

DEPARTMENT OF THE INTERIOR
BUREAU OF EDUCATION

BULLETIN, 1916, No. 26

A SURVEY OF
EDUCATIONAL INSTITUTIONS OF THE
STATE OF WASHINGTON



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LETTER OF TRANSMITTAL

DEPARTMENT OF THE INTERIOR,
BUREAU OF EDUCATION,

Washington, August 22, 1916.

SIR: I am transmitting herewith for publication as a bulletin of the Bureau of Education the report of a survey of education in the State of Washington, made under my direction at the request of the Commission of Educational Survey created by the legislature of the State, as set forth in the introduction to this report. The survey includes the State institutions of higher education, the University of Washington at Seattle, the State College of Washington at Pullman, and the three normal schools at Cheney, Ellensburg, and Bellingham, and such a study of the elementary and secondary schools of the State and of the preparation of teachers in these schools as was necessary to an intelligent consideration of the functions and standards of the higher schools.

This survey was made by Dr. S. P. Capen, specialist in higher education; Harold W. Foght, specialist in school practice; and Alexander Inglis, assistant professor of education, Harvard University. Their report and conclusions were approved by me.

Accompanying this report is a report of the findings and recommendations of the Commission of Educational Survey as submitted to the governor of the State of Washington. For these neither the survey committee nor the Commissioner of Education is in any way responsible, but it will be observed that in the main the Commission of Educational Survey approves the conclusions of the survey committee.

Respectfully submitted.

P. P. CLAXTON,
Commissioner.

The SECRETARY OF THE INTERIOR.

REPORT AND RECOMMENDATIONS OF THE COMMISSION OF EDUCATIONAL SURVEY OF WASHINGTON.¹

The Legislature of Washington, by an act passed by the senate and house of representatives March 9, 1915, and approved by the governor March 18, 1915, provided for a commission to make an educational survey of the State of Washington. The scope of the work of this commission is defined and its members named in the following act, chapter 143, session laws of 1915:

AN ACT Creating a commission to make an educational survey, defining its powers and duties, appointing the members thereof, and making an appropriation therefor.

Be it enacted by the Legislature of the State of Washington:

SECTION 1. There is hereby created a commission, consisting of six members, to be known as "The Commission of Educational Survey of Washington," and it shall be the duty of such commission to make a comprehensive survey of the organization and work of the University of Washington, the State College of Washington, and the State Normal Schools at Ellensburg, Cheney, and Bellingham, and a general survey of the public school system of the State, both urban and rural, elementary and secondary, and of the educational development and possibilities of the State, and to determine more definitely the purpose, sphere, and functions of the university, the State college, and the State normal schools, and the lines along which each should be encouraged to develop for the better service of the State. In the performance of its duties said commission shall have power to employ experts and to fix and authorize the payment of their compensation. Upon the completion of such survey and on or before April 30, 1916, said commission shall make and file with the governor a report of its findings and recommendations, which report shall be published for general distribution throughout the State, and shall contain such recommendations to the legislature in regard to the enactment or amendment of the statutes relating to the several institutions as may be found advisable, including any necessary changes in the distribution of the millage tax for the support of such institutions and such additional appropriations as the commission may deem advisable.

SEC. 2. The members of the subcommittee of the joint committee on educational institutions and education of the fourteenth legislature, to wit, Senators W. J. Sutton, E. E. Boner, and A. H. Imus, and Representatives Tom Brown, Charles Timblin, and Victor Zednick, are hereby appointed members of said commission, who shall receive as compensation five dollars (\$5) for each day while actually engaged in the performance of their duties.

SEC. 3. For the payment of the actual and necessary traveling expenses of the members of the said commission, the compensation of the members of said commission, and the experts employed, and expenses incidental to the work of said commission, there is hereby appropriated out of any funds in the State treasury not otherwise appropriated the sum of five thousand dollars (\$5,000) or so much thereof as may be necessary.

¹ It should be noted that this section (pp. 7 to 19) constitutes the report of the legislative commission, for which the Bureau of Education is in no way responsible. The report of the survey experts begins on p. 21.

At its first meeting, held in North Yakima, Wash., July 5, 1915, the commission decided, in addition to visits to the State institutions of higher education and inquiries conducted by its own members, to cause to be made an expert study of educational conditions in this State in so far as outlined in the legislative enactment. To this end it obtained the services and cooperation of the United States Bureau of Education.

The Commissioner of Education, with the approval of the commission and of the heads of the State institutions of higher education, obtained the following experts to conduct the survey in this State and report to the commission: Dr. Samuel P. Capen, specialist in higher education, United States Bureau of Education; Mr. Harold W. Foght, specialist in rural-school practice, United States Bureau of Education; and Dr. Alexander Inglis, assistant professor of education, Harvard University.

The commission held several meetings for the purpose of adopting a suggestive course of procedure and working out the details, and visited the University of Washington, Washington State College, Ellensburg Normal School, Bellingham Normal School, and Cheney Normal School. The final session convened at Spokane, Wash., April 15, 1916, at which time the report of the experts was received. These expert findings and recommendations are hereto attached and made a part of this report.

At its final meeting the commission studied carefully the expert findings and conclusions, and from these, together with the testimony of the heads of the several institutions and the inquiries of its own members, the commission formulated this report.

In the interest of brevity this report embraces for the most part only recommendations, no supporting arguments or statistical facts being given, except in cases where the commission differs from the conclusions of the experts. These cases, however, are rare, occurring in almost all instances when the commission is of the opinion that the State is unable financially to carry out the program suggested. The reasons and facts supporting the recommendations, when not given herein, are to be found in the report of the experts, which is added hereto, and of which a thoughtful reading is urged. In some few instances recommendations concern subjects not touched upon in the findings of the investigators. The reasons for these, of course, are given.

The commission's recommendations and suggestions appear under four general subdivisions:

1. Common schools, both urban and rural, elementary and secondary.
2. Normal schools.
3. State university and State college.
4. Distribution of the millage tax.

The commission desires to express its appreciation of the helpful cooperation of the presidents, faculties, and administrative officers of the several institutions, and of the State superintendent of public instruction. Without their assistance the work could scarcely have been done efficiently in the time allotted. The leadership and services of Dr. P. P. Claxton, United States Commissioner of Education, and of the experts are also gratefully acknowledged.

I. COMMON SCHOOLS.

The commission's survey of the public-school system was not exhaustive. General, rather than comprehensive, it was concerned only with those phases which are closely related to the institutions of higher education. The legislature did not contemplate a more detailed investigation at this time.

One of the most important questions affecting the common schools is that of the proper system of apportioning the current State school fund and the county fund, and of arriving at an equitable basis for scaling up the State and county taxes. These problems were not studied, however, because a legislative committee, created by joint resolution to make this study, is now at work.

With the instructional and administrative side this commission was primarily concerned. It went particularly into the matters of the county superintendency, county organization, county supervision, certification of teachers, and the school curriculum.

COUNTY SUPERINTENDENCY.

The commission recommends:

1. That the eligibility and salary clauses in the educational code be changed so that any person, in order to be eligible to the office of county superintendent, shall hold a professional certificate valid in this State; shall have had at least five years of professional experience; and shall have had not less than two years of advanced preparation of college or normal-school grade, in addition to being graduated from a secondary school.

2. That the minimum salary of the county superintendent shall be \$1,200, and that in case an eligible person can not be found in the county he may be chosen from some other county.

3. That the legislature submit to the people a constitutional amendment removing the limitation on the tenure of office of the county superintendent. The commission is firmly of the opinion that the best interests of the county schools can not be subserved by frequent change in county superintendents.

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4. That the powers and duties of the county superintendent be enlarged, so that in all school districts, except those of the first and second class, the county school superintendent shall select the teachers, subject to approval by the board of directors.

COUNTY ORGANIZATION.

5. That careful consideration be given by the legislature to the permissive county organization plan as outlined in the report of the committee of experts, hereto attached and made a part of this report.

COUNTY SUPERVISION.

6. That the legislature carefully consider the question of a more adequate supervision of the rural schools by subdividing the county into supervision districts, as discussed in the report of the committee of experts.

CERTIFICATION.

7. That a new system of certificates be substituted for that now in force, in order that the standards for entering the teaching profession in this State shall rank among the highest in the Union. In any case the commission most emphatically recommends that third-grade certificates be abolished at a very early date, and that the experience provision of the code for the renewal of second-grade certificates be discontinued, and that the professional requirements for the renewal of the same, as set forth in the code, be somewhat increased.

The new system of certification recommended for enactment follows:

STANDARDS RECOMMENDED.

1. The minimum basis for certification of all teachers shall be at least graduation from a four-year high school or its equivalent.

2. Beginning with September 1, 1918, the basis shall be changed and include not only graduation from a four-year high school, but in addition one semester of 18 weeks of professional training. Teachers holding certificates in force at the time of the passage of this proposed act and whose certificates will expire by regular limitation shall be exempt from this requirement until September 1, 1920.

3. Beginning with September 1, 1920, the basis shall again be increased and include graduation from a four-year high school, with one year of 36 weeks of professional training. Teachers holding certificates in force at the time of the passage of this proposed act and whose certificates will expire by regular limitation will be exempt from this requirement until September 1, 1922.

4. Beginning with September 1, 1922, the basis shall again be changed to include graduation from a four-year high school and one and a half years (54 weeks) of professional training. Teachers holding certificates in force at the time of the passage of this proposed act

and whose certificates will expire by regular limitation shall be exempt from this requirement until September 1, 1924.

5. Beginning with September 1, 1924, the basis shall again be raised to include graduation from a four-year high school and two years (72 weeks) of professional training. Teachers holding certificates in force at the time of the passage of this proposed act and whose certificates will expire by regular limitation shall be exempt from this requirement until September 1, 1926.

The professional requirements above mentioned shall be such as are provided in the regular courses in the State normal schools, the regular courses provided in the departments of education in the State college and in the university, and such equivalent courses in other institutions as may be approved by the State board of education. Experience credits may be accepted to the extent and under such rulings as the State board of education may provide. All practice teaching necessary to meet the foregoing requirements must be done under conditions approved by the State board of education.

TYPES OF CERTIFICATION STIPULATED.

1. Common-school certificates based upon examination:
 - a. Primary certificates.
 - b. Grammar-school certificates.
 - c. Rural-school certificates.
 - d. High-school certificates.
 - e. Administration certificates.
2. Normal school certificates:
 - a. Elementary-school certificates—
 - (a) Primary certificates.
 - (b) Grammar-school certificates.
 - (c) Rural-school certificates.
 - b. Special certificates—
 - (a) Supervisory certificates.
 - (b) Certificates of special subjects.
 - (c) Certificates of administration.
3. University and State college certificates:
 - a. High-school certificates.
 - b. Special high-school certificates.
 - c. Special supervisors' certificates.
 - d. High-school administration certificates.
 - e. General administration certificates.

CERTIFICATION LIMITED AND DEFINED.

Common-school certificates.—All common-school certificates based upon examination shall meet the requirements prescribed by the State board of education and shall be issued by the superintendent of public instruction. All examinations must be given in accordance

with the present prescribed law and shall be based upon all subjects included in the scope of work contemplated by the certificate.

Primary certificates.—Primary certificates shall entitle the holder to teach in the first four grades of the elementary schools.

Grammar-school certificates.—Grammar-school certificates shall entitle the holder to teach in the grammar grades of the elementary schools.

Rural-school certificates.—Rural-school certificates shall entitle the holder to teach in any or all of the eight grades of the elementary schools.

High-school certificates.—High-school certificates shall entitle the holder to teach in any of the high schools of this State.

Normal-school certificates.—The normal-school certificates issued by the State normal schools shall primarily cover the work of the elementary schools, shall provide for special teachers and supervisors for the elementary schools, and shall provide special administration certificates for the elementary and rural schools. Special certificates issued by the normal schools shall be sufficient in the named limited field of work in any of the common schools of the State.

University and State college certificates.—Certificates issued by the university and State college shall primarily cover the work of the high-school field, including high-school teachers, principals, and specialists in a definite limited field of work, and shall prepare special teachers and supervisors for the elementary schools.

Administration certificates.—Certificates of administration may be granted either by the normal schools, by the State college, or by the university upon a stipulated basis provided for by the State board of education.

Special certificates.—Special certificates of all types shall be issued by the institutions training for them under conditions approved by the State board of education.

Provision for the extended recognition of certain certificates in nine-year schools.—In nine-year schools, normal-school certificates to teach in elementary grades shall be recognized as covering the first high-school year, and university and State-college certificates to teach in the high schools shall be recognized as covering the upper elementary grades.

TENURE OF OFFICE FOR SCHOOL-TEACHERS.

The commission favors long tenure of office for school-teachers, but does not believe that the "bonus" plan, as advocated in the report of the committee of experts, is the most desirable or effective stimulus to that end, and believe that it is impracticable from a financial viewpoint.

TEACHERS' EXAMINATIONS.

The commission recommends that the certification laws be so amended as to require an examination of the teacher in every subject he is required to teach.

COURSES OF STUDY.

In that part of the report dealing with the common schools the experts recommend that the training of city and rural school children be differentiated, the object being to adapt the training to the child's environment.

It is the opinion of the commission, however, that a too rigid interpretation should not be put on this recommendation, for it might have the effect of producing a too diversified course of study, which in the interest of the child it is most desirable to avoid, for the following reasons:¹

1. A child in the elementary grades needs drilling in the five essential branches of education, which are taken to be reading, writing, spelling, arithmetic, and grammar, rather than to know a mass of facts. To keep this main object in view is of vital importance in elementary education at all times. That a child should read distinctly, spell correctly, write legibly and grammatically, are matters of first importance; but that he should know the details of the Missouri Compromise, the scientific name of every bone in his hand, the exact location of the source of the Nile, is not a matter of first importance in this stage of his career.

2. The chief question to be asked in this connection is: What is of highest value in elementary education? That question settled, the rest is easy and will follow in logical order. To educate the child to the highest degree of efficiency, it is necessary to see that his energy be not wasted on matters of secondary importance, but that it be conserved at every stage of his school career. To aim for this is to aim to secure the maximum of economy for the State's work.

3. In order to secure the advantages of this program and preserve vital interest in it, the following mode of procedure is earnestly recommended, viz, that the examination given by the State to children in the rural schools on completion of the elementary curriculum be extended to include urban and all State schools of the same grade, and that only those who give proof of competency be allowed to pass into the high schools of the State. It is also recommended in order to preserve a unified plan, with the same objects of economy and efficiency in view, that a similar test be applied to students of the high schools of the State on the completion of their course before being allowed to pass into the State's higher institutions of learning.

MILITARY INSTRUCTION.

The commission recommends that the next legislature carefully consider the question of military instruction, with a view to making it compulsory in the high schools of this State.

¹ It should be noted that these are the opinions of the commission, and not of the survey committee. For the committee's statement, see pp. 150 et seq.

II. NORMAL SCHOOLS.

To the end that unwarranted duplication be now and hereafter eliminated, the commission defines rigidly the scope and functions of the university and State college in the preparation of teachers on the one hand and of the normal schools on the other. It draws a clean line of demarcation between them; indicating the class of teachers each group is to train. This is done in the interests both of economy and of turning out the most efficient product possible. It has been decided that the training of elementary-school teachers is the function of the normal schools; that the preparation of high-school teachers is the function of the university and college. This differentiation is definitely made in this report.

Questions of entrance requirements for the normal schools, the length of course they should give, the subjects to be taught, means of promoting harmonious development, and plans of extension service and kindred questions have been given careful consideration.

On the report of the experts, the views of the normal-school principals, and personal inquiries by its members the commission bases the following recommendations:

1. That requirements for matriculation in the normal schools be those stated in the experts' report.
2. That the normal schools develop a full three-year course in accordance with the suggestion of the experts.
3. That they go on a full four-year basis, not earlier than 1920, provided they have in the meantime arrived at the point where a full four-year course in an accredited high school is required for entrance and they have developed the three-year course referred to above on a basis to warrant the expenditure this fourth year of work will entail.
4. That the State university and State college confine their training of teachers for the common schools strictly to the high-school grades, but that graduates of such institutions be allowed to teach the upper elementary grades, when taught in connection with ninth-grade work in strictly one-year high schools.
5. That the State normal schools confine their training of teachers for the common schools strictly to the elementary grades, but that graduates of such institutions be allowed to teach the ninth grade when taught in connection with the upper elementary grades in strictly one-year high schools.
6. That school superintendents and directors, in this class of schools where both the upper elementary grades and one year of high-school work are taught, give preference to those applicants having both a university or State college and a normal-school training.

7. That, in consonance with the suggestions of the experts, the training of rural-school teachers through the normal schools be further developed, but that the question of the location of model rural schools be left to the governing boards of the normal schools.

