

THE UNDERGRADUATE COLLEGE PREPARATION IN THE SUBJECTS THAT  
THEY ARE TEACHING OF OREGON STATE AGRICULTURAL COLLEGE  
TRAINED HIGH SCHOOL TEACHERS IN THE YEAR 1933-34

by

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## CHAPTER I

## INTRODUCTION

The State of Oregon issues a one year certificate to any graduate of a standard college or university who has successfully completed twenty-two and a half term credit hours work in professional educational subjects including three term credit hours in supervised teaching, educational psychology, secondary education, and principles of teaching. The preparation of the teacher in the subject that he teaches is assumed to be adequate, as there are no requirements as to subject matter preparation. The holder of a certificate can teach any subject in any high school if he can secure the position. There is a growing tendency for states to require certification by subjects. Kinder, in an analysis of the state certification require-

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Kinder, J. S. "Requirements for Secondary School Teaching Certificates in Case of Persons Without Teaching Experience" School Review Feb. 1930 pg. 110-114

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ments found that twenty-seven states require some type of subject certification. All of these states require certification of certain subjects such as home economics, music, art, shop, and commercial subjects, and fifteen states require certification for all subjects. The college preparation for this subject certification varies from six semester hours to thirty semester hours; nine states require twelve or less semester hours and nine states



require twenty of more semester hours.

The writer recognizes the impossibility of quoting from the certification laws of all states, and he has chosen California as a state more or less typical of the present trends. California requires, in addition to a

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Regulations Governing the Granting of State Teacher's Credentials and County Certificates in California. Bul. No. H-2 State Board of Education 1928

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batchelor's degree, that a teacher must have twenty semester hours of advanced work and a major of twenty-four semester hours, six of which are upper division or graduatework in a subject recognized by the State Board of Education, and a minor of twelve semester hours, six of which must be upper division or graduate work; or a major not recognized as a subject for high school graduation , and two minors. However, a holder of this certificate may teach any subject except classes organized under state and federal vocational acts.

### The Purposes of the Study

The purpose of the writer in making this study was to determine the undergraduate preparation for the subjects that they teach of the high school teachers of the State of Oregon who obtained their undergraduate training at Oregon State College.

The writer prepared these data to show three things. One of these was the relationship between the subject-

matter preparation of teachers who are teaching in small high schools and the same preparation of teachers who are teaching in the intermediate and large size high schools.

The second was the relationship between the subject-matter preparation of high school teachers now teaching who obtained their training ten years or more ago and the subject-matter preparation of high school teachers now teaching who obtained their training less than ten years ago.

The third was the relationship between the subject-matter preparation of high school teachers who have retained their present positions for five or more years and the subject-matter preparation of high school teachers who have not been in their present positions for five years.

#### The General Method of Procedure

The general method of procedure used in this study was to secure from the Oregon State Directory 1933-34 a list of the teachers teaching in the high schools of the State of Oregon in the school year 1933-34 who obtained their undergraduate college preparation at Oregon State College, together with the subjects each one is teaching. An analysis was made of the subjects the teachers are teaching and the subjects to be investigated were selected. Table I contains these data. The college courses constituting preparation for each subject were then determined. The number of term credit hours preparation in each subject for each teacher was then secured from the permanent records in the

### The Method of Securing Data

Data for this study were secured from the permanent records of the Registrar's Office of Oregon State College and from the Oregon School Directory for 1933-34. The names

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#### Oregon School Directory 1933-34

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of the teachers together with the date of graduation, the size of the school in which they are teaching and the subjects taught were obtained from the Oregon School Directory. The number of term credit hours preparation for each subject was obtained from the Registrar's Office. All incomplete records were rejected. Any results which were unusual or which did conform to college rules and regulations were rechecked twice to eliminate any error. Any courses not listed in the present catalogues were checked by a reference to old Oregon State College Catalogues. Credits transferred from other schools were accepted if substituted by the Registrar for courses offered at Oregon State College.

There are four hundred and nine high school teachers who received their undergraduate training at Oregon State College who are teaching in the school year 1933-34. Of these, three hundred and three are teaching subjects included in the study. The usable records of two hundred and fifty-three teachers of this group were obtained. The remaining records were not available or were not complete.

It is probable that some of the missing records were of teachers who had married and had not notified the Registrar's Office of their changed name. About ten of the missing records were of teachers who had graduated over thirty years ago and, due to the installation of a new filing system in the Registrar's Office, the records were not available at the time that the writer secured the data.

### The Selection of Teachers

The time required for investigation and the work involved made a complete survey of the college preparation of all of the teachers of the state for all subjects taught prohibitive. The writer decided to limit the investigation to teachers who had received their undergraduate preparation at Oregon State College. This limited the number of teachers to four hundred and nine, the number of Oregon State College alumni who are teaching in the high schools of Oregon in the school year 1933-34. As the questionnaire method was not used, the data on the graduate preparation of the teachers was not available and the study was limited to the undergraduate training of the teachers of the group. The term credit hours of preparation received at Oregon State College after graduation by those included in this study were recorded and the results tabulated in Table XV. Principals of schools were included if they taught subjects included in this study.

Table I

Analysis of Oregon School Directory 1933-34 into Subjects  
Taught by Oregon State College Graduates

Subject	No.	Subject	No.
Algebra	24	Botany	1
Geometry	25	Chemistry	8
Plane geometry	1	Physics	17
Mathematics	4	Electrical theory	1
Higher arithmetic	3	Manual arts	3
General mathematics	32	Manual training	13
Commercial arithmetic	25	Shop	3
Shorthand	67	Drawing	16
Commerce	29	Woodwork	1
Commercial law	9	Industrial arts	7
Typing	81	Printing	1
Bookkeeping	52	Machine	1
Business training	1	Foundry	1
Elementary Business tr.	6	Crafts	1
Business methods	1	Domestic science	5
Commercial geography	8	Home economics	72
Higher geography	3	Domestic art	3
Science	26	Clothing	4
Junior science	1	Home principles	1
General science	21	Home management	1
Elementary science	11	Foods	4
Biology	33	Home nursing	1

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Subject	No.	Subject	No.
Agriculture	29	Band	5
General industry	1	Orchestra	3
Local trades	1	Art	2
Trades	1	Music	3
Guidance	1	Glee club	1
Vocational coordinator	1	Dean	1
Vocations	1	Dean of girls	4
General industries	1	Drama	3
Vocational civics	1	Public speaking	6
Citizenship	1	Debate	1
Civics	29	English	70
Social sciences	4	Spanish	5
Sociology	1	French	1
Social principles	14	Latin	6
Economics	12	Library	5
Physical education	24	Physiology	3
Health	18	U. S. History	26
		World history	22

The Table reads: The Oregon State School Directory lists 24 graduates of Oregon State College who are teaching algebra in Oregon in 1933-34.

### Selection of Subjects

The subjects taught by these four hundred and nine teachers were tabulated and Table I, page 6, prepared. A study of this table shows six graduates teaching Latin. Latin was not offered here at the time that they went to school and the records of these teachers show that they did not have any undergraduate college preparation in Latin.

As a result of Table I the following subjects were included in this study: mathematics, shorthand, bookkeeping, general science, biology, English, history, civics and home economics. The data for this study included the undergraduate college preparation of sixty-six teachers of mathematics, forty-three teachers of shorthand, forty-six teachers of bookkeeping, twenty-nine teachers of general science, twenty-seven teachers of biology, fifty-seven teachers of English, fifty-four teachers of history, twenty-six teachers of civics, and seventy-one teachers of home economics. There are twenty-nine teachers of agriculture in Table I, all of whom are Smith-Hughes teachers. With few exceptions, these teachers have from sixty to seventy term credit hours in agriculture. Since this is true, a study of the undergraduate college preparation of the Oregon high school agriculture teachers was not undertaken.

