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Sections Three, Four, and Five of the Educational Survey of Colorado State Teachers College

- III. ENTRANCE AND GRADUATION REQUIREMENTS
- IV. TEACHERS QUALIFICATIONS, SALARIES,
AND TOTAL LOAD
STUDENT LOAD
- V. ACCOUNTING AND COSTS



THE
STATE TEACHERS
COLLEGE OF COLORADO
Greeley, Colo.

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GREELEY, COLORADO

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Foreword

Herewith is presented to the faculty and the circle of those others who are genuinely interested in the improvement of the professional preparation of teachers the second installment of the work of the Survey Committee of the College. It will be noted that this section of the report comes out of the order planned by the chairman of the committee, and in explanation it may be stated that the variation is made in order to avoid further delay in the publication of results, more time being needed by those who are working on the report on the **Curricula and Courses of Study**.

It would seem that no one who reads this report attentively could fail to be impressed with the great practical advantages a school derives from a careful and impartial stock-taking such as was undertaken by the College through the Survey Committee. The modern business man would not embark upon a program of improvement and expansion without first finding out just where his business stood. A school has precisely the same need of intimate knowledge of its various activities and of how they mutually affect each other in the common purpose which they are expected to serve.

The general problems of organization received a qualitative treatment by the chairman of the committee in the report already published. In the report here presented a quantitative treatment is given to such problems as admit of it, and valuable guiding insights into complicated problems of organization and administration are offered in passing. The author's modest deprecation of the value of the report may be regarded as his tribute to scientific pragmatism. It seems clear enough, however, that the analysis of the distribution of training and experience over the faculty; of the relation existing between salary and training and experience; of the "turnover or tenure" of "inbreeding" (as the custom of electing to its staff its own graduates is called); of teaching load and extra-curricular activities; of student load; and of the traditional gap between preparation and pay of teachers in training schools and those in other departments—that all these have in spite of the defects of the data a very pertinent significance.

The value of the study would of course be greater if data from similar studies of similar schools were more abundant. But in the meantime, the study is clearly in line with the most promising educational investigations of the time, and the College may properly congratulate itself upon assisting to perform the useful service of stimulating frank inquiry; for the reports here brought together direct attention penetratingly to factors that seem nowhere else to have received much attention before Bulletin Number Fourteen of the Carnegie Foundation (on The Professional Preparation of Teachers) appeared. It is gratifying that the work of this committee should have been so early in the field of qualitative studies of teacher-preparation.

Necessarily a report that impersonally analyses actual conditions will deal with such inadequacies as it finds. It will hardly be necessary to defend this feature of the report to those who will read the study. The essential condition of such a report is simply that it deals with conditions truthfully and without bias or prejudice. No discriminating reader of this report will need to have the marks of its veracity pointed out to him. In this connection, however, it is appropriate to remind the reader, as was done in the preceding study, that there is no doubt at all that a similarly searching and impersonal examination of similar schools would reveal similar inadequacies. It may also not be unfitting to remind the reader again that the school has been

steadily at work since the survey began at the task of profiting from its findings. Inspection of the successive Year Books affords easy access to the record of this sort of activity.

Attention is called to the fact that the data of the report are for the year 1917. Since that time the salary schedule has been materially raised; it is still lower than is to be desired but until additional funds are available it could only be increased by reducing teaching staff and reducing departmental and teaching budgets.

It is to be regretted that no comparisons were made in the report on accounting and costs, but real difficulties were in the way of pertinent comparisons.

As for the specific inadequacies disclosed by this report, there can be but one useful attitude—that of desiring to correct them as speedily as the faculty can be brought to bear upon them. The work of shaping an educational program is no one person's but a co-operative undertaking of all who share the daily work of the school. The complexity of the problem, as well as consideration of the most effective means of proceeding, requires this. The most complex problem of a professional school for teachers is that of co-ordinating all its activities upon its central purpose. How to succeed in organizing the preparation of teachers around the work of student teaching is the most complex part of this task. The specific findings of this report direct attention from an unusual angle to certain traditional inequalities of preparation, experience, and pay which parallel the traditional failure of schools for teachers to make the practice function central in the organization of the curriculum. The failure in the past has been due in large measure to the lack of a unifying theory of the professional preparation of teachers. But even with so complete a statement of theory as that provided by Bulletin Number Fourteen of the Carnegie Foundation, such facts as are set forth by this report make it clear that the organizing of curricula about the work of student teaching can not be successfully accomplished immediately after the desirability of such an organization is recognized. There is a preliminary work of equalization of preparation to be achieved. To this end administrative provisions for further study are apparently the first step. A system of leaves of absences, though very inconvenient to the College and attended with a certain inevitable cost to effective operation, seems nevertheless to be the most feasible procedure. Such provision has been in effect for four years with good results.

In conclusion attention may be called to the sections of the Survey Report that are yet to appear. They are:

Section VI—The Courses of Study.

Section VII—The Training Schools.

J. G. CRABBE,
President.

SECTION THREE
of the
EDUCATIONAL SURVEY
OF COLORADO STATE TEACHERS COLLEGE

ENTRANCE AND
GRADUATION REQUIREMENTS

E. A. CROSS
Dean of the College

REQUIREMENTS FOR ENTRANCE AND GRADUATION, 1917-1918

I. The requirements for admission to the College in the year 1917-18 (Year Book p. 15) were as follows:

"Admission to the College is granted to those who present a certificate of graduation showing the completion of fifteen units in an acceptable high school. This certificate must be presented at the time of matriculation in the College.

"Mature students, not high school graduates, may be assigned to the Ungraded School for Adults. As soon as they have completed the equivalent of fifteen units, or shown the learning power which such completion usually gives, they may be granted a certificate of high school graduation and admitted to the College.

"Experienced teachers who have obtained marked success in their profession may be admitted as Special Students upon the recommendation of the Committee on Entrance. Special Students will be admitted regularly to the College only after having met all the requirements set by the committee. Special Students who fail to meet the college requirements and to do work of college grade will be assigned to the Ungraded School for Adults."

Observations Upon the Requirements

1. It will be observed that the College was not a member of the North Central Association at that time, and that it did not require graduation from an Association high school to gain admission, nor did the College recognize the accredited list of the State University. In fact there was no accredited list. Each case was judged upon the credentials submitted. The College did not prescribe the nature of the units. Any fifteen units which an approved high school would accept for graduation were accepted for admission to the College. Thus students might come with no mathematics, or any number of units for hand-work if his own high school had graduated him upon these terms. This was not the result of indifference or carelessness on the part of the College authorities. It was their deliberate conclusion that the College would best serve the state by disregarding the conventional entrance requirements. For example, they believed that a good primary teacher could be made of a girl who had failed to pass in algebra.

2. In practice, students who had neglected to bring their high school transcripts were allowed to enroll temporarily upon their own statement that they were graduates and their promise to produce the transcript. The College did not record the transcripts upon the students' permanent record, nor did it issue a letter of admission. The only note on the permanent record was like the following:

"School graduated: Victor, Colorado H. S. 4 yr. Course." A student having once made this statement and having got it on the records could with comparative safety neglect to produce the evidence of graduation. As a matter of fact the degree of honesty of the students was remarkable. From a careful inquiry into the matter not more than one, two, or possibly three students per year took advantage of the laxity of the College in this matter.

3. The School for Adults was a school doing high school work. Its students were grouped with high school students and not with the College. The certificate of graduation given to these students was different from the certificate given to regular high school graduates. It did not certify fifteen units, but stated that the student had had the equivalent of fifteen units.

4. The provision for special students is somewhat loose. After a special student had once been admitted to the College, there was very little effective machinery to prevent his unquestioned continuation in the College and

finally his graduation. The Survey Committee is not aware of a single case of such a student being reassigned to the Adult School. Perhaps none deserved to be.

II. The requirements for graduation from the College for the year 1917-1918 were as follows:

1. At least three terms of residence work. A term is twelve weeks, but at that time the summer term of six weeks was accepted as satisfying the residence requirement.

2. Every student entering the College and beginning a two-year course must select one of the group-courses in which to do his work. These are explained in the section dealing with **Course of Study**.

3. In that year the number of hours required for graduation was reduced from 120 to 96, and the normal number per quarter from 20 to 16.

4. The group courses were outlined for only two years.

5. A student who expected to complete the four-year course was required after completing his two-year group-course to select a major subject for the third and fourth year. This major subject might be a continuation of the main line of work the student might choose. Forty-eight hours was the minimum number of hours required in the major subject and sixty hours the maximum allowed in the four-year course. At least 48 hours of the work in the major subject was required to be done in the third and fourth year.

6. A total of 192 hours was required for graduation from the four-year course.

7. No degree was granted for the completion of the two-year course, but a Life Certificate to teach in any public school of any kind in Colorado was granted. In fact, the law makes the certificate of graduation itself a life certificate.

8. The degree of Bachelor of Arts in Education was granted upon the completion of the requirements of the four-year course.

9. A graduate school was maintained with the following requirements for the degree of Master of Arts in Education. (In the statement of conditions prevailing in 1917-1918 which follows as stated in the year book the tenses of the verbs in the original statements have been kept.)

Residence—Three quarters of work are required in residence at the College in advance of the requirements for the A. B. degree. This is three quarters of work beyond a four-year college course.

Units of Work—A year's work shall be interpreted as forty-eight term-hours. Forty hours' credit will be given for graduate courses pursued and eight hours for the Master's thesis which is required. Sixteen hours' credit a term during the regular school year is the maximum, inclusive of the research involved in the thesis requirement.

The Nature of Graduate Work—

1. It shall be in professional lines of work. In keeping with the function of a teachers college, graduate work shall be confined to professional lines of work.

2. It shall represent specialization and intensive work. As soon after enrollment as possible, the graduate student shall focus attention upon some specific problem which shall serve as the center for the organization of his year's work, including courses to be taken and special investigations to be conducted. No graduate credit will be given for scattered and unrelated courses.

3. **Thesis.** Research work culminating in the writing of a thesis upon some vital problem of education shall be an integral part of the work for the Master's degree.

4. **Breadth and Range of Professional Outlook.** In addition to the intensive and specialized work which is required of candidates for the Master's degree, they are expected to know the fundamentals of professional education.

5. **Final Examination Upon the Whole Course.** There will be a final

examination, oral or written, upon the whole course. An oral examination of two hours' duration is customary. This examination will cover the following ground: (a) The field of the thesis and special research, including topics closely related thereto; (b) The field covered by the special courses taken by the candidate; (c) The general fields of Psychology, Sociology, Biology and Education.

Supplementary Data Affecting Graduation

1. Advanced Standing.

Credits for advanced standing are granted only for actual work done in normal schools, colleges, and universities which maintain standards on a level with our own except in such cases as are noted below.

Students who receive advanced standing are held for all required subjects (Junior or Senior College) which have not already been passed. They must also satisfy the requirements set by the head of the department in which they are majoring.

Credit may be granted for private lessons in music, art, language, business courses, penmanship, etc., etc., or for courses in such subjects in private or special schools not of collegiate rank only upon a recommendation, after careful examination, by the heads of the departments giving such work in the college. Whenever thus recommended the work must be certified as similar to, and as a substitute for, certain specified courses which such departments offer or recognize as a part of the training of a teacher in that particular field.

Recognition of what is usually termed "life experience," such as travel, housekeeping, experience in a profession or trade, private reading, club work, etc., etc., is given only in connection with the usual credit granted for teaching.

The total amount of credit granted for teaching experience shall never exceed twelve hours. But additional credit for extended and successful supervision of teaching up to a maximum of eight hours may be granted.

2. The Grading System.

A student who takes a four-hour course may earn a little more than four hours of credit by doing unusually good work. On the other hand, less than four hours will be granted for work of poorer quality than a reasonable expectation would demand. The system is as follows:

A mark of AA for a course gives 20 per cent above the number of hours indicated as normal for the course.

A gives 10 per cent above normal.

B gives the normal credit.

C gives 10 per cent below normal.

D gives 20 per cent below normal.

F indicates failure.

For example:

4B on a student's permanent record means that a student has taken a four-hour course and made the normal credit in it.

4AA would indicate most excellent work in a four-hour course and would carry 4.8 hours credit.

4AA gives 4.8 hours credit on a four-hour course.

4A gives 4.4 hours credit on a four-hour course.

4B gives 4 hours credit on a four-hour course.

4C gives 3.6 hours credit on a four-hour course.

4C gives 3.2 hours credit on a four-hour course.

These marks, both the figure and letter, go on the student's permanent record for later reference to indicate the quality of the work done.

A student who enters school late in the quarter or is compelled to leave early may receive partial credit for the course in such a way as to indicate both the quality and the amount of credit. For example: A student may

complete with exceptional distinction but two-thirds of a three-hour course. The mark should be 2AA, and not 3C. Each mark would give 2.4 hours, but the first mark would indicate the quality of the work as well as the amount of credit.

3. Maximum Hours of Work Per Quarter.

A student registers for from twelve to sixteen hours a quarter. If the work is to count as resident work, the student must carry at least twelve hours. In addition to the regular program a student may register for Bible Study or Community Co-operation without special permission. But a student who wishes a larger program than sixteen hours made up of courses within the College walls must set forth the reasons in writing and apply to the Committee on Student Programs. Even then no program is to extend beyond eighteen hours.

No credit is given, either directly or indirectly, for work done in College Clubs.

In case a student makes one D or two C's during a given quarter, he will be limited to fifteen hours the following quarter.

It shall be a part of the duties of the Committee on Student Programs to learn at the close of the first half of each college quarter the quality of the work of each student carrying more than sixteen hours, and to reduce the number of hours in each and every one regarding which any instructor reports the student's work as either weak or unsatisfactory.

Comment:

Modifications in the requirements for entrance and graduation and in the regulations concerning credits and grades have been made since these observations were made. In the main the regulations still prevail. Only such changes have been made as were needed to correct the defects discovered as the regulations were applied.

SECTION FOUR
of the
EDUCATIONAL SURVEY
OF COLORADO STATE TEACHERS COLLEGE

PART I
TEACHERS' QUALIFICATIONS, SALARIES,
AND TOTAL LOAD

PART II
STUDENT LOAD

J. D. HEILMAN
Professor of Educational Psychology

PRELIMINARY STATEMENT

There are a few forward-facing college presidents who are beginning to realize that, unaided by numerous agencies, the college president is unable to administer the duties of his office efficiently and justly. Therefore, they are fostering in their schools the development of a more elaborate and adequate administrative organization. Deans, directors, principals, heads of the departments, and committees are still a part of the organization; but their functions and modes of operation are in the process of mutation. They are playing a more dominant role. Committee work is gradually ceasing to be a pleasant social hour, and the personnel of the committee is selected more for its special fitness than for the qualities of sociability and administrative trickery. The number of committees has increased; they are more permanent in character; their functions are more highly specialized, and the boundaries of their work are more clearly delineated.