8. That the normal schools devote much serious effort to provide teachers for rural communities.

9. That the three-year course of study for the normal schools of the State, as suggested in the experts' report, be adopted.

10. That, for the purpose of promoting a harmonious development along parallel lines, a joint meeting of the respective boards of trustees of the three normal schools be held annually.

11. That the membership of the State board of education be increased to 10, and shall consist of the superintendent of public instruction, the president of the University of Washington, the president of the State College of Washington, the principals of each of the three State normal schools of Washington, and four persons holding life diplomas issued under the authority of the State and actively engaged in educational work, appointed by the governor, one of whom shall be a superintendent of a district of the first class, one a county superintendent of schools, one a principal of a fully accredited four-year high school in a district of the first class, and one a principal of a fully accredited four-year high school in a district other than of the first class.

12. The commission believes that the needs of the State will soon require a fourth normal school, as suggested in the report of the experts, and recommends that one be established as soon as financial conditions of the State will justify.

13. The commission is convinced of the advisability of having the normal schools engage in extension service, such as is suggested in the report of the experts. This work, however, conducted on a scale as broad as that suggested, would involve an expenditure which the State can not afford at the present time. After considering carefully the value and cost of teachers' institutes in this State and after taking up this matter and the extension service question with the normal-school principals, a number of county superintendents, and other educators, the commission has come to the conclusion that this extension service would be of more value to the teachers of the State than are the institutes. In the light of this fact, and because money is not available for both, and also because of the value of this extension service, the commission recommends that the legislature provide by enactment for such service in lieu of the institute work now prescribed by law.

14. As the law now stands, the children attending the training departments of the normal schools are not allowed to draw State school money per diem. This gives cause for much complaint by

the people of the cities where the normal schools are located, who demand that this discrimination be removed, as they suffer financial loss by sending their children to the training departments. The commission, therefore, recommends that the law be changed to allow school money to be apportioned to the local district for all children attending normal-school training departments, as this provides a necessary service to the State at large.

III. UNIVERSITY AND STATE COLLEGE.

The commission advises the enactment of legislation in accordance with the following recommendations:

1. That agriculture (in all its branches and subdivisions), veterinary medicine, mining, pharmacy, economic science in its application to agriculture and rural life, and the training of high-school teachers (especially in agriculture, home economics, and mechanic arts), school supervisors, and school administrators be major lines at the State college.

2. That law, medicine, architecture, forestry, pharmacy, mining, commerce, journalism, library economy, graduate work in liberal arts and pure science, professional training of high-school teachers, school supervisors, and school superintendents be major lines at the State university.

3. That duplication be recognized in liberal arts, pharmacy, mining, home economics, and in certain branches of engineering.

4. That civil, electrical, and mechanical engineering be taught at both the State college and the State university.

5. That chemical engineering be taught at the State university exclusively.

6. That agriculture and its various subdivisions be taught at the State college exclusively.

7. That the development of further departments or branches of engineering be submitted to a joint conference of the respective governing boards before their establishment at either institution.

8. That degree courses in liberal arts, with the training of high-school teachers in the various branches of the same, be continued at the State college, but that no graduate work in these lines be offered.

9. That home economics be developed for the present without restriction at both the State university and the State college, but no extension work in home economics be undertaken by the university outside of King County.

10. That professional courses in marine engineering and fisheries be established at the State university as soon as its resources permit.

11. That graduate work in engineering branches, when developed, be developed at the university exclusively.

12. That both the State college and the State university continue their respective departments of mining engineering, but that the cooperation of the two institutions be secured so that each department will best serve the State. To this end we recommend that the university place special emphasis on coal and clay mining and ceramic engineering and that the State college place special emphasis on metalliferous mining.

13. That the work of the department of elementary science at the State college, which work in our opinion is making a most important contribution to the life of the State, be still further strengthened and extended, and that to this end there be brought about a partial reorganization of the administrative relationship of this department to the college, whereby this department shall have a teaching staff entirely its own and shall be separately housed.

14. That the administrative officers of both institutions take under consideration the matter of small classes, as discussed in the report of the experts.

15. That the officers of the State college and the university consider the total number of hours required in the major subject, since it is often excessive and unduly limits the opportunity of the student to obtain the desired breadth of training.

16. That high-school graduation be required of all students entering the State college or the university, except those 21 years of age or older, and except students in the elementary science department of the State college. This restriction will not apply to summer schools, short courses, or extension work in either institution.

17. That in order to promote harmony, economy, and efficiency in the management of the institutions of higher education the regents of the State university and the State college hold joint meetings at least once a year.

IV. DISTRIBUTION OF THE MILLAGE TAX.

The phenomenal growth of population in the State of Washington, hardly realized by the average citizen, becomes astounding when viewed in connection with the State's higher educational institutions. All have grown, some having doubled, while others have even trebled their attendance during the current six-year millage period which will terminate in 1917.

The experts make it clear in their report that if this demand is to be met, even in fairly full measure, a much larger increase of support must be provided for.

Contrary to general belief, Washington's contribution to higher education is not excessive, as is evidenced by the following excerpt from the report of the experts:

Attention is here especially called to the fact that Washington ranks twenty-fourth in Table 4, on the basis of the amount spent on higher education for each \$1,000 of wealth. It ranks twenty-third in Table 6, on the basis of apportionment per capita of the receipts of higher institutions of collegiate grade. It ranks fifteenth in Table 8, on the basis of apportionment per capita of the receipts of higher education, including normal schools. These figures should allay the apprehension of those citizens who have believed that Washington is unduly extravagant in its support of higher education.

The increased demands in the budgets of the different institutions correspond in the main with their respective enrollments.

It is necessary to provide for maintenance on a much larger scale; for larger and better buildings; and to meet the insistent demand for industrial research work in the university, and for extension work and research along agricultural lines in the State college.

The growth of the normal schools is equally remarkable. Particularly is this true with respect to two of them, the normal school at Cheney and the normal school of Bellingham.

The corollary to all this is the insistent demand for an increase in maintenance, buildings, land, and equipment.

The legislature of 1911 passed an act providing a fund for the maintenance of the State institutions of higher education. It was decided to divide this fund in the following manner: Forty-seven and one-half one-hundredths ($47\frac{1}{2}/100$) of 1 mill for the State university fund; thirty-two and one-half one-hundredths ($32\frac{1}{2}/100$) of 1 mill for the Washington State college fund; nine one-hundredths ($9/100$) of 1 mill for the Cheney normal school fund; seven one-hundredths ($7/100$) of 1 mill for the Ellensburg normal school fund; and nine one-hundredths ($9/100$) of 1 mill for the Bellingham normal school fund. The sum of this is 1 mill and five one-hundredths (1.05) of 1 mill.

But this millage can no longer yield an amount sufficient to maintain these institutions and allow them to expand.

After carefully studying their budgets and paring down the demands of the institutions to their lowest possible requirements, the commission recommends the allotment to each institution of the following portions of the millage tax for the next six-year millage period:

To the university ninety one-hundredths ($90/100$) of 1 mill—eighty-five one-hundredths ($85/100$) of 1 mill for maintenance and five one-hundredths ($5/100$) of 1 mill for buildings, which with tuition fees and rental from university properties is to be devoted to a building fund. Because of the unusually large and pressing building needs of the university, due to the growth of the student body and the rapid deterioration of the buildings inherited from the Alaska-Yukon-

Pacific Exposition, it is necessary to meet this continuing emergency by additional provision outside the usual resources. To this end, the commission recommends that those provisions of the act creating the University of Washington building fund, which authorize the charge of a tuition fee of \$10 per student each semester, be continued in force.

To the State college fifty-five one-hundredths ($\frac{55}{100}$) of 1 mill—fifty-one one-hundredths ($\frac{51}{100}$) of 1 mill for maintenance and four one-hundredths ($\frac{4}{100}$) of 1 mill for buildings and repairs to buildings.

To the Cheney normal school fourteen and one-fourth one-hundredths ($14\frac{1}{4}/100$) of 1 mill—twelve one-hundredths ($\frac{12}{100}$) of 1 mill for maintenance, and two and one-fourth one-hundredths ($2\frac{1}{4}/100$) of 1 mill for buildings.

To the Ellensburg normal school twelve and three-fourths one-hundredths ($12\frac{3}{4}/100$) of 1 mill—nine one-hundredths ($\frac{9}{100}$) of 1 mill to be given for maintenance and three and three-fourths one-hundredths ($3\frac{3}{4}/100$) of 1 mill for land, buildings, and improvements.

To the Bellingham normal school eighteen one-hundredths ($\frac{18}{100}$) of 1 mill—fourteen one-hundredths ($\frac{14}{100}$) of 1 mill for maintenance and four one-hundredths ($\frac{4}{100}$) of 1 mill for buildings, land, and equipment.

The sum total of this millage is 1 mill and ninety one-hundredths ($90/100$) of 1 mill.

In conclusion, the commission is of the opinion that, in connection with its work, there is no more complex or difficult problem relating to the State's higher educational institutions than the question of finance. How to maintain them without placing an unduly heavy burden on the taxpayers of the State is a most important and difficult matter. The commission feels certain, however, that with the limited means at hand this effort to meet the needs of the immediate future will be regarded as a serious attempt at the solution of a great problem, even if the result obtained can not be regarded with complacency.

Dated this 27th day of April, 1916.

W. J. SUTTON,
Chairman.

E. E. BONER.

A. H. IMUS.

TOM BROWN.

CHARLES TIMBLIN.

VICTOR ZEDNICK,

Secretary.

REPORT OF THE SURVEY COMMITTEE.¹

INTRODUCTION.

The 1915 Legislature of the State of Washington had before it several bills affecting higher educational institutions. Before final action on these was taken the governor and members of the legislature invited the Commissioner of Education to come to the State and give the legislature the benefit of his advice. In the early part of March the commissioner and the specialist in higher education visited four of the five institutions and attended various hearings held before a subcommittee of the joint committee of the committees on educational institutions and education. The commissioner then made a brief report to the joint committee, in which he recommended a comprehensive survey of the higher institutions, with such general survey of the public school system as might be necessary before legislative action limiting the sphere of any of the institutions was taken. To have charge of the survey he recommended the creation of a legislative commission which should work through experts, and he offered the services of the Bureau of Education in the prosecution of the survey.

In compliance with these recommendations the legislature passed an act creating a survey commission and naming as its members the subcommittee before which the hearings had been held. The commission was instructed to conduct a survey as outlined by the Commissioner of Education and to report to the governor on or before April 30, 1916.

Immediately upon organization the survey commission called upon the Bureau of Education to furnish the expert assistance promised and to take charge of the survey. The Commissioner of Education met with the members of the commission in North Yakima July 5, 1915, and submitted to it an outline of the procedure to be followed. This outline was approved by the commission with a few slight omissions. (It was further slightly amended by the commission in December.) It has served as the basis of this report, practically all matters agreed upon being treated at greater or less length in the following pages.

During the summer and fall of 1915 various members of the Bureau of Education compiled statistics and gathered documentary material bearing on the questions under consideration. A ques-

¹ See note on p. 7.

tionnaire was issued to all the public school teachers in the State, asking information concerning certain other matters of importance in estimating the quality of the State's teaching staff. The recording officers of both the State university and the State college were requested to prepare summaries showing the enrollment in various courses, the teaching hours of the faculties, and the geographical distribution of the students in the different departments, together with certain other statistical material.

In February, 1916, the Commissioner of Education, with the approval of the commission and of the heads of the State higher institutions, appointed the following committee to have charge of the survey on the ground:

Samuel P. Capen, specialist in higher education, United States Bureau of Education, chairman.

Harold W. Foght, specialist in rural school practice, United States Bureau of Education.

Alexander Inglis, assistant professor of education, Harvard University.

The committee began its work in the State on the 4th of March. The task was apportioned among its members in accordance with what appeared to be the peculiar aptitude of each, gained through previous teaching or administrative experience. In view of the fact that the questions which had given rise to the survey related for the most part to the State university and the State college, and that the issues affecting these institutions were the most difficult of adjustment, the majority of the committee's membership was assigned to the study of these institutions. All members of the committee visited each of the five institutions and the office of the State superintendent of public instruction. Messrs. Capen and Inglis devoted the bulk of their attention, however, to the State college and State university, spending somewhat more than a week at each institution. Mr. Foght addressed himself chiefly to the problems of the three normal schools and to the collection of material bearing on the administration of the public school system.

At each institution the committee held conferences with the presidents, deans, financial and recording officers, and heads of departments. It examined the buildings and equipment and reviewed the records of financial and educational operations.

On the 1st of April the Commissioner of Education and the members of the committee met with the survey commission in Seattle, outlined the scope of the report which the committee proposed to make, and exhibited some of the evidence which it intended to use in support of its recommendations. The presidents of several of the State higher institutions were also in attendance. The plans of the committee were approved by the survey commission.

The period between the 1st and the 14th of April was devoted to the preparation of the committee's report, each of the members and the Commissioner of Education contributing one or more chapters. All recommendations were passed upon by the Commissioner of Education and the committee acting in conference. Nearly all were unanimously indorsed.

On the 14th of April the committee met the heads of the five State institutions in Seattle and submitted to them the first draft of the report. The purpose of the conference was to make certain that all statements of fact were, as far as possible, correct, and that no phraseology which might be susceptible of misinterpretation was used. The chairman of the committee continued the conference with the presidents of the State university and the State college in Spokane on the 16th of April, and with the presidents of the normal schools on the 19th of April. As the result of these conferences a few minor verbal changes were made in the report. No recommendation was substantially modified.

On the 15th, 17th, and 18th of April the chairman of the committee met with the commission in Spokane and presented the report.

In the preparation of the statements and recommendations contained in the following pages the committee has held certain considerations constantly in view. In its opinion these may be appropriately summarized by way of introduction.

In the first place, it has taken full account of the legal status of the institutions. The committee has examined, with especial care, the various legislative enactments specifying the functions of the State university and the State college, and has convinced itself that neither institution has exceeded the limits prescribed for it or allowed it by the legislature of the State. Wherever either has offered courses already given by the other, there has been sanction for such duplication in the laws and statutes under which the institutions operate.

Secondly, the committee has been actuated by the conviction that above mere legal justification lie the interests of the State. The determination of the way in which its institutions may serve the State most efficiently is the primary purpose of the investigation in which the committee has been called to assist. The framers of the several acts establishing and prescribing the spheres of the college, the university, and the normal schools sought to provide for the social needs of their time as these needs were then interpreted. The committee has endeavored to study present needs and those of the immediate future which the higher institutions must meet. Several factors have been kept always in mind. Although these are familiar to most citizens, the committee ventures to enumerate them here. They are: (1) The vast

¹ For a detailed account of these prescriptions, see ch. 6, p. 82 et seq.

natural resources of the State, the development of which will demand unusually large numbers of persons scientifically trained in agriculture and engineering, and will depend upon the continued progress of scientific knowledge in these fields; (2) the great size of the State; (3) the separation of its population by a barrier of mountains and arid territory into two relatively compact groups and the consequent development of strong sectional consciousness; (4) the germination of what promises to be a phenomenally varied and dynamic industrial and commercial activity in one of these groups; (5) the demonstrable need of a larger number of well-trained elementary teachers, especially for the schools of the open country

In the light of these facts, and guided by its conviction that the service of the State is the touchstone by which every educational policy must be tested, the committee offers a number of recommendations which contemplate the clearer definition of the spheres of the State institutions and the partial redistribution of their functions. It is persuaded that these recommendations will, if adopted, be the means of saving some future expense. But, more especially, the committee believes that these recommendations will effect a unity both of organization and of purpose in the State system of higher education that has not characterized the system thus far.

In delivering its findings to the survey commission, which has authorized its investigation, the committee would like to record its grateful appreciation of the consideration with which it has everywhere been received. The officers of the institutions examined have answered inquiries with the greatest frankness and have shown a constant desire to help the committee arrive at the truth. The registrars, bursars, and other executives have been indefatigable in the preparation of the information called for. Indeed, without their ready and efficient cooperation the preparation of this report in the time allotted would have been impossible. The commission itself has placed every possible facility at the committee's disposal, has allowed it to conduct the investigation without interference or suggestion, and has accorded its members every courtesy.

SECTION I.—RELATIONS OF THE STATE UNIVERSITY AND THE STATE
COLLEGE TO THE STATE SYSTEM OF PUBLIC EDUCATION
AND TO EACH OTHER.

Chapter I.

GENERAL CONSIDERATION OF HIGHER EDUCATION IN WASHINGTON,
WITH INCIDENTAL TREATMENT OF SECONDARY EDUCATION.