The procedure for the selection of college courses to be used in this study as preparation for the teaching of the high school subjects was as follows: first, an analysis of the state course of study, for each subject, was made. This gave an indication of the material covered in each course. Wherever possible, teachers who had taught the high school courses were consulted as to the material covered and the preparation required. However, this information obtained from the teachers was not used unless it was confirmed by a more competent authority.

The next step was to study the courses used as preparation by similar studies. The available studies of this nature seldom stated the college courses considered as preparation for teaching a subject, and those who stated in a general way the preparation used for their studies failed to state the criteria used in their selection. The similar studies proved to be of little value as criteria of the college courses included in this study as subject preparation.

The next step was a study of the courses listed in the Oregon State College Catalogue and of the courses rec-

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Oregon State College Catalogue, 1933-34

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omended by the School of Education as preparation for teaching the subjects in high schools.



The next step was to consult the best authority in each field on the teaching staff of the Oregon State College. Then the following criteria were set up for the selection of the college courses used in this study as preparation for teaching subjects in high school.

1. The course should be listed in an Oregon state college catalogue or should be accepted by the Registrar as work taken in another school and substituted for courses offered at Oregon State College.

2. The courses should be recommended by the college professor in charge of the training of high school teachers in each subject.

3. The course should contribute to factual material in the subject taught in high school.

4. The course should not be a course in special methods nor in professional education.

Using these criteria, the following courses were selected as preparation for the following subjects.

Mathematics: All courses in mathematics.

Shorthand: All courses in stenography.

Bookkeeping. All courses in bookkeeping or accounting.

General science: The preparation in general science was divided into two divisions; the preparation in physical sciences, and the preparation in biological sciences.

Physical sciences: Physical science survey, chemistry, physics, and geology.

Biological sciences: Botany and Biological science survey.

Biology: Biological science survey, botany, general entomology, and general bacteriology.

English: All courses in English.

History: All courses in history.

Civics: National government, state government, municipal government, comparative governments of Europe, international relations, and constitutional law.

Home economics: All courses in clothing and textiles, foods and nutrition, household administration, and institutional management.

#### Selection of Teacher Groups

Three classifications of teacher groups were made; one by number of teachers in the schools, one by date of graduation of the teacher, and one by the number of years that the teacher had been employed in his present position. In classification of teachers by size of school, no hard and fast line could be drawn between the small school and the medium sized school, between schools where the teachers were required to teach a large number of subjects and schools where the teachers were required to teach one or two subjects. After an analysis of the number of subjects taught by teachers of different sized schools, it was decided to divide the teachers into groups by size of schools. One group was made up of schools of five or less

teachers and one group was made up of schools of six or more teachers. The average number of subjects taught by teachers in this study for the school year of 1933-34 by those in schools of five or less teachers was 3.5; by teachers in schools of six or more teachers was 2.0. This classification by size of school by number of teachers employed was an imperfect classification as some teachers of the group of smaller schools taught only one subject, while some teachers of the larger group taught as many as seven subjects.

The second classification was by date of graduation. One of the purposes of this study was to determine the relationship between the subject-matter preparation of teachers who graduated ten years or more ago and the preparation of those graduating in the last ten years. An analysis was made of the date of graduation of the teachers included in this study. Fourteen and a half per cent of the teachers graduated before 1923. The first graduating class of the present school of education of Oregon State College graduated in 1923. This was a factor in the selection of the date 1923. as this study could then be a basis for other phases of teacher preparation surveys.

The third classification was by teachers who had retained their present positions for a period of five years or more. The writer realizes that during the economic depression there are many more factors than in normal times or in times of prosperity which determine the retention

of a teacher, yet he believes that a classification of this kind would indicate the extent that subject-matter preparation was a factor in the length of time that a teacher was retained in his position. Twenty per cent of the teachers of this study had retained their positions for five years or more.

## CHAPTER II

## PREVIOUS STUDIES

A previous study of this nature was made in the State of Oregon, an unpublished thesis written by James Monroe Luebke, in which he determined the college science train-

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Luebke, James M. Thesis on a Survey of the Science Teaching of the High Schools of the State of Oregon. Unpublished Thesis, Oregon State College, 1933

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ing of Oregon teachers of science who had graduated from Oregon State College, University of Oregon, Albany College and Willamette University who were teaching in 1932-33. He obtained his data for his study from the Oregon State School Directory and from the registrar's offices in the

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Oregon State School Directory, 1932-33

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respective schools and made a distribution table of the preparation of teachers by schools. He failed to state whether his study included all of the preparation of the teacher at the institution attended or not. He found that high school science teachers who graduated from Oregon State College have less college preparation than those graduating from the University of Oregon, and high school science teachers graduating from Albany College and Willamette University have better college preparation than those graduating from either of the larger schools. His study shows that, while the per cent of teachers with no

college training was much greater for the group from the University of Oregon trained teachers than the group of Oregon State College trained teachers, the per cent of University of Oregon trained teachers who had a major in science was much greater also. He explained the latter condition by the fact that before 1933 the upper division in science was located at the University of Oregon and a major in science was not offered at Oregon State College.

He also found that twenty-three per cent of the science teachers had been in their present position for five or more years; that fifty-four per cent of the science teachers of Oregon graduated in the four years preceding the study, and that twelve per cent graduated prior to 1922.

Other investigators had found that there was a great number of changes in the teaching staffs of high schools. Cole found that forty-two per cent of the teachers of

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Cole, R. D. High School Teaching Population of North Dakota. Unpublished Thesis, U. of N. Dak. 1929

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North Dakota were new to their schools, while Stetson

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Stetson, F. L. The Organization and Administration of Standard High Schools. Studies in Education, U. of Ore. Vol. 2, No. 7 1929

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found that thirty-seven per cent of all teachers of the State of Oregon were in their first year of service.

Comparatively little attention has been given to the relation of subject-matter preparation to teacher failure,

yet Klein found that improper teacher placement ranks fifth

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Klein, A. J. Survey of the Land-Grant Colleges and Universities. Bul. No. 9, U. S. Office of Education, 1930.

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in the causes of secondary school teacher failure.

Inman, in a study of 1048 graduates of eleven Iowa

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Inman, James H. The Training of Iowa School Teachers in Relation to the Subjects That They Teach. U. of Iowa Studies, Vol. IV, No. 9, 1928.

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colleges found that forty-one per cent of the Latin teachers, thirty-seven per cent of the civics teachers, thirty-four per cent of the economics teachers, twenty-eight per cent of the physics teachers, seventy per cent of the physical geography teachers, and twenty-nine per cent of the music teachers have no undergraduate training in their respective subjects. Of this group, fifty-one per cent of the teachers had taught subjects in which they had had no training, and fifteen per cent of the teachers were well prepared in the subjects that they taught.

Koos and Woody found a similar lack of teacher prepa-

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Koos, Leonard and Woody, Clifford. "Training of Teachers in the Accredited Schools of the State of Washington." 18th Yearbook N. S. S. E. 1918.

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ration in the high schools of the State of Washington.

Whitney and Milholland, in a study of about one-half

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Whitney, F. L. and Milholland, John. "Relation of the Subject Matter Preparation to the Subjects Taught After Graduation." Sch. and Soc. Apr. 22, 1933

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of the graduates of the Colorado Teacher's College in which a questionnaire was sent to the teachers to obtain the records of the subjects taught, obtained the college preparation of the teachers from the College records. These were classified into two groups: one the life certificate group with two years of college preparation; the other the A. B. group with four years of college preparation. They found that one-third of the teachers had taught one or more subjects for which they had had no college preparation and that two-thirds had taught some subjects in which their preparation was less than a college minor.