Recently a new committee with a relatively new and most important function appeared. This is the Survey Committee. Its permanence has not yet been assured, but we are confident that it has come to stay because it meets irresistible demands. The longer this committee operates the more acutely will its importance be felt. It has not yet learned to perform its new task well, but it will improve with practice. What appears on the following pages is only the result of two feeble spasms on the part of a very small section of the Survey Committee of our College. The whole report is full of *lacunae* which need to be filled in. No attempt has been made to do this because we are convinced that the general and spasmodic survey should yield its place to the survey which attacks more specific problems and operates unremittingly. Instead of collecting materials for a survey in 1917-18 and compiling the data during the holiday season of 1920-21 as was done in this case, the results should be ready for presentation directly after the collection of the materials. Unless surveys can be made in this manner, the findings will be obsolete before they are made known. No one can confidently affirm that many of the conditions described in this section of the survey do or do not prevail at the present time in our institution.

A general survey is to be condemned because, before it is possible to put all of its recommendations into effect, most of them have become ancient history and should be replaced by something more modern. There is also the danger that recommendations grow stale with age and so lose what dynamic power they may have had. We are of the conviction that every educational institution in the land is in dire need of a permanent survey committee, operating continuously and composed of the flower of the faculty. Good luck to such committees for the welfare of our educational institutions and the cause of education in general.

I am indebted to Mr. A. F. Carter for much assistance in compiling the data involved in this report; also to Mr. E. D. Randolph for helpful suggestions in modifying the questionnaires.

Greeley, Colorado, January, 1921.

J. D. H.

PART I

TEACHERS' QUALIFICATIONS

Two methods may be used to determine the probable efficiency of a college faculty. The one is direct and the other indirect. The direct method consists of an attempt to evaluate the direct results of the faculty's efforts. This may be done by collecting and evaluating samples of the teacher's classroom instruction and of his contributions to the literature of his special field and related fields. Our committee considered the use of the method of collecting samples of classroom work, but finally abandoned the idea on account of the amount of labor and time involved. This method would doubtless be the best if sufficient samples were collected and if enough men capable of rating the samples were at hand.

The indirect method makes use of the teacher's so-called qualifications, factors which tend to vary concomitantly with excellence in teaching ability. This is the method which has been used in this section of the survey. The factors which we attempted to collect may be divided into two groups, the native and the experiential. An attempt was made to obtain information on native qualities by the use of intelligence tests, but the attempt was not very successful. When the Army Alpha tests were given to the students of the school, the members of the faculty were invited to take the tests in a separate group, but only nine of the members appeared. In spite of this small number and the fact that little is known of the correlation of the results of intelligence tests in their present form with teaching ability, I am giving the results of the tests in the following table:

TABLE I
Results of the Army Alpha Examination

Groups	Number	Median	Mean	Extreme Range
Men	6	148	149	134-161
Women	3	127	127	96-157
Both	9	144	141	96-161
Heads of Departments.....	5	157	154	144-161
Assistants	4	131	125	96-134

All but three of the teachers received grade A. Of these three, two made grade B and one C plus. As heads of departments made a median score of 157, it appears that there is excellent talent in this group. The median for heads of departments is 7 points higher than the median for the male students of the college which ranked highest among a group of twenty colleges and universities; it also lacks only 7 points of being equal to the upper quartile of the students of this college of high rank. But as the members of our faculty were a volunteer group, it might be argued that the high rating was due to the element of selection. If this was the case, then the writer and other members of our faculty know absolutely nothing about the relative mental capacities of the teachers of our school. It would be interesting to point out to which departments of our school the teachers who made the lowest scores belong, but this would lead to identification.

The heads of departments surpassed the assistants by a score of 26. If it be permitted to make generalizations on the basis of the results of so small a group, it may be said that, from the standpoint of native ability, heads of departments in relation to the assistants are well chosen. The median score of the men is 21 points higher than that of the women.

The experiential factor consists in the main of the items of scholastic preparation, teaching and administrative experience, the number of publications, public addresses, and the amount of assistance rendered during a limited period to superintendents in making courses of study. In collecting the

data on experience, the instructions of the Committee on Normal School Standards and Surveys have substantially been followed. The following form was used to collect data on scholastic preparation.

Questionnaire on Scholastic Preparation

1. Specify below with a check mark the amount of training you have had:

	Check
High school graduation or equivalent only.....	1
Number of years beyond the high school.....	2
	3
	4
	5
	6
	7 or more

2. Fill in the following forms:

Names of degrees	Institutions which conferred them	Year received
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Names of fellowships and scholarships	Institutions in which they were held.	Year received
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*Names of courses which belong to the departments in which you teach and for which you received credit as a student.	Institutions from which credits were received.	Year received
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*Those who have doctor's degree need specify only major and minor subjects. Star graduate courses.

Results on Scholastic Preparation

The number of teachers replying to this questionnaire and to all other questionnaires employed in this section of the survey was 56—27 men and 29 women. With one exception, apart from those who were absent on leave, this included the entire faculty, deans, directors, principals of the training school and the high school, and the librarian; also the two assistant librarians, who do not do any teaching. The number of men would have been larger if the positions of those who were granted leave for war work had been filled at this time.

The first tabulation of results is on the amount of training beyond the high school and is set forth in Table II. In this table the teachers are distributed both according to the number of years of training and the type of work in which they are engaged. In classifying the type of work, I have followed the survey made by the Iowa State Teachers College at Cedar Falls. The classes are collegiate, including those teachers who teach only in the college (the librarian and the principals of the high school and training school are also included in this group); collegiate and sub-collegiate, including those who teach in both the high school and the college; sub-collegiate and non-collegiate, including those who teach in the high school, and the assistant librarians; training school, including the regular teachers of the training school.

The classes are sub-divided into two groups, the one composed of men and the other of women. For the two last classes there are no men. In this we have not followed the survey of the Iowa State Teachers College, in which the sub-divisions are made on the basis of the kind of preparation, those whose preparation was chiefly along academic lines forming one group and

those whose preparation was chiefly along special art lines the other. On account of the small numbers in the latter group in our school, this plan of sub-grouping could not be followed.

TABLE II

Distribution of Teachers According to Amount of Training and Type of Work

High School Graduation or :	Collegiate		*Collegiate & Sub-Col.		Sub-Col. & Non-Col.		Training School		Totals			Percents		
	M.	W.	M.	W.	M.	W.	M.	W.	M.	W.	Both	Men	Women	Both
Equivalent only	..	..	..	1c	..	..	..	..	1	1	....	3.4	1.8	
1 year beyond	..	..	..	..	..	..	..	..	..	..	..	..	..	..
2 years beyond	..	..	1	..	..	..	..	..	1	1	3.7	1.8		
3 years beyond	..	1	..	..	2	..	1	..	4	4	....	13.8	7.1	
4 years beyond	3	2	..	2ch	7	..	6	3	17	20	11.1	58.6	35.7	
5 years beyond	5	1	2	1h	1	..	7	3	10	25.9	10.3	17.9		
6 years beyond	7	2	1	..	..	..	1	8	3	11	29.6	10.3	19.6	
7 years beyond	6	1	2	..	..	..	..	8	1	9	29.6	3.5	16.1	
Totals.....	21	7	6	4	0	10	0	8	27	29	56	99.9	99.9	100

*All of the men in this class teach primarily in the College. The small letters c and h in the column for the women indicate whether they teach primarily in the college or in the high school.

Several noteworthy facts may be gathered from Table II. First, there are no men in the last two classes and only 6 or 22 per cent in the second class. As these men really belong to the college faculty and do most of their teaching in the college, it follows that the high school is practically without men teachers. This condition has often been deplored, but it is quite prevalent in most American high schools.

Second, the frequencies in the table slope from the lower left hand side diagonally upward toward the right. This means that the training of the teachers in the college surpasses that of the teachers who work in the high school and the training school. The tendency with which the amount of training falls from the collegiate to the training school type of work may be expressed by a coefficient of correlation. The coefficient as determined by Yule's expression of Pearson's method of mean-square-contingency is .62, which is fairly high. This condition may be expressed more simply by giving the average amount of training for each class of work. Following the classes from left to right in the table, the averages are 5.57, 4.50, 3.90, and 4.13 years respectively. The corresponding figures for the Iowa school are 5.06, 4.50, 3.93 and 4.25. This tendency in the latter school to have teachers with more nearly equal training in all classes of work is very desirable. The work in our training school and high school is very different from the work in the elementary grades and the ordinary high school, because it consists not only of teaching children but also of supervising the formation of correct teaching habits and aiding in the acquisition of modern educational ideas in prospective teachers. Well established and practical psychological principles are often violated by inefficient training school teachers to the disadvantage of the student.

Third, out of 27 men 21 are doing wholly collegiate work and the remaining 6 chiefly collegiate with some sub-collegiate work, while out of a total of 29 women only 7 are doing wholly collegiate work, 2 collegiate with some sub-collegiate, and 2 more sub-collegiate with some collegiate work. The remaining 18 women teach in the high school and in the training school. The women have much less scholastic preparation than the men. Only 24 per cent of the women have more than four years training beyond the high school, while 85 per cent of the men exceed the four year limit.

I have also computed medians, quartiles, and coefficients of variation for

training. They are given in the following tabulation together with the means:

	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation
Men	5.78	6.31	5.39	7.25	.93	.147
Women	4.14	4.50	4.11	4.89	.39	.087
Both	4.93	5.20	4.40	6.55	1.07	.191

The median training of the men is 6.31 years; of the women 4.50 years. The men therefore average almost two years more than the women. As is shown by the coefficient of variation, the women vary much less in the amount of their training than the men. Out of 29 women 17 have taken just four years beyond the high school. There is no such bunching of the men for any given amount of training. Perhaps uniformity in the amount of training may be regarded as desirable if there has been enough of it.

The average amount of training for both sexes is 4.93 years. For the Teachers College at Cedar Falls, the average amount of training for both sexes is 4.48 years or .45 years less than in our school. The difference in the amount of preparation between our faculty and that of Iowa Teachers College may be expressed in different form as follows:

	High School Graduation		Years Beyond High School					
	Only	1	2	3	4	5	6 or more	7
Per Cent of C. T. C. Faculty.....	2	..	2	7	36	18	19	16
Per Cent of I. T. C. Faculty.....	2	..	10	4	33	33	9	9

Only 11 per cent of the C. T. C. teachers have less than four years preparation beyond the high school, while 16 per cent of the I. T. C. teachers fall below the four-year mark. Moreover, in our school 53 per cent have more than four years preparation and 37 per cent more than five years. The corresponding figures for Iowa are 51 and 18, respectively.

In the number of teachers holding degrees our faculty also surpasses somewhat the faculty at Cedar Falls. The following figures express the comparison:

	Per Cent of Whole Number of Teachers	
	C. T. C.	I. T. C.
Number with Bachelor's degree only.....	48.21	34.14
Number with Master's degree.....	32.14	34.14
Doctor's degree	12.50	8.94

In the Missouri Normal Schools, according to the survey of these schools made by the Carnegie Foundation for the Advancement of Teaching, 29 per cent of the teachers do not have four year degrees, while in our school only 12 per cent are without a four year degree. One of those belonging to this 12 per cent has only the equivalent of a high school education, one has two years beyond the high school, four have three years beyond, and one has four years beyond the high school. In connection with the subject of degrees, I wish to point out that three of our teachers who hold the Ph.D. do not also have the A. M. degree.

The following table gives a comparison of the percentage of our teachers who hold degrees with the percentage of those who hold degrees in the Missouri Normal Schools and in the University of Missouri.

TABLE III

Percentage of Teachers Holding Degrees in Colorado State Teachers College, the Missouri Normal Schools, and the University of Missouri.

Schools	Whole Number of Teachers	Percentage of Teachers With			
		A. B.	A. M.	Ph. D.	
Men {	Colo. Teachers College.....	27	96	63	22
	Missouri Normal Schools.....	106	78	37	6
Women {	Colo. Teachers College.....	29	79	3	3
	Missouri Normal Schools.....	93	62	14	1
Men and Women {	Colo. Teachers College.....	56	88	32	13
	Missouri Normal Schools.....	199	71	26	4
	University of Missouri.....	151	92	57	48

The training of the men in our school is distinctly superior to that of the men in the Missouri Normal Schools. Each degree is held by approximately 20 per cent more men in our school than in the Missouri schools. The training of the women is doubtfully, if at all, superior. In the percentage of men holding the A. B. and the A. M. degrees our school slightly surpasses the University of Missouri, but in the percentage holding the Ph. D. degree our school is surpassed by the University by 26. For men and women combined our teachers do not compare as favorably with the University. Our school has 4 per cent less with the A. B., 25 per cent less with the A. M., and 35 per cent less with the Ph. D. degree. However, it must be recognized that there are more women in our school than men and that this is not true of the university. Just what percentage of the teachers of the university are men I am unable to say, as the Carnegie report does not give the figures for the sexes separately. Of course, the women who are employed by the university may have as much advanced training as the men.

In spite of the fact that the Missouri Normal Schools employ more men than women, the percentage of teachers with the A. B. degree is 17 lower than ours; it is also 6 per cent lower for the A. M. degree and 9 per cent lower for the Ph. D. degree.

The excellence of a faculty, however, is indicated not only by the number of degrees held by its members but also by the standing of the institutions which conferred the degrees. A list of the institutions from which the degrees were received is therefore set forth in Table IV. Only six of these

TABLE IV
Sources of Degrees

Name of Institution	No. of Men Holding			No. of Women Holding			Totals
	A. B.	A. M.	Ph. D.	A. B.	A. M.	Ph. D.	
California University	1	..	..	..	..	..	1
Chicago University	1	3	..	1	..	..	5
Clark University	..	1	..	..	..	..	1
Colorado College	..	..	..	1	..	..	1
Colorado State Teachers College	5	1	..	13	..	..	19
Colorado University	1	1	..	1	..	..	3
Columbia University	1	2	1	1	..	..	5
Denver University	2	3	2	..	1	..	8
DePauw University	1	1	..	..	..	..	2
George Peabody College	..	..	..	1	..	..	1
Grenoble University	..	1	..	..	..	..	1
Illinois State Normal	..	..	..	1	..	..	1
Illinois University	1	..	..	..	..	..	1
Indiana State Normal School	1	1	..	..	..	..	2
Indiana State Normal College	..	..	..	1	..	..	1
James Milliken University	1	..	..	..	..	..	1
Kansas State Agricultural College	1	..	..	1	..	..	2
Kansas State Normal School	1	..	..	..	..	..	1
Kansas University	1	1	..	..	..	..	2
Leipzig University	..	1	..	..	..	..	1
Lombard College	1	1	..	..	..	..	2
Meridian College	1	..	..	..	..	..	1
Michigan University	1	..	..	..	..	..	1
Muhlenberg College	1	..	..	..	..	..	1
Oberlin College	1	..	..	..	..	..	1
Ohio Wesleyan University	1	..	..	..	..	..	1
Ozark College	1	..	..	..	..	..	1
Pennsylvania University	..	..	1	..	..	1	2
Southern Illinois State Normal	1	..	..	..	..	..	1
Syracuse University	1	..	..	..	..	..	1
Temple University	..	..	..	1	..	..	1
Western Normal College	..	..	..	1	..	..	1
Wisconsin University	..	1	..	..	..	..	1
Totals	26	17	6	23	1	1	74
Percents	96.29	62.96	22.22	79.31	3.45	3.45	
Totals Men and Women							
	A. B.	A. M.	Ph. D.				
Number	49	18	7				
Percents	87.50	32.14	12.50				

institutions are not on the accredited list compiled by the Department of Education of Washington in 1917. Because practically all of the degrees were received before this date, it would probably have been better to have made use of an earlier list. All but one of the teachers who graduated from schools not on the accredited list, more than made up for this deficiency later by taking advanced degrees from institutions of very high standing.