All institutions, whether publicly or privately controlled, which undertake the education of the children of a State and to which the children are admitted without distinction of class or creed must be reckoned among the State's educational resources. The attempt is made in this introductory chapter to give a brief account, chiefly statistical, of Washington's agencies for secondary and higher education, both public and private, and to show in a general way what the contribution of each group has been. In this review special attention is naturally accorded to the State-supported higher institutions, because it is with these that the report is mainly concerned. The committee is of the opinion, however, that these institutions can not be fairly judged unless seen in their full educational setting. In particular must they be viewed against the background of the secondary schools. The State-supported higher institutions of Washington are part of the system of public education. Their connection with both the public and the private secondary schools of the State is close and definite. The character of the courses which they offer to entering students is conditioned by the work of the secondary schools. All but a small percentage of their students are drawn from these schools. Indeed, the number of students entering the State higher institutions is determined, for the most part within limits that can be foreseen, by the number enrolled in the various types of secondary schools. In other words, State higher education in Washington, as in many other States, rests almost entirely upon facilities for secondary education provided *within the State*. Fundamental, therefore, to any consideration of higher education is the knowledge of certain important facts concerning the secondary schools of the State.

SECONDARY EDUCATION IN WASHINGTON.

The population of Washington was 357,232 in 1890; 518,103 in 1900; 1,141,990 in 1910; and 1,407,865 (estimated) in 1914.¹

¹ The year 1914 is used here instead of 1915 because it is possible to get more complete educational statistics for the former year.

In the period between 1905 and 1910 it increased 91 per cent, and in the period between 1910 and 1914 it increased 23 per cent, a truly phenomenal growth for nine years. Within this interval of nine years, however, the school population did not increase so rapidly. Between 1905 and 1910 the school population increased 70½ per cent, and between 1910 and 1914, 23 per cent.

For the past 19 years the enrollment in public and private secondary schools of the State has increased quite out of proportion to the rate of growth of the school population, and at a rate which far outstrips

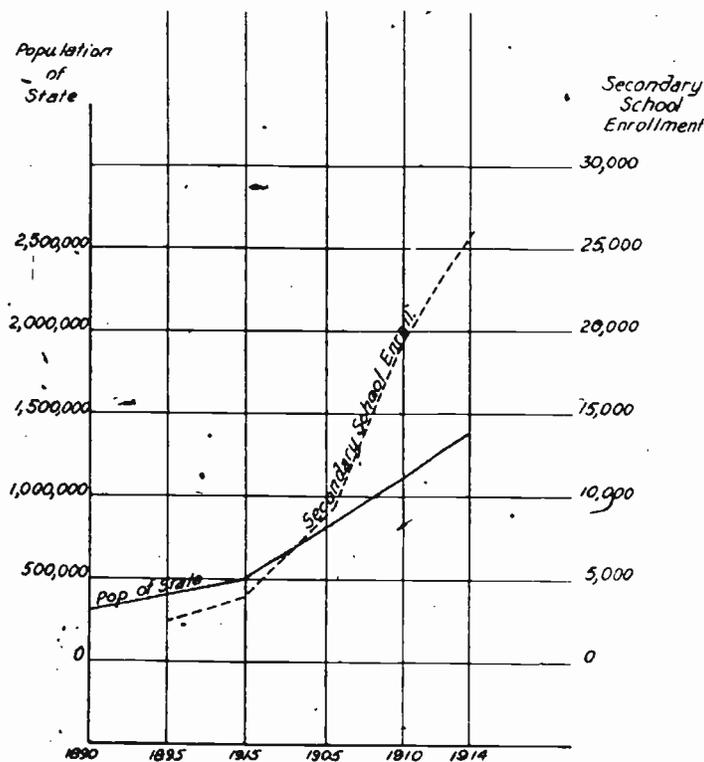
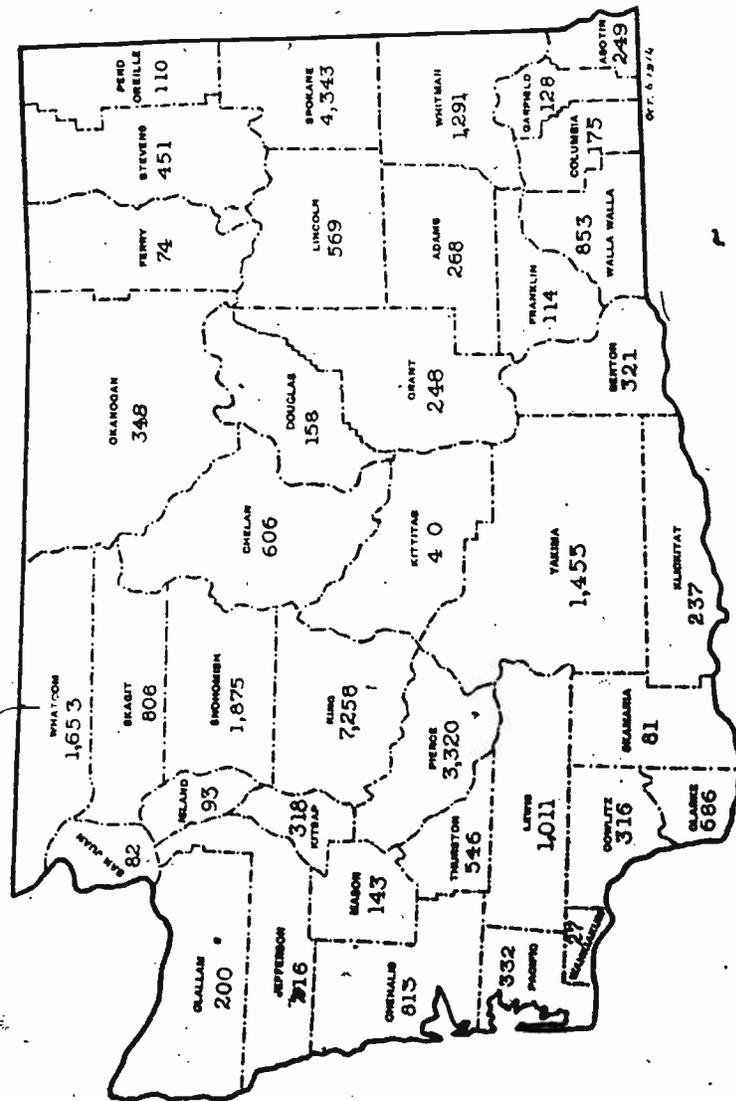


DIAGRAM 1.—Growth in population and in secondary-school enrollment.

even the rapid rate of increase in the population itself. Indeed, the relative growth in secondary-school enrollment in Washington surpasses that recorded in any other one of 15 States recently studied by the Bureau of Education, all of which were known to have made particularly rapid progress in the development of facilities for secondary education. Between 1895 and 1900 secondary-school enrollment in Washington increased 65 per cent; between 1900 and 1905, 119 per cent; between 1905 and 1910, 112 per cent; and between 1910 and 1914, 26 per cent. Stated in actual figures, the increase is no less astonishing. There were 2,564 pupils in secondary schools

in 1895; 3,989 in 1900; 8,732 in 1905; 19,522 in 1910; and 26,036 in 1914.¹

Appended are a table, diagram, and map, illustrating the facts just presented. Table 1 shows the percentage of change in population,



MAP 1.—County distribution of high-school enrollment.

school population, and secondary-school enrollment in 15 States from 1895 to 1914. Diagram 1 shows the curve of secondary-school enrollment from 1895 to 1914 applied to the curve of population.

¹ Figures reported by the U. S. Commissioner of Education.

In spite of the extremely rapid growth in secondary-school enrollment, Washington did not show in 1913-14, the last year recorded in the published statistics of the Bureau of Education, as large a percentage of the whole number of pupils in secondary schools as California, the District of Columbia, or Massachusetts. In California 11.7 per cent, in the District of Columbia 11.18 per cent, and in Massachusetts 10.88 per cent of the whole number of pupils were enrolled in secondary schools; in Washington, 10.45 per cent. Moreover, 12 other States reported in the same year a larger percentage of the total population enrolled in the secondary schools. Remarkable as has been the numerical growth of secondary education in Washington therefore, the State has not yet attained preeminence even in point of numbers.

TABLE 1.—Gain and loss in population, school population, and secondary enrollment, 1895 to 1914.

(Italic figures show percentage of loss.)

Years.	IOWA.			GEORGIA.			NORTH CAROLINA.		
	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.
1895.....	2,064,000	622,600	26,413	1,954,000	693,700	12,201	1,719,000	607,740	8,543
1900.....	2,231,858	662,520	35,575	2,216,331	786,920	11,250	1,863,810	669,530	9,570
Per cent.....	8.13	6.41	34.68	13.42	13.44	7.79	10.17	10.17	12.02
1905.....	2,391,633	681,376	39,529	2,465,821	802,582	12,297	2,031,740	675,960	10,108
Per cent.....	7.16	2.84	11.11	8.55	1.99	9.31	7.28	0.96	5.62
1910.....	2,224,771	634,000	46,262	2,609,121	830,180	16,625	2,206,287	690,050	15,617
Per cent.....	6.37	6.94	17.00	8.45	3.36	35.22	8.69	2.08	54.55
1914.....	2,221,755	583,655	51,929	2,778,513	886,818	21,501	2,339,452	761,900	21,193
Per cent.....	0.15	7.94	12.25	6.41	6.82	29.34	6.03	10.41	35.72
TENNESSEE. ILLINOIS. MINNESOTA.									
1895.....	1,857,000	624,500	14,472	4,387,000	1,240,000	36,440	1,626,000	470,500	11,679
1900.....	2,020,616	691,570	15,697	4,821,550	1,362,700	47,525	1,751,294	500,770	15,635
Per cent.....	8.81	10.74	8.47	8.90	9.80	31.19	7.71	7.71	33.87
1905.....	2,147,166	696,878	13,248	5,319,150	1,455,831	57,278	1,971,948	579,356	22,090
Per cent.....	6.26	0.68	15.61	10.32	6.83	19.77	12.59	14.32	41.34
1910.....	2,184,789	697,132	20,083	5,638,591	1,400,648	75,979	2,075,708	610,258	32,042
Per cent.....	1.75	1.49	51.59	6.01	4.17	32.65	5.26	5.33	45.00
1914.....	2,254,754	677,102	24,525	5,986,781	1,473,347	86,329	2,213,919	599,529	42,356
Per cent.....	3.20	2.87	22.12	6.17	4.52	17.57	6.66	7.76	32.19
MICHIGAN. WASHINGTON. CALIFORNIA.									
1895.....	2,241,641	618,500	24,354	474,900	107,800	2,980	1,396,000	329,700	12,976
1900.....	2,384,000	661,940	30,991	518,103	106,690	4,924	1,485,053	352,270	17,173
Per cent.....	6.35	7.35	27.96	9.09	0.80	68.06	6.84	8.85	32.36
1905.....	2,257,279	691,743	35,969	598,538	161,370	9,719	1,620,898	370,048	23,461
Per cent.....	7.27	4.50	16.06	15.63	39.33	97.28	6.15	6.05	63.75
1910.....	2,610,173	738,747	42,200	1,141,990	268,068	20,674	2,377,549	540,081	41,358
Per cent.....	0.49	0.69	20.10	90.80	70.50	111.70	46.69	45.94	46.00
1914.....	2,976,030	732,103	64,322	1,407,865	306,463	27,960	2,767,896	636,135	61,268
Per cent.....	5.90	3.61	25.45	23.28	19.52	36.00	18.00	0.73	47.43

In this connection it should be noted that the per cent of children of school age in the total population of Washington is unusually small.

TABLE 1.—Gain and loss in population, school population, and secondary enrollment, 1895 to 1914—Continued.

Years.	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.	Popu- lation.	School popu- lation.	Sec- ondary enroll- ment.
	UTAH.			MASSACHUSETTS.			NEW YORK.		
1895.....	264,900	85,960	3,300	2,474,000	565,600	33,689	6,390,000	1,570,000	50,889
1900.....	276,749	81,810	4,400	2,805,346	641,500	42,691	7,268,012	1,786,000	62,667
Per cent.....	4.47	4.48	33.33	13.39	13.42	26.72	13.72	13.76	62.43
1905.....	309,734	100,911	5,424	3,068,546	686,275	53,808	7,901,754	1,900,100	100,613
Per cent.....	11.92	12.36	32.36	10.16	6.98	24.87	8.72	8.83	21.72
1910.....	373,351	121,712	6,146	3,366,416	727,344	63,072	9,113,614	2,067,017	131,166
Per cent.....	20.54	20.62	39.87	8.99	5.98	18.32	15.34	9.36	30.37
1914.....	414,518	120,376	10,969	3,605,522	804,752	81,339	9,969,761	2,251,206	162,902
Per cent.....	11.03	7.10	34.65	7.10	10.64	24.14	8.63	8.91	24.20
	OHIO.			CONNECTICUT.			PENNSYLVANIA.		
1895.....	3,788,000	1,074,700	42,182	799,500	188,160	8,660	5,824,000	1,626,000	35,117
1900.....	4,157,545	1,179,600	56,290	908,377	213,900	10,631	6,302,118	1,769,800	46,637
Per cent.....	9.76	9.76	33.47	18.62	13.63	26.22	8.17	8.20	33.39
1905.....	4,400,155	1,163,841	65,781	989,800	226,892	12,536	6,824,113	1,810,438	60,049
Per cent.....	5.84	7.12	18.86	8.83	6.12	14.69	8.28	2.91	28.20
1910.....	4,767,121	1,075,684	70,899	1,114,766	265,379	16,626	7,668,111	1,891,608	78,808
Per cent.....	8.81	7.88	6.61	12.66	12.81	31.81	10.97	4.48	31.34
1914.....	5,028,894	1,188,359	82,267	1,202,688	275,897	22,874	8,246,967	2,064,894	104,670
Per cent.....	3.46	10.48	16.06	7.89	8.07	38.43	7.66	8.68	33.34

It should be observed that secondary education in Washington is thus far principally public education. Private secondary schools are not numerous and enroll considerably less than 10 per cent of all pupils. In the foregoing summaries private secondary schools are included; nevertheless, the Washington system may be regarded as predominantly a public system.

The incompleteness of the development of Washington's public secondary-school facilities is still further manifest when its secondary institutions are considered from another angle. In the last scholastic year, 1914-15, there were 511 public high schools, enrolling a total of 32,244.¹ For the purpose of this study they may be classified as follows:

Four-year accredited high schools.....	153
High schools accredited for less than four years.....	30
Unaccredited high schools.....	328

Somewhat more than 27,000 pupils are enrolled in the four-year accredited schools, approximately 85 per cent of the total number of high-school pupils.

It appears, then, that the standards and equipment of more than two-thirds of the high schools of Washington do not yet justify their

¹ Taken from the report of the State superintendent of public instruction. The enrollment figures of the superintendent are, for all the years cited in the foregoing summaries, somewhat larger than the figures appearing in the report of the Commissioner of Education. For the sake of comparisons that may be made with other States, however, the figures reported by the United States Commissioner of Education have generally been used in this report.

approval by the State board of education. It is a fair deduction from this fact that more than two-thirds of the communities maintaining high schools are served by schools which are, up to the present, high schools in little more than name. Later in the report this phase of Washington's educational system will be discussed at greater length. At this point it is sufficient to indicate that the State may look forward with reasonable certainty to the continuance of the rapid development of its high-school facilities and to large increases in high-school enrollments. The character of its population and the generous support that they have always accorded to the public schools furnish ample grounds for the belief that the State will be satisfied with nothing less than a system of secondary schools which puts the opportunity for a complete high-school education within the reach of every boy and girl of appropriate age. The statistics just cited imply that this condition does not yet obtain.¹

HIGHER EDUCATION IN WASHINGTON.

