Education.
"Federal Relations to Education",
Report of the National Advisory Committee on Educa-
tion, Washington, D. C., National Capital Press,
Inc., (October, 1931), Pp. viii - 140.
- Miller, Halbert W.
"Arizona State Plans for The Administration of Vo-
cational Education, 1927-1932",
Phoenix, Arizona, Arizona State Department of Vo-
cational Education, (1930), Pp. 64.

Miller, Halbert W.

"Constructing Courses of Study in Vocational Agriculture for High Schools of Arizona",
Unpublished Master's Thesis, Colorado Agricultural College, Ft. Collins, Colorado, (1931), Pp. 97.

Myers, Charles Everett.

"Effectiveness of Vocational Education In Agriculture",
Bulletin No. 82, Agricultural Series No. 13, Issued
by the Federal Board for Vocational Education,
Washington, D. C., U. S. Government Printing
Office, (July, 1928), Pp. x - 60.

Phillips, Frank M.

"Distribution of Pupils by Grades 1914-1925",
Bureau of Education, Bulletin 1927 No. 13, Washing-
ton, D. C., U. S. Government Printing Office,
(1927),

Phillips, Frank M.

"Distribution of Pupils in Several Grades of High
School",
Bureau of Education, Bulletin 1929 No. 35, Washing-
ton, D. C., U. S. Government Printing Office,
(1929).

Phillips, Frank M.

"Per Cent. of Secondary Students Pursuing Certain
Studies In High School 1927-1928",
Bureau of Education Bulletin 1930 No. 35, Washing-
ton, D. C., U. S. Government Printing Office,
(1930).

Reed, Hon. Daniel A.

"Vocational Education",
Speech of Hon. Daniel A. Reed of New York In the House
of Representatives, U. S. Government Printing
Office, Washington, D. C., (Friday, April 15,
1932), Pp. 4.

Rugg, Harold.

"The Foundations and Techniques of Curriculum Con-
struction",
26th Yearbook of the National Society for the Study
of Education, Bloomington, Illinois, Publishing
Co., (1926), Pp. xi - 237.

Sutton, Willis A.

"The Obligation of Vocational Education to Business",
Bulletin No. 6, Indianapolis, Indiana, American Vo-
cational Association, Inc., (January, 1931),
Pp. 1-13.

Tenth Biennial Report of the Arizona State Tax Commission
Arizona State Capital, Phoenix, Arizona

Tenth Biennial Report of the State Superintendent of
Public Instruction.
Arizona State Capital, Phoenix, Arizona.

Vocational Education in Agriculture Studies and Reports,
International Labor Office Series K (Agriculture)
No. 9, Geneva, Published in the United Kingdom
Orchard House, 14 Great Smith Street, London,
S. W. (Office of the League of Nations,) Pp. vii - 244

Wright, J. C., Director.

"Effectiveness of Vocational Education in Agriculture",
Bulletin No. 82, Agricultural Series No. 13, Issued
by the Federal Board for Vocational Education,
Washington, D. C., U. S. Government Printing
Office, (July, 1928), Pp. x - 60.

Woods, Ralph Hicks.

"A Method of Determining the Relationship Between
Types of Farming, Content in Vocational Agri-
culture and the Technical Training of Teachers
of Agriculture",
Bulletin of the Bureau of School Service, Vol. III,
No. 1, Lexington, Kentucky, University of
Kentucky, (September, 1930), Pp. 111.

APPENDIX.

TYPES OF INDUSTRIES IN DISTRICTS WHERE HIGH SCHOOLS ARE LOCATED.

Arizona's principal industries are agriculture and stock raising, mining, and lumbering. Because of the scattered population the railroads play a prominent part in transporting the products of her industries. In some counties agriculture is the prime industry while in others mining predominates. A statement of the various industries in each of the counties and districts where high schools are located follows:

Apache County, third in area and ninth in population, has agriculture and stock raising as its principal industries. Irrigation water is taken from the Little Colorado and stored in the Lyman Dam.

1. St. Johns, has a population of 1,384 and is the County Seat. Farming, cattle and sheep raising are the principal industries; alfalfa is the main cash crop.

2. Springerville (population 566) is generally known as the capital of Round Valley and the White Mountains. It is an agricultural, stock raising and recreational community. It sends its high school students

to Round Valley High School located at Eagar, one-half mile distant. Eagar is a farming and stock raising community with a population of 562.