Although the variety of institutions from which the degrees were received is large and the general standing of the schools is good, an examination of Table IV will show certain shortcomings such as the geographical distribution of the schools and the unevenness of the distribution of the degrees among the schools. Only three first class eastern schools are represented. The percentage of teachers who received their degrees from Colorado institutions can best be presented in tabular form.

	A.B. Degree		Advanced Degrees	
	Whole Number with Degree	% Who Received It from Colo. Schools	Whole No. With Degrees	% Who Received Them from Colo. Schools
Men	26	30.77	23	30.43
Women	23	65.21	2	50.00
Men and Women.....	49	46.94	25	32.00
Missouri Normal Schools	138	55.00	59	40.00

Of the men holding the A. B. degree almost one-third received it from schools within the state and almost one-fifth from our own school. Only one of their advanced degrees was received from our college. Of the 23 women who have A. B. degrees, 15, almost 70 per cent, received them from local institutions, and 13 of these 15 received them from our own school. This is perhaps the greatest deficit of our degrees. Out of a total of 74 degrees, 31, or 42 per cent, were conferred by institutions of the state. It is interesting to note that there are approximately as many men with advanced degrees as there are women with the four year degree. The teachers in the Missouri Normal Schools receive about 8 per cent more of their degrees from schools in Missouri than what were received by our teachers from the schools of Colorado. It would have been very instructive to know just what percentage of the teachers in the University of Missouri obtain their degrees from the university and the schools of the state, but this information I have been unable to extract from the Carnegie report. It may have been an oversight.

If it is important to know something about the standing and variety of schools from which degrees were received, it is also important to know something about the variety and character of the schools which the members of the faculty attended as students. The number of schools attended and the number of individuals attending each school are given in Table V. Our own school was attended by exactly one-half of the members of our faculty. Ten have attended Columbia, 8 Chicago, and 5 the University of Denver. It may be very undesirable that 28 of the members of our faculty should have attended our own school; but whatever tendency this may have had toward perpetuating the limited educational ideas peculiar to a locality and toward stultifying the mental life of the school, it must certainly have been offset to a large degree by the fact that our teachers also attended as matriculated students 52 other institutions of learning. It should also be remembered that schools which select teachers largely from their own graduates have the advantage of choosing the very best. Perhaps no amount of scholastic training in schools of high standing is as valuable as a superior native equipment trained in schools of more mediocre standing. In this connection it should also be pointed out that during our summer quarter many of the best scholars from all sections of the country teach and lecture in our school. In this way there is no lack of the invigorating influence which comes from a knowledge of the educational ideas which obtain elsewhere.

TABLE V

Number of Schools Attended and Number Who Attended Each School

	Men	Women	Both
Boston Normal School.....	..	1	1
California University	1	..	1
Chicago University	6	2	8
Clark University	1	..	1
Colorado College .....	..	1	1
Colorado State Teachers College.....	8	20	28
Colorado University	1	1	2
Columbia University	5	5	10
Cornell University	1	..	1
Cumberland University	1	..	1
Dallas Kindergarten Training School.....	..	1	1
Denver University	4	1	5
DePauw University	1	..	1
Eastern Illinois State Normal.....	1	..	1
Eastern Kentucky State Normal.....	..	1	1
Emerson College .....	..	1	1
George Peabody College.....	..	1	1
Grenoble University	1	..	1
Harvard University .....	..	1	1
Illinois State Normal University.....	..	2	2
Illinois University	1	..	1
Indiana State Normal School.....	1	..	1
Indiana State Normal College.....	..	1	1
Iowa State College.....	1	..	1
Iowa State Teachers College.....	1	..	1
Iowa Christian College.....	1	..	1
James Milliken University.....	1	..	1
Johns Hopkins University.....	1	..	1
Kansas State Agricultural College.....	1	1	2
Kansas State Normal School.....	2	1	3
Kansas University	1	..	1
Keystone State Normal School.....	1	..	1
Leipzig University	1	..	1
Lombard College	1	..	1
Meridian College	1	..	1
Michigan State Normal College.....	1	..	1
Michigan University	1	..	1
Missouri University	2	..	2
Mt. Union College.....	1	..	1
Muhlenberg College	1	..	1
North Western University.....	..	1	1
Oberlin College	1	..	1
Ohio Wesleyan University.....	2	..	2
Oshkosh Normal School.....	..	2	2
Ozark College	1	..	1
Pennsylvania University	1	1	2
Southern Illinois State Normal.....	1	..	1
State Normal University.....	1	..	1
Syracuse University	2	..	2
Twin City Normal School.....	..	1	1
Western Normal College.....	..	1	1
Wisconsin University	1	..	1
Totals	62	47	109
Average	2.30	1.62	1.95

If the number of degrees and the nature of their sources are important factors in appraising the worth of a faculty, then the age of degrees should also be of some value. If the degree is very old and the possessor failed to keep up his studies, it is very probable that the degree does not represent anything of importance. If on the other hand the degree is very young, there has been insufficient time for the individual holding it to acquire efficient reaction systems in the light of his training. The following tabulation shows the age of each degree in years in terms of the arithmetic mean or average and the median.

	A.B.		A.M.		Ph.D.	
	Mean	Median	Mean	Median	Mean	Median
Men	12.69	11.50	7.97	4.25	5.83	4.50
Women	4.10	3.38				
Men and Women.....	7.01	7.38				

For the men and women separately the median is consistently less than the mean. This is due to the effect of a few extreme cases. For example, for the women one degree had been received 29 years ago, while the next oldest degree had been received only 11 years ago. The median is therefore the best average. Probably the modal average would have been the most significant, but for the wide range the cases were too few to give any well defined mode. The age of the A. B. degrees for the men may be regarded as desirable, but the A. B. degree for the women and the other degrees for the men are certainly quite recent. It should be mentioned that the single A. M. degree and the single Ph. D. held by the women were classified with the A. B. degrees.

There are several factors which may be taken as indices of the quality of work done by students. Among them are grades, honors, and scholarships and fellowships. Our questionnaire called only for data on scholarships and fellowships. The question yielded the following results:

	Graduate	Undergraduate	Total	No. Held in Our School
Number Held by Men.....	15	9	24	2
Number Held by Women.....	1	12	13	11
Men and Women.....	16	21	37	13

The men average almost one scholarship apiece, but this does not mean that practically every member of our faculty has held a scholarship, because several members held more than one. The number of scholarships held by the women is somewhat less than half the number of women. Most of the men have held their scholarships in graduate work, while most of the women held theirs in undergraduate work. Moreover all but two of the women were scholars in our own school. The total number of scholarships held by our teachers is 64 per cent of the number of faculty members.

Light may also be thrown upon a teacher's preparation for his work by making a study of the relation which the courses of his training bear to the kind of work in which he is engaged. To collect material on this point we asked the following question: "Name the courses which belong to the departments in which you teach and for which you received credit." Those holding the doctor's degree were asked to name their major and minor subjects.

All of those with the doctor's degree were teaching the subject in which they had majored. For the remaining men the average number of courses which were taken and which belonged to the department in which the men were teaching, is 13.3; for the women, 10.3. The women did most of their specialization in their undergraduate courses, while the men were inclined to postpone specialization until they took up their graduate work. Undergraduate courses should not be regarded as equivalent to graduate courses. From the number of courses listed we may perhaps infer that from this standpoint, the members of our faculty have had a fair preparation for their work.

A definite and precise statement of the standing of our faculty in respect to its scholastic preparation and native ability is at this time impossible on account of a lack of adequate standards. More surveys of teachers colleges will have to be made and the methods of making such will have to become more uniform before these standards will be at hand. There is at least a slight indication, as shown by the results of intelligence tests, that our faculty compares favorably with other schools in mental capacity. In scholastic preparation our faculty surpasses the faculties of the Missouri Normal Schools and the Teachers College at Cedar Falls. The women of the faculty reduce our standing very much. The men make a fairly good showing when compared with the University of Missouri for the number of academic degrees; our men excel by 4 per cent in the number holding the A. B. degree and by 6 per cent in the number with the A. M. degree but are excelled by 26 per cent in the number with the Ph. D. There is less of local character in the training of our teachers than there is in the training of the teachers of the Missouri Normal Schools. How our school compares in this respect with the faculty of the University of Missouri we are unable to say on account of a

lack of information. In the matter of age of degrees and the number of scholarships and fellowships held by our teachers, I have not had figures from other schools upon which to base comparisons. On the whole the men of our school compare very favorably with other schools in the scholastic preparation for their work.

A third factor which may be employed to throw light upon a teacher's qualifications consists of his teaching experience and such other experience as is involved in or related to his work. The kind of data on experience which were asked for may be gathered from the following questionnaire:

Questionnaire on Experience

1. TEACHING EXPERIENCE

a. State teaching experience before entering faculty here:

In elementary school	No. of Yrs.		No. of Yrs.
Primary grades.....		Upper grades	
Intermediate grades		Mixed schools	
		Total number of years	

In high school
 Subjects taught: _____ No. of Yrs.
 Total years' experience in high school.....

In normal school
 Subjects taught: _____ No. of Yrs.
 Total years' experience in normal school.....

In college
 Subjects taught: _____ No. of Yrs.
 Total years' experience in college.....

b. State teaching experience in present position

In training school	No. of Yrs.		No. of Yrs.
Primary grades		Upper grades	
Intermediate grades.		Total years' experience	

In high school
 Subjects taught: _____ No. of Yrs.
 Total years' experience in high school.....

In normal department
 Subjects taught: _____ No. of Yrs.
 Total years' experience in normal department.....

2. ADMINISTRATIVE EXPERIENCE

a. Before entering faculty here

Kind of positions _____ No. of Yrs.
 Total years of experience.....

b. In present position

Kind of positions _____ No. of Yrs.
 Total years of experience.....

3. PRACTICAL EXPERIENCE

State practical experience you have had which is directly involved in your work, excluding teaching and administrative experience.

Kind of experience _____ No. of Yrs.

Results On Experience

The results of teaching experience are presented in four main divisions. The first deals with public school experience, the second with the whole amount of teaching experience before entering the faculty, the third with experience in the present position, and the last with the total teaching experience. The numerical results are set forth in Tables VI, VII, VIII and X respectively. These tables are constructed on the same plan as the table on scholastic preparation. The caption or column headings are precisely the same as in the previous table, and the stub or row headings show the number of years of experience instead of the years of scholastic preparation. None in these headings means any amount of experience less than 1. One means 1 and any amount less than 2 and so on. In the selection of these class-intervals, the Iowa Survey was followed to make comparisons possible.

In Table VI, showing the results on public school experience, the frequencies are distributed in the same way as in the table on scholastic preparation; they slope upward and toward the right from the lower left-hand side. This means that the teachers of the college have more public school experience than those of the high school and the training school. The teachers, therefore, who should on account of the nature of their work know most about public schools know least about them. However, this lack of experience in the public schools is undoubtedly somewhat offset by the fact that the training school work resembles public school work more than teaching in

TABLE VI

Distribution of frequencies according to the amount of public school experience and the type of work.

No. of Years	Collegiate		Sub-Collegiate & Non-Col.		Training School	Totals		Percents					
	M. W.	M. W.	M. W.	M. W.		M. W.	Both	Men	Women	Both			
None	3	3	. 1	. 3	. .	3	7	10	11.1	24.1	17.9		
1— 1	. 1	. 2	2	2	....	6.9	3.6		
2—	2	. . . . .	. 2	. 1	2	5	7	7.4	17.2	12.5		
3—	7	1	. 1	. 2	. 4	7	8	15	25.9	27.6	26.8	
6—	5	1	4	2	. 1	. 1	9	5	14	33.3	17.2	25.0
11—	1	. . . . .	1	. . . . .	. 1	2	1	3	7.4	3.4	5.4	
16—	1	. . . . .	1	. . . . .	1	2	1	3	7.4	3.4	5.4	
21-31	2	. . . . .	. . . . .	. . . . .	. . . . .	2	. . . . .	2	7.4	....	3.6	

the college. It is, moreover, not necessary, as some contend, for teachers to have the same amount of practice in teaching before taking charge of a school as surgeons have before beginning surgery, because the former kind of work is far less foreign to the student than the latter on account of having spent from 10 to 15 years in the public schools as pupils. The Iowa table does by no means show the same upward slope, an index of a condition which is certainly in their favor.

The amount of public school experience as shown by the mean and the median is given in the following tabulation:

Men and Women	Means	Collegiate	Collegiate and Sub-Collegiate	Sub- and Non-Collegiate	Training School
		.. 6.09	7.20	3.60	4.81
Medians	.. 4.60 <td>4.75</td> <td>2.50</td> <td>4.50</td>	4.75	2.50	4.50	

The experience of the high school teachers is exceedingly low as indicated by both the mean or average and the median. The experience of the training school teachers is low in comparison with college teachers as shown by the mean; but as shown by the median, it is almost as high as for the college teachers.

The following tabulation shows the means and medians, first and third quartiles, the quartile deviation, and the coefficient of variation of the total

amount of public school experience for the men and women separately and for both combined.

	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation
Men	7.67	5.83	2.92	10.81	3.95	.678
Women	3.79	3.50	1.13	5.92	2.40	.686
Both	5.66	4.67	2.16	8.50	3.17	.679

The men far surpass the women in the amount of their public school experience, regardless of the form in which it is expressed. In this respect our school appears to have the same problem which the public schools have. There is of course little hope for a profession of teaching as long as the experience and training of the women remain so low. The women also vary somewhat more in their experience than the men as is shown by a slightly higher coefficient of variation. Our teachers surpass the Iowa teachers somewhat in the amount of public school experience. The average for the former is 5.42, which is .24 less than our average.

In the following tabulation the percentage of teachers with varying amounts of public school experience is given:

		Percentage of Teachers								
No. of Years		None—	1—	2—	3—	6—	11—	16—	21-31	
Colorado	No.									
Men	27	11.1	...	7.4	25.9	33.3	7.4	7.4	7.4	
Women	28	24.1	6.9	17.2	27.6	17.2	3.4	3.4	...	
Both	56	17.9	3.6	12.5	26.8	25.0	5.4	5.4	3.6	
Iowa										
Both	123	27.6	4.9	7.3	23.6	21.1	12.2	2.4	.8	

Our school has 10 per cent less teachers than Iowa with no public school experience. The largest percentage of our teachers falls in the class-interval 6-11, while the largest percentage of the teachers at Cedar Falls falls in the class-interval 3-6. For this region of the scale, I think the class-intervals are too large, because an additional year's experience in this region should be of considerable value and because the largest number of frequencies fall in this region. In the Carnegie report smaller intervals are used for this part of the scale.

The results on the total number of years of teaching experience before entering our faculty are given in Table VII. The table again shows the upward slope, indicating less experience in the high school and the training school. How much less is shown by the following means and medians:

Men and Women	{	Collegiate and Sub- and Non- Training School			
		Collegiate	Collegiate and Sub-Collegiate	Sub- and Non-Collegiate	Training School
	{ Means ...	8.43	9.95	4.30	6.06
	{ Medians ..	7.50	10.50	3.00	4.50

TABLE VII

Distribution of frequencies according to the type of work and the total number of years of teaching experience before entering our faculty.