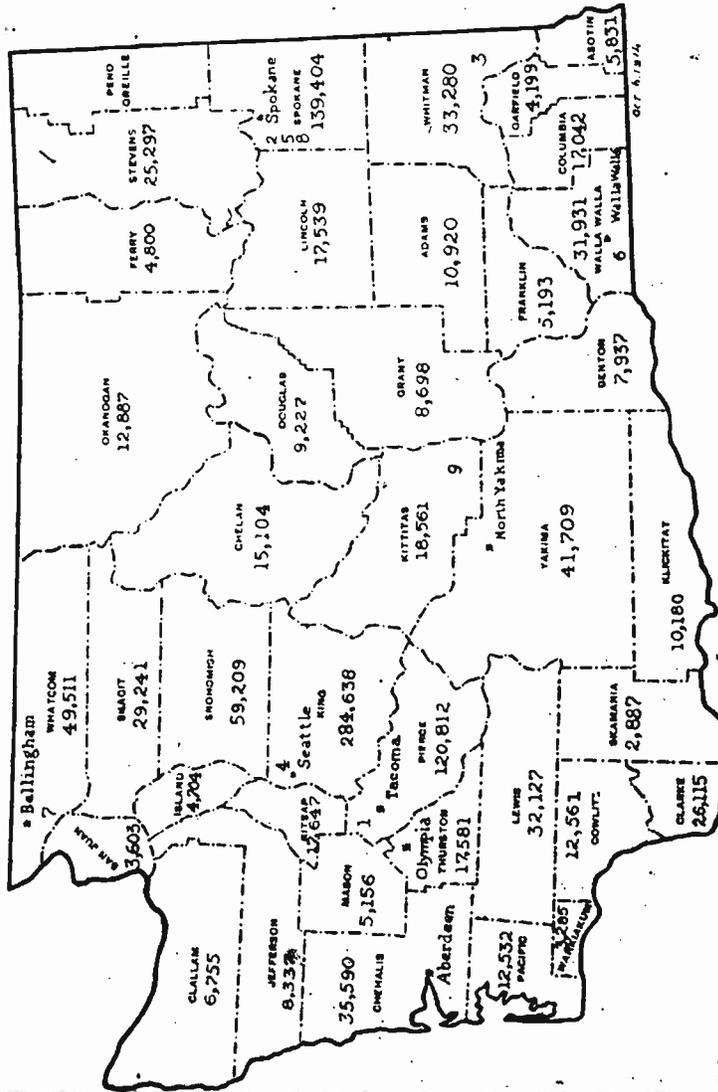
The Bureau of Education lists six institutions of collegiate rank in Washington.² These are the College of Puget Sound, Gonzaga University, the State College of Washington, the University of Washington, Whitworth College, and Whitman College. By acts of the legislature the State normal schools at Bellingham, Cheney, and Ellensburg are designated as parts of the State's system of higher education and are classed with the State college and State university. Although normal schools are not generally included in the bureau's list of collegiate institutions, and although the Washington normal schools do not in one respect meet the definition just cited, they will in this discussion be added to the institutions mentioned above. The accompanying map shows the location of all these institutions, the population of the several counties according to the census figures of 1910, and the locations of some of the largest cities. It is interesting to note that each of the three principal cities has one or more colleges located within its limits and that the grouping of higher institutions (normal schools being included) follows much more closely than is the case in most States the centers of gravity in population. Five are situated on the east side, one in the center, and three on the west side of the State. One normal school is conveniently placed in each of the three chief geographical divisions.

Various lines of higher liberal, specialized, and professional training are offered by these nine institutions. The extent to which they

¹ The map on p. 27 shows the distribution of the high-school enrollment, by counties.

² To be included in the bureau's collegiate list an institution must be authorized to give degrees, must have definite standards of admission, must give at least two years' work of standard college grade, and must have at least 20 students in regular college status.

1. College of Puget Sound.
2. Gonzaga University.
3. Washington State College.
4. University of Washington.
5. Whitworth College.
6. Whitman College.
7. Bellingham State Normal School.
8. Cheney State Normal School.
9. Ellensburg State Normal School.



provide similar or identical courses leading to the several higher degrees and certificates is indicated by the following summary:

Colleges of arts and sciences (liberal arts).....	6 (2 State institutions.)
Colleges of law.....	2 (1 State.)
Colleges of veterinary medicine.....	1 (State.)
Colleges or departments of pharmacy.....	2 (State.)
Schools or departments of civil engineering.....	3 (2 State.)
Schools or departments of chemical engineering.....	2 (State.)
Schools or departments of electrical engineering.....	3 (2 State.)
Schools or departments of mechanical engineering.....	3 (2 State.)
Schools or departments of mining engineering.....	3 (2 State.)
Colleges of agriculture.....	1 (State.)
Colleges or departments of forestry.....	2 (State.)
Departments of architecture.....	2 (State.)
Departments of journalism.....	1 (State.)
Departments of music (degree courses).....	3 (2 State.)
Schools or departments of home economics.....	4 (2 State.)
Schools of education or courses in education preparing for State certificates.....	7 (5 State.)
Summer schools.....	6 (5 State.)

Four of the collegiate institutions, one of them a State institution, maintain subcollegiate departments. All three normal schools are under the law required to offer courses for tenth-grade students.

Several significant facts appear at once from this summary. First, more institutions, public and private, are engaged in the training of teachers than in any other branch of higher education. Second, aside from liberal arts and teacher training, the only fields of higher education entered by private institutions are law, engineering, music, and home economics; and but one private institution offers degree courses in each of the first three of these subjects. Third, the important fields of veterinary medicine, pharmacy, agriculture, forestry, architecture, and journalism are cultivated by State institutions alone. Fourth, the two State institutions of collegiate rank give professional courses in pharmacy, all branches of engineering, forestry, architecture, music, and home economics. In other words, there is duplication of specialized training at State expense in nine different professional lines. The wisdom of this duplication will be discussed later.

The increase in the enrollment in Washington higher institutions has been no less amazing than the growth of secondary schools. The following table shows the numbers in State and private colleges and in normal schools at five-year periods from 1895 to 1914. The diagrams appended, 2, 3, and 4, illustrate various aspects of these increases and indicate the relation between the higher institutional enrollments and the growth in population.

TABLE 2.—Students in higher educational institutions.

Years.	Collegiate students.			Normal.	Grand total.
	State.	Private.	Total.		
1894-95.....	233	228	461	225	686
1899-1900.....	500	200	700	830	1,030
1904-5.....	1,001	399	1,400	1,112	2,512
1909-10.....	2,438	472	2,910	1,268	4,178
1913-14.....	3,070	562	3,632	1,569	5,201

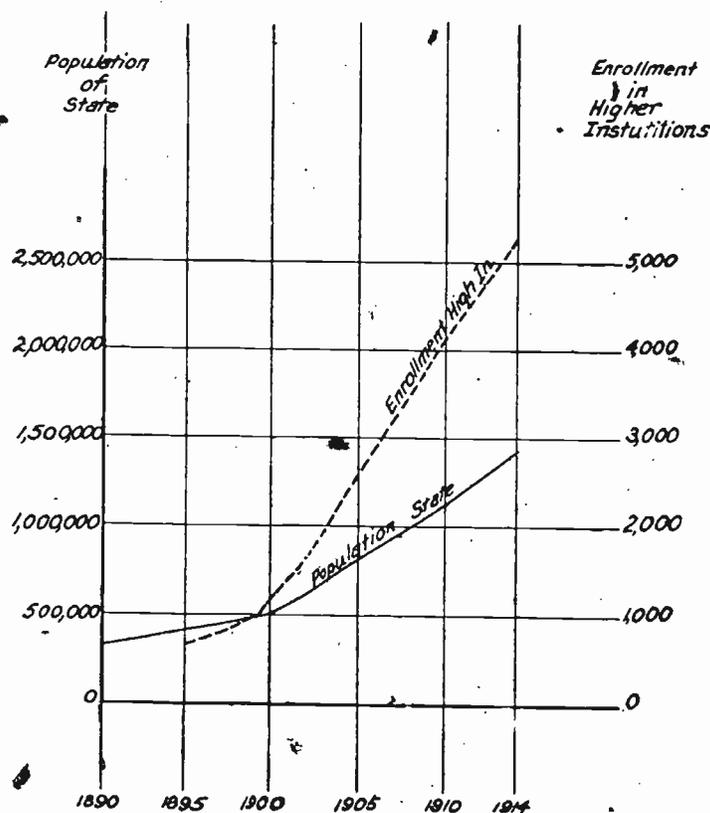


DIAGRAM 2.—Growth in population and in enrollment in higher institutions.

It is, however, when the enrollment in the higher institutions is compared with that in secondary schools that the most surprising developments are observed. It appears, then, that between 1900 and 1905, the period of most rapid growth in secondary education, both the State and private colleges increased approximately 100 per cent, that the normal schools increased almost 350 per cent, and that the higher institutions taken together increased almost 150 per cent.

34 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

In the following lustrum, while the per cent of increase for all higher education taken together is less (67 per cent), State institutions increased about 140 per cent. Between 1910 and 1914 the per cent of increase both for State institutions and for private institutions, although not so great as in the two preceding five-year periods, is still large. The great growth in secondary and higher institutions, it will be observed, has been simultaneous, and higher institutions have

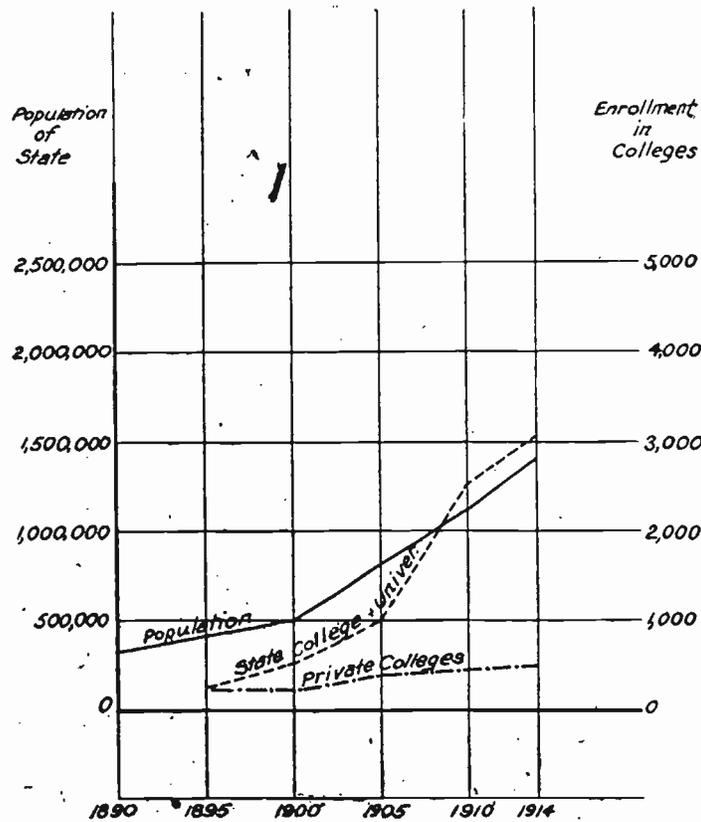


DIAGRAM 3.—Enrollment in growth in population and in State and private colleges.

increased at an even more rapid rate than secondary schools. This development is entirely unexpected and quite unlike the usual course of evolution of a State educational system. As a rule the expansion of collegiate enrollments follows a few years behind the growth of secondary-school enrollment.

Comparing Washington with other States, it appears that in spite of this swift and sudden growth Washington does not rank high in the percentage of students enrolled in higher institutions. In 1913, 15

other States showed a larger per cent of the whole number of pupils in higher institutions, and 20 other States recorded a larger per cent of the total population receiving higher education.¹

The summary on page 33 and diagram 3 reveal one other fact of far-reaching importance, namely, the higher education in Washington is thus far preponderatingly State education. This fact is really fundamental to whatever recommendations the survey commission

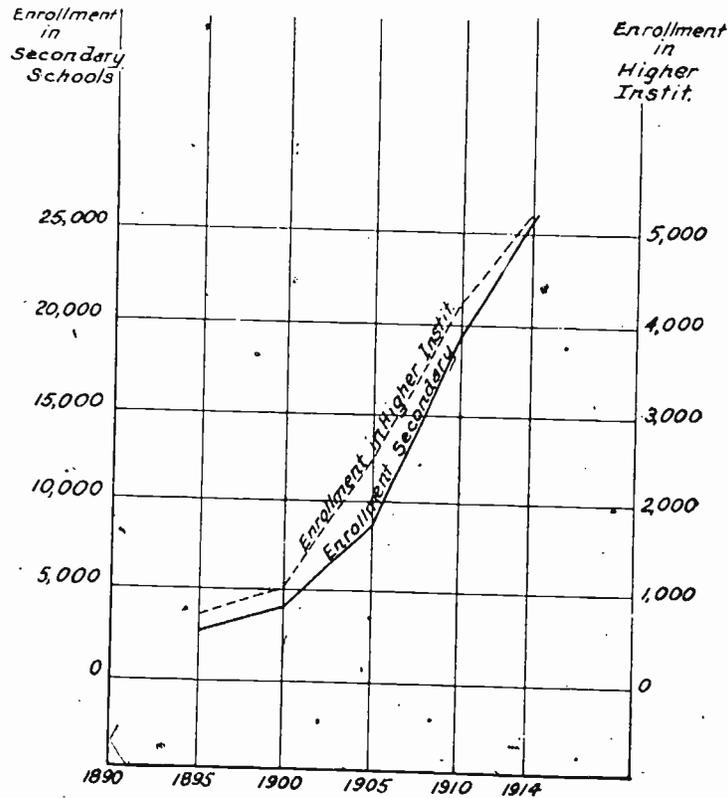


DIAGRAM 4.—Relative increases in enrollments in secondary and higher institutions.

may see fit to make and to the treatment the legislature may decide to accord to the State-supported higher institutions. More than 80 per cent of all the students enrolled in higher institutions are in State institutions. The working income of private institutions (exclusive of additions to endowment) is but 12 per cent of the total sum spent for higher education in Washington. The rate of growth of private institutions has thus far been relatively sluggish.

¹ But, as has been noted, the percentage of persons of school age is low in Washington.

An interesting forecast of what the State may expect in the way of numerical increase of both secondary and higher education is found by continuing upward to 1925 the curves shown in diagrams 5 and 6. While precisely these conditions may not obtain, it is a safe assumption that these projected curves represent approximately what the

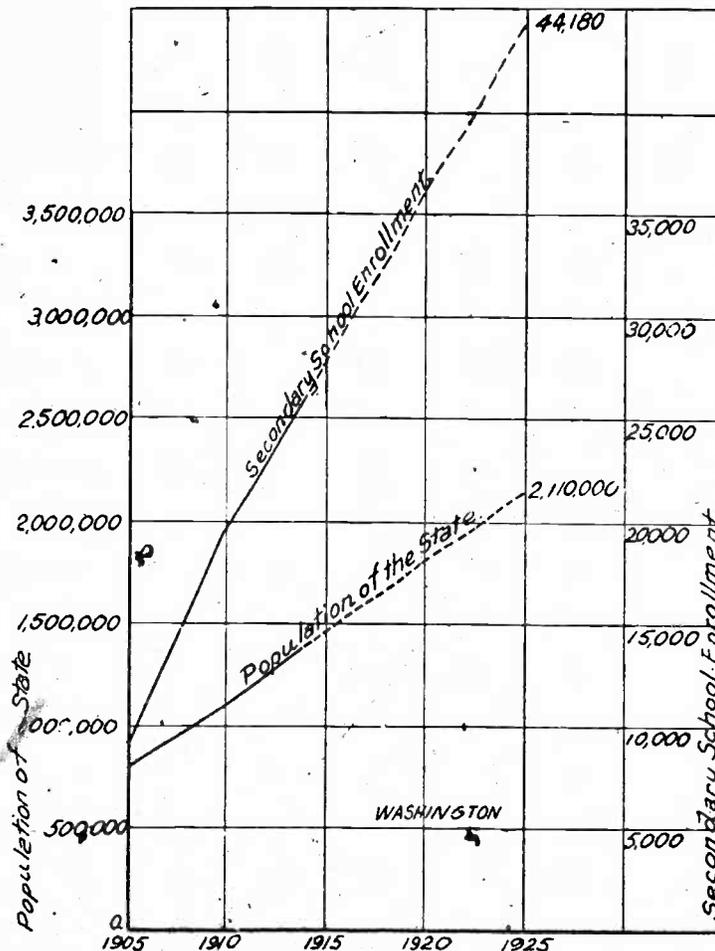


DIAGRAM 5.—Projected curves of population and secondary school enrollment.

State may look forward to. Unless the committee has been misinformed, all previous estimates made by school officers of the increases to be anticipated within a given biennium have been too low. In any event the State must contemplate very large additions to its expenditures for both secondary and higher education if it desires to maintain its position among the educationally progressive States of the Union.