They reach the following conclusions:

A tabulation of the preparation records of the teachers in each subject pointed to the conclusion that specific subject matter preparation had been almost inoperative as a factor in the selection of teachers of that subject.

In teacher groups with an A. B. degree an average of about fifteen per cent of the teachers of a subject had a college major in the subject, about sixteen per cent a minor, forty-seven per cent had credit less than a minor and twenty-three per cent had **taken no college course** in the subject.

In teachers with a life certificate group, four per cent of the teachers of a subject had a college major in that subject, twenty-four per cent had a minor, forty-nine per cent had credit less than a minor, and twenty-three per cent had no credit.

An average of eleven per cent of specialized teachers of any given group subject of the A. B. groups had taken no college credit in their teaching subject, and about one-third had preparation less than a minor.

An average of almost one-fifth of the life certificate group of the specialized teachers of any given subject had no college courses preparation in the subject, and more than one-third had preparation



of less than a minor.

With the exception of teachers of foreign languages, of industrial arts for boys, and of physical education for girls, teachers of each subject in the A. B. group had taught more than four subjects.

With the exception of teachers of home economics, teachers in the life certificate groups had taught an average of five or more subjects. For one-half of the subject groups the average was six or higher.

About two-fifths of the yearly teaching programs of individuals in the A. B. groups contained more than one subject, one-seventh more than four subjects.

In the life certificate groups more than one-half had teaching programs of more than four subjects.

## TREATMENT OF DATA

In preparing these data a table was prepared for each subject included in the study, of the distribution of the number of term credit hours of undergraduate college preparation of teachers in schools of five or less teachers; of teachers in schools of six or more teachers, and of all teachers; and of the range and average number of term credit hours undergraduate college preparation for each group of teachers. Tables II to XII contain these data. Table XIII was prepared of the average number of term credit hours of undergraduate college preparation for all of the subjects included in the study by the same size of school classification as tables II to XII. The teachers were then classified as to date of graduation and Table XIV prepared showing the average number of term credit hours of undergraduate college preparation in the subjects taught by teachers graduating before 1923 and those graduating in 1923 and after. Table XV was then prepared of the average number of term credit hours of college preparation obtained after graduation in the subjects which they are now teaching. The teachers were then classified as to number of years that the teacher had been retained in his present position, and Table XVI prepared showing the average number of term credit hours of college preparation in each subject of teachers employed in their pres-

sent position for five years or more and those employed in their present position for less than five years.

Table II

Distribution of Undergraduate College Preparation of  
Oregon High School Mathematics Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	20	40	3	19	23	35	23	35
1-5	3	6	0	0	3	5	26	40
6-10	8	18	1	6	9	14	35	54
11-15	7	14	1	6	8	12	43	66
16-20	4	8	1	6	5	8	48	74
21-25	4	8	6	38	10	15	58	89
26-30	1	2	2	13	3	5	61	94
31-35	3	6	1	6	4	6	65	100
36-	0	0	1	6	1	2	66	102
Total	50	102	16	100	66	102		

Range of teachers in 5 or less group: 0 to 34 credit hours  
 Range of teachers in 6 or more group: 0 to 36 credit hours  
 Range of all teachers: 0 to 36 credit hours  
 Average of teachers in 5 or less group 9.1 credit hours  
 Average of teachers in 6 or more group 19.5 credit hours  
 Average of all teachers 11.6 credit hours

The Table reads: In schools of 5 or less teachers, 20 teachers or 40% have no college preparation in mathematics. It reads the same way for the 6 or more teacher column and the total column. The cumulative total column reads: 23 teachers or 35% have no college preparation in mathematics, 26 teachers or 40% have less than 6 credit hours college preparation in mathematics. The rest of the column reads the same way.

The total per cent in all tables is over or under 100% in some cases due to the accumulation of fractions of per cents.

## Subject Matter Preparation of Oregon High School Teachers of Mathematics

Table II on page 21 shows the data on the undergraduate college preparation of Oregon high school mathematics teachers teaching in 1933-34 who obtained their undergraduate college training at Oregon State College. Of the teachers included in this study, forty per cent of the mathematics teachers in schools of five or less teachers have no undergraduate college preparation in mathematics, nineteen per cent of those in schools of six or more teachers have no undergraduate college preparation in mathematics, or thirty per cent of all mathematics teachers have no undergraduate college preparation in mathematics.

The Oregon State College Catalogue defines a major

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Oregon State College Catalogue 1933-34 pg. 192

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norm in mathematics as thirty term credit hours. Of the mathematics teachers included in this study, six per cent of those teaching in schools of five or less teachers have a major in mathematics, twelve per cent of those teaching in schools of six or more teachers have a major in mathematics, or eight per cent of all teachers have a major in that field.

Table III

Distribution of Undergraduate College Preparation of Oregon  
High School Shorthand Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	3	19	3	11	6	14	6	14
1-5	1	6	1	7	2	5	8	19
6-10	4	25	6	22	10	23	18	42
11-15	0	0	4	15	4	9	22	51
16-20	7	44	13	48	20	47	42	98
21-25	1	6	0	0	1	2	43	100
26-	0	0	0	0	0	0	43	100
Total	16	100	27	102	43	100		

Range of teachers in 5 or less group: 0 to 24 credit hours.  
 Range of teachers in 6 or more group: 0 to 20 credit hours.  
 Range of all teachers: 0 to 24 credit hours.  
 Average of teachers of 5 or less group: 12.1 credit hours.  
 Average of teachers of 6 or more group: 12.6 credit hours.  
 Average of all teachers: 12.4 credit hours.

The Table reads: In schools of 5 or less teachers, 3 teachers or 19% have no college preparation in shorthand. It reads the same way for the 6 or more teacher column and the total column. The cumulative total column reads: 6 teachers or 14 % have no college preparation in shorthand, 8 teachers or 19% have less than 6 credit hours. The rest of the column reads the same way.

## Subject Matter Preparation of Oregon High School Teachers of Shorthand

Table III on page 23 shows the data on the undergraduate college preparation in shorthand of Oregon high school shorthand teachers for the year 1933-34 who obtained their undergraduate college preparation at Oregon State College. Of the shorthand teachers included in this study, nineteen per cent of those teaching in schools of five or less teachers have no undergraduate college preparation in shorthand, eleven per cent of those teaching in schools of six or more teachers have no undergraduate college shorthand preparation, or fourteen per cent of all shorthand teachers have no undergraduate college preparation in shorthand.

The Oregon State College Catalogue states that eight-

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Oregon State College Catalogue, 1933-34. pg. 180

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een term credit hours of shorthand are required for a major norm in secretarial science. Of the teachers included in this study, fifty per cent of those teaching in schools of five or less teachers have eighteen term credit hours of undergraduate college preparation in shorthand, thirty-three per cent of those in schools of six or more teachers have eighteen term credit hours of undergraduate college shorthand preparation, or thirty-nine per cent of all shorthand teachers have eighteen term credit hours of undergraduate college preparation in shorthand.

Distribution of Undergraduate College Preparation of Oregon  
High School Bookkeeping Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	4	14	0	0	4	9	4	9
1-5	3	10	0	0	3	7	7	16
6-10	7	24	10	59	17	37	24	53
11-15	12	41	4	24	16	35	40	88
16-20	3	10	2	12	5	11	45	99
21-25	0	0	1	6	1	2	46	101
26-	0	0	0	0	0	0	46	101
Total	29	99	17	101	46	101		

Range of teachers of 5 or less group: 0 to 18 credit hours.

Range of teachers of 6 or more group: 9 to 21 credit hours.