No. of Years	Collegiate		Sub-Collegiate & Non-Col.		Training School	Totals			Percents			
	M. W.		M. W.			M. W. Both	Men	Women	Both			
	M.	W.	M.	W.								
None	1	2	.	3	.	1	5	6	3.7	17.2	10.7	
1—.....	.	.	.	.	1	.	1	1	....	3.4	1.8
2—.....	2	1	.	2	1	2	4	6	7.4	13.8	10.7	
3—.....	4	2	1	2	3	4	8	12	14.8	27.6	21.4	
6—.....	6	1	2	3	2	1	8	7	15	29.6	24.1	26.8
11—.....	4	1	3	.	.	1	7	2	9	25.9	6.9	16.1
16—.....	1	.	1	.	1	2	2	4	7.4	6.9	7.2	
21-31	3	.	.	.	.	3	.	3	11.1	....	5.4

The teachers in the training school average about 3 years less teaching experience before entering the faculty here than the teachers in the college; and the high school teachers average from 4 to 5 years less. If teaching experience is required anywhere, it is in the high school where there are usually a number of troublesome adolescent children and where the children are in a period of life in which the final broad lines of character are laid down.

The means, medians, first and third quartiles, the quartile deviation, and the coefficient of variation for the total amount of teaching experience before entering the faculty here are given in the following tabulation:

	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Iowa Mean
Men	10.22	10.63	5.88	13.63	3.88	.365	....
Women	5.21	4.75	2.63	7.88	2.63	.553	....
Both	7.61	6.80	3.50	11.67	4.09	.601	8.85

The variation in experience for the men is very much less than that for the women. The men also have about twice as much experience as the women and about one year and one-half more than both men and women of the Iowa College; but for men and women combined the latter school far surpasses ours, by about one year and one-fourth.

The median experience for the men before entering our faculty is 10.63; for the women 4.75; and for both 6.80 years. The medians for public school experience are 5.83 for the men; 3.50 for the women; and 4.67 for both men and women. Now if the figures for public school experience be deducted from those for the total teaching experiences before entering our faculty, the median teaching experience in higher institutions before entering our faculty may be obtained. These figures are for the men 4.80; for the women 1.25; and for both 2.13. If the mean instead of the median experience be taken, then the number of years of teaching experience in higher institutions before entering our faculty will be 2.55 for the men; 1.42 for the women; and 1.95 for both.

The following figures show the percentage of teachers with varying amounts of teaching experience before entering our faculty:

No. of Years	No.	Percentage of Teachers							
		None—	1—	2—	3—	6—	11—	16—	21-31
Colorado									
Men	27	3.7	...	7.4	14.8	29.6	25.9	7.4	11.1
Women	29	17.2	3.4	13.8	27.6	24.1	6.9	6.9	....
Both	56	10.7	1.8	10.7	21.4	26.8	16.1	7.2	5.4
Iowa									
Both	123	3.3	4.1	8.9	26.8	22.0	24.4	7.3	3.25

The largest percentage of our teachers again falls in the class-interval 6-11 and for Iowa again in the interval 3-6, but Iowa has a much larger percentage in the interval 11-16. Perhaps we may fairly claim that after 10 years of teaching experience not very much is to be gained by additional experience. This would improve somewhat the showing of our school. It should also be mentioned that during the year of the survey two heads of departments were away on leave. Both of them had much teaching experience before coming to our school, and one of them had more teaching experience in this school than any other faculty member. A few irregularities of this kind have quite a disturbing effect where numbers are so small as in this survey. At the low end of the distribution, however, we see that more of our teachers are without any teaching experience.

How much experience the teachers with different types of work have had in their present position may be seen in Table VIII. In this table the frequencies again slope upward toward the right until the third caption heading is reached, but from this point they slope downward toward the right. This means that the teachers of the training school excel the teachers

of the high school in this kind of experience. A clearer or more definite view of the amount of difference in experience for the different types of work may be obtained from the following figures:

		Collegiate	Collegiate & Sub-Collegiate	Sub- and Non-Collegiate	Training School
Men and Women	Means	5.36	3.85	1.90	6.41
	Medians	3.50	3.00	1.20	3.33

Both means and medians decrease regularly from the first to the third group; but for the fourth group there is a marked increase so that this group has the highest mean and next to the highest median. In comparison with the high school group, the training school group has had considerably more experience in their present positions. The fact that the median is so much smaller than the mean for the training school teachers means that there were a few teachers with very much experience, but that the majority had little experience. In the training school there has been a rather rapid change of most of the teachers, the effect of which was undoubtedly bad, but certainly not as detrimental as making a rapid change of all of the teachers; this occurred in the high school.

Following our previous plan, we are giving means, medians, first and third quartiles, quartile deviations, and coefficients of variation for the teaching experience in the present position.

	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Iowa Mean
Men	5.70	3.50	2.42	9.63	3.61	1.030	....
Women	3.62	2.79	1.56	4.44	1.44	.516	....
Both	4.63	3.00	2.12	5.33	1.61	.535	8.74

TABLE VIII

Distribution of frequencies according to the type of work and the number of years of experience in present position.

No. of Years	Col. legiate		Sub. Col- legiate & Non- Col.		Train- ing School		Totals			Percents		
	M.	W.	M.	W.	M.	W.	M.	W.	Both	Men	Women	Both
None	1	.	1	.	2	.	1	5	6	3.7	17.2	10.7
1—	1	2	1	1	2	.	2	5	7	7.4	17.2	12.5
2—	8	2	2	.	4	1	10	7	17	37.0	24.1	30.4
3—	3	2	2	2	1	3	5	8	13	18.5	27.6	23.2
6—	4	.	.	.	1	.	4	1	5	14.8	3.4	8.9
11—	2	1	.	.	.	.	2	1	3	7.4	3.4	5.4
16-21	2	.	1	.	.	2	3	2	5	11.1	6.9	8.9

In the length of time the men have been members of the faculty they surpass the women from one year and one-half to two years. The men have a very large coefficient of variation, but this is due to the fact that the third quartile fell by one frequency beyond a three unit space on the scale for which there were no frequencies. This unusual condition is shown by the fact that the variation for both men and women is only a little more than that for the women alone. This is one of the results of attempting to subject to statistical treatment an insufficient amount of statistical material.

The teachers' tenure on the Iowa faculty is just about twice as long as that of the teacher on our faculty. This is not due to the fact that the teachers in the Iowa College are better paid than our teachers. Why is it so? It is certainly a very undesirable feature. By the time the teacher comes to know the workings of our school, he leaves. College presidents may not realize the enormous loss due to a large turn-over, because they have no very adequate means of measuring it; it does not appear in terms of dollars and cents. But in business where the large turn-over does manifest itself in dollars and cents, the large losses due to it are more fully realized. This condition of low tenure, however, is not peculiar to our institution alone.

In the Missouri Normal Schools, according to the Carnegie report, the median tenure is only 4 years, in the University of Missouri 5 years and in Washington University between 6 and 7 years. Our median tenure is only 3 years, but the mean is 4.63. If the half year of 1917-18 before the survey was made had been counted, our tenure would have been raised by this amount.

In order to determine the actual tenure of college teachers in a given school it is not sufficient to ask the teachers how long they have held their present positions, find the average or median from these figures and base upon them the length of tenure; for in a small school there may have been few changes for a number of years, when suddenly there may have occurred a change of one-half of the faculty. If just before the occurrence of such a catastrophe a survey had been made, it would have been found that the turn-over was very small; but if it had been made just after the period of sudden change, it would, on the contrary, have been found that the turn-over was very large. In Table IX, the percentage of eliminations from the faculty is given for a period of ten years. According to this table it takes at least 7 years for 100 per cent elimination. This means that the actual tenure in our school is 7 years instead of 3 as shown by our median, or 4.63 as shown by our mean. Now it happened, as may be seen from Table IX, that at the close of 1914, 33 per cent of the teachers left the school, and as this was just three years before our survey, we were bound by our method to find a low tenure. If the survey had been made at the beginning of 1913, the average tenure would probably have been 10 years. This, however, is not the only factor which disturbs the reliability of our method of determining the length of time teachers in our school hold their positions. In Table IX, under the caption of "Per Cent Additions," it may be seen that in the beginning of 1915-16 there were 14 per cent more additions to the faculty than eliminations at the close of the previous year, and in 1914-15 there were 16 per cent more additions than eliminations at the close of 1914. This is a condition which cannot be avoided in a growing faculty, but it reduces the tenure. If a faculty fails to grow, the tenure may by virtue of this fact be much longer than if the faculty and school had developed. A brief median tenure may therefore be a symptom of a very wholesome condition, a thriving, prosperous school. I suppose spasmodic surveys have their value, but I am convinced that the survey which is of most value is the continuous survey conducted by an expert who has a passion for the truth and who is not dependent upon any one connected with the school for his own tenure.

TABLE IX

Showing the growth of the faculty for the last ten years, the yearly additions and the yearly eliminations.

Year	Whole No. Belonging to Faculty	Number of Additions	Number of Eliminations	Per Cent Additions	Per Cent Eliminations
1908-09	36	5	5	13.89	13.89
1909-10	37	6	1	16.22	2.70
1910-11	38	2	1	5.26	2.63
1911-12	44	7	11	15.78	25.00
1912-13	38	5	3	13.16	7.89
1913-14	36	1	12	2.78	33.33
1914-15	47	23	6	48.94	12.76
1915-16	57	16	7	28.07	12.28
1916-17	63	13	6	20.63	9.52
1917-18	64	13	6	20.31	9.38
	460	91	58	185.04	129.38

From the figures below, the percentage of teachers for varying lengths of tenure in our faculty may be seen.

No. of Years	Percentage of Teachers									
	None	1—	2—	3—	6—	11—	16—	21—	31—	41-51
Colorado	No.									
Men	27	3.7	7.4	37.0	18.5	14.8	7.4	11.1	....	... ..
Women	28	17.2	17.2	24.1	27.6	3.4	3.4	6.9	....	.81 .81
Both	56	10.7	12.5	30.4	23.2	8.9	5.4	8.9	....	... ..
Iowa										
Both	123	4.8	20.3	8.9	21.1	16.3	7.3	11.4	8.13	.81 .81

More than 75 per cent of the teachers in our school have been members of our faculty for a period no longer than three years. This percentage was obtained from the original data, not from the above table. The reason for this was pointed out on the preceding pages. In fact all of the tables involving the tenure of our teachers are almost valueless except to point out how spurious they are and how inadequate the method of determining the real tenure of teachers in a small school, at least, is. The Iowa Survey does not give the above percentages; I computed them from their tables. Neither does the Iowa Survey give the mean tenure. This I also computed by using the mid-points of the class-intervals. From the above table, it appears that the high average tenure for the Iowa school is due to a large extent to extreme cases. Their largest frequency falls in the intervals 3-6, but the frequency in the interval 1-2 is almost as large. In fact it is easy to see that their median would fall in the interval 3-6. It probably would be about 5, which is 3.74 years less than the mean.

In a final series of tables on experience there is set forth the total teaching experience of our teachers. In Table X, the frequencies are distributed according to the type of work and the total number of years of teaching experience. There is no longer the regular slope of the distributions from the lower left-hand side upward and toward the right. A fuller discussion of this can be given better in connection with the following figures on the average amount of total teaching experience for the different types of work.

	Collegiate	Collegiate & Sub-Collegiate	Sub- and Non-Collegiate	Training School
Men and Women { Means ..	13.78	13.80	6.20	12.50
{ Medians.	12.50	13.50	5.50	10.00

The total teaching experience for the different groups is almost the same, excepting the third group which is composed almost entirely of high school teachers. This certainly shows that the high school is the weakest division of our college from the standpoint of the experience of its faculty. Excepting the high school teachers, the training school teachers average about two years less total teaching experience than the other groups. In Table X it may be seen that the men of the second group have considerably more experience than the women of this group. As the men do primarily collegiate work and the women primarily sub-collegiate work, it follows that our college teachers have considerably more teaching experience than our training school teachers and far more than twice as much experience as our high school teachers. An approximate equalization of teaching experience for the different divisions of our school would, we believe, very much improve its efficiency.

The following figures show the central tendencies and the deviations from the central tendencies for total teaching experience.

	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Iowa Mean
Men	15.92	15.17	12.44	21.25	4.61	.304	.....
Women	8.83	7.70	5.13	11.75	3.31	.430	.....
Both	12.25	12.00	7.00	17.00	5.00	.417	17.33

The men have just about twice as much total teaching experience as the women; and in proportion to the amount of teaching experience, the men

show a much smaller variation. The men then far excel the women as a teaching force from the standpoints of amount of teaching experience and the uniformity in amount of that experience. As our teachers average 12 years in total teaching experience and the Iowa teachers 17, the latter excel by 5 years. This does not necessarily mean that they have a superior teaching force on the side of experience, because their high average may be due to a small number of teachers with very high teaching experience. There is a limit in teaching experience beyond which little or nothing is gained. On account of this fact Table XI will give us a better basis of comparison with the Iowa school.

TABLE X

Distribution of frequencies according to type of work and total number of years of teaching experience.

No. of Years	Collegiate		Sub-Collegiate & Non-Col.		Training School		Totals			Percents		
	M. W.	M. W.	M. W.	M. W.	M. W.	M. W.	M. W.	Both	Men	Women	Both	
None												
1—												
2—	1			2			3	3		10.3	5.4	
3—	1	2		4			1	6	7	3.7	20.7	
6—	4	1		2		4	4	9	13	14.8	31.0	
11—	8	2	3	2		1	1	11	6	17	40.7	
16—	2	1	2		1		1	4	3	7	14.8	
21-31	6		1			2	7	2	9	25.9	6.9*	
											16.1	

TABLE XI

Percentage of Teachers

Number of Years	Colorado Teachers College			Iowa Teachers College	Missouri Normal Schools			University of Missouri			
	Men	Women	Both		Both	Men	Women	Both	Men	Women	Both
None				.8							
1—		10.3	5.4	3.3	3	8	5	7	28	9	
3—	3.7	20.7	12.5	14.6	6	13	9	24	14	23	
6—	14.8	31.0	23.2	17.9	31	41	36	30	22	29	
11—	40.7	20.7	30.4	24.4	16	11	14	11		10	
16—	14.8	10.3	12.5	13.8	15	12	14	11	22	12	
21—	25.9	6.9	16.1	12.2	21	14	17	13	14	13	
31—				7.3	8	1	5	4		4	
41-51				5.7							
Total	27	29	56	123	101	91	192	132	14	146	

The teaching experience of 41 per cent of the men of our faculty falls between the limits 11 and 15.99 years, and only 28 per cent of the men have less experience than this. Moreover, none of the men reach the 31-year limit. Only 21 per cent of the women fall in the class-interval 11 to 15.99, and 62 per cent have less experience than this. In the Missouri Normal Schools only 16 per cent of the men and 11 per cent of the women have a teaching experience of 11 to 15.99 years, while 56 per cent of the men and 62 per cent of the women have less than this amount. The percentages for the university are lower for the high intervals and higher for the lower intervals. These statements in regard to the Missouri schools are not quite true, because I changed the 12-year limit used in the Carnegie report to 11 in order to make their limits conform to ours. For the Normal Schools the figures 16 and 11 should therefore be a little larger and 31 and 41 a little smaller. This explanation also applies to the percentages for the teachers of the university.