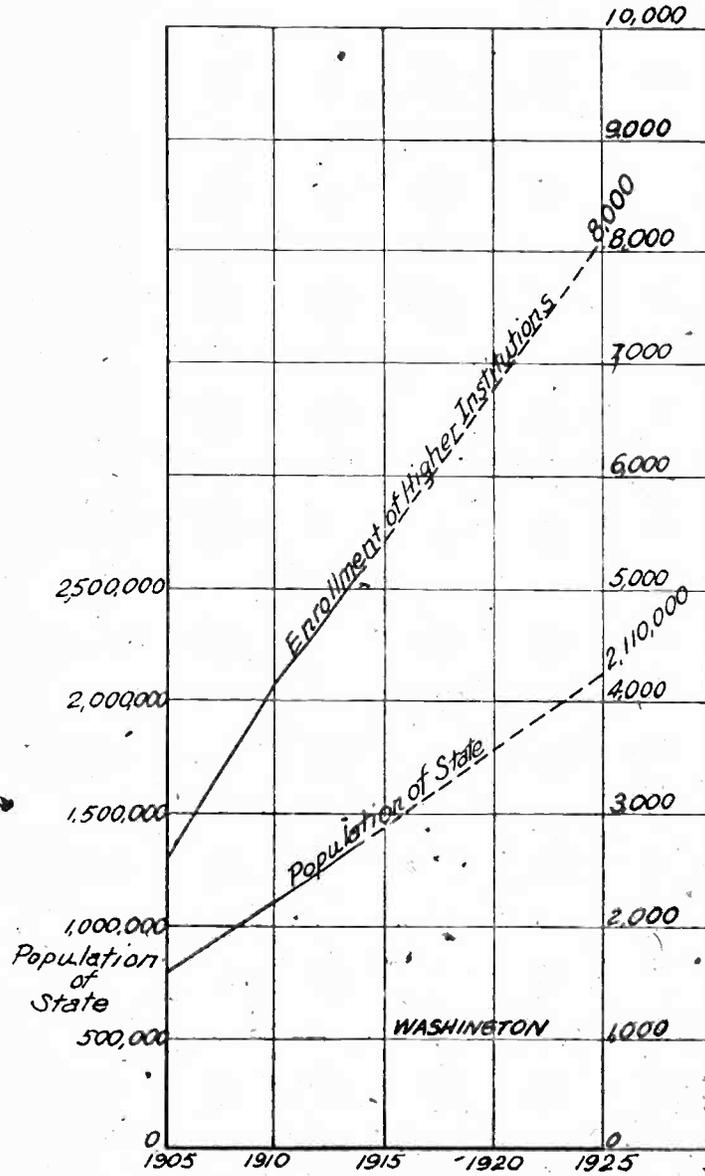


DIAGRAM 6.—Population of State and enrollment in higher institutions.

RELATIONS OF HIGHER INSTITUTIONS TO SECONDARY SCHOOLS.

In this outline of the State's provision for higher education the relations between the higher institutions and secondary schools properly demand brief mention. Admission to the degree courses of the State university and State college is based on graduation from an accredited high school or equivalent preparation, except in the case of the schools of pharmacy, veterinary science, and music at the State college. The entrance requirement for these schools is but two years of high-school work.¹ The normal schools under the law are required to admit graduates of the eighth grade, if of sufficient maturity. As a matter of practice, however, the lowest regularly established courses in the normal schools presuppose the completion of the tenth grade, and the great majority of applicants for admission to the normal schools are high-school graduates. Of the privately supported colleges all but one maintain preparatory departments. The principal object of each of these departments is to fit students for the college to which it is attached. As far as the relation of the college departments of these institutions to the public secondary schools is concerned, the tendency of all but one appears to be to follow the standard set up for the degree courses of the State institutions and to demand for entrance the completion of the course in an accredited high school or its equivalent. While there is substantial parity between the higher institutions, except the normal schools,² with respect to the *amount* to be required for entrance, there is wide variation in the subjects actually demanded of entering students. It may possibly be wise institutional policy for colleges maintaining technical curricula or dedicated to the attainment of individual and peculiar educational purposes through the medium of courses in liberal arts to impose special entrance requirements different from those of neighboring institutions, which are fed by the same secondary schools; but the committee is unable to see the justification for essential variation in the requirements laid down by two State institutions for admission to identical courses.

From facts brought out in the foregoing pages certain generalizations can safely be made. Both systems, the secondary and the higher, have grown so fast that it has thus far been impossible to render either thoroughly substantial. The majority of schools in the secondary system are still small and undeveloped, but, as already noted, 85 per cent of the students are enrolled in accredited schools. The growth of the higher institutions, especially the university and two of the normal schools, could hardly have been foreseen and must have proved a veritable embarrassment to any institution, however soundly established. In the chapter of accidents which have deter-

¹ This is the usual requirement in similar schools elsewhere.

² See the proposals of the committee regarding changes in entrance requirements for the normal schools made on p. 174 et seq. These changes have the indorsement of the schools.

mined the location of higher institutions in the United States, Washington has fared much better than its neighbors. Nearly all of its higher schools have undisputed spheres of influence, which bear somewhat logical relations to geographical conditions and the distribution of population. The State's higher institutions of collegiate rank, however, duplicate to an extent scarcely paralleled in the United States technical and professional courses and courses in the liberal arts. Academic standards as evidenced by entrance requirements are similar for both public and private institutions, except the normal schools. Yet the special requirements of individual institutions present unnecessary variations, tending to defeat the unity of purpose in State higher education. Private institutions of both higher and secondary grade are in a small minority. Both higher and secondary education are, to an extent found only in a few States, publicly supported and controlled.

Too much emphasis can hardly be laid upon this last-mentioned fact, and upon its bearing on the substance of this report. Whatever the future may bring forth, Washington must recognize that for the present, and, probably, indeed for a long time to come, the higher education of its citizens is to be accomplished mainly through the agency of State institutions. The responsibility rests upon the State to provide opportunities for higher education equal to the demand, commensurate with the provision for other forms of education and with the outlay for higher education in other States, consonant with the progressive spirit and high ideals of the people. A well-supported, well-coordinated State university system is called for.¹ Has the State such a system to-day? Certain of the broader phases of this question are discussed in the following chapters.

Chapter II.

SUPPORT OF HIGHER EDUCATION IN WASHINGTON AND IN OTHER STATES.

The figures presented in the accompanying tables and diagrams furnish a striking revelation of the extent to which Washington is supporting its higher institutions in comparison with other States. Expenditures for both private and public higher institutions are included. In many of the older States higher education has been left largely to private initiative, and is endowed and supported for the most part by private benefactions. Nevertheless, the institutions on private foundations are as truly public agencies for higher training as are State-supported institutions. The existence of them

¹ For a fuller discussion of the term "University system" see Chs. VII and VIII.

relieves the State of the necessity of providing similar facilities at public expense. Moreover, the fact should not be overlooked that to a large degree the citizens of the State pay for private as well as public institutions. The fees and other charges imposed upon students are met by the students themselves or by their parents, and such collections constitute a considerable portion of the resources of most private institutions. Even the benefactions upon which privately supported institutions also rely are likely to come from the citizens of the State. The taxation for the support of private higher institutions may be indirect and so distributed in time as to escape recognition. Yet, it is in a very real sense a fiscal burden which the citizens of the State must bear. On the other hand, States which have few private institutions must, of necessity, meet the demands of their people by the provision of public institutions. Allowing for variations produced by certain peculiar State conditions,¹ the following tables make possible a fairly reliable comparison of the generosity of the States in the matter of the support of higher education.

Table 3 shows the total wealth of the States in 1912, the last year for which it was possible to secure an estimate, the amount spent for higher education in the following academic year, and the amount spent for higher education for each \$1,000 of wealth. Table 4 shows the rank of the States with respect to the expenditure recorded in column 3 of Table 3. Table 5 shows the population of each State, the receipts of higher educational institutions (excluding normal schools),² and the apportionment per capita among the citizens of the States of the receipts of higher institutions.³ Table 6 shows the rank of the States with respect to per capita apportionment of receipts of higher education. Tables 7 and 8 show the per capita apportionment of the receipts of higher education with the inclusion of the expense of normal schools.

Attention is here especially called to the fact that Washington ranks twenty-fourth in Table 4 on the basis of the amount spent on higher education for each \$1,000 of wealth. It ranks twenty-third in Table 6 on the basis of apportionment per capita of the receipts of higher institutions of collegiate grade. It ranks fifteenth in Table 8 on the basis of the apportionment per capita of the receipts of higher education, including normal schools. These figures should

¹ For example, the high rank of Delaware in Tables 4, 6, and 8 is due to the fact that the State in the year under consideration made large appropriations for the sound establishment of the State college. The high rank of Massachusetts in the same tables is not altogether significant, because Massachusetts contains many less-established wealthy institutions and in turn educates a large proportion of the young people of the whole Northeast.

² In the summaries prepared by the United States Commission of Education, from which the material for these tables has largely been drawn, normal schools are not included with higher institutions.

³ The figures on the map on p. 22 show the apportionment for 1913.

allay the apprehension of those citizens who have believed that Washington is unduly extravagant in its support of higher education.

In nearly all States which maintain large State institutions the State expenditure for higher education has increased rapidly in the last 25 years. Legislatures have frequently felt some reluctance to make the ever-increasing appropriations requested by institutional authorities. Nevertheless, with surprising unanimity the State law-making bodies have in the end granted the larger part of these demands. Indeed, not only have State appropriations for higher education grown steadily from year to year, or from biennium to biennium, in nearly all the Western and middle Western States, but the proportion of the total State appropriations which is devoted to higher education has increased steadily also. The accompanying diagrams indicate for the States of Ohio, Indiana, Illinois, Iowa, Michigan, Wisconsin, Minnesota, Kansas, Montana, Texas, Oregon, and Washington the relation which State expenditures for higher education have borne to total State expenditures from 1890 to 1914.¹ The significant aspect of these diagrams is the divergence between the curve for State expenditures and that for higher education. It will be observed that in most States the rate of increase in expenditure for State-supported higher education has been very much more rapid than the rate of increase in total State appropriations reported by the State treasurer. It will be noted also that the relative rate of increase in Washington has been much less than, for instance, in Illinois, Iowa, Kansas, Nebraska, or Wisconsin.

¹ The reader of this document should be cautioned not to draw from the figures or the percentages which form the basis of these diagrams any conclusions as to the ratio which the expenditures for higher education bear to the total outlay for public purposes within a given State. Variations between the States in methods of collecting and disbursing public funds have made impossible any comparison of the whole amounts spent for public purposes by two or more States, including all their administrative divisions. The only statements of State expenditures available were those contained in State treasurers' reports. These include widely varying lists of items, according as the disbursements for certain purposes are or are not made through the office of the State treasurer. Nevertheless, in most cases the group of expenses handled through the State treasurer's office remains the same from year to year.

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TABLE 3.—Amount expended for higher education for each \$1,000 of wealth.

[Based on the estimated true value of all taxable property, United States Census, 1912, and total receipts of universities, colleges, and normal schools as shown in the Report of the Commissioner of Education.]

States.	Total wealth in 1912.	Spent for higher education, 1913-14.	Spent per \$1,000.
Alabama	\$2,050,000,000	\$1,323,000	\$0.65
Arizona	487,000,000	601,000	1.23
Arkansas	1,758,000,000	524,000	.30
California	8,053,000,000	5,458,000	.68
Colorado	2,286,000,000	1,142,000	.50
Connecticut	2,154,000,000	2,708,000	1.25
Delaware	294,000,000	1,149,000	3.88
Florida	1,016,000,000	449,000	.44
Georgia	2,299,000,000	1,407,000	.61
Idaho	591,000,000	417,000	.71
Illinois	14,596,000,000	9,774,000	.68
Indiana	4,951,000,000	2,089,000	.42
Iowa	7,437,000,000	3,815,000	.51
Kansas	4,394,000,000	2,327,000	.53
Kentucky	2,152,000,000	1,077,000	.50
Louisiana	2,057,000,000	1,122,000	.55
Maine	1,030,000,000	948,000	.92
Maryland	2,002,000,000	1,898,000	.95
Massachusetts	5,735,000,000	8,445,000	1.47
Michigan	5,109,000,000	3,799,000	.73
Minnesota	5,297,000,000	4,140,000	.79
Mississippi	1,306,000,000	1,140,000	.87
Missouri	5,546,000,000	2,314,000	.42
Montana	1,113,000,000	540,000	.48
Nebraska	3,505,000,000	1,842,000	.51
Nevada	441,000,000	236,000	.54
New Hampshire	613,000,000	1,130,000	1.84
New Jersey	5,362,000,000	2,068,000	.39
New Mexico	502,000,000	308,000	.60
New York	21,913,000,000	16,139,000	.74
North Carolina	1,745,000,000	1,644,000	.94
North Dakota	2,038,000,000	1,250,000	.61
Ohio	8,552,000,000	4,817,000	.56
Oklahoma	4,321,000,000	845,000	.19
Oregon	1,843,000,000	1,232,000	.67
Pennsylvania	14,137,000,000	7,673,000	.54
Rhode Island	893,000,000	503,000	.56
South Carolina	1,301,000,000	1,569,000	1.21
South Dakota	1,331,000,000	990,000	.72
Tennessee	1,834,000,000	1,461,000	.80
Texas	6,552,000,000	3,223,000	.49
Utah	735,000,000	515,000	.70
Vermont	797,000,000	482,000	.60
Virginia	2,175,000,000	2,980,000	1.37
WASHINGTON	3,935,000,000	1,954,000	.49
Wisconsin	4,282,000,000	5,426,000	1.27
Wyoming	345,000,000	193,000	.56
West Virginia	2,180,000,000	871,000	.39

TABLE 4.—Amount expended for higher education for each \$1,000 of wealth in order of rank, by States, 1913-14.

1. Delaware	\$3.88	25. North Dakota	\$0.61
2. New Hampshire	1.84	26. Georgia	.60
3. Massachusetts	1.47	27. Vermont	.60
4. Virginia	1.37	28. New Mexico	.60
5. Wisconsin	1.27	29. Ohio	.56
6. Connecticut	1.25	30. Rhode Island	.56
7. Arizona	1.23	31. Wyoming	.56
8. South Carolina	1.21	32. Louisiana	.55
9. Maryland	.95	33. Pennsylvania	.54
10. North Carolina	.94	34. Kansas	.53
11. Maine	.92	35. Iowa	.51
12. Mississippi	.87	36. Nebraska	.51
13. Tennessee	.80	37. Kentucky	.50
14. Minnesota	.79	38. Colorado	.50
15. New York	.74	39. Texas	.49
16. Michigan	.73	40. Montana	.48
17. South Dakota	.72	41. Nevada	.47
18. Idaho	.71	42. Florida	.44
19. Utah	.70	43. Indiana	.43
20. California	.68	44. Missouri	.43
21. Illinois	.66	45. West Virginia	.39
22. Oregon	.67	46. New Jersey	.39
23. Alabama	.65	47. Arkansas	.39
24. WASHINGTON	.64	48. Oklahoma	.19

TABLE 5.—Per capita apportionment of receipts of higher educational institutions, 1913-14.

States.	Population.	Receipts.	Per capita.
Alabama.....	2,138,000	\$623,000	\$0.29
Arizona.....	204,000	267,000	1.31
Arkansas.....	1,574,000	371,000	1.24
California.....	2,378,000	4,402,000	1.85
Colorado.....	799,000	1,099,000	1.38
Connecticut.....	1,115,000	2,578,000	2.31
Delaware.....	202,000	1,142,000	5.65
Florida.....	751,000	449,000	.60
Georgia.....	2,609,000	1,183,000	.45
Idaho.....	326,000	285,000	.87
Illinois.....	6,639,000	8,787,000	1.56
Indiana.....	2,701,000	1,904,000	.72
Iowa.....	2,225,000	3,789,000	1.70
Kansas.....	1,601,000	1,938,000	1.15
Kentucky.....	2,290,000	845,000	.37
Louisiana.....	1,656,000	908,000	.55
Maine.....	742,000	762,000	1.02
Maryland.....	1,295,000	1,643,000	1.42
Massachusetts.....	3,366,000	7,637,000	2.33
Michigan.....	2,810,000	3,121,000	1.11
Minnesota.....	2,076,000	3,690,000	1.72
Mississippi.....	1,797,000	973,000	.54
Missouri.....	3,293,000	1,755,000	.53
Montana.....	376,000	480,000	1.28
Nebraska.....	1,192,000	1,528,000	1.28
Nevada.....	82,000	208,000	2.54
New Hampshire.....	431,000	975,000	2.25
New Jersey.....	2,537,000	1,709,000	.67
New York.....	327,000	224,000	.69
North Carolina.....	9,113,000	15,668,000	1.70
North Dakota.....	2,206,000	1,332,000	.60
Ohio.....	577,000	785,000	1.36
Oklahoma.....	4,767,000	4,567,000	.96
Oregon.....	1,657,000	622,000	.38
Pennsylvania.....	6,773,000	1,185,000	.18
Rhode Island.....	7,665,000	6,254,000	.81
South Carolina.....	543,000	423,000	.78
South Dakota.....	1,516,000	1,298,000	.86
Tennessee.....	684,000	680,000	1.16
Texas.....	2,185,000	1,216,000	.55
Utah.....	3,897,000	2,740,000	.70
Vermont.....	373,000	515,000	1.38
Virginia.....	356,000	487,000	1.28
WASHINGTON.....	2,062,000	2,017,000	.98
West Virginia.....	1,142,000	1,329,000	1.16
Wisconsin.....	1,221,000	526,000	.43
Wyconsin.....	2,334,000	3,825,000	1.64
Wyoming.....	148,000	193,000	1.33

TABLE 6.—Rank of States as to per capita receipts of higher educational institutions, excluding normal schools, 1913-14.