3. McNary (population 78) is a lumbering district, with some cattle raising.

Cochise County , ninth in area and third in population, has as its principal industries mining, agriculture and livestock raising.

1. Bisbee (population 8,119) is the county seat, and the center of the mining activities. Warren is the mining district and Lowell is a residential community. The Calumet and Arizona Mining Co., the Phelps Dodge, Copper Queen Branch, and Shattuck Denn Mining Co. are the principal mines.

2. Douglas (population 9,878) is supported primarily by the copper smelting. Trade with Mexico, lime and rock quarring, and gypsum manufacturing contribute greatly to the support of the city. There is some agriculture in surrounding districts.

3. Tombstone has a population of 849. It is the most notorious mining town of the southwest, but its mines are not very productive at present.

4. Willcox (population 363) is the trading center for the Sulpher Springs Valley; cattle raising, agriculture and mining are its important indus-

tries. Willcox is one of the largest cattle shipping points in the state. A great variety of agricultural crops are raised; alfalfa, beans, potatoes, sorghum, corn, and vegetables. Dairy cattle and poultry are kept on small farms. Beef cattle and sheep are on the ranges surrounding Willcox.

5. Benson (925 population) is on the Southern Pacific Railroad, and there are about 150 men employed in the railroad yards. The Apache Powder Co. is between Benson and St. David. There is some mining and stock raising, with some agriculture at Pomerene on the San Pedro River. A large number of the high school students come from Pomerene.

6. St. David is an agricultural district on Federal Highway 80.

7. San Simon is an agricultural district on the Southern Pacific Railroad 12 miles West of the New Mexico line.

8. Bowie (population 609) is in the San Simon Valley and is on the Southern Pacific Railroad. Artisian and shallow pumping wells supply irrigation water for some agriculture. There is also some cattle raising.

9. Pearce is an agricultural and stock raising district on a branch of the Southern Pacific Railroad. There is some mining.

Coconino County is largest in area and tenth in population. Lumbering, cattle and sheep raising, and agriculture are the chief industries. Large lumber companies are located at Flagstaff and Williams.

1. Flagstaff (3,881 population) is the county seat and is on the Sant Fe Railroad. The Northern Arizona Teachers College is located there. Lumbering is the chief industry, but cattle, sheep and some agriculture are important. In the summer there is heavy tourist traffic.

2. Williams (population 2,164) is on the Santa Fe Railroad. Lumbering, livestock raising and tourist traffic furnish the main source of income. Like Flagstaff agriculture is limited, but potatoes, beans, and small grains do very well.

Gila County, eleventh in area and fourth in population, has mining and livestock raising as its principal industries. There is some farming but it is limited to small valleys.

1. Globe (population 7,143) has copper, asbestos, and quicksilver mines. The Old Dominion Copper Company and Arizona Commercial Copper Company are located there.

2. Miami or Live Oaks (population 7,679) has mining and smelting as its principal industries. The

Miami Copper Company, Van Dyke Copper Co., Inspiration, Consolidated Copper Co., and International Smelting Co. are located there.

3. Hayden has the American Smelting and Refining Co. smelter, and Nevada Consolidated Copper Co. reduction plant to contribute to its maintenance.

4. Payson's industries are stock raising, agriculture, and mining.

5. Pine's industries are stock raising, and agriculture.

Graham County, twelfth in area and eleventh in population is predominantly an agricultural county. There are approximately 40,000 acres of irrigatable land; 30,000 were irrigated in 1929 from the Gila River and pumps. All the major towns are on a branch of the Southern Pacific.

1. Safford (2,948 population) is the county seat and commercial center of the Gila Valley. It has a flour mill, gin, and ice plant. Dairying, poultry raising, and cattle raising are important. General crops and vegetables are raised, but cotton is the principal cash crop. Solomonville sends its high school students to Safford.

2. Thatcher (1,271 population) is surrounded by farming and stock raising. It is the home

of the Gila Jr. College. There is some mining.

3. Pima (980 population) is a farming and stock raising district.

4. Ft. Thomas (495 population) is a farming and stock raising community.

Greenlee County: Mining is the principal industry; agriculture is confined principally to the Duncan Valley.

1. Clifton (population 2,213) is the county seat and is located in a deep canyon on the San Francisco River. It is a trading center. Copper smelting is the principal industry, but there are some livestock, principally cattle, sheep and goats.

2. Morenci (population 5,116) is a mining town and has decreased in size since the Arizona Copper Co. sold their properties to Phelps Dodge Corporation. Concentrator and lumber yards are located there.