Range of all teachers: 0 to 21 credit hours.

Average of teachers of 5 or less group: 10.1 credit hours.

Average of teachers of 6 or more group: 11.9 credit hours.

Average of all teachers: 10.8 credit hours.

The Table reads: In schools of 5 or less teachers, 4 teachers or 14% have no undergraduate college preparation in bookkeeping. The 6 or more teacher group and the total column reads the same way. The cumulative column reads: 4 teachers or 9% have no undergraduate college preparation in bookkeeping, 7 teachers or 16% have less than 6 term credit hours undergraduate college preparation in bookkeeping. The rest of the column reads the same way.



## Subject Matter Preparation of Oregon High School Teachers of Bookkeeping

Table IV on page 25 shows the data on the undergraduate college preparation in bookkeeping of Oregon high school bookkeeping teachers for the year 1933-34 who obtained their undergraduate training at Oregon State College. Of the bookkeeping teachers included in this study, fourteen per cent of those teaching in schools of five or less teachers have no undergraduate college preparation in bookkeeping, while all teachers of schools of six or more teachers have some undergraduate college preparation in bookkeeping, or nine per cent of all bookkeeping teachers have no undergraduate college preparation in bookkeeping.

The Oregon State College Catalogue states that twelve

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Oregon State College Catalogue 1933-34 pg. 180

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term credit hours of accounting are required for a major norm in secretarial science. Of the bookkeeping teachers included in this study, fifty-two per cent of those teaching in schools of five or less teachers have twelve term credit hours of undergraduate college preparation in bookkeeping, forty-one per cent of those in schools of six or more teachers have twelve or more term credit hours of undergraduate preparation in bookkeeping, or forty-eight per cent of all bookkeeping teachers have twelve term credit hours of undergraduate college preparation.

Table V

Distribution of Undergraduate Physical Science College  
Preparation of Oregon High School General Science Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	3	12	1	25	4	14	4	14
1-5	4	16	1	25	5	17	9	31
6-10	6	24	0	0	6	21	15	52
11-15	5	20	1	25	6	21	21	73
16-20	4	20	0	0	4	14	25	87
21-25	2	8	0	0	2	7	27	94
26-30	1	4	0	0	1	3	28	97
31-35	0	0	1	25	1	3	29	100
Total	25	104	4	100	29	100		

Range of teachers of 5 or less group: 0 to 26 credit hours

Range of teachers of 6 or more group: 0 to 34 credit hours

Range of all teachers: 0 to 34 credit hours

Average of teachers of 5 or less group: 10.8 credit hours

Average of teachers of 6 or more group: 13.0 credit hours

Average of all teachers: 11.1 credit hours

The Table reads: In schools of 5 or less teachers, 3 or 12% have no physical science preparation for the teaching of general science. The 6 or more teacher group and the total column read the same way. The cumulative column reads: 4 teachers or 14% have no undergraduate college preparation in physical science for general science, 9 or 31% have less than 6 term credit hours of undergraduate physical science college preparation for general science. The rest of the column reads the same way.

## Physical Science Preparation of Oregon High School Teachers of General Science

Table V on page 27 shows the data on the undergraduate physical science college preparation of Oregon high school general science teachers for 1933-34 who obtained their undergraduate college preparation at Oregon State College. The results of this study are omitted for the teachers from schools of six or more teachers due to the few cases in this group. Of the general science teachers teaching in this group, twelve per cent of those in schools of five or less teachers have no undergraduate physical science college preparation or fourteen per cent of all general science teachers have no undergraduate physical science college preparation.

The Oregon State College Catalogue states that sixteen

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term credit hours are required for a major norm for the teaching of general science. Of the general science teacher included in this study, twenty-eight per cent of those teaching in schools of five or less teachers have sixteen hours of undergraduate physical science preparation, or twenty-eight per cent of all teachers of general science have sixteen term credit hours of undergraduate physical science college preparation.

Table VI

Distribution of Undergraduate Biological Science College  
Preparation of Oregon High School General Science Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	11	44	2	50	13	45	13	45
1-5	4	16	1	25	5	17	18	62
6-10	6	24	1	25	7	24	25	86
11-15	2	8	0	0	2	7	27	93
16-20	0	0	0	0	0	0	27	93
21-25	1	4	0	0	1	3	28	96
26-30	1	4	0	0	1	3	29	99
30-	0	0	0	0	0	0	29	99
Total	25	100	4	100	29	99		

Range of teachers of 5 or less group: 0 to 27 credit hours

Range of teachers of 6 or more group: 0 to 9 credit hours

Range of all teachers: 0 to 27 credit hours

Average of teachers of 5 or less group: 5.6 credit hours

Average of teachers of 6 or more group: 3.3 credit hours

Average of all teachers: 5.3 credit hours.

The Table reads: In schools of 5 or less teachers, 11 teachers or 44% have no undergraduate biological science college preparation in general science. The 6 or more teacher group and the total column reads the same way. The cumulative column reads: 13 teachers or 45% have no undergraduate biological science college preparation in general science, 18 teachers or 62% have less than 6 credit hours biological science college preparation for general science. The rest of the column reads the same way.

Biological Science Preparation of Oregon High School  
Teachers of General Science

Table VI on page 29 shows the data on the undergraduate biological science preparation of Oregon high school general science teachers for 1933-34 who have obtained their undergraduate college preparation at Oregon State College. The results of this study are omitted for teachers from schools of six or more teachers because of the few cases. Of the general science teachers included in this study, forty-four per cent of those teaching in schools of five or less teachers have no undergraduate biological science college preparation, or forty-five per cent of all general science teachers have no undergraduate biological science college preparation.

The Oregon State College Catalogue states that fif-

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teen term credit hours of biological science preparation are required for a major norm for general science teachers. Of the general science teachers included in this study, eight per cent of those teaching in schools of five or less teachers have fifteen term credit hours of undergraduate biological science college preparation, or seven per cent of all general science teachers have fifteen term credit hours of undergraduate biological science college preparation.

Table VII

Distribution of Undergraduate College Preparation of  
Oregon High School General Science Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	2	8	1	25	3	10	3	10
1-5	1	4	0	0	1	3	4	13
6-10	5	20	1	25	6	21	10	34
11-15	5	20	0	0	5	17	15	51
16-20	5	20	0	0	5	17	20	68
21-25	3	12	1	25	4	14	24	82
26-30	0	0	0	0	0	0	24	82
31-35	2	8	1	25	3	10	27	92
36-	2	8	0	0	2	7	29	99
Total	25	100	4	100	29	99		

Range of teachers in 5 or less group: 0 to 39 credit hours

Range of teachers in 6 or more group: 0 to 34 credit hours

Range of all teachers: 0 to 39 credit hours

Average of teachers in 5 or less group: 16.4 credit hours

Average of teachers in 6 or more group: 16.2 credit hours

Average of all teachers: 16.4 credit hours

The Table reads: In schools of 5 or less teachers, 2 teachers or 8% have no undergraduate college training for general science. The 6 or more teacher group and the total column reads the same way. The cumulative column reads: 3 teachers or 10% have no undergraduate college preparation for general science, 4 teachers or 13% have less than 6 term credit hours of undergraduate preparation for general science. The rest of the column reads the same way.

## Subject Matter Preparation of Oregon High School Teachers of General Science

Table VII on page 31 shows the data on the undergraduate college subject-matter preparation of Oregon high school general science teachers in 1933-34 who obtained their undergraduate college preparation at Oregon State College. Due to the few cases, the results of this study for teachers from schools of six or more teachers are omitted. Of the general science teachers included in this study, eight per cent of the teachers in schools of five or less teachers have no undergraduate college preparation in general science, or ten per cent of all general science teachers have no undergraduate college preparation for the teaching of general science.