1. Delaware.....	\$5.65	25. Michigan.....	\$1.11
2. Nevada.....	2.53	26. Maine.....	1.03
3. Massachusetts.....	2.33	27. Virginia.....	.97
4. Connecticut.....	2.31	28. Ohio.....	.96
5. New Hampshire.....	2.25	29. Idaho.....	.87
6. California.....	1.85	30. South Carolina.....	.85
7. Oregon.....	1.76	31. Pennsylvania.....	.81
8. Minnesota.....	1.72	32. Rhode Island.....	.77
9. New York.....	1.70	33. Indiana.....	.72
10. Iowa.....	1.70	34. Texas.....	.70
11. Wisconsin.....	1.64	35. New Mexico.....	.68
12. Illinois.....	1.56	36. New Jersey.....	.67
13. Maryland.....	1.42	37. North Carolina.....	.60
14. Colorado.....	1.38	38. Florida.....	.60
15. Utah.....	1.38	39. Tennessee.....	.55
16. North Dakota.....	1.35	40. Mississippi.....	.54
17. Wyoming.....	1.33	41. Louisiana.....	.54
18. Arizona.....	1.31	42. Missouri.....	.53
19. Vermont.....	1.28	43. Georgia.....	.53
20. Nebraska.....	1.28	44. West Virginia.....	.43
21. Montana.....	1.27	45. Oklahoma.....	.37
22. South Dakota.....	1.16	46. Kentucky.....	.35
23. WASHINGTON.....	1.16	47. Alabama.....	.29
24. Kansas.....	1.14	48. Arkansas.....	.28

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TABLE 7.—Receipts of higher educational institutions, including normal schools, for the school year 1913-14.

	Universi- ties and colleges.	Normal schools.	Total.	Per capita.
Alabama.....	\$628,000	\$695,000	\$1,323,000	\$0.62
Arizona.....	267,000	234,000	601,000	2.94
Arkansas.....	371,000	183,000	554,000	2.33
California.....	4,402,000	1,056,000	5,458,000	2.30
Colorado.....	1,099,000	43,000	1,142,000	1.43
Connecticut.....	2,578,000	128,000	2,706,000	2.43
Delaware.....	1,142,000	0	1,142,000	5.65
Florida.....	449,000	0	449,000	.60
Georgia.....	1,183,000	224,000	1,407,000	.54
Idaho.....	285,000	132,000	417,000	1.28
Illinois.....	8,787,000	1,187,000	9,974,000	1.77
Indiana.....	1,934,000	155,000	2,089,000	.77
Iowa.....	3,789,000	26,000	3,815,000	1.71
Kansas.....	1,938,000	389,000	2,327,000	1.38
Kentucky.....	845,000	232,000	1,077,000	.47
Louisiana.....	908,000	214,000	1,122,000	.68
Maine.....	762,000	186,000	958,000	1.28
Maryland.....	1,843,000	55,000	1,898,000	1.46
Massachusetts.....	7,837,000	608,000	8,445,000	2.51
Michigan.....	3,121,000	678,000	3,799,000	1.35
Minnesota.....	3,580,000	560,000	4,140,000	1.99
Mississippi.....	973,000	167,000	1,140,000	.63
Missouri.....	1,755,000	559,000	2,314,000	.70
Montana.....	480,000	60,000	540,000	1.44
Nebraska.....	1,528,000	314,000	1,842,000	1.54
Nevada.....	208,000	0	208,000	2.53
New Hampshire.....	975,000	155,000	1,130,000	.81
New Jersey.....	1,709,000	357,000	2,066,000	.92
New Mexico.....	224,000	77,000	301,000	1.77
New York.....	15,568,000	571,000	16,139,000	1.75
North Carolina.....	1,332,000	312,000	1,644,000	2.17
North Dakota.....	785,000	465,000	1,250,000	1.01
Ohio.....	4,567,000	250,000	4,817,000	.51
Oklahoma.....	622,000	223,000	845,000	1.83
Oregon.....	1,185,000	47,000	1,232,000	1.00
Pennsylvania.....	6,254,000	1,419,000	7,673,000	.93
Rhode Island.....	423,000	80,000	503,000	1.04
South Carolina.....	1,298,000	271,000	1,569,000	1.64
South Dakota.....	680,000	280,000	960,000	.67
Tennessee.....	1,216,000	245,000	1,461,000	.83
Texas.....	2,740,000	483,000	3,223,000	1.35
Utah.....	515,000	0	515,000	1.45
Virginia.....	457,000	25,000	482,000	1.71
WASHINGTON.....	2,017,000	963,000	2,980,000	.71
West Virginia.....	1,320,000	634,000	1,954,000	.71
Wisconsin.....	3,265,000	345,000	3,610,000	2.33
Wyoming.....	193,000	0	193,000	1.32

TABLE 8.—Rank of States as to per capita receipts of higher educational institutions, including normal schools, 1913-14.

1. Delaware.....	\$5.65	25. Michigan.....	\$1.35
2. Arizona.....	2.94	26. Wyoming.....	1.82
3. New Hampshire.....	2.62	27. Idaho.....	1.270
4. Nevada.....	2.68	28. Maine.....	1.277
5. Massachusetts.....	2.61	29. South Carolina.....	1.04
6. Connecticut.....	2.43	30. Ohio.....	1.01
7. Wisconsin.....	2.33	31. Pennsylvania.....	1.00
8. California.....	2.30	32. Rhode Island.....	.98
9. North Dakota.....	2.17	33. New Mexico.....	.92
10. Minnesota.....	1.99	34. Texas.....	.83
11. Oregon.....	1.83	35. New Jersey.....	.81
12. New York.....	1.770	36. Indiana.....	.77
13. Illinois.....	1.758	37. North Carolina.....	.75
14. Iowa.....	1.714	38. West Virginia.....	.71
15. WASHINGTON.....	1.711	39. Missouri.....	.70
16. South Dakota.....	1.64	40. Louisiana.....	.68
17. Nebraska.....	1.64	41. Tennessee.....	.67
18. Maryland.....	1.48	42. Mississippi.....	.63
19. Virginia.....	1.45	43. Florida.....	.60
20. Montana.....	1.44	44. Alabama.....	.67
21. Colorado.....	1.43	45. Georgia.....	.64
22. Kansas.....	1.38	46. Oklahoma.....	.51
23. Utah.....	1.38	47. Kentucky.....	.47
24. Vermont.....	1.35	48. Arkansas.....	.38

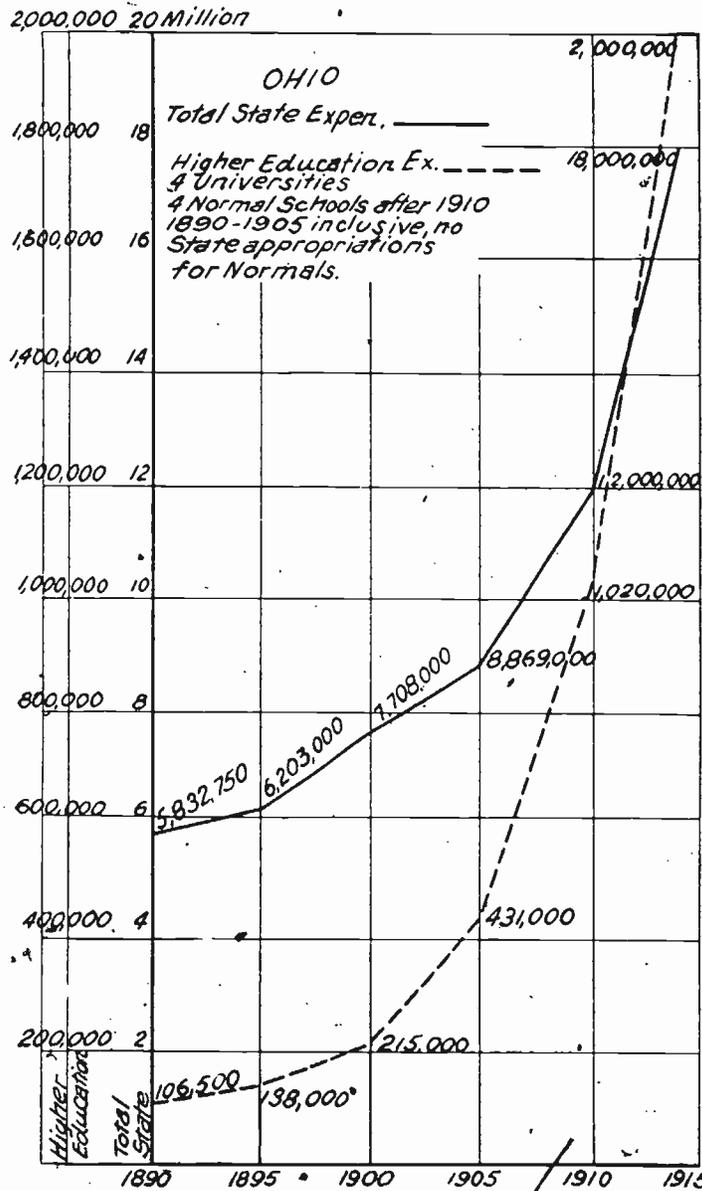


DIAGRAM 7.—State expenditures for higher education in Ohio compared with total State expenditures.

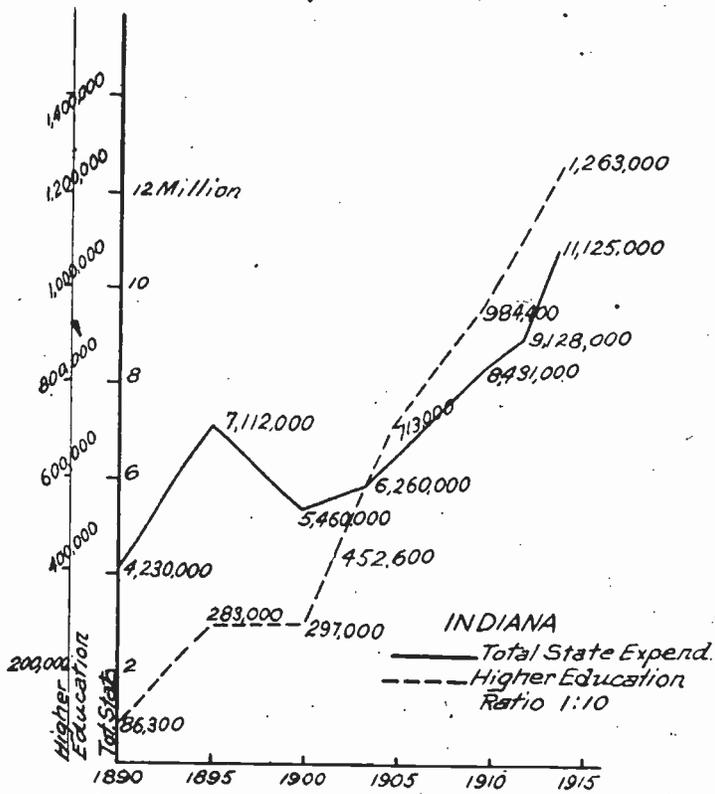


DIAGRAM 8.—State expenditures for higher education in Indiana compared with total State expenditures.

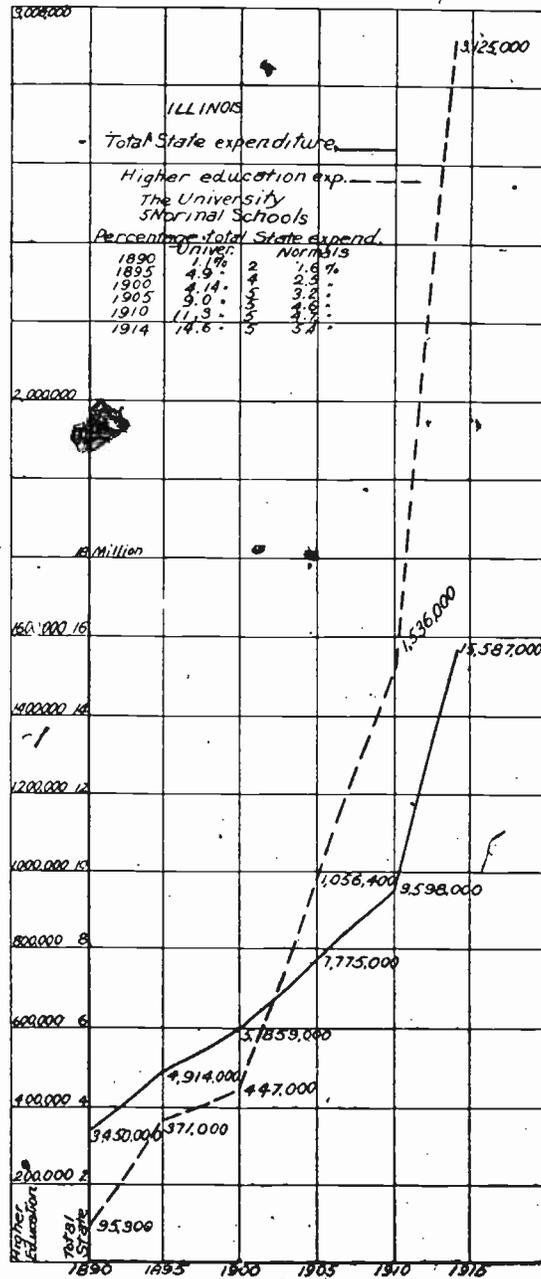


DIAGRAM 9.—State expenditures for higher education in Illinois compared with total State expenditures.

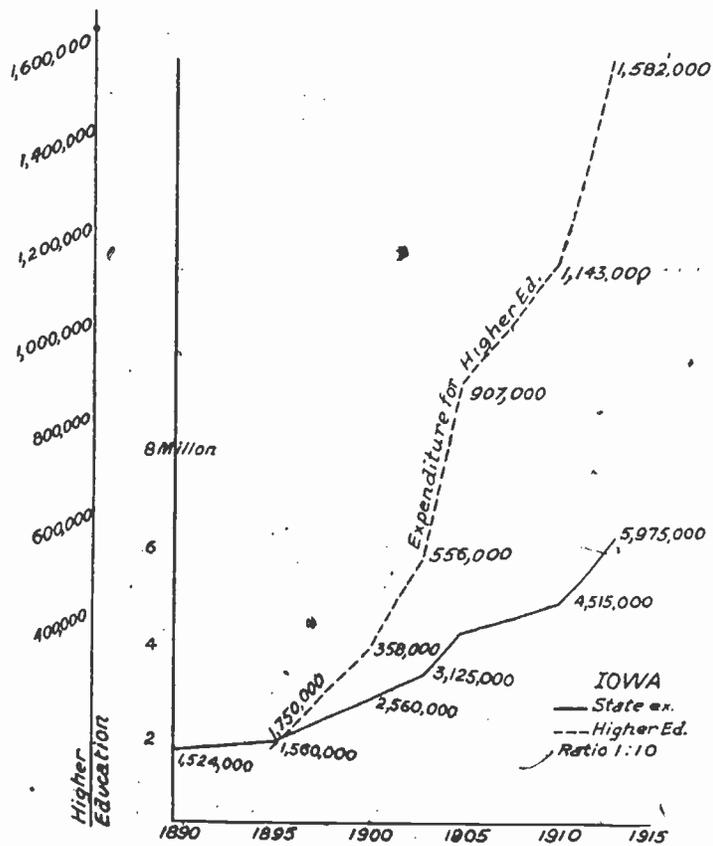


DIAGRAM 10.—State expenditures for higher education in Iowa compared with total State expenditures.