3. Duncan (population 1,092) is the commercial center for the entire Duncan Valley. Agriculture is the principal industry; alfalfa, lettuce, potatoes, and other truck, and field crops are grown. Some poultry and dairy cattle are raised. There are some livestock and mining.

Maricopa County is seventh in area but first in population. The Salt River Valley project

located in the center of the county is the largest irrigated area in the state, and is the most successful irrigation project in the United States. In 1929 there were 404,315 acres under cultivation and the total value of the crops produced amounted to \$38,171,725.00, and the crop value of the entire state was \$50,724,000.00, (U. S. Department of Agriculture estimate). Agriculture is the principal industry.

1. Phoenix is the State Capital and the county seat. It is the largest city in the state, with a population of 47,950. Phoenix has three principal sources of revenue, (1) agriculture, (2) business, (3) winter visitors. A great variety of agricultural products are produced including citrus, dates, truck crops, cotton, alfalfa hay, sorghums, small grains, and various fruits. Dairy cattle and poultry are the principal livestock, but large numbers of beef cattle and sheep are shipped in for fattening.

2. Mesa is the second largest city in Maricopa County with a population of 3,707. It is strictly an agricultural community, and the agricultural crops are similar to those raised in the rest of the valley. The city has three cotton gins, one oil mill, a flour mill, one ice plant, a citrus packing plant, and several lettuce and cantaloupe packing and shipping sheds.

3. Glendale is third in size and has

a population of 3,663. It has a percentage of dairy cattle and poultry. Lettuce and cantaloupes are the major cash crops. The same crops are grown there as in the rest of the valley.

4. Tempe has a population of 2,495. The Tempe State Teachers College is located there. Tempe is one of the oldest farming districts in the state. The crops are similar to those in the rest of the valley. The Borden Creamery receives milk from the neighboring dairies.

5. Chandler has a population of 1,377. It has all the various types of crops and livestock raised in the valley. The Citrus Heights development has recently added a new district. The San Marcus Hotel draws a large number of winter visitors. The school draws students from Goodyear and the Roosevelt Conservation District.

6. Gilbert is strictly a farming community. It has a city population of 791. Cotton and alfalfa are the principal crops, and any number of other crops are grown. There is also poultry raising and dairying.

7. Buckeye has a population of 1,076. It is on the Gila River and is one of the older agricultural projects. Dairying and crop raising are the principal industries. High grade alfalfa seed and butter fat are their main sources of revenue.

8. Tolleson was incorporated in 1929, and is a farming district. Its principal cash crops are lettuce and cantaloupes. It has a population of 908.

9. Scottsdale has a population of 500. Farming is the main enterprise and a variety of crops are grown; citrus and cotton are the major cash crops.

10. Litchfield Park is a farming district and has a population of 50. It is the winter home of Paul Litchfield, president of the Goodyear Tire and Rubber Co.

11. Gila Bend has a population of 369. It is on the railroad, and is in a farming and cotton growing district.

12. Wickenburg is a railroad town and on the junction of two highways. The industries are mining and livestock raising. It has five dude ranches.

Mohave County is second in size but fourteenth in population. Mining is the principal industry, with some cattle and sheep raising, and a little agriculture. There is comparatively little farming in this county as there is only 800 acres of irrigated land and the county's total acreage is 8,569,600.

1. Kingman is the county seat and has a population of 2,257. Its industries are mining, and stock raising, and it is a distributing point for a large gold and silver mining district. The only high school in Mohave County is located there.

Navajo County, fifth in area and seventh in population, has lumbering, agriculture, and summer tourists as its principal sources of revenue.

1. Holbrook (population 1,115) is the county seat; it is on the Santa Fe Railroad and is the distributing point for both Apache and Navajo Counties. Approximately 2,000,000 pounds of freight are handled each month. Forty-two post offices are served from their post office.

2. Snowflake (population 659) is on Silver Creek. Agriculture and livestock are the principal sources of revenue. Alfalfa is the main cash crop. Dairy and poultry products are marketed at Holbrook and McNary.

3. Winslow (entire district population 3,905) is the main railroad city in Northern Arizona. The Santa Fe employs about 1,150 men. Ice, beverages, mattresses, and lumber products are manufactured there.

Pima County is sixth in area and second in population. Mining, agriculture and livestock raising are its important industries.