The Oregon State College Catalogue states that thirty-

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seven term credit hours of physical and biological science are required for a major norm for general science teachers. Of the general science teachers included in this study, eight per cent have a major norm in general science, or seven per cent of all teachers have a major norm in general science.

This study agrees in general with the results obtained by Luebke in the preparation of Oregon general science

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Luebke, James Monroe, op. cit.

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teachers who graduated from Oregon State College. Luebke did not state in his study whether or not he included graduate preparation. He counted as preparation more of the biological sciences and so the results of the two studies are not comparable. Where he found one teacher with no college preparation in general science, the writer found three teachers with no undergraduate preparation in general science.



Table VIII

Distribution of Undergraduate College Preparation of Oregon  
High School Biology Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	2	11	0	0	2	7	2	7
1-5	0	0	0	0	0	0	2	7
6-10	4	21	1	13	5	19	7	26
11-15	5	26	2	25	7	26	14	52
16-20	4	21	2	25	6	22	20	74
21-25	2	11	0	0	2	7	22	81
26-30	0	0	2	25	2	7	24	88
31-35	0	0	1	13	1	4	25	92
36-	2	11	0	0	2	7	27	99
Total	19	101	8	101	27	99		

Range of teachers in 5 or less group: 0 to 41 credit hours.  
 Range of teachers in 6 or more group: 9 to 30 credit hours.  
 Range of all teachers: 0 to 41 credit hours.  
 Average of teachers in 5 or less group: 15.5 credit hours.  
 Average of teachers in 6 or more group: 20.2 credit hours.  
 Average of all teachers: 16.9 credit hours.

The Table reads: In schools of 5 or less teachers, 2 teachers or 11% have no undergraduate college training in biology. The 6 or more group and the total column reads the same way. The cumulative column reads: 2 teachers or 7 % have no undergraduate college preparation in biology, 2 teachers or 7% have less than 6 credit hours preparation in biology. The rest of the column reads the same way.

## Subject Matter Preparation of Oregon High School Teachers of Biology

Table VIII on page 34 shows the data on the undergraduate college preparation in biology of Oregon high school teachers of biology for 1933-34 who obtained their undergraduate college preparation at Oregon State College. Of the biology teachers included in this study, eleven per cent of those teaching in schools of five or less teachers have no undergraduate college preparation in biology, all of those teaching in schools of six or more teachers have some undergraduate college preparation, or seven per cent of all biology teachers have no undergraduate college preparation in biology.

The Oregon State College Catalogue states that thirty-

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### Oregon State College Catalogue, 1933-34

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three term credit hours are required for a major norm in biological science. Of the teachers included in this study, eleven per cent of those teaching in schools of five or less teachers have a major in biology, thirteen per cent of those teaching in schools of six or more teachers have thirty-three term credit hours of undergraduate college preparation in biology, or eleven per cent of all teachers have thirty-three term credit hours of undergraduate college preparation in biological sciences.

Table IX

Distribution of Undergraduate College Preparation of Oregon  
High School English Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	0	0	0	0	0	0	0	0
1-5	0	0	0	0	0	0	0	0
6-10	2	6	2	9	4	7	4	7
11-15	9	26	0	0	9	16	13	23
16-20	6	17	6	27	12	21	25	44
21-25	7	20	7	32	14	25	39	69
26-30	3	9	3	14	6	11	45	80
31-35	1	3	2	9	3	5	48	85
36-	7	20	2	9	9	16	57	101
Total	35	101	22	100	57	101		

Range of teachers in 5 or less group: 9 to 48 credit hours.  
 Range of teachers in 6 or more group: 9 to 57 credit hours.  
 Range of all teachers: 9 to 57 credit hours.  
 Average of teachers in 5 or less group: 23.7 credit hours.  
 Average of teachers of 6 or more group: 25.8 credit hours.  
 Average of all teachers: 24.5 credit hours.

The Table reads: In schools of 5 or less teachers, all teachers have some undergraduate college preparation in English. The 6 or more teacher group and the total column read the same way. The cumulative column reads, all teachers have some college preparation in English, all teachers have more than 5 term credit hours undergraduate college preparation in English. The rest of the column reads the same way.

Subject Matter Preparation of Oregon High School Teachers  
of English

Table IX on page 36 shows the data on the undergraduate college preparation in English of Oregon high school teachers of English in 1933-34 who obtained their undergraduate college preparation at Oregon State College. Of the English teachers included in this study, there were no English teachers who had less than nine term credit hours undergraduate college preparation in English. Nine term credit hours of English are required for graduation of all students of Oregon State College unless excused.

The Oregon State College Catalogue states that twenty-

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seven term credit hours of English are required for a minor in English. At the present time a student cannot take a major norm in English at Oregon State College. Of the teachers included in this study, thirty-one per cent of those in schools of five or less teachers have twenty-seven term credit hours of undergraduate college preparation in English, twenty-seven per cent of those in schools of six or more teachers have twenty-seven term credit hours of undergraduate college preparation in English, or thirty per cent of all of the English teachers have twenty-seven term credit hours of undergraduate college preparation in English.

Table X

Distribution of Undergraduate College Preparation of  
Oregon High School History Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or less teachers		6 or more teachers					
	No.	%	No.	%	No.	%	No.	%
0	3	10	6	26	9	17	9	17
1-5	6	19	1	4	7	13	16	30
6-10	15	48	8	35	23	43	39	73
11-15	4	13	4	17	8	15	47	88
16-20	0	0	3	13	3	6	50	94
21-25	1	3	0	0	1	2	51	96
26-30	2	6	0	0	2	4	53	100
31-35	0	0	1	4	1	2	54	102
36-	0	0	0	0	0	0	54	102
Total	31	99	23	99	54	102		

Range of teachers in 5 or less group: 0 to 27 credit hours

Range of teachers in 6 or more group: 0 to 34 credit hours

Range of all teachers: 0 to 34 credit hours.

Average of teachers in 5 or less group: 8.3 credit hours

Average of teachers in 6 or more group: 9.2 credit hours

Average of all teachers: 8.7 credit hours.

The Table reads: In schools of 5 or less teachers, 3 teachers or 10% have no undergraduate college preparation in history. The 6 or more group and the total column read the same way. The cumulative column reads: 9 teachers or 17% have no undergraduate college preparation in history, 16 teachers or 30% have less than 6 term credit hours of undergraduate college preparation in history. The rest of the column reads the same way.

## Subject Matter Preparation of Oregon High School Teachers of History

Table X on page 38 shows the undergraduate college preparation in history of Oregon high school teachers teaching history in 1933-34 who obtained their undergraduate college preparation at Oregon State College. Of the history teachers included in this group, ten per cent of those teaching in schools of five or less teachers have no undergraduate college preparation in history, twenty-six per cent of those teaching in schools of six or more teachers have no undergraduate college preparation in history, or seventeen per cent of all history teachers have no undergraduate college preparation in history.

The Oregon State College Catalogue states that eight-

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een term credit hours of college preparation in history are required for a minor norm in history, civics, and economics. A minor norm for history alone is not listed. Of the teachers included in this study, nine per cent of those teaching in schools of five or less teachers have eighteen term credit hours of undergraduate college preparation in history, seventeen per cent of those teaching in schools of six or more teachers have eighteen term credit hours of undergraduate college preparation in history, or thirteen per cent of all history teachers have eighteen term credit hours of undergraduate college preparation.