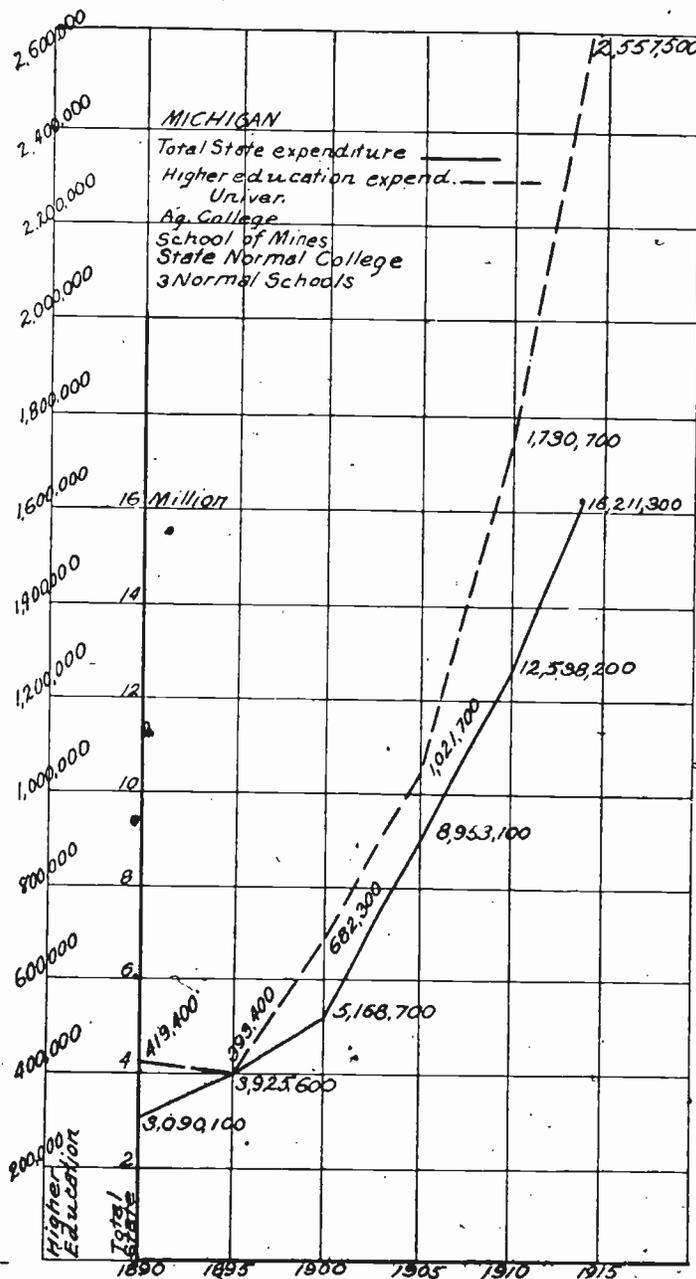


DIAGRAM 11.—State expenditures for higher education in Michigan compared with total State expenditures.

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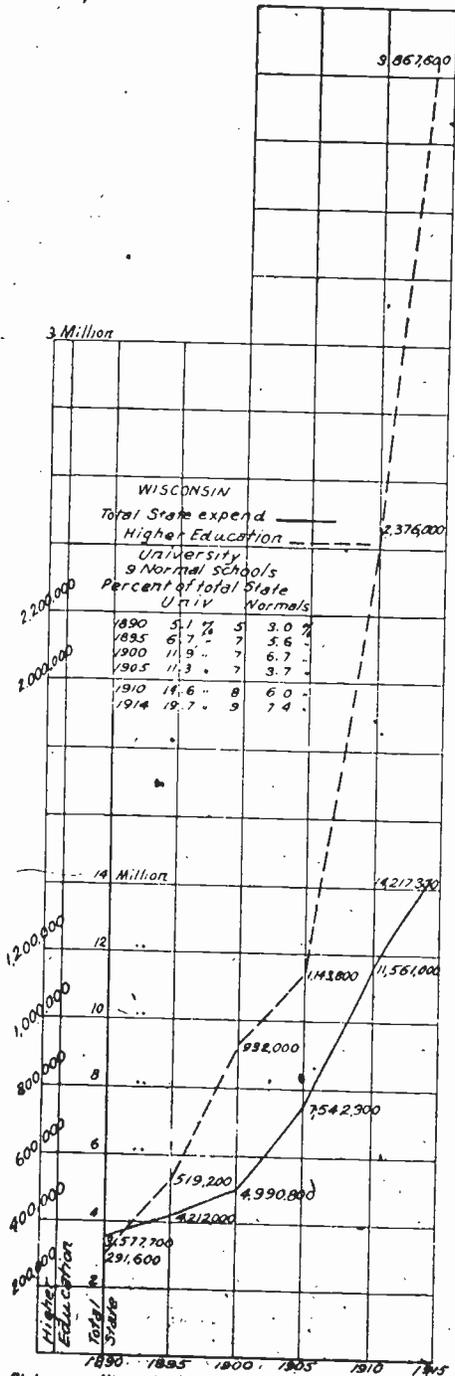


DIAGRAM 12.—State expenditures for higher education in Wisconsin compared with total state expenditures.

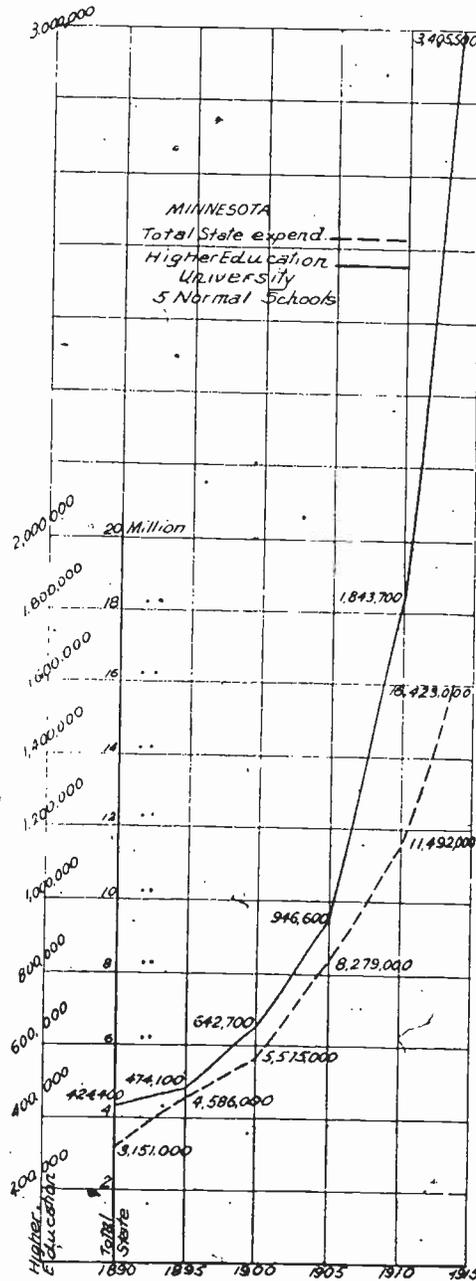


DIAGRAM 18.—State expenditures for higher education in Minnesota compared with total State expenditures.

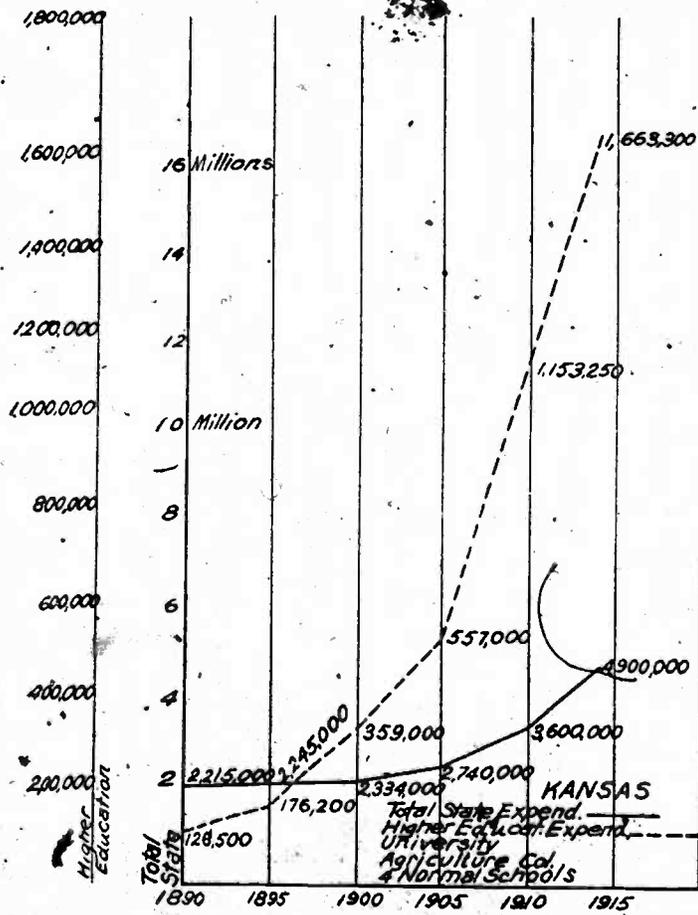


DIAGRAM 14.—State expenditures for higher education in Kansas compared with total State expenditures.

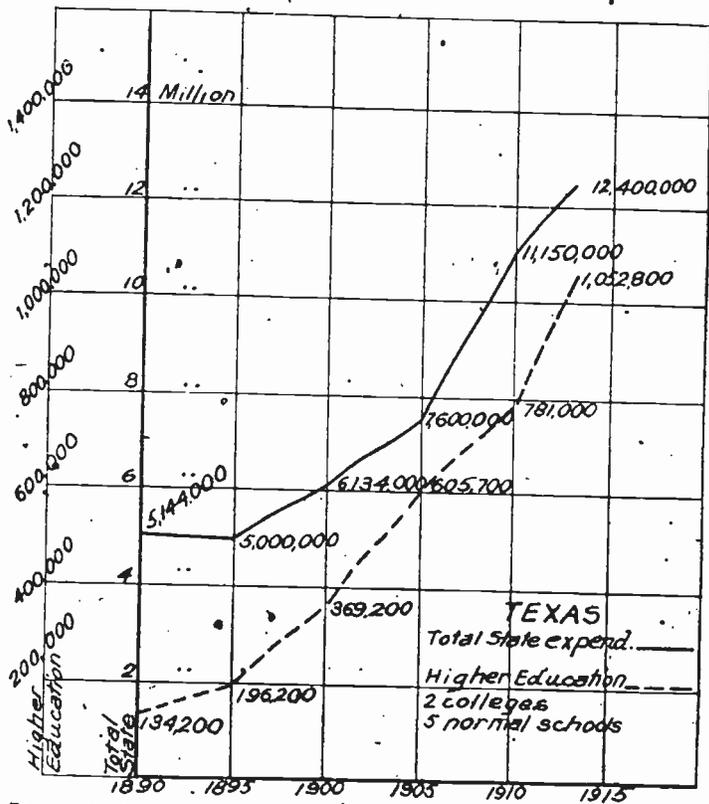


DIAGRAM 15.—State expenditures for higher education in Texas compared with total State expenditures.

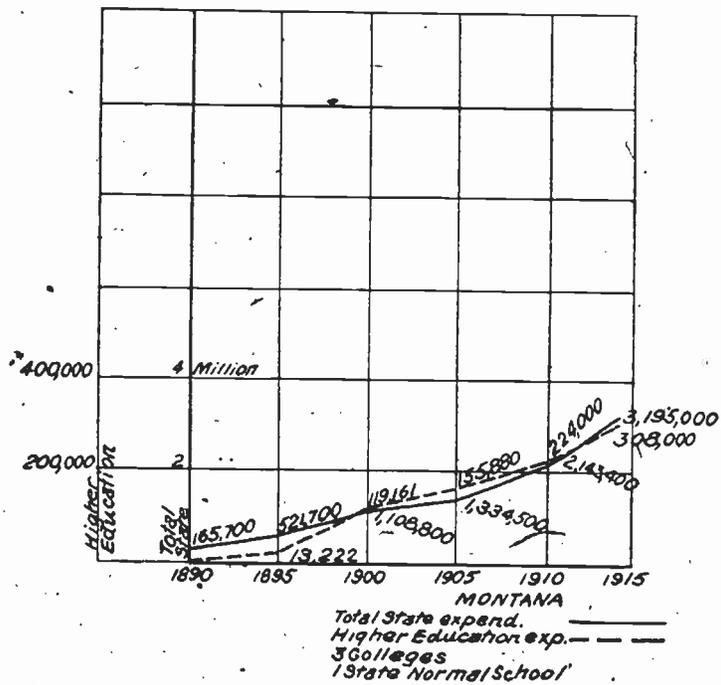


DIAGRAM 16.—State expenditures for higher education in Montana compared with total State expenditures.

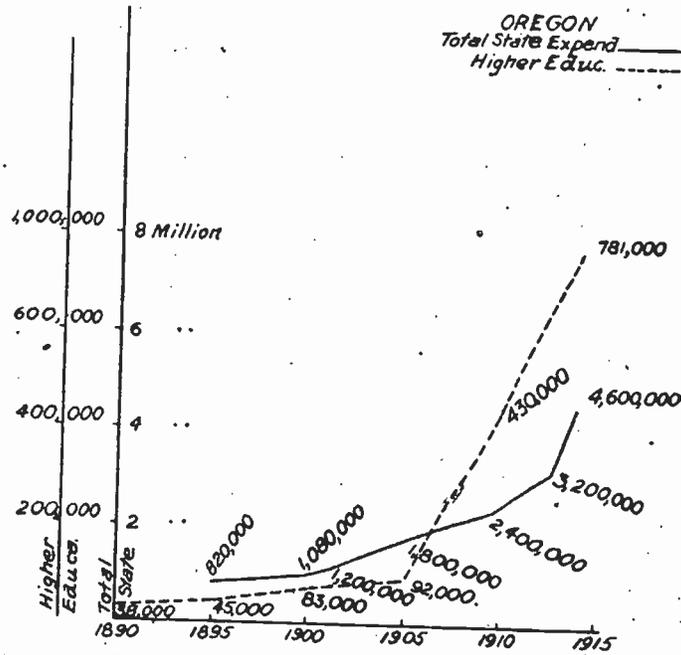


DIAGRAM 17.—State expenditures for higher education in Oregon compared with total State expenditures.

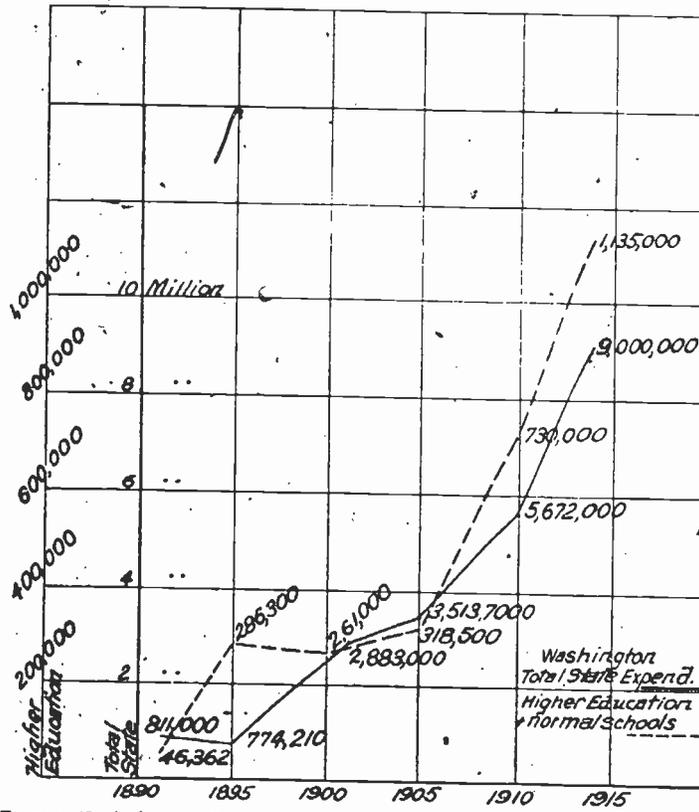
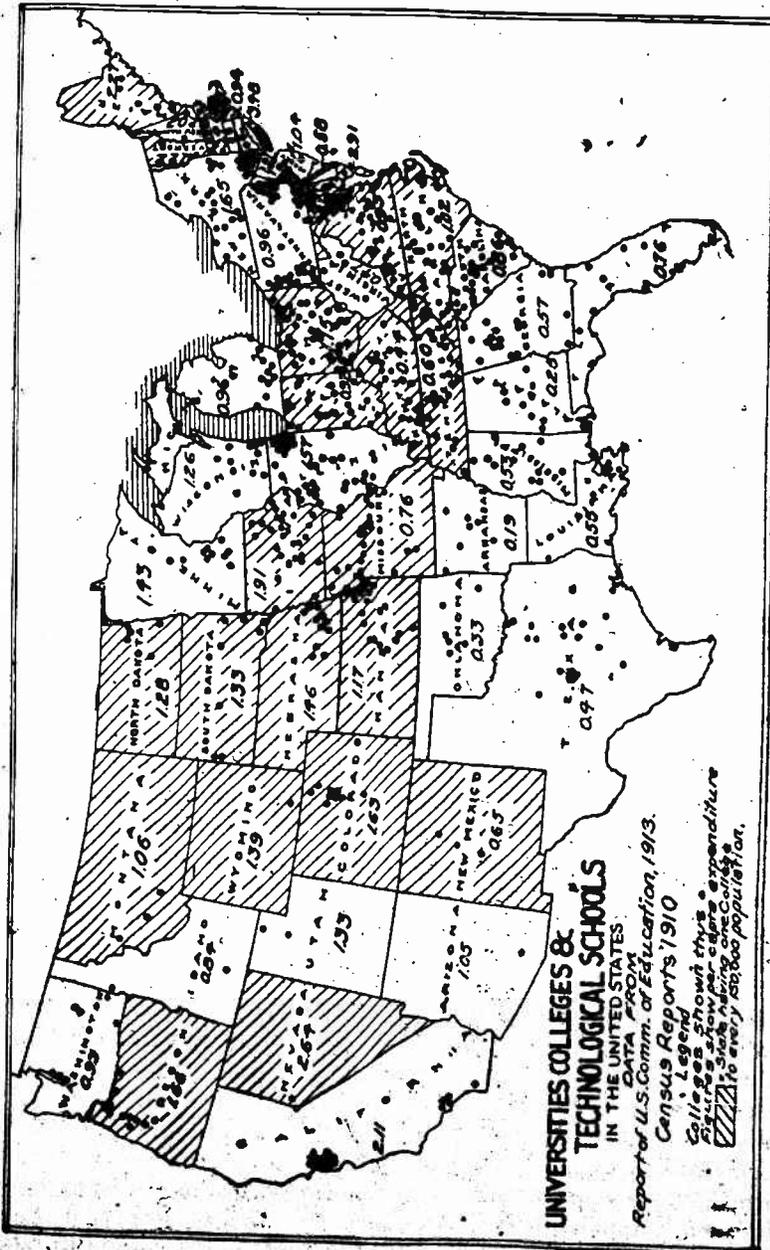


DIAGRAM 18.—State expenditures for higher education in Washington compared with total State expenditures.