1. Tucson (population 32,506) is the county seat. It is a railroad division point, has the State University, and is a health seekers resort. The railroad employees, disabled war veterans, State and Federal employees, and tourist travelers contribute to the great-

er portion of the city's income. There is some agriculture near Tucson on the Santa Cruz and Rillita Rivers, and there is livestock in surrounding regions.

2. Ajo (population 3,300) is the principal mining town of Pima County. The New Cornielia Copper Company with leaching plant and sulphide concentrating mill furnish the main employment. There are some livestock in the district.

3. Marana is an agricultural district on the Southern Pacific Railroad. Irrigation water is supplied by pumps. Cotton is the main crop; alfalfa and sorghums are grown; dairying and poultry are important.

Pinal County is tenth in area and sixth in population. The San Carlos irrigation project supplies irrigation water for Florence, Coolidge, and Casa Grande. The Coolidge Dam on the Gila River stores water for 100,000 acres of land. Some irrigation water is pumped from a large under ground flow. Agriculture and mining are the principal industries. The mines are at Ray and Superior.

1. Florence is the county seat and has a population of 1,313. It is the site of the State Prison. Agriculture is the principal industry; general crops, truck crops, and poultry. There is some mining. Coolidge, also an agricultural community, sends their

high school students to the Florence High School.

2. Casa Grande has a population of 2,597, and is on the Southern Pacific Railroad. Agriculture is the principal industry; general field and truck crops are grown, dairying is important and the Kadota fig industry is becoming important.

3. Superior (2,740 population) is a mining town and has a smelter.

4. Ray (4,097 population) is owned by the Nevada Consolidated Copper Company.

Santa Cruz County borders Mexico and is a cattle raising region.

1. Nogales (population 6,006) is primarily a commercial and trading center. It is one of Arizona's four entry points from Mexico. Mining and agricultural machinery are shipped through Nogales into Mexico. Livestock is kept on the nearby ranges.

2. Patagonia is on the Southern Pacific Railroad, and is a mining, stock raising, and agricultural district.

Yavapai County's principal industries are mining, stock raising and farming.

1. Prescott (population 5,491) is the county seat, and is the center of mining, stock

raising, and agricultural activities. Due to its location and climate it is a mecca for health seekers and summer vacationists.

2. Jerome (population 4,748) is a mining town. The United Verde Copper Co. and the United Verde Extension Mining Co. are the principal producers. The smelter is at Clarkdale.

3. Clarkdale is a mining town owned by the Upper Verde Public Utilities Co. It is the location of the United Verde Smelter.

4. Ashfork is a railroad town on the Santa Fe Railroad. There is some farming and stock raising.

5. Camp Verde is a stock raising and farming community. There is some mining of sodium sulphate.

6. Seligman is a division point on the Santa Fe Railroad, and is in a cattle raising district.

7. Skull Valley is on the Phoenix branch of the Santa Fe Railroad. It is a farming and stock raising district.

Yuma County, fourth in area and sixth in population, is an agricultural county, but there is considerable mining.

1. The City of Yuma (4,887 population)

is located on the Colorado River. It is served by the Southern Pacific Railroad and is a division point. There are about 200 men employed in the railroad shops at Yuma. Agriculture is the major enterprise; alfalfa seed, hay, cotton, citrus, pecans, dates, lettuce, grapes, figs and strawberries are shipped out. Sumerton, only 14 miles away, is an agricultural district and sends its high school students to Yuma.

Parker is a small town on the Santa Fe Railroad, further up the Colorado River, and has some agriculture, stock raising and mining.

The foregoing information was taken from the "Arizona Year Book for 1930", by Forrest E. Doucette, Pp. 173-313

RESEARCH QUESTIONNAIRE.

Problem: To determine conditions under which High Schools
can offer Agricultural classes.

Factors considered:

1. The assessed valuation of School District _____
Tax rate _____
2. Total High School enrollment
 - a. Number of boys. _____
 - b. Number of girls _____
3. Number of teachers in High School
 - a. Number of men teachers. . . _____
 - b. Number of women teachers _____
4. Number of boys in school whose Dads
are farmers _____
5. Number who are now taking classes in
Agriculture _____
 - b. No. Agr. classes offered. _____
6. Predominating types of farming enterprises
of the community.

(Example: Dairying, Poultry raising,)
(cotton, alfalfa, grains, citrus, sheep)
(raising, truck crops, fruit raising.)

1. _____
2. _____
3. _____
4. _____
5. _____