Everything considered, I think we may venture the opinion that the choicest part of a teaching body is that which has a teaching experience ranging from approximately 10 to 20 years. I have therefore tabulated for each of the above schools the percentage of teachers with about this amount of experience. But, lest there are some who might disagree with me, I have

also tabulated the percentages for other intervals, all of which are given below. The percentages include both men and women.

Number of Years	Colorado Teachers College	Iowa Teachers	Missouri Normal Schools	University of Missouri
11-20.99	43	38	28	22
6-20.99	66	56	64	51
6-30.99	82	68	81	64

For every one of the above class-intervals our faculty makes the best showing; the Missouri Normal Schools probably the next best, especially when we remember that the percentages of the Missouri teachers for the first interval are slightly inaccurate as explained above; the Iowa school stands third, and the university last. As the teachers of the university are not engaged in making teachers, it is probably not as important for them to have as much teaching experience as the other schools. It is perhaps worth while pointing out that those teachers who have taught for the largest number of years do not necessarily have the most teaching experience, because some teachers, especially many of those in the universities, do not devote much of their time to teaching. There is a tendency at the universities for the inexperienced instructor to do the teaching while the heads of departments and professors devote most of their time to lecturing and writing. On account of this practice it has become possible for the universities to produce most of our literature on educational and other subjects.

If we have succeeded in making our figures tell a true story, the total amount of teaching experience for the members of our faculty is somewhat superior to that of the teachers in the schools with which we have made comparisons. But the amount of teaching experience is not the only important thing to be considered. Whether the teachers teach the subjects in which they have had their experience and whether their teaching is sufficiently restricted in subject matter to be efficient are also important matters. In regard to the latter we may say that the departments in the college are well differentiated and that the work of each teacher is limited strictly to his own department. The same is true of the training school and to a large extent of the high school.

In regard to the former we may say that our teachers are with a fair degree of uniformity teaching in the fields in which they have had their experience before entering our faculty. Of the 26 men who have had such experience 58 per cent are following the teaching of their former experience; 27 per cent are doing so only partly; and 15 per cent may be said to follow a different line of work. The corresponding percentages for the 24 women who had some experience before entering our faculty are 54, 33, and 12. Of the assistant librarians who have been included in our tabulations one had five years of teaching experience but no experience in library work, while the other had no teaching experience but seven years of library experience. Our tables on teaching experience would have been improved somewhat if both the librarians would have been omitted from the tabulations, as the one with library experience was given no credit for it here.

Including the librarian, 7 men are engaged in some kind of administrative work. In their present positions, they have an average experience of 5 years. Before occupying their present positions they had an average experience in administrative work of 10 years. All but one of the positions, that of the librarian, were superintendencies and principalships. Practically all of the superintendencies were of such importance as not to require teaching in connection with them. Eight other men had administrative experience, principally as superintendents of small school systems and principals of high schools which required some teaching. Their average experience in these positions is about 6 years. Not one of the men had administrative experience before entering the faculty, which was very similar to that required by their present positions, excepting the librarian.

Of the women 5 have administrative work in their present positions.

Their average experience amounts to 3 years. Of these 5, one had 2 years' experience as principal of a small high school and the remainder had no previous administrative experience. Four other women had administrative positions previous to entering our faculty. They consisted of principalships of small schools. One had been a county superintendent. Their average experience was a little less than 4 years. Both in amount and kind the administrative experience of the women is not very commendatory. For the men it is considerably better, although they also are weak in the kind of experience before entering upon their present administrative duties.

The last group of factors employed to throw light upon the qualifications of the faculty consists of publications, public addresses, and assistance rendered to superintendents in making courses of study. The public addresses counted were limited to the year preceding the survey, and the magazine articles and the assistance rendered to superintendents were limited to the period of five years just preceding the survey. The following questionnaire was used:

Questionnaire on Publications, Public Addresses, and Assistance Rendered in Making Courses of Study

1. List publications as indicated below.

Names of books	Date of Publication
Names of Articles	Names of Journals
	Date

2. List public addresses for 1916-17.

Subject of address	Organization	Place
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3. What assistance have you rendered in the past five years to superintendents in making courses of study?

Results on Publications, Public Addresses, Etc.

TABLE XII

The Number of Publications Put Out by the Faculty Under the Limitations Set Forth in the Questionnaire.

	Men	Women	Both	Mean	Iowa Mean
No. of Books.....	12	1	13	.232	.179
No. of Bulletins.....	9	0	9	.165	.203
No. of Magazine Articles....	47	16	63	1.125	.797

The men published 12 times as many books and 3 times as many magazine articles as the women. The women did not report the publication of bulletins. This does not mean that they did not publish any, because the questionnaire did not ask for this kind of publication. For the same reason not all of the bulletins published by the men were reported. The books were published by 9 of the teachers. Four of the books were monographs written to fulfill the requirements for the Ph.D. degrees. Several translations from the French, German, and other languages were made. These are not included in the tabulation. Only 13 men and 5 women published magazine articles. One of the men published 22 articles and one of the women published 9 articles. It is perhaps more important to know the quality than the quantity of the publications. In order to throw some light upon this, the articles published in state journals were separated from those published in journals of wider character. Only 24 of the articles were published in other than state journals. On the whole the record of our publications, to put it charitably, is very mediocre. The conditions for publications in most teachers colleges and normal schools are not very good. Some of the teachers whose publications ranked fairly high both in numbers and quality when in other positions have produced nothing since they have become members of our faculty. There is

too much other work; there is inadequate recognition for writers to flourish in our school. We might add, however, that conditions have improved somewhat since the survey. The Research Committee alone, which had produced only one Research Bulletin before the survey, has published six since then. We seem to rank favorably with the Iowa school, although their survey reports 13 parts of books and 4 books in preparation which are not included in the percentages given in the table. The 200 teachers of the Missouri Normal Schools produced only 15 bound volumes in the last 20 years.

TABLE XIII
Public Addresses

Organization	Number of Addresses Made By			
	Men	Women	Both	Iowa Col.
State Teachers Association.....	9	6	15	...
Teachers' Institutes	26	6	32	...
Clubs	30	4	34	...
Parent-Teacher Associations ...	3	1	4	...
Farmers' Institutes	2	1	3	...
Technical Addresses	2	0	2	...
Alumni Addresses	1	0	1	...
Commencement Addresses	3	0	3	...
General Educational	25	7	32	...
Totals	101	25	126	183
Averages	3.74	.86	2.25	1.49

The men make more than four times as many addresses as the women, but they make seven times as many addresses at men's and women's clubs. In the average number of addresses our school surpasses Iowa Teachers College by .76. However, the Iowa school lists institute service separately. Just what the nature of this service was, the report does not make clear. If the institute work be left out of account, our average is still in excess by .19.

A total of 32 teachers, 20 men and 12 women, made public addresses during the year. More than one-half of our teachers made public addresses, while less than one-fourth of the Iowa faculty made such addresses, excluding institute service.

A total of 65 superintendents and principals have received assistance from our teachers in making courses of study; 48 received assistance from the men and 17 from the women. Just how helpful and valuable this assistance was, it is difficult to estimate. In some cases very valuable assistance appears to have been rendered.

TEACHERS' SALARIES

The salaries in our school are paid in twelve monthly installments, but they are based upon a forty-two weeks term of service. This fact should be kept in mind in comparing our salaries with those paid in other schools. It should also be borne in mind that our normal teaching load per week for full-time class-room teachers is 16 fifty minute periods. The first tabulation involves the salaries of all of the members of the faculty. In other tabulations, salaries for college, high school, and training school teachers are separated.

TABLE XIV
Salaries of the Entire Faculty.

	No.	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Extreme Range
Men ...	27	\$2,246	\$2,300	\$1,900	\$2,500	\$300	.130	\$1,600-2,900
Women..	29	1,435	1,400	1,185	1,700	257	.184	800-2,350
Both ...	56	1,838	1,825	1,400	2,300	450	.247	800-2,900

The median salary for the men is 900 dollars more than that for the women. This difference can be justified upon the basis of large differences in qualifications, unless our method of determining the qualifications of teachers

is totally inadequate. The coefficient of variation is larger for the women than for the men, but so is the coefficient for experience. The coefficient for training is much smaller for the women than for the men, but training plays no part in fixing salaries for the men and but a small part in fixing salaries for the women.

The following figures give a comparison of our salaries with those paid by the Missouri Normal Schools and the University of Missouri. As the latter are based upon a forty-eight weeks term of service, the salaries in Table XIV are only seven-eighths of what they should be and have therefore been raised to put them on the same basis.

	Colorado Teachers College	Missouri Normal Schools	University of Missouri
Men Medians.....	\$2,629	\$1,800	\$2,200
Women Medians.....	1,600	1,400	1,467
Both Medians.....	2,086	1,650	2,200

The median salary of our men exceeds the median for the Normal Schools and the university by \$800 and \$400 respectively. For the women the differences are \$200 and \$150. For both men and women our salaries exceed those of the Normal Schools by more than \$400, but the salaries at the University exceed ours by more than \$100. The median salary for the men at the University is no higher than the median salary for both men and women, because the number of women involved in the study was very low in comparison with the number of men. It is not to be inferred from the above comparisons that our salaries are very high but that the salaries in the Missouri schools are notoriously low. At the Iowa State Teachers College the average salary for 73 full-time classroom teachers (39 men and 34 women) when put upon the basis of 48 weeks is just a little less than \$2,000. We shall make more accurate comparisons with this school later.

TABLE XV
Salaries of the College Faculty

	No.	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Extreme Range
Men	27	\$2,246	\$2,300	\$1,900	\$2,500	\$300	.130	\$1,600-2,900
Women...	9	1,622	1,500	1,275	1,860	293	.195	1,050-2,350
Both	36	2,108	2,100	1,875	2,400	263	.125	1,050-2,900

	No.	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Extreme Range
H. Sch....	10	1,265	1,250	1,000	1,400	200	.160	900-1,700
Tr. Sch....	8	1,575	1,525	1,425	1,750	163	.107	1,400-1,800
Both	18	1,403	1,400	1,200	1,700	250	.179	900-1,800

In this table the four groups of our previous tables have not been followed. The collegiate and sub-collegiate group has been eliminated by transferring the teachers who teach primarily in the college into that group and those who teach primarily in the high school into that group. This placed all of the men and two more women into the college group. The college group includes the principals of the high school and the training school and the librarian. The two assistant librarians have been left out of the tabulations.

The median salary of the college men is \$800 more than that of the college women and their coefficient of variation is much smaller. Both of these differences can be justified from the distributions of Table II and Table X. In the former it can easily be seen that the college men have much more preparation than the women; in the latter it appears that the men have not only more experience than the women but that they vary less in this than the women.

The median salary of the women who teach in the college is \$25 less than the median salary of the training school teacher, but their mean salary is about \$50 higher. If we look at Table II, we can see that the college women have more training than the women of the training school; but Table X

shows that the training school teacher has more experience than the college teacher. The training school teachers also vary less in their training and probably less in their experience, and their salaries vary less.

The median salary of the training school teachers is \$275 more than that of the high school teachers, but their experience far surpasses that of the high school teachers and their training is about the same. The variation in experience appears to be in accordance with the variation in salary.

For the college teachers the median salary is \$900 more than for the high school and training school teachers. On account of differences in training and experience this much difference in salary and probably more is justifiable; but as was pointed out before the training and experience of the teachers in the high school and training school should be such as to merit just as high a salary as that received by the college teacher.

The salary differences of the larger groups of the faculty can be fairly well or perhaps adequately justified upon the basis of differences in training and experience. Can individual salary differences also be justified in a general way upon the same basis? In order to determine whether there is a tendency toward concomitant variation between salaries on the one hand and training and experience on the other, I have computed the coefficients of correlation for the salary series and the training series and for the salary series and the experience series by the product-moment method. For the entire faculty the coefficient for salary and training is .52, a fairly high coefficient. The coefficient for salary and experience is .63. Experience plays a more dominant role in fixing the salary schedule than training does. The probability is that much of the correlation between salary and training must be attributed to the fact that those who have the most experience tend to have the most training also. I have found that the coefficient for training and experience is .41. Some of the relation then between salary and training is probably due to their respective relations to experience. On the other hand some of the relation between salary and experience may be due to their respective relations to training. In order to eliminate the relation between two factors which is due to their respective relations to a third, I have made use of the method of partial correlations. By this method the correlation between salary and training, independent of their relations to experience, is .37, or .15 less than what it appeared to be. On the other hand the coefficient for salary and experience, independent of their respective relations to training is .54 or .09 less than what it appeared to be.

But this fairly high correlation between salary and experience and the lower one between salary and training may be spurious on account of a combination of heterogeneous groups. The correlations have been worked out for the faculty as a whole, but men are paid more than women even though they have no more training and experience. Now as they happen to have more training and experience in our faculty, the correlation appears to be due to training and experience, although in reality it may be due to the difference in sex. Moreover, it has always been the custom to pay less to the training and high school teachers than to the college teachers. As the training and high school teachers have less preparation and experience than the college teachers, the correlation again appears to be due to differences in the amount of scholastic preparation and teaching experience, but in reality it may be due to custom. It is for these reasons that I have separated the men and women and worked out coefficients for each group separately. In doing this we also eliminate all high school and training school teachers from the men's group. The numbers are too small to warrant any further subdivisions.

For the group of women the coefficient between salary and training is .36; that is .17 less than what it was for men and women combined. The correlation between salary and experience is .46, which is also .17 less than for the whole faculty. But these coefficients are too high for the same reason that the corresponding coefficients for the whole group were too high. The method of partial correlations will give the correct coefficients. For salary

and training and salary and experience they are .20 and .36 respectively. The former is .17 lower than for men and women combined and the latter is .18 lower.

For the men the coefficient between salary and experience is .56. This is a fairly high coefficient, but the coefficient between salary and training or scholastic preparation is rather surprising. It turns out to be $-.11$. This means that the men's salaries in our school do not increase with their training. If the size of the coefficient were not covered by the probable error, it would mean, because it is negative, that there was a tendency for salaries to decrease as training increased. Perhaps there is no provision in our salary schedule for an increase in salary with an increase in training when that training has reached the four-year limit beyond the high school. This may explain why there is a slight positive correlation between the women's salaries and their training and no such correlation for the men. However, our school grants the A. M. degree and if it has any confidence in it, should give adequate relative remuneration to those who hold it. The coefficient for training and experience also is negative, $-.04$. Because the two last named coefficients are so low it is not necessary to compute the partial correlations. I have, however, done so and found them to be $-.11$ and $.57$ for training and salary and experience and salary respectively. In order that all of the above mentioned correlations may be easily surveyed and compared, I have brought them together in the following table.

*TABLE XVI
Coefficients of Correlation Between Salary and Training, Salary and Experience, and Training and Experience

	Coefficients of Correlation		
	Men	Women	Men and Women
Salary and Training.....	$-.109$	.358	.516
Salary and Experience.....	.564	.459	.631
Training and Experience.....	$-.038$	.431	.408
Partial Correlations—			
Salary and Training.....	$-.107$	.201	.365
Salary and Experience.....	.567	.362	.538

*I did not compute coefficients for correlations between salary and combined training and experience for men and women separately. I did so for the faculty as a whole and found that this increased the coefficient by only .07 over that for salary and experience alone. Team correlations should probably have been computed.