Table XI

Distribution of Undergraduate College Preparation of  
Oregon High School Civics Teachers

No. of term credit hours preparation	Size of school						Cumulative total	
	5 or more teachers		6 or less teacher		Total			
	No.	%	No.	%	No.	%	No.	%
0	2	13	1	9	3	12	3	12
1-5	8	53	5	45	13	50	16	62
6-10	2	13	3	27	5	19	21	81
11-15	1	7	2	18	3	12	24	93
16-20	2	13	0	0	2	8	26	101
21-	0	0	0	0	0	0	26	101
Total	15	99	11	99	26	101		

Range of teachers of 5 or less group: 0 to 17 credit hours  
 Range of teachers of 6 or more group: 0 to 13 credit hours  
 Range of all teachers: 0 to 17 credit hours  
 Average of teachers of 5 or less group: 6.1 credit hours  
 Average of teachers of 6 or more group: 5.3 credit hours  
 Average of all teachers: 5.7 credit hours

The Table reads: In schools of 5 or less teachers, 2 teachers or 13% have no undergraduate college preparation in civics. The table reads the same way for the 6 or more teacher group and for the total column. The cumulative total column reads: 3 teachers or 12% have no undergraduate college preparation in civics, 16 teachers or 62% have less than 6 term credit hours undergraduate college preparation in civics. The rest of the column reads the same way.

## Subject Matter Preparation of Oregon High School Teachers of Civics

Table XI on page 40 shows the data on the undergraduate college preparation in civics of Oregon high school teachers of civics in 1933-34 who obtained their undergraduate college preparation at Oregon State College. Of the civics teachers included in this study, thirteen per cent of those teaching in schools of five or less teachers have no undergraduate college preparation in civics, nine per cent of those teaching in schools of six or more teachers have no college undergraduate preparation in civics, or twelve per cent of all civics teachers have no undergraduate college preparation in civics.

Three credits of civics are required for graduation at Oregon State College. Those included in this survey who have no college preparation in civics obtained their certificates without graduating from college. A minor in civics is not offered at Oregon State College. No teacher in this study has more than seventeen term credit hours of undergraduate preparation in civics and eighty-one per cent of all teachers in this study have less than eleven term credit hours of undergraduate college preparation, and sixty-two per cent have less than six term credit hours of undergraduate college preparation in civics.



Table XII

Distribution of Undergraduate College Preparation of Oregon  
High School Home Economics Teachers

No. of term credit hours preparation	Size of school				Total		Cumulative total	
	5 or more teachers		6 or less teachers					
	No.	%	No.	%	No.	%	No.	%
0	0	0	0	0	0	0	0	0
1-5	5	29	1	2	6	8	6	8
6-10	2	12	1	2	3	4	9	12
11-15	0	0	1	2	1	1	10	13
16-20	1	6	0	0	1	1	11	14
21-25	0	0	1	2	1	1	12	15
26-30	0	0	0	0	0	0	12	15
31-35	0	0	2	4	2	3	14	18
36-45	1	6	11	20	12	17	26	35
46-55	2	12	6	11	8	11	34	46
56-65	3	18	14	26	17	24	51	70
66-75	2	12	12	22	14	20	65	90
76-	1	6	5	9	6	8	71	98
Total	17	101	54	100	71	98		

Range of teachers of 5 or less group: 1 to 78 credit hours.  
 Range of teachers of 6 or more group: 4 to 89 credit hours.  
 Range of all teachers: 1 to 89 credit hours.  
 Average of teachers of 5 or less group: 34.3 credit hours.  
 Average of teachers of 6 or more group: 50.0 credit hours.  
 Average of all teachers: 50.0 credit hours.

The Table reads the same as the preceding table.

Subject Matter Preparation of Oregon High School Teachers  
of Home Economics

Table XII on page 42 shows the data on the undergraduate college preparation in home economics of Oregon high school teachers of home economics who obtained their undergraduate college preparation at Oregon State College. Of the teachers included in this study, all teachers of home economics have some undergraduate college preparation in home economics. Two teachers in schools of five or less teachers have one term credit hour each in undergraduate college preparation in home economics.

The Oregon State College Catalogue states that for-

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ty term credit hours of home economics are required for a major norm in home economics. Of the teachers included in this group, forty-seven per cent of those teaching in schools of five or less teachers have forty term credit hours of undergraduate college preparation in home economics, eighty-five per cent of those teaching in schools of six or more teachers have forty term credit hours of home economics, or seventy-eight per cent of all home economics teachers have forty term credit hours of undergraduate college preparation in home economics.

Table XIII

Average Teacher Preparation in the Subjects They are  
Teaching of Teachers in Large and Small Schools

Subject	Size of school		All teachers	Major norm
	5 or less teachers	6 or more teachers		
Mathematics	9.1	19.5	11.6	30
Shorthand	12.1	12.6	12.4	18**
Bookkeeping	10.1	11.9	10.8	12**
General science				
Physical	10.8	13.0	11.1	16
Biological	5.6	3.3	5.3	15
Total	16.4	16.2	16.4	37
Biology	15.5	20.2	16.9	33
English	23.7	25.8	24.5	27***
History	8.3	9.2	8.7	18****
Civics	6.1	5.6	5.7	0*
Home economics	34.3	54.8	50.0	40

\* No norm offered at Oregon State College.

\*\* Major norm in secretarial science.

\*\*\* Minor norm.

\*\*\*\* Minor norm in history, civics and economics.

The Table reads: In schools of 5 or less teachers, the mathematics teachers average 9.1 term credit hours of undergraduate college preparation in mathematics; in the 6 or more teacher group, the mathematics teachers average 19.5 term credit hours of undergraduate college preparation. All the mathematics teachers average 11.6 term credit hours of undergraduate college preparation in mathematics. A major norm in mathematics at Oregon State College requires 30 term credit hours of mathematics. The rest of the table reads the same way.

## Average Teacher Preparation in the Subjects They are Teaching

Table XIII on page 44 shows the data for the average undergraduate college preparation in the subjects they are teaching for the Oregon high school teachers who are teaching in the school year of 1933-34, and who obtained their undergraduate college preparation at Oregon State College. The table gives the undergraduate college preparation for teachers in schools of five or less teachers, for those in schools of six or more teachers, and for all teachers. It also gives for purposes of comparison the requirements for a major norm at Oregon State College as defined in the 1933-34 catalogue for each subject.

A study of this table shows that home economics is the only subject included in this study which is taught by teachers who have an average undergraduate college preparation equal to or greater than major norm requirements. Teachers in mathematics, general science, and biological science preparation for teaching general science average less than one half of the term credit hours of undergraduate college preparation required for a major norm.

If thirty term credit hours are assumed as an arbitrary college major for all subjects, then seventeen per cent of the teachers in schools of five or less teachers are teaching one or more subjects in which they have a college major; forty-one per cent of the teachers of schools of six or more teachers are teaching one or more subjects in

which they have a college major; or twenty-six per cent of all teachers are teaching one or more subjects in which they have a college major.

Table XIV

Average Teacher Preparation in the Subjects They are  
Teaching by Date of Graduation

Subject	Date of graduation 1922 or before      1923 or after		All teachers	% of total graduating before 1923
Mathematics	6.6	13.2	11.6	24
Shorthand	16.0	12.3	12.4	2
Bookkeeping	15.5	10.6	10.8	4
General science				
Physical	15.4	10.2	11.1	17
Biological	8.2	4.7	5.3	17
Total	23.6	14.9	16.4	17
Biology	18.3	16.5	16.9	22
English	9.0	24.8	24.5	2
History	3.4	9.4	8.7	13
Civics	2.5	6.0	5.7	7
Home economics	49.2	50.1	50.0	21

The Table reads: Mathematics teachers graduating before 1923 and teaching now average 6.6 term credit hours of undergraduate college preparation in mathematics, those graduating in 1923 and after and teaching now average 13.2 term credit hours of undergraduate college preparation in mathematics, all mathematics teachers average 11.6 term credit hours of undergraduate college preparation in mathematics, 24% of the teachers now teaching mathematics graduated before 1923.