It is interesting and probably instructive to bring together the coefficients of variation for training, total experience, and total load and salaries. These are shown in the following table:

	Coefficients of Variation For			
	Training	Experience	Total Load	Salaries
Men .....	.147	.304	.121	.130
Women .....	.087	.430	.075	.184
Both .....	.191	.417	.105	.247

The women have a larger coefficient than the men for salaries and also for experience, but much smaller coefficients for training and total load. This may be taken as further confirmation of the fact that experience, not training and the amount of work, determines the distribution of salaries. But if salaries were determined by experience alone, then we should expect a much larger variation in salaries, especially so as there are no cases of such extreme experience as to indicate the presence of other undesirable factors, because the coefficients for experience are about twice as large as the coefficients for salaries. Leaving other possible factors upon which the distribution of salaries might be based out of consideration, it is very probable that our best teachers are paid far too little in proportion to our poorest teachers.

In addition to the amount of training and experience, the amount and quality of work should be considered in fixing a teacher's salary. The quality

of work we have no means of determining, but perhaps we may assume that in general those who spent most time on their school work also do the best work. At any rate there is a tendency for the brighter pupils to put more time on their school work than the duller ones, and it may be that this tendency also prevails among the teachers. The amount of school work done by each of our teachers was determined by our survey and will be presented in subsequent pages. For the total school work done by 26 of the men (the director of the extension department failed to make a report of his total load) and their respective salaries the coefficient of correlation was found to be .012. This means that the salaries for the men do not increase with the amount of time they put on their school work. There is no causal connection between the amount of work done and the amount of salary, unless the hours of work reported by the teachers are very unreliable. A similar computation for the women was not made, but it is pretty safe to make the prediction that the coefficient would have been very low, had it been worked out. From the size and nature of the coefficients which have been computed, it appears that experience alone is an important factor in our school in determining teachers' salaries. There are, of course, many other possible factors, such as neatness, promptness, and sociability, which doubtless have considerable power over the school's exchequer; but for them we cannot work out correlations because we have no ratings on them.

There should be some basis for apportioning salaries among the larger divisions of the school and among the individual teachers within these divisions; but there should also be some basis for apportioning salaries among the several departments. When teachers feel that the apportionment is entirely arbitrary and manifestly unfair they lose their willingness for cheerful cooperation and become disheartened by the sense of a lack of a real appreciation of their efforts. When such moods persist among a large proportion of the teachers, the effort to build a great school is absolutely futile. Under such conditions the teachers are constantly on the lookout for other positions and make a change on the occurrence of the first opportunity. In the following table the money paid for salaries in the several departments of the school is set forth.

Distribution of Departmental Salaries
(Forty-Two Weeks Basis)

Department	Total Salary	No. of Teachers	Mean
Practical Arts	\$7,800	4	\$1,950
Music	6,550	5	1,310
English	6,400	3	2,133
Social Science	5,350	2	2,650
Education	5,050	2	2,525
Biological Science	4,700	2	2,350
Home Economics	4,500	3	1,500
Educational Psychology	4,400	2	2,200
Library	4,050	3	1,350
Commercial Arts	3,850	2	1,925
Physical Education	3,700	2	1,850
Fine and Applied Arts	3,200	2	1,600
Geography	2,400	1	2,400
Oral English	2,350	1	2,350
County Schools	2,350	1	2,350
Physical Sciences	2,300	1	2,300
History	2,150	1	2,150
Mathematics	2,000	1	2,000
Modern Foreign Languages	1,900	1	1,900
Chemistry	1,900	1	1,900
Agriculture	1,700	1	1,700

The above departments are arranged in the order of the amount of money put into each one for salaries. This should give us a fair idea of the relative importance of the departments in a teachers' college as seen by the administration. The Practical Arts Department which receives the most money includes Woodworking, Drafting, Bookbinding, and Printing. Next to the Practical Arts Department, the Music Department receives the most money. More than half of the total amount is collected from the students

in music fees. English, Social Science and Education are next on the list in the order named.

Following the Carnegie report I have attempted to group the departments into academic, professional, and other departments upon the basis of the kind of subjects taught in them. This grouping is, however, very imperfect as I shall point out later.

TABLE XVIII

Departmental Salaries Grouped

Academic	Salaries	Teachers	Other Departments	Salaries	Teachers
English	\$6,400	3	Practical Arts	\$7,800	4
Biological Sciences	4,700	2	Music	6,550	5
Geography	2,400	1	Fine and Applied Arts	3,200	2
Oral English	2,350	1	Home Economics	4,500	3
Physical Sciences	2,300	1	Commercial Arts	3,850	2
History	2,150	1	Physical Education	3,700	2
Mathematics	2,000	1			
Modern For. Lang.	1,900	1	Totals	\$29,600	18
Chemistry	1,900	1	Mean	1,644	
Agriculture	1,700	1	Professional—		
			Social Sciences	\$5,350	2
Totals	\$27,800	13	Education	5,050	2
Mean	2,138		Ed. Psychology	4,400	2
			County Schools	2,350	1
			Totals	\$17,150	7
			Means	2,450	

Most money is put into the group of "Other Departments" and least into the professional group. Into the latter group the Social Sciences have been placed, but many of the courses of this department should not be called professional in character. This is however more than offset by the fact that professional courses are offered by the Department of Biological Sciences and by the High School and Training School Departments. This practice makes it impossible to determine just how much money is spent on salaries for the professional subjects. For the mean salaries the order is just reversed, the highest occurring in the professional group and the least in the unclassified group. In the Missouri Normal Schools, the average salaries for the academic, professional, and unclassified groups are \$1,569, \$1,505, and \$1,425 respectively. The Ancient Language Department is not included in the above groups because the teacher of this department was absent on leave.

TOTAL LOAD, TEACHING HOURS, STUDENT HOURS AND OTHER SCHOOL WORK

Questionnaire on Total Load, Teaching Hours, Student Hours, and Other School Work

1. State the amount of teaching for this quarter (winter, 1918) as indicated by the form below (do not include extension work):

1	2	3	4	5	
Course	No. Rec. Per Week	Net Min. in Rec. Per Week	No. in Course	Student Periods Per Week	
					For each line multiply figures in column 2 by figures in column 4 to obtain figures for column 5, but before entering them multiply by 10/11. Count 3 laboratory or shop hours as equivalent to 2 class-room hours.
Totals					

2. Other school work for which there is no extra pay (winter quarter).

Clock Hours Per Week

Teaching in Training School.....
Regular Conference work.....
Observation work
Preparation for class work.....
Correction of papers.....
Faculty meetings
Committee meetings
Committee work outside of meetings.....
Student societies
Debating
Coaching
Office work
Clinical work

Other items may be added:

Total.....
Total hours per week spent in recitations (55 min.)
Sum of totals.....

3. Work not directly connected with school service (winter quarter).

Kind of Work	Clock Hours Per Week
Total	

The preceding questionnaire, as all others used in this section of the survey, is a modification of the one given in the "Instructions for a Survey of a State Normal School," issued by the Committee on Normal School Standards and Surveys. It should also be noted that the questionnaires were not, as might be inferred from this report, sent separately to the teachers but as a single questionnaire.

Results on Total Load, Teaching Hours, and Student Hours

The results are not based on any work for which there is extra pay such as teaching extension classes and conducting correspondence work. The amount of such work done by the faculty is described on pages 125 and 134 of the bulletin consisting of sections one and two of the survey. The first tabulation is on the total load. It includes all of our questionnaire returns, excepting that made by the Director of the Extension Department, who failed to give any definite figures on the amount of his work. In all of the tabulations on the total load, teaching hours, and student hours, the recitation period is based on 55 minutes and all other work on the clock hour.

TABLE XIX
Total Amount of School Work

	No.	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Extreme Range
Men	26	40.82	41.75	35.00	45.25	5.13	.123	23-68
Women . .	29	41.65	40.00	36.13	42.19	3.03	.076	29-66
Both . . .	55	41.26	41.00	35.88	44.58	4.35	.106	23-68

In computing the above medians and all others on the amount of work, the whole numbers were taken as the mid-points of the intervals; because in distributing the frequencies over the scale, fractions less than one-half were disregarded and larger fractions were treated as units. The women have a slightly larger mean for total amount of school work but the men surpass the women by more than twice this difference in the median amount. There are only 6 women who do more than 42 hours work, but there are 11 men who exceed this amount. The variation is high, especially for the men. There are some men who do almost three times as much work as others. This difference in amount is not offset on the part of the slothful by superior training,

native ability, and quality of work. Neither can this difference in many cases be justified by a smaller remuneration, for, as pointed out before, the coefficient of correlation between salary and the amount of work is zero. As a matter of fact some of the teachers who draw the largest salaries do the least work. Evidently the school employs no very effective means of checking up the amount of work done by individual teachers. Such measures should evidently not be necessary in schools of higher learning, but they appear to be. Work in these schools should not be degraded to the level of common labor, but I fancy that a checking up system will not be offensive to the workers, and to the drones it might as well be so.

In treating the results on teaching hours and other school work, it was necessary to make divisions of the faculty in order to secure a more homogeneous grouping. Deans, Directors, principals, librarians, and high school and training school teachers were not included in the group used for tabulations on teaching hours and other school work. The group consists essentially of full-time classroom instructors. This resulted in a very small group of women teachers, but I have, nevertheless, tabulated the results for them separately.

TABLE XX
Teaching Hours Weekly

	Colorado Men	Iowa Men	Colorado Women	Iowa Women	Colorado Both	Iowa Both
Number	20	39	6	34	26	73
Mean	15.55	18.35	13.62	16.74	15.11	17.60
Median	16.00	17.80	14.50	17.25	15.30	17.63
Q ₁	14.00	16.84	13.00	15.38	13.67	16.52
Q ₃	18.00	18.45	15.25	18.00	17.67	18.24
Q	2.00	.81	1.13	1.31	2.00	.86
V .....	.125	.045	.078	.076	.131	.049
Range	7-21	14-31	7-18	12-21	7-21	12-31

The Iowa figures in the above table are not directly comparable with ours because they are based on clock hours and full time for laboratory work. A correction for this difference will reduce the mean time for both the men and the women by one-tenth of an hour. Several facts are clear from the above table: first, in the Iowa College the teachers' program is about two hours longer than in our school. In our school a full time classroom teacher is supposed to teach 16 fifty-minute periods; at Iowa probably 18, while in the Missouri Normal Schools 20 and 25 periods are predominant. Second, the variation in our school is about 3 times as large as at Iowa. Our variation is due primarily to the fact that some classes are discontinued on account of their size and that some departments are too large for one teacher and yet too small for two. In the latter case the teacher must do excessive teaching unless relieved by men from other departments, but this practice is not followed in our school. Small classes should probably not be discontinued especially if they occur in the senior college. The most effective instruction can be given in small classes and their continuance does not increase costs. How these situations are met at Iowa is to my knowledge not revealed in their report. Third, in both schools the men teach approximately from one to two hours more than the women.

For this same group of teachers doing work of much the same character, I have also made tabulations on "Other School Work" and on the total amount of school work as provided under items one and two in the questionnaire. For "Other School Work" the hours are clock hours and for the total amount of school work 55-minute hours are combined with clock hours. The total is simply a combination of teaching hours and hours devoted to other school work.

The difference in the weekly amount of "other school work" between the men and women at Iowa is very small, while in our school it is from 4 to 5 hours. The men in our school do more work than the men at Iowa, but for the women the reverse is true, so that on the whole our teachers do not do

TABLE XXI
Hours Devoted to Other School Work

	Colorado Men	Iowa Men	Colorado Women	Iowa Women	Colorado Both	Iowa Both
Number	20	39	6	34	26	73
Mean	25.50	24.32	21.67	24.06	24.62	24.20
Median	26.00	24.67	20.50	23.90	24.00	24.25
Q ₁	17.00	20.38	18.00	21.75	17.75	21.13
Q ₃	31.50	28.75	28.00	26.25	31.00	28.19
Q	7.25	4.19	5.00	2.25	6.63	3.53
V .....	.279	.170	.244	.094	.276	.146
Range	7-56	11-36	11-32	6-38	7-56	6-38

any more "other school work" in spite of the fact that they teach two hours per week less. Perhaps altitude and climate are more conducive to hard work at Iowa than here.

In this table the coefficients of variation are from two to three times as large as in Table XX. This, of course, means that when the amount of the teacher's work is not controlled through a fixed program, there is a very much larger difference in the amount of work done than when this is the case. Some work when there is no control, and others do not. Perhaps it would be a good plan to control the hours for all school work just as rigidly as the recitation hours. The extreme range, of course, is also much larger for uncontrolled than for controlled work. Many of us are naturally lazy and require the stimulating effect of some supervision. Just as for recitation or teaching hours, the variation in our school is much larger than that for the Iowa Teachers College.

Thirteen of the men and 8 of the women engaged in work not directly connected with school work. The 13 men average 2.90 hours per week and the 8 women 3.06 hours per week. The weekly averages for all of the men and all of the women are 1.40 and .84 hours respectively. For practically all of this work there was no remuneration. One of the teachers was taking a correspondence course to which 8 hours per week was devoted, but this is not included in the above averages.

TABLE XXII
Total for Teaching Hours and Hours Devoted to Other School Work

	Colorado Men	Iowa Men	Colorado Women	Iowa Women	Colorado Both	Iowa Both
Number	26	39	6	34	26	73
Mean	41.06	42.7	35.28	40.8	39.69	41.82
Median	42.25	42.40	35.00	41.50	41.70	42.05
Q ₁	36.00	39.25	33.00	39.00	34.25	39.06
Q ₃	45.00	47.81	39.00	43.75	44.00	46.69
Q	4.50	4.28	3.00	2.38	4.88	3.82
V .....	.107	.101	.086	.057	.117	.091
Range	23-68	29-55	29-42	23-57	23-68	23-57

In total amount of school work the men surpass the women, especially in our school where the difference runs as high as five hours weekly. The women vary less than the men, although at Iowa they have a larger extreme range than the men. The median amount of school work is only one-third of an hour more at Iowa than in our school, but the difference in the mean amount is over one hour in favor of Iowa. The variation in amount of total school work is, of course, much higher in our school as it was for teaching hours and the amount of time devoted to other school work.

Based upon this same group of full-time class-room instructors in the college, composed of 20 men and 6 women, I am giving additional tables on weekly salary, cost per teaching hour, student hours and cost per student hour. The following table shows total and mean salaries of full-time class-room teachers for the periods of one year and of one week.

TABLE XXIII

Total and Mean Yearly and Weekly Salaries

	No.	Total Yearly Salary	Mean Yearly Salary	Total Weekly Salary	Mean Weekly Salary	Iowa Weekly Salary
Men	20	\$42,650	\$2,133	\$1,015.48	\$50.77	\$49.29
Women	6	10,150	1,692	241.66	40.28	32.12
Both	26	52,800	2,031	1,257.14	48.35	41.29

For both men and women combined our mean weekly salary exceeds that of the Iowa State Teachers College by about \$7. For the women alone the difference is a little more than \$8 in favor of our school; for the men alone our weekly salary is only \$1.50 in excess.

Table XXIV gives the total and mean teaching hours (55 min.) per week, the mean weekly salary, and the cost per teaching hour.

TABLE XXIV

Total and Mean Teaching Hours Per Week, Weekly Salary, and Cost Per Teaching Hour

	No.	Total Teaching Hours Per Week	Mean Teaching Hours Per Week	Mean Weekly Salary	Mean Cost Per Teaching Hour	
					Colorado	Iowa
Men	20	311.09	15.55	\$50.77	\$3.26	\$2.71
Women	6	81.72	13.62	40.28	2.96	1.93
Both	26	392.81	15.11	48.35	3.20	2.35

Every teaching hour costs 85 cents more in our school than in the college at Cedar Falls. Some excess, of course, was to be expected because we had already found that our salaries were higher and our teaching program shorter. Much of the excess is due to the small number of women included in our computations. On our college faculty there are more than three times as many men as women who are full-time class-room teachers, while at Iowa there are 39 men and 34 women. This difference has a marked effect on the mean for both men and women. It should also be noted that the mean cost per teaching hour is about \$1 more in our school than at Iowa for the women, but for the men it is only 55 cents more.

TABLE XXV

Total and Mean Student Hours Per Week, Mean Weekly Salary, and Mean Cost Per Student Hour

	No.	Total Student Hrs. Per Week	Mean Student Hrs. Per Week	Mean Cost Per Student Hour	
				Colorado	Iowa
Men	20	5,613	280.65	\$0.181	\$0.121
Women	6	1,144	190.66	.211	.088
Both	26	6,757	259.88	.186	.106

The above figures show that in our school it costs 8 cents more to teach each student one 55-minute period than what it does in the Teachers College at Cedar Falls. One of the most interesting features of the table is that for the women the mean cost per student hour is 4 cents more than for the men in spite of the fact that their salaries are much smaller. In making comparisons between the men and the women in which student-hours are involved, it is important to determine which group teaches the most required courses in which the classes are always large, and which group teaches most senior and graduate college courses in which the classes are usually small. I found that the women averaged half a class in required work and the men a little less than this; also that the women averaged two-thirds of a class in senior college work and the men one class for the quarter in which the data were collected. In the college at Cedar Falls, the mean cost per student hour is 3 cents less for the women than for the men. In connection with all of the comparisons between the men and the women teachers in so far as this pertains to full-time class-room work, it is important to remember that the group

of women for our school is too small for the purpose of generalizations. The number of teachers colleges and normal schools thus far surveyed is also too small for this purpose.

For the remaining groups of teachers I have not made computations similar to those presented in the preceding six tables on account of the small size of the groups. However, in Table XXVI, I am giving the primary data for these groups.

TABLE XXVI
Teaching Hours, Other School Work, and Totals for Small Groups
Engaged in Similar School Work

Deans, Directors and Principals					
	College Teaching 55 min.	Tr. Sch. Training and Supervision 60 min.	High School Teaching 55 min.	Other School Work 60 min.	Totals
1	4.4	....	....	37	41.4
2	3.6	....	....	52	55.6
3	7.3	....	....	40	47.3
4	3.6	....	....	20	23.6
5	7.3	....	....	24	31.3
6	3.6	....	....	..	....
7	9.0	....	....	32	41.0
8	6.4	....	....	60	66.4
9	....	....	....	36	36.0
Total					342.60
Mean					42.83
Assistant Librarians					
1	....	....	....	42	42.0
2	....	....	....	42	42.0
Music Assistants					
1	15.0	....	....	18	33.0
2	25.0	....	....	11	36.0
Training School					
1	4.0	9.0	....	53	66.0
2	....	28.0	....	32	60.0
3	....	9.0	....	32	41.0
4	....	20.0	....	20	40.0
5	5.4	6.0	....	28	39.4
6	....	8.0	....	43	51.0
7	....	18.0	....	22	40.0
8	....	30.0	....	11	41.0
Total					378.40
Mean					47.30
High School					
1	3.6	....	13.7	24	41.3
2	....	....	13.6	34	47.6
3	4.5	....	13.7	20	38.2
4	....	....	18.2	22	40.2
5	....	....	18.2	20	38.2
6	....	....	18.2	27	45.2
7	....	....	9.4	21	30.4
8	....	....	18.2	24	42.2
Total					323.30
Mean					40.41

PART II

STUDENT LOAD

One of the most important parts of a survey of an educational institution is the determination of the activities in which the students are primarily engaged. The institution should, after all, exist directly for the sake of the students. Therefore the amount of time which they devote to school work and the distribution of this time over the different kinds of school activities should be given the main consideration. The main purpose of any school should be the efficient and economic modification of the responses of its students, and such modifications occur only through the activities of the students. All of the various parts of a school, the faculty, the buildings, school organization and administration, the course of study, and the arrangement of the program have the single purpose of furnishing a situation in which the students may engage in desirable activities. Most surveys, including this one, have made only a superficial inquiry into what the students do and to what kind of activity they devote most of their time. It is, of course, easier and not unimportant to determine the age, sex, nationality, and previous training of the students and the size of the family from which they come. This may account for the fact that such facts have received more attention than the native ability and the school life of the students.

The data for this division of the survey were obtained by means of a questionnaire based on the instructions issued by the Committee on Normal School Standards and Surveys. The instructions follow:

"Give each student a card on which he is asked to keep for a week an accurate account of time spent in recitations and preparation therefor. Ask them to exclude all time between classes, assembly periods, and time spent in traveling.

"These cards should not be shown to individual teachers. The summaries should be made so as to show the curriculum followed, the year of the student in the curriculum, and also men and women.

"When this information has been taken from the cards, they should be turned over to the president for further analysis.

"In this connection it is well worth while to find out to what societies students belong and how many other student activities they take part in. The tabulation and study of this material will raise the question of the advisability of establishing a "Point System" by means of which participation in these student activities can be kept within reasonable limits."

Questionnaire on Student Load

PLEASE FILL IN BLANK WITH UTMOST CARE AND ACCURACY

Note Number of Minutes Spent in:

Totals

	Mon.	Tues.	Wed.	Thurs.	Fri.	Sat.	Sun.	Minutes	Clock Hrs.
Teaching									
Observation									
Conference									
Prep. for Teaching...									
Recitations									
Prep. for Recitations..									

Other Work, Not Connected with School Work. Other School Work, Clubs, etc. (1) Total.....

Kind	Hrs. Per Week	Kind	Hrs. Per Week
------	---------------	------	---------------

(2) Total.....

Sum of Totals (1) and (2).....

(3) Total..... Sum of Totals (1), (2) and (3).....

COURSE—General (If so write yes).....Special (If so, state which).....

School Year.....Name.....

The blank has three main divisions: regular school work which includes, excepting Bible study, all work appearing on the quarterly program and such activities as are directly involved in performing this work; other school work, which is primarily socio-educational in nature; and all other work not directly connected with school work. A more detailed statement of the kinds of activities embraced by each heading will appear below.

The blank was placed in the hands of the students on the Thursday morning of March 7, 1918, at the regular assembly. The students were told that the information called for by the blank was required to complete a general survey of the school which was being made at that time; that similar blanks had been filled in by the members of the faculty; and that the purpose of making the survey was to determine the effective and ineffective policies and practices of the school with a view to a gradual elimination of the latter and a continuation of the former. They were told that the information which they gave would not in the least affect them as students in the school. In general an effort was made to impress them with the necessity of endeavoring to fill in the blank with reliable data.

The following directions for filling in the blank were then dictated to the students: 1. Do not fill in the blank until next Thursday evening, March 14th. 2. During each of the next seven days, beginning tomorrow, make a record on a separate sheet of paper of the kind of work you do and the amount of time devoted to each kind. 3. In the columns headed Satur-

day and Sunday note only the time devoted on these days to conferences and preparation for teaching and recitations. For your other activities on these days, space is allowed elsewhere on the blank. 4. Under the heading "Other Work not Connected with School Work" note clerking, house-work, Red Cross work, choir practice, etc. 5. Under the heading "Other School Work, Clubs, etc.," enter such school activities as are not directly involved in regular school work, including Bible study, debating, chorus work, and community co-operation. Other examples are Y. W. C. A. work, departmental club activities, and all work connected with plays and student publications. 6. Use decimals to express fractions of hours. 7. Do not consult your teachers in regard to filling in the blanks. 8. Return the blanks on Friday, March 15th; leave them in the Registrar's office. Now examine every item of the blank to see if you can fill in the blank correctly. If you are in doubt, ask questions.

To avoid inaccurate replies the students were not told that they were obliged to fill in the blank. This method has several disadvantages. In the first place it introduces an element of selection, and in the second place it secures a smaller number of returns. Although the assembly was attended by about three hundred students, only one hundred and twenty-nine returned the blank. On the whole, however, the voluntary method is probably better than the method of compulsion. The sample received appeared to be sufficient for such items as pertained to the whole or even one-half of the group. But the number was far too small for determining such facts as the desirability of sororities and the distribution among the several departments of the time devoted to regular school work, many departments having only one to three representatives in the group.

Results on Student Load

The primary data for all types of student work as presented in the questionnaire on student load are given in Table XXXII at the close of this section. In Table XXVII the central tendencies and the measures of variation for the same types of work are set forth. The figures for boys and girls are not kept separate in the following tables, because only five boys answered the questionnaire.

The conferences, observation, and teaching included in Table XXVII all occur in the training school, and preparation for teaching is controlled by work assigned in the training school. Conferences occur only as they are required by the student's work in the training school, but observation and teaching are regular assignments. At the time the survey was made, it was the practice in the training school to substitute observation for part of the teaching requirements. The wisdom of this may be questioned, but I mention it here for the purpose of pointing out that since this was the practice, it becomes necessary to consider observation and teaching as a single item; hence the combination of these two factors in the table. Our student teachers are required to teach eight hours, four during each of two quarters. Both the mean and the median for observation and teaching show that this requirement is well met, especially when we remember that our 50-minute periods have been reduced to 60 minutes. The coefficient of variation for teaching and observation combined is very large, .290. This large variation it is difficult to explain in other terms than gross mismanagement, especially when we compare it with the coefficient for recitations which is only .125. There is far more reason for uniformity in the amount of teaching than in the hours spent in recitations, because teaching takes the place of a four-hour recitation. The distribution for observation and teaching shows that there are 5 students who teach and observe only 1 hour and that one student teaches and observes 8 hours. This single case may be explained on the grounds of double teaching which is sometimes allowed; but this does not explain why 11 students teach 5 hours and 5 students 6 hours out of

TABLE XXVII
Central Tendencies and Variations on Various Types of School Work

	No.	Mean	Median	First Quartile	Third Quartile	Quartile Deviation	Coefficient of Variation	Range
Conference	46	1.48	1.33	.85	2.04	.60	.447	0- 4
Observation	29	2.14	1.58	1.02	2.63	.81	.509	1- 6
Teaching	47	3.00	2.73	1.73	4.15	1.71	.626	1- 8
Obser. and Teach.....	47	3.79	4.05	2.81	5.16	2.35	.290	1- 8
Prep. for Teach.....	51	6.00	5.00	2.75	9.56	3.41	.681	1-13
Recitations	129	13.20	13.40	11.45	15.01	1.68	.125	3-20
Reci. Obser. and Teach.....	129	14.61	14.37	12.92	16.21	1.65	.114	8-20
Prep. for Recita.....	129	18.92	17.44	14.04	22.97	4.47	.256	1-48
(1) Total	129	36.67	34.91	30.04	42.25	6.11	.175	14-64
(2) Other Sch. Work.....	129	3.14	2.13	.62	4.13	1.76	.824	0-16
(3) Other Work.....	129	10.08	5.42	1.04	16.38	7.67	1.415	0-47
Total Columns 1 and 2.....	129	39.78	38.72	32.38	46.25	6.94	.179	17-70
Total Columns 1, 2 and 3.....	129	49.92	47.19	40.58	59.69	9.56	.202	24-86

a total of 47 students. On account of these wide variations where practically no variation should occur, I give here the whole distribution table for teaching and observation combined:

	Clock	Frequen-
	Hours	cies
Under preparation for teaching it will be noted that there are 51 cases, but that there are only 47 cases engaged in teaching. I have no explanation for this. The mean number of hours spent in preparation for teaching for the 47 cases who are actually engaged in teaching is .16 higher than the mean given in the table. For every hour of teaching the students spent about .6 of an hour more in preparation than in preparation for an hour of recitation. Taking the mean as the basis, there are 2 hours of preparation for every hour of teaching, but there are only 1.4 hours of preparation for every hour of recitation. From this it follows that the student who is engaged in teaching is carrying a much heavier load than the one who does not teach. If either one of these loads is adapted to the capacity of the learner, the other is not. Probably some readjustment is demanded by the situation.	1	5
	2	4
	3	9
	4	10
	5	11
	6	5
	7	2
	8	1

One of the most interesting phases of the amount of time spent in preparation for teaching is its enormous variation. A comparison of this variation with that for observation and teaching shows that the former is more than two and one-third times the size of the latter. This shows very clearly the effect of a more rigid control upon the uniformity of human application. A comparison of the variation of preparation for teaching with that of preparation for recitations is probably still more interesting. The coefficient of preparation for teaching is almost twice the size of the coefficient of preparation for recitations. Part of the enormous coefficient of the former may be due in part to the fact that some teaching requires a little more preparation than other teaching; but perhaps we may say the same in regard to the preparation required for recitations. Some of the variation may be due to the variation in the amount of teaching; but curiously enough the coefficient of correlation between the amount of teaching and the amount of preparation is by the method of rank-differences only .164 with a probable error of .097. There is, therefore, practically no evidence of any such correlation.

The variation in the hours spent in recitations is perhaps somewhat larger than what we might expect, because all but the best students are supposed to carry approximately a 16-hour program. There are, however, a number of factors which raise the variation. In the first place there are part time students who do not carry a full program. This can easily be seen in the distribution on page 55. In the second place 47 out of 129 students who were engaged in teaching could carry only 12 hours of recitation. This factor can be eliminated by combining the time devoted to teaching and such observation as was evidently a substitute for teaching with the time given to recitations. This reduces the coefficient from .125 to .114.

The variation in preparation for recitations is represented by the coefficient .256. This is very high, but the coefficient of preparation for teaching is more than two and one-half times as large, even though we have good reasons for expecting it to be very much lower. However, the variation in preparation for recitations is more than twice as large as the variation in the amount of time spent in recitations. This again shows the effect of a lack of firmness in control. While some of the variation may be ascribed to the variation in the students' recitation load, it is probably that there is no more intimate correlation between these two series than we found for teaching and preparation for teaching. I think the bulk of it must be attributed to a lack of control of the preparation for recitations through the recitation. It stands largely as a reflection upon our teaching and our failure to weed out such students as will not study. Some teachers fail to control the preparation

for recitations through the recitations, because it interferes with their bid for large classes, probably a self-preservation reaction. This situation appears to require some change in administrative control.