Average Teacher Preparation in the Subjects They are  
Teaching by Date of Graduation

Table XIV on page 47 shows the data on the average undergraduate college preparation in the subjects they are teaching of the Oregon high school teachers who are teaching in the school year of 1933-34 who obtained their undergraduate college preparation at Oregon State College. This table gives the average undergraduate college preparation of teachers who graduated before 1923 and for those who graduated in 1923 and after. It also shows, for the teachers included in this study, the per cent for each subject who graduated before 1923.

A study of this table shows that comparatively few teachers of shorthand, bookkeeping, English, and civics graduated before 1923. Mathematics teachers are the only group of the teachers who show a marked increase in undergraduate college preparation of teachers graduating after 1923 with enough cases to be significant.

Fifty-eight per cent of the mathematics teachers graduating before 1923 and teaching in 1933-34 have no undergraduate college preparation in mathematics, while seventy-one per cent of the history teachers graduating before 1923 and teaching in 1933-34 have no undergraduate college preparation in history. Since comparatively few teachers included in this study graduated before 1923, less than fifteen per cent, tables showing the distribution of the term credit hours of the undergraduate college preparation

each subject were not made. Luebke found that twelve per

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Luebke, James Monroe op. cit.

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cent of the science teachers of Oregon high schools had graduated before 1922, while this study shows that seventeen per cent of the general science teachers included in this study graduated before 1923.



Average Teacher Preparation in the Subjects They are  
Teaching Obtained After Graduation

Subject	Size of school		
	5 or less teachers	6 or more teachers	All teachers
Mathematics	0.0	0.3	0.1
Shorthand	0.5	0.0	0.2
Bookkeeping	0.0	0.0	0.0
General science			
Physical	0.0	3.0	0.4
Biological	0.0	0.0	0.0
Total	0.0	3.0	0.4
Biology	0.0	4.5*	1.3
English	0.2	0.3	0.2
History	0.0	0.5	0.2
Civics	0.0	1.3	0.5
Home economics	0.5	1.9	1.6

Average for all subjects .53

\* One teacher received a master's degree in biology.

The Table reads: In schools of 5 or less teachers, the average number of term credit hours of preparation in mathematics obtained at Oregon State College by teachers who had obtained their undergraduate college preparation at Oregon State College is 0.0 term credit hours. The other columns and subjects read the same way.

Average Preparation in the Subjects They are Teaching  
Obtained after Graduation by Oregon High School Teachers

Table XV on page 50 shows the data on the number of term credit hours in the subjects they are teaching obtained after graduation by Oregon high school teachers who obtained their undergraduate college preparation at Oregon State College. This table does not show the preparation obtained by these teachers at other institutions. Therefore, as complete data are not shown, definite conclusions should not be drawn from these data. The teacher who obtained his master's degree in biology and is now teaching biology appreciably raised the average preparation obtained after graduation for biology, and, to some extent, the average for all subjects. Of all of the teachers included in this study for all of the subjects, one teacher, or two per cent of the teachers who are teaching subjects without any undergraduate college preparation in the subjects taught returned to Oregon State College for subject-matter preparation after graduation. Sixty-seven per cent of the teachers who returned after graduation for more preparation in the subjects that they are teaching are teachers who have more term credit hours of undergraduate college preparation than the average term credit hour preparation of the teachers of the subject who are included in this study. The writer made no tabulation of the data, but it was his observation, while securing data for this study, that teachers returning after graduation generally took

work in professional education or in coaching athletics. They seldom registered for courses in the subjects that they are now teaching , or in courses in special methods of teaching high school subjects. Home economics teachers are the only group included in this study who show a general tendency to return to Oregon State College for additional subject-matter preparation in the subject they are teaching.

Table XVI

Average Teacher Preparation in the Subjects They are  
Teaching by Number of Years in the Present Position

Subject	Years in present position			% of total over 5 years
	5 or more	less than 5	All teachers	
Mathematics	11.7	11.6	11.6	18
Shorthand	15.2	11.7	12.4	21
Bookkeeping	9.0	11.0	10.8	11
General science				
Physical	8.5	11.9	11.1	14
Biological	9.0	4.8	5.3	14
Total	14.5	16.7	16.4	14
Biology	22.2	15.4	16.9	22
English	13.5	24.8	24.5	4
History	5.4	9.6	8.7	22
Civics	7.0	5.4	5.7	19
Home economics	48.1	50.5	50.0	23

The Table reads: Mathematics teachers who have been retained in their positions for five years or more average 11.7 term credit hours of undergraduate college preparation in mathematics, while those who have not been in their present position for five years average 11.6 term credit hours of undergraduate college preparation in mathematics. 19% of the mathematics teachers included in this study have held their present positions for 5 years or more. The other subjects read the same way.

Average Teacher Preparation in the Subjects They are  
Teaching by Number of Years in Present Position

Table XVI on page 53 shows the data on the undergraduate college preparation of high school teachers in the subjects that they are teaching who obtained their undergraduate college preparation at Oregon State College. The teachers are grouped by length of time that they have been in their present position; those who have been in their present position for five years or more, and those who have been in their present position for less than five years. The table also shows the per cent of teachers included in this study who have been in their present positions for five years or more.

The table shows that comparatively few English teachers have been in their present positions for five years or more. Of the teachers of the other subjects, those teaching shorthand, biology and civics have more term credit hours of undergraduate college preparation in their subject who have taught for five years or more, while those teaching bookkeeping, general science, history and home economics have more term credit hours of undergraduate college preparation in the group who have not been in their present position for five years. Mathematics teachers average about the same preparation for each group.

Luebke found that twenty-three per cent of the science

teachers of Oregon had been in their present position for five or more years, while this study shows that fourteen per cent of the general science teachers of the state who have obtained their undergraduate college preparation at Oregon State College have been in their present positions for five years or more.

## CHAPTER IV

## SUMMARY AND CONCLUSIONS

The results of this study indicate that in schools of six or more teachers, the teachers of mathematics, biology, and home economics have better average undergraduate college preparation in their respective subjects than the teachers of the same subjects in schools of five or less teachers. For the other subjects there is no significant difference in the average undergraduate college preparation. This relationship of teacher preparation for size of schools is also true for these subjects in number of teachers with no undergraduate college preparation and for number of teachers with a college major in the subjects that they are teaching.

The results of this study indicate that, in the subjects included in this study with enough teachers graduating before 1923 to draw a conclusion, mathematics and history are the subjects in which the teachers graduating after 1923 have better average preparation in their respective subjects than those teaching the same subject who graduated before 1923. Teachers of biology and general science graduating before 1923 have better average undergraduate college preparation in their subjects than teachers graduating in 1923 and after, although the difference in biology might not be great enough to be significant. This study indicates that teachers who have been in their

their present position for five years or more and are teaching shorthand, biology and civics have better undergraduate college preparation in their respective subjects than those who have not been in their present positions for five years. The opposite condition of teacher training is shown for teachers of bookkeeping, general science, history and home economics; teachers of these subjects who have not been in their present position for five years having better undergraduate college preparation in their subjects than those who have been in their present position five years or more. As different conditions of teacher preparation are indicated for the two commercial subjects, the two science subjects, and the two social science subjects, included in this study, the writer believes that the amount of undergraduate college subject-matter preparation a teacher has is a minor factor in the ability of a teacher to retain a position for five years, or the inability of a teacher to secure promotion in a five year period.