There is, however, at least one other factor which must be considered in this connection. It may be that the brightest students can prepare their work in so much less time as to account for practically all of the variation. As 27 of the students who had filled in the blank had also taken the Army Alpha examination, I worked out the coefficient of correlation between the results of these tests and the amount of time spent in preparation for recitations. If the students who made the lowest scores in the examination devote most time to preparation, then we shall get a negative correlation; but the correlation was found to be plus .16, just the opposite of what we might expect. While the coefficient is too low to establish the fact that in general the brightest student applies himself more assiduously to his lessons than the duller one, it is nevertheless probable that this is the case. The brighter students succeed better than the duller ones and are therefore more interested in their tasks.

The best examples of wide variations in uncontrolled, or essentially uncontrolled human activities, appear in the coefficients of variation for other school work and other work, the coefficient for the former being .824 and for the latter 1.415. The extreme ranges for these types of work are 0 to 16 and 0 to 47 respectively. It is reasonable to suppose that those students who spent most time in other school work will devote less time to regular school work, but the coefficient of correlation between these activities for all of the students is only $-.044$. The product-moment method was used. Similar coefficients were computed for regular school work and other work and for regular school work and combined other school work and other work. The coefficients are $-.14$ and $-.19$ respectively. For the students involved in this study there is some evidence for the fact that those who engage most actively in socio-educational work and non-scholastic work do a little less regular school work than those students who are not engaged in these types of work. For conclusive evidence on this point more studies of a similar nature are required.

The total amount of regular school work reported by the students is set forth in the row labeled (1) in the table. The median amount is 34.91 hours per week. They report 6.09 hours less than the faculty. The members of the faculty apply themselves somewhat more assiduously to school work than the students, but on the whole neither students nor the faculty appear to suffer from over-application to regular school work. The average per day on the basis of six days to the week is less than 6 hours for the students and less than 7 for the teachers.

The second last row in Table XXVII gives the mean and median amounts of all school work for the students; the mean is 39.78 and the median 38.72. The coefficient of variation is .179 and the extreme range 17-70. The last row of the table gives the figures for all types of work reported. The amount is 47.17. On the basis of 6 days to the week, although Sunday work was included, our students have approximately an 8 hour day. If they sleep 8 hours, there are 8 hours left for eating, recreation, primping, etc. Perhaps the conclusion is warranted that in general our students live an easy life.

In the above table under the stub-heading, Recitations, Observation, and Teaching, the number of clock hours which the students carried on their schedules is given. The mean number of hours per week is 14.61. If this be converted into the recitation hour of 50 minutes it will be 17.53. But this does not include the hours for Bible study, chorus work, debating, and community co-operation which some of the students carried on their schedules. In order to determine the number of hours for which the students who made questionnaire returns were scheduled, I took the data from the official records for 121 of the students. The results are given in the following table:

TABLE XXVIII

Number of Hours Carried on Schedules and Number of Hours for Which Credits Were Received

College Year	Number Students	Hours Carried on Schedules		Hours Credit Received	
		Total	Mean	Total	Mean
First	61	1,069	17.52	1,084.4	17.84
Second	47	839	17.85	865.9	18.42
3, 4 and 5.	13	251	19.31	263.1	20.24
Total	121	2,159	17.84	2,213.4	18.29

Apart from Bible study, chorus work, debating, and community co-operation, the normal schedule is supposed to carry 16 recitation hours. As the students carried 17.53 hours, this was 1.53 hours in excess of the normal. If the above types of work, Bible study, etc., are included, the excess is 1.84 hours. Although students who make excellent grades are allowed to carry from one to two hours extra, this does by no means account for the excess, unless three-fourths of the students are permitted to carry two extra hours on the basis of very superior grades. This appears to be inconceivable. The control must have been exceptionally deficient. Second year students are allowed to carry one-third of an hour more than first year students and third, fourth, and fifth year students are allowed to carry one hour and one-half more than second year students. The hours for which credits were received are in excess of those carried on the schedules by approximately one-third, three-fifths, and one for the first, second, and third, fourth and fifth year students respectively. For the whole group the mean amount of credit is 2.29 hours in excess of the normal 16 hours. In five quarters this amounts to 11.45 hours. If properly distributed this means that about 70 per cent of our students can complete the first two years, or six quarters, in five quarters. All of the third and fourth year students can complete the six quarters of these two years in five quarters with an average of five hours to spare. Perhaps this is a commendable feature, but it is unlikely that our co-workers will regard it as such.

I have also compiled data to show for the different college years the mean number of hours of regular school work, other school work, other work, and various combinations of these kinds of work.

TABLE XXIX

Mean Number of Hours of Regular School Work, Other School Work, and Other Work for the Different College Years

College Year	Number	Regular Sch. Work	Other Sch. Work	Other Work	Regular & Other Sch. Work	
					Regular Sch. Work	Total of All Kinds
First	63	35.98	2.90	9.79	38.89	48.68
Second	50	35.80	3.24	11.12	39.04	50.16
3, 4, 5.	16	42.13	3.75	7.94	45.88	53.75
Total	129	36.67	3.14	10.08	38.81	49.89

The first year students do more regular school work than the second year students. The difference is very small, but when we remember that first year students do not teach and therefore have no conferences and no observation, and that they carry .33 of an hour less on their recitations, it means that they devote considerably more time to their studies. Now if we succeeded in making students, the second year class should devote far more time to studying than the first year class. This is a rather sad commentary on our work. Is it true that second year students have learned how to pick their Profs or "get by" in college? The regular school work of the remaining group is over six hours more than that of the second year students. But let us not flatter ourselves with the belief that with them our efforts have been

more successful, for we must bear in mind that they are considerably older, have profited more by experience in life, and are a more highly selected group. For all of the other kinds of work and their combinations, excepting other work, there is an increase with the school year.

In order to determine whether the students in some courses and some departments do more work than those in other courses and departments, I have compiled the data presented in Table XXX. As pointed out before, the number of students who specialized in any one department was far too small for practically all of the departments to obtain anything like complete data on this point. We were, at this time, in the act of abandoning the General Course.

TABLE XXX

Hours of Regular School Work Carried in Different Courses and Departments

Courses and Departments	Number Students	Mean Hours Per Week
General Course	65	36.36
All Other Courses.....	64	37.01
Primary Department	20	37.94
Home Economics Department	19	34.97
All Other Departments.....	25	38.05

The totals from which these averages were computed were not obtained from the distribution table. Their sum is about three units less than the total of the distribution table. This is due to the fact that in the distribution table all fractions

less than one-half were neglected and all higher fractions were taken as units.

Students enrolled in the general course have .65 of an hour less to their credit than the students enrolled in all other courses. Perhaps there is a tendency on the part of students toward better application in work which has a more specific aim such as the specialized courses naturally would have over the general course. Excepting the Home Economics Department, the mean hours per week for the remaining departments are considerably higher than the mean hours for the General Course. The tendency shown by these figures is worthy of further investigation.

I made an attempt to secure data for the purpose of determining whether College Sororities have a wholesome influence upon the realization of the general purposes of the school. In the first place I determined the number of sorority members who made questionnaire returns. There are five sororities with a total membership of 131. Of these, 14 or 10.62 per cent made returns, but of the whole student body approximately 25 per cent made returns. This certainly cannot be regarded as a favorable index for the sororities. Out of the five, there was one sorority of which 23.08 per cent made returns; the percentage of returns from the remaining four is only 7.61. In Table XXXI, in which mean hours for the various kinds of school work are presented, the hours for this one sorority are tabulated separately.

TABLE XXXI

Mean Hours Per Week on School and Other Work for Sorority Members

Type of Work No. of Students	Mean Hours Per Week for Returns Made By			
	All Students	All Sororities	Sorority Sigma	All Other Sororities
	129	14	6	8
Prep. for Recitation.....	18.92	19.33	23.15	16.45
(1) Total Reg. Sch. Work..	36.67	33.31	38.10	29.71
(2) Other School Work.....	3.14	5.69	6.44	5.13
(3) Other Work.....	10.08	4.80	3.83	5.50
Total 1 and 2.....	39.78	38.93	44.74	34.90
Total 1, 2, and 3.....	49.92	43.92	48.31	40.64

A comparison of the results for all students who made returns with those for all sorority members who made returns shows that the sorority members are excelled for all items excepting preparation for recitations and the socio-

educational activities; in the former they excel by .41 of an hour and in the latter by 2.55 hours. The sororities appear to be more interested in the socio-educational activities than in those which are less socialized. Their standing in preparation for recitations is entirely due to the single sorority which made the high percentage of returns. With this sorority omitted they are excelled by the whole group by about two hours and one-half. In total regular school work the sororities are surpassed by three hours and one-third, in spite of the excellent showing of the sorority named Sigma in the table. Without this sorority the difference in favor of all students is about 7 hours. In brief the one sorority makes an excellent showing, but the other sororities must take a very inferior rank in the comparisons; and this in spite of the fact that rather strenuous efforts are made to control all of the work and activities of the sororities. It appears then that there may be good sororities and sororities with marked deficits as far as school work is concerned, but that the latter predominate.

TABLE XXXII

Showing How the Frequencies Are Distributed for the Various Kinds of Activities Called for by the Blank

Scale of Clock Hrs.	ence Confer-	Observation	Teaching	Prep. for Teaching	Recitations	Prep. for Recitations	Scale of Clock Hrs.	(1) Total
0	3	..	..	..	..	..	14	1
1	24	14	9	2	..	1	15	1
2	14	6	12	9	..	..	..	..
3	4	5	11	7	1	..	20	1
4	1	1	5	4	..	..	21	..
5	46	1	7	7	..	2	22	1
6	Total.. 68	2	2	2	1	3	23	3
7	Aver..1.48	29	..	3	..	2	24	1
8	Total.. 62	1	1	1	6	1	25	1
9	Aver..2.14	47	3	4	2	2	26	2
10		Total..141	4	7	5	5	27	4
11		Aver... 3	3	14	2	2	28	7
12			5	10	4	4	29	7
13			1	24	7	7	30	6
14			51	21	6	6	31	12
15			Total..306	17	11	11	32	1
16			Aver... 6	13	11	11	33	8
17				4	8	8	34	6
18				5	6	6	35	6
19				1	8	8	36	6
20				1	9	9	37	5
21				129	4	4	38	6
22				Total..1703	1	1	39	3
23				Aver...13.2	8	8	40	3
24					4	4	41	5
25					1	1	42	1
26					1	1	43	3
27					2	2	44	5
28					3	3	45	2
29					2	2	46	2
30					..	..	47	1
31					2	2	48	2
32					1	1	49	1
33					2	2	50	3
34					..	..	51	2
35					2	2	52	1
36					2	2	53	1
37					..	..	54	..
38					..	..	55	1
39					..	..	56	1
40					..	..	57	3
41					3	3	58	..
42					..	..	59	1
43					..	..	60	..
44					1	1	61	1
45					1	1	62	1
46					..	..	63	..
47					..	..	64	1
					1	1		129
					129			
					Total..2441		Total..4731	
					Aver..18.92		Aver..36.67	

TABLE XXXII—Continued

Scale of Clock Hrs.	(2) Other Sch. Work	(3) Other Work	Scale of Clock Hrs.	Total Col. 1 and 2	Total Col. 1, 2 and 3	Scale of Clock Hrs.	Total Col. 1, 2 and 3
0	30	29	17	1	..	71	4
1	20	6	..	..	..	72	..
2	23	9	22	1	..	73	1
3	15	4	23	2	..	74	..
4	14	11	24	1	1	75	1
5	3	6	25	4	1	76	2
6	5	1	26	2	..	77	..
7	3	4	27	1	..	78	1
8	5	6	28	2	1	79	..
9	2	3	29	3	2	80	1
10	1	5	30	2	..	81	..
11	3	..	31	8	6	82	1
12	1	3	32	6	..	83	..
13	1	2	33	4	4	84	1
14	..	3	34	4	..	85	..
15	2	3	35	8	5	86	1
16	1	2	36	2	5	Total..6441	
17	129	..	37	5	..	Aver..49.92	
18	Total..405	1	38	7	2		
19	Aver..3.14	3	39	7	3		
20		1	40	2	2		
21		1	41	9	3		
22		2	42	4	6		
23		3	43	3	4		
24		3	44	1	4		
25		3	45	7	6		
26		1	46	1	4		
27		1	47	4	8		
28		2	48	7	3		
29		5	49	3	1		
30		1	50	2	3		
31		..	51	1	3		
32		..	52	1	6		
33		1	53	2	2		
34		1	54	..	2		
35		1	55	1	2		
36		..	56	1	2		
37		..	57	2	2		
38		..	58	1	2		
39		..	59	..	1		
40		..	60	1	4		
41		1	61	3	1		
..		..	62	..	1		
47		1	63	1	1		
		129	64	..	4		
	Total..1300		65	..	4		
	Aver..10.08		66	..	2		
			67	1	1		
			68	..	..
			69	..	1		
			70	1	1		
				129			
			Total..5132				
			Aver..39.78				

SECTION FIVE
of the
EDUCATIONAL SURVEY
OF COLORADO STATE TEACHERS COLLEGE

ACCOUNTING AND COSTS

A. O. COLVIN

Professor of Commercial Education

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Professor of Mathematics

ACCOUNTING AND COSTS

Under this heading the things considered were as follows:

1. The inventory showing present valuation of the plant.
2. Receipts from all sources.
3. Expenditures for all purposes.
4. Costs per student hour and per capita.

In working out the following statements and results, the committee has followed as nearly as possible the outline submitted in the report of the Committee on Normal School Standards and Surveys.

1. Inventory—

a	Land and Land Improvements.....	\$170,000.00
b	Buildings	452,000.00
c	Furniture and Furnishings.....	51,663.27
d	Apparatus	24,246.75
e	Library	50,525.00
f	Museum	20,000.00
		\$768,435.02
Total		

2. Receipts from All Sources—

a	Direct Appropriation	\$158,283.81
b	Indirect Income	1,491.68
c	Incidental and Laboratory Fees.....	42,337.27
		\$202,112.76
Total Income		

All of the above receipts were available for use at the discretion of the administration.

3. Classification of Expenditures—

a	Capital Outlay (Equipment).....	\$ 2,000.00
b	Maintenance	5,000.00
c	Operation:	
	(1) Administration	26,095.25
	(2) Physical Plant	21,693.40
	(3) Instruction	135,522.40
		\$190,311.05
Total Expenditures		
Excess of Income Over Expenditures....		11,801.71
		\$202,112.76

4. Cost for Summer School 1918 included above.

COSTS IN COLORADO STATE TEACHERS COLLEGE

1.	For costs on Teaching Hours and Student Hours, see Section IV.	
2.	The annual cost per capita based on the average enrollment—	
	a 4% of the Value of the Plant.....	\$ 30,737.40
	b 2% of the Cost of the Buildings.....	9,040.00
	c Cost of Maintenance and Operation.....	185,311.05*
	Total	\$223,088.45
	Average Enrollment Per Quarter.....	1,228**
	Per Capita Cost.....	\$181.67
3.	Additional data—	
	a Cost of Maintenance and Operation for Three Regular Quarters (Average).....	\$160,994.11
	Average Attendance for These Three Quarters.....	1,123.00
	Cost Per Capita.....	143.36
	Per Capita Cost Per Quarter.....	47.79
	b Cost for Summer Quarter.....	62,094.34
	Average Attendance, Summer Quarter.....	1,542.00
	Per Capita Cost.....	40.27

Notes*—Expenses of conducting the Extension Department are not included.
 **College and Training School, not including Extension Department.