The results of this study indicate that biological science preparation of general science teachers averages about one third of the number of term credit hours required for a major norm. Mathematics, general science, biology, and history teachers average about one half of the undergraduate college preparation required for a major norm, while home economics teachers are the only group who average more than the number of term credit hours required for a major norm.



The study also shows that, of the teachers included in this study, comparatively few teachers of shorthand, bookkeeping, English, and civics graduated before 1923. Of the group of teachers included in this study, English teachers are less apt to be retained in their present position for five or more years than teachers of other subjects; only four per cent of those teaching English have been in their present position for five or more years.

The results of this study indicate that undergraduate college preparation is a minor factor in the selection and placement of teachers of Oregon high schools. If future studies show that better teaching is accomplished by better trained teachers-that there is a relationship between good teaching and good preparation - then certification by subject is one way that the present condition of poor subject-matter preparation of Oregon High school teachers can be remedied.

Since only fifteen per cent of the teachers included in this study graduated before 1923 and some of these have held their present positions for five years or more, the belief that many teachers who quit teaching several years ago and now have returned to teaching by virtue of old life certificates is probably greatly exaggerated.

The results of this study show that teachers who graduate from Oregon State College do not return to Oregon State College for more subject-matter preparation in the subjects that they are teaching. Home economics teachers

are the only group who show a general tendency to return for more subject matter preparation after graduation. Teachers with little or no subject-matter preparation are less apt to return for more subject-matter preparation than better prepared teachers.

For the teachers included in this study, the writer agrees with Douglass, who says, "The truth is that not a

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Douglass, Aubrey A. The American School System 1934

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few, but many, of the teachers of this country are poorly prepared..... from the standpoint of the subjects they are attempting to teach."

#### Further Studies in the Field of Teacher Preparation

1. An Analytical Study of the Certification Laws of the Various States.
2. A Study of the Teacher Preparation of Oregon High School Mathematics Teachers.
3. A Study of the Teacher Preparation of Oregon High School Commerce Teachers.
4. A Study of the Teacher Preparation of Oregon High School Commerce Teachers.
5. A Study of the Teacher Preparation of Oregon High School Social Science Teachers.
6. An Analytical Study of the College Courses to Determine the Amount of Direct Subject Matter Content for High School Teaching.

7. A Comparative Study of the Success of Teachers with Little or no Subject Matter College Preparation in the Subject they are Teaching, and of the Success of Teachers with a College Major in the Subjects they are Teaching.

8. A Study of the College Training of Oregon High School Teachers Received after Graduation with Reference to the Subjects They are Teaching.

9. A Study of the Relationship of Teacher Subject-matter Preparation and Teacher Remuneration of Oregon High School Teachers.

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# Appendix A

## Undergraduate College Preparation of Teachers in the Subjects They Are Teaching in Schools of Five Teachers or Less

No.	Math	Shd	Bk	Gen. Sci			Biol	Eng	Hst	Civ	He	E
				Phys	Biol	Tot						
1.	5			10	9	19	19					
2.			9				18					
3.	12							15				
4.							21					
5.				12	0	12						
6.									12			
7.	0			13	3	16	9					
8.								15				64
9.				0	0	0				17		
10.	0											1
11.			15									
12.								42				
13.									3			78
14.				16	23	39	41					
15.									3	0		6
16.				9	4	13		15	6			
17.	20											
18.		0	15					12				
19.	6							9		3		
20.	3									0		
21.		19	9					15				
22.												
23.	25		18						12			52
24.												
25.		9						42				
26.	15		12									
27.												3
28.	0			12	27	39		18				
29.	6		15						12			
30.								27				
31.									6			
32.								21	6			
33.			9						2			
34.	0											
35.	0											56
36.	12		12						9			
37.	0							15				
38.				12	0	12	15					
39.		19										16
40.								27	9			
41.	17			3	7	10						
42.								18				

No.	Math	Shd	Bk	Gen. Sci.			Biol	Eng	Hst	Civ	He	E
				Phys	Biol	Tot						
43.			9					9				
44.	17			10	0	10						
45.		9										
46.	0								0			
47.							36	21		3		
48.	30		0									
49.	23			18	4	22	11					
50.	0							24				
51.							17			4		
52.	0		15	3	8	11	13					
53.	23			18	0	18		24	3			
54.	21		15						3			
55.	9			9	0	9		15	9	15		
56.							14	18			73	
57.									6			
58.		0						48				
59.	11		0	9	13	22				9		
60.	14		3	6	12	18	22					
61.							0					
62.		3	0									
63.	12		15								2	
64.												
65.	10											
66.	0	19										
67.								21			48	
68.	0											
69.	0											
70.	0											
71.		19	9						6			
72.	9											
73.				3	4	7			27			
74.								45				
75.			0					45	27			
76.										3		
77.				24	10	34			0			
78.	0		15									
79.	0								0		67	
80.								21			3	
81.			12							16		
82.	6							20				
83.	0	19	9									
84.				0	0	0	6		12			
85.							20					
86.	9		18					15				
87.	0		3	0	10	10	10	42	9			
88.	0		6							9		
89.	30											
90.	5			12	0	12						
91.		19								9		
92.	30		3	25	0	25						

No.	Math	Shd	Bk	Gen Sci	Phys	Biol	Tot	Biol	Eng	Hst	Civ	He	E
93.				3	0	3			27	24			
94.	0											3	
95.													
96.		24								9			
97.		19											10
98.			15						18				
99.									38				1
100.								9	18	9			
101.										6			
102.	20												
103.		0	15										42
104.									33				
105.	12											3	
106.				18	0	18				6			
107.	34							0					
108.	7			26	6	32		13					
109.		6							15	3			
110.	0												
111.												3	
112.		9	18										
113.										9		3	



## Appendix B

Undergraduate College Preparation of Teachers in the  
Subjects They Are Teaching in Schools of Six Teachers  
or More

[illegible]

No.	Math	Shd	Bk	Gen. Sci.		Biol	Eng	Hst	Civ	He	E
				Phys	Biol	Tot					
42.								0	0		
43.			18								
44.		19									
45.										41	
46.			21							72	
47.										35	
48.							18				
49.	13										
50.		9									
51.							27				
52.										59	
53.		12									
54.										63	
55.							21				
56.								9			
57.								9		46	
58.										45	
59.		19									
60.			9				21				
61.							33				
62.		14									
63.										6	
64.				34	0	34	30				
65.		19									
66.		9	12								
67.								6	6		
68.				15	9	24					
69.										56	
70.		0								70	
71.							29				
72.										70	
73.	24										
74.										62.	
75.							45				
76.										57	
77.				3	4	7	28				
78.										79	
79.										77	
80.								6	10		
81.	0										
82.		19									
83.										45	
84.		16	9								
85.		16	6								
86.							20				
87.								3		75	
88.							18			74	
89.									6		
90.				0	0	0				4	
91.							57				

No.	Math	Shd	Bk	Gen Sci Phys Biol Tot	Biol	Eng	Hst	Civ	He	E
92.						24				
93.					13					39
94.		9	9							
95.										21
96.							9			
97.						18				
98.										45
99.										62
100.										63
101.	24									
102.										53
103.							9			
104.							0			
105.										43
106.	24									
107.		16								
108.		0								
109.	0									
110.										40
111.	20									
112.	23									
113.						18				
114.							18			
115.		19						13		10
116.	35						34			
118.	24									54
119.						9				
120.	0						0			71
120.										58
121.					20		9			
122.										35
123.										67
124.		9								
125.								3		
126.										71
127.										66
128.							18			
129.						18				59
130.										12
131.			15							
132.			9			24				
133.										58
134.	0	3								
135.						18				57
136.							18			54
137.	28		15							
138.		9								
139.										61
140.		14								