Map 2

Chapter III.

STATE OFFICIALS AND ADMINISTRATIVE MACHINERY.

A well-coordinated State system of higher education may be secured either through the control of administrative officials charged with the duty of overseeing the State's educational policies as a whole or through the common agreement of officers of individual institutions who deliberately join forces for the formulation of a State policy. It is worth while to inquire how far either or both of these conditions prevail in Washington.

The administration of Washington's higher institutions is intrusted directly to six different boards. Indirectly two others are concerned in the financial management of the institutions. The six boards are the State board of education, the board of regents of the State university, the board of regents of the State college, and the three boards of trustees of the State normal schools. One State administrative officer exercises ex officio a certain measure of authority over higher institutions, namely, the superintendent of public instruction. The constitution and the functions of the boards mentioned are very briefly summarized below.

STATE BOARD OF EDUCATION.

The State board of education consists of the superintendent of public instruction, the president of the University of Washington, the president of the State College of Washington, the principal of one of the normal schools elected by the principals of the State normal schools, and three persons appointed by the governor, one of whom shall be superintendent of city schools, one a county superintendent, and one a principal of an accredited high school. The appointed and elected members hold office for two years. The members of the board receive no compensation except when on special committee duty. In general, the powers of the board are: The approval of entrance requirements for State higher institutions, the approval of teacher-training courses in State higher institutions, the accrediting of higher institutions whose graduates may receive teachers' certificates without examinations, the accrediting of secondary schools, the prescription of the course of study for the common schools and the rules for the government of such schools, and the preparation of examinations for teachers' certificates and for graduation from the graded schools. The law also provides that the board shall investigate the work required as a condition of entrance to and graduation from normal schools, colleges, universities, and other institutions of higher education. Apparently this provision is intended merely to facilitate the accrediting of higher institutions, but possibly it is susceptible of a broader construction.

BOARD OF REGENTS OF THE UNIVERSITY OF WASHINGTON.

The board of regents of the university consists of seven members appointed by the governor each for a term of six years. Broadly, its duty is to control the university and its property. Its powers extend to the appointment of all officers, teachers, and employees of the institution, the prescription of courses of study, the conferring of degrees, and the management of its finances. The board serves without compensation. It is required to meet quarterly.

BOARD OF REGENTS OF THE STATE COLLEGE.

The board of regents of the State college consists of five persons appointed by the governor for terms of six years. The president of the college serves ex officio as secretary of the board without vote. The governor of the State is ex officio an advisory member without vote. Each regent must give bond in the sum of \$5,000 and the treasurer in the sum of \$40,000. Briefly, the powers of the regents are to control the funds of the college and experiment stations, to employ and fix salaries of all officials and teachers, and to grant degrees. The board is expected to meet annually. It serves without compensation.

THE BOARDS OF TRUSTEES OF THE NORMAL SCHOOLS.

Each of the three normal schools is under the control of a separate board of trustees consisting of three members appointed by the governor for terms of six years. The secretary of the board is not a member. The powers of each of these boards extend to the election and dismissal of all officers, teachers, and employees of their respective schools, the adoption of textbooks, the management of school property, and the purchase of supplies. Each board is expected to meet twice a year and to make a biennial report to the governor prior to the meeting of the legislature.

THE STATE BOARD OF FINANCE AND THE STATE BOARD OF EQUALIZATION.

Upon the State board of finance is conferred the authority to invest the permanent funds of any State educational institution. The State board of equalization is charged with the levying upon taxable property in the State of the millage tax for the support of the higher institutions.

THE STATE SUPERINTENDENT OF PUBLIC INSTRUCTION.

The State superintendent of public instruction in his capacity as president of the State board of education comes in contact with certain phases of the management of the State higher institutions. As has been indicated above, the board exercises a larger measure of authority over normal schools than over the other higher institutions. Its jurisdiction over the State university and the State

college is limited in practice to the approval of entrance requirements and the work of departments of education.

As is usual the various boards of regents and trustees deal merely with the affairs of their respective institutions. The powers and duties of the boards of normal school trustees are prescribed in one act and in the same terms for all three boards. Their functions, while similar to, are not identical with those of the boards of regents of the university and the State college. Neither are the latter two boards exactly the same in constitution and functions. The Washington State Board of Education is in its constitution almost unique. It will be observed that it is a board of experts. But one other State, West Virginia, has an expert board of education, although the State boards in Arizona and Indiana are composed mainly of experts. The prevailing theory in administration favors the lay board working through expert executives, on the assumption that by this means the desires of the public will best be represented and will reach their accomplishment in educational practice. However, there is nothing fixed and immutable about administrative procedure. The pragmatic test is after all the final test. Within the limits of its past and current activities the Washington State board of education appears to have met this test. It is universally well spoken of. Nevertheless, the committee is inclined to believe that it has not fully realized its possibilities. It seems to have confined itself to the somewhat mechanical discharge of the functions prescribed for it in the law. In particular it has failed to perform—perhaps circumstances of which the committee is unaware have prevented its performing—one great educational service which the State of Washington sadly needs. This service is discussed and certain constructive suggestions are offered in the following chapter.

Chapter IV.

THE FORMULATION OF STATE POLICIES IN HIGHER EDUCATION.

It is evident from the discussion in the preceding chapter that there is at present no machinery for the formulation of State policies in higher education. The result of this lack is painfully apparent and has in fact given rise in a large measure to the difficulties which the present survey is designed to remedy. A State's educational institutions exist primarily to furnish training for those activities which must be carried on by the citizens of the State. They grow in response to definite public demands. Their expansion and the development of new courses follow in general the existence of a public need for specific types of training. Yet the correlation between the demand and the facilities provided for training in a given line is not

always close. Particularly is this true in highly specialized or professional lines. A State institution may provide too little or it may provide too much. Rarely are its excursions into new fields of professional training based upon a scientific study of the actual call for workers in those fields. The existence of a large demand is frequently inferred when really a few trained workers will suffice. On the other hand, even the most progressive and pushing institutions are often surprisingly blind to the necessity for the development of certain types of professional training. They fail to interpret the as yet inarticulate call. When two institutions whose functions are not sharply differentiated compete for the same educational territory these maladjustments are most apt to appear. The close correlation of State institutions with actual needs and conditions becomes all the time more important as States grow and their economic and sociological problems develop in complexity. Every State can afford to furnish for its citizens the types of training actually required. No State can afford to waste its money in oversupplying a limited professional market. The value of some central coordinating machinery is that it can study State educational problems in a nonpartisan spirit for the purpose of determining what is and what is not needed and that it can bring State institutions to comply with its conclusions.

Even such a superficial consideration as the committee has had time to give to the relation of the types of training now offered by Washington State higher institutions to the occupations, industries, and prospective growth of the State shows that these statements are applicable to the local situation. As has already been indicated in the summary on page 32, the State higher institutions are tending in the direction of oversupplying professional needs. One important line of specialized training appears to need further development—commerce; and for that the demand has now become insistent. Against the defect of inadequate provision for the development of advanced commercial training of university grade should be placed the maintenance of two schools of mining, one of the most expensive of professional departments; two departments of architecture¹ to supply a profession numbering 505 in the census of 1910; two schools of forestry to recruit a calling which numbered 536 in the same census year and for the practice of which in Washington men come from all over the United States. However, the detailed discussion of expensive duplication appears in Chapters VI, VII, and VIII. Mention is here made of these cases merely by way of illustration to show the disadvantages of the lack of a coherent State program.

¹At the State college the head of the department of architecture discharges also the duties of college architect.

In the judgment of the committee the most important reform which may be wrought in public education in Washington is the provision for the definite and permanent coordination of higher institutions. This may be accomplished in any one of at least three ways. Two of them entail no organic change in the present machinery of administration. The third is also simple and involves no structural reorganization. They are as follows:

1. The committee is of the opinion that joint meetings of the boards of regents of the State university and the State college at regular intervals for the discussion of the interrelations of these institutions and for the determination of measures to promote harmony and economy in the management of the State higher institutions would probably accomplish the major part of the desired purpose. The committee has been much impressed by the possibilities of such joint meetings, one of which, on the initiative of the boards themselves, has already been called. It believes that this very simple device may prove a solution of the State's most vexed educational difficulties, that it may result in welding together into a common constructive program in which the interests of the State shall be held paramount the conflicting aims of two institutions which are, but should not be, rivals. The boards of trustees of the normal schools could be included in the joint conferences whenever occasion required.

2. The committee believes that the law allows the extension of the activities of the State board of education to include such a formulation of State higher educational policies as is here under discussion. The law provides that the board is to investigate the work required as a condition of entrance to and graduation from normal schools, colleges, universities, and other institutions of higher education. Although this section of the act defining the powers of the board probably contemplates only such investigation as may be necessary to determine the eligibility of higher institutions for accrediting, the committee—no member of which, however, is a lawyer—believes that it might be broadly construed to include a consideration of the programs and tendencies of higher institutions. The recommendations which it might see fit to make in the light of such consideration, even though the board has no power to enforce them, would probably have the effect of a mandate, particularly if they were made public. If on examination by competent legal authorities it appears that the present law does not permit such action by the board as is here suggested, the committee judges that only a slight amendment of the act defining the powers of the board will be necessary to give it this wider range. We think that this question, together with the other alternatives proposed in connection with it, is worthy the consideration of your commission.

The extension of the functions of the board to include this wider field would have certain distinctive advantages. It would help to emphasize the unity of the State's educational enterprise. It would tend to bring together various constituencies and lead to the interpretation of one group of educational problems in the light of the educational needs of the whole system. The Washington board, being an expert board, is peculiarly qualified to render this service. All educational interests are represented on it. No one preponderates. Moreover the board has the confidence and respect of the educators and of the State at large.

3. It will be remembered that, in his report to the legislature of 1915, the United States Commissioner of Education recommended the creation of a State council of education—

to consist of two representatives of the board of regents of the university, two representatives of the board of regents of the State college, one representative of the board of trustees of each of the State normal schools, two representatives of the State board of education, the president of the university, the president of the State college, the principals of the normal schools, and the State superintendent of public instruction. Each board should elect its representation and no person should represent more than one board or institution. This council should hold at least one meeting each year, the necessary expenses being paid out of the public funds, and should be required to report the results of its deliberations to the several boards or institutions represented.

It will be observed that the professional membership of this proposed council coincides almost exactly with the membership of the State board of education.

SUMMARY OF RECOMMENDATIONS.

1. The provision for the formulation of State policies in higher education—
 - a. Through joint meetings of boards of regents, or
 - b. Through the extension of the functions of the State board of education, or
 - c. Through the creation of a State council of education.

Chapter V.

COSTS OF STATE UNIVERSITY AND STATE COLLEGE.

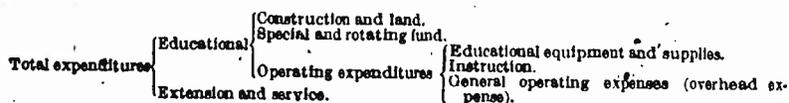
Thus far State higher education in Washington has been considered as a unit. The remaining chapters in this section deal with the details of financial and educational management of the State college and State university and present the committee's recommendations concerning these institutions. This chapter is devoted to the presentation of certain material bearing both on the costs of the college and the university and on some phases of their educational administration.

The first group of exhibits in connection with the chapter consists of tabulations of the expenses of these two institutions for the academic years 1913-14 and 1914-15.¹ The expenditures of higher institutions differ greatly, and the forms in which such expenditures are reported differ still more. In a recent study by the Bureau of Education of the Iowa State institutions, financial reports of all three of these institutions were secured in the same form as is here used. Within this limited group of five institutions, therefore, substantially accurate comparisons may be made. In order that the tabulation may be clear, the following explanation is offered.²

The total expenditures for the year are first divided into two main groups: *Educational expenditures* and *extension and service expenditures*. The *educational expenditures* are then divided into three separate categories: *Construction and land, special and rotating funds, and operating expenditures*.

The category *construction and land* includes expenditures for direct additions to the plant to provide for growth in enrollment, together with outlays for the ordinary furniture of new buildings. *Special and rotating funds* include expenditures from prize funds, boarding and rooming departments, and special funds available only for specified purposes apart from instruction. These two classes of expenditures are in a certain sense entirely independent of the cost of the operation of the educational plant.

The category *operating expenditures* includes all expenses for the annual maintenance of the institution, aside from dormitories and boarding departments. It is further analyzed into *educational equipment and supplies, instruction, and general operating expenses*. The latter may perhaps more aptly be termed *overhead expense*. The following may make this clear:



Under *operating expenditures* the first subdivision, *educational equipment and supplies*, includes in addition to purely departmental supplies the expenditures for books and library supplies. The second subdivision, *instruction*, includes the salaries of the deans and faculty members, but not those of the president, other purely administrative officers, and librarians. The third, *general operating or overhead expense*, includes the salaries of administrative officers, janitors, etc., in addition to other expenditures essential to the maintenance of the work of the institution.

¹ Summaries only are included in this chapter. The detail tables appear in the appendix.

² The explanation of the forms for the reporting of expenditures and the discussion of student clock hours in this chapter are taken for the most part from the report of the survey of the Iowa State institutions.

TABLE 9.—University of Washington, expenditures, 1913-14.

	Construction,	Educational equip-	University year,
	\$31,286.19	ment and supplies,	\$306,626.49
		\$70,576.89	Marine station,
			\$1,400
	Total operating	Instruction,	Summer sessions,
	expense,	\$288,026	\$12,475.39
	\$486,779.61	General operating ex-	Service depart-
		penses (overhead),	ments,
		\$131,175.34	\$1,526.
	Special funds,		
	\$53,671.34		
	Extension,		
	\$15,658.47		
Educational expendi-			
tures, exclusive			
of extension,			
\$571,936.14			
Total expenditures,			
\$587,594.61			

TABLE 10.—University of Washington expenditures, 1914-15.

	Construction,	Educational equip-	University year,
	\$9,645.80	ment and supplies,	\$306,943.23
		\$80,960.83	Marine station,
			\$1,462.50
	Total operating	Instruction,	Summer session,
	expenses,	\$322,547.48	\$14,141.76
	\$507,850.07	General operating	
		expenses (over-	
		head),	
		\$124,350.76	
	Special funds,		
	\$61,870.82		
	Extension,		
	\$23,674.61		
Educational ex-			
penses, exclu-			
sive of exten-			
sion,			
\$603,050.20			
Total expenditures,			
\$603,050.20			

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TABLE 11.—State College of Washington expenditures, 1913-14.

Educational expenditures, exclusive of extension and experimental work,	Construction and lands,	\$168,557.54	Educational equipment and supplies,	\$38,977.35	College year,	\$146,510.58
	Total operating expenses,	\$307,255.16		Instruction,		\$157,518.91	Summer session,^{1}	$5,870.00
\$350,816.52	Special funds,	\$93,992.82	General operating expenses (overhead),	\$110,765.90		
Total expenditure,	\$663,049.82					
Extension and experimental work,	Construction and lands,	\$100.00	Experimental work,	\$71,152.92	Extension work,	\$20,104.71
	Extension \$20,680.66	Operating expense,		\$91,259.63		Agricultural experiment station,	$1,390.52
Experimental 72,652.44	Special funds,	\$1,873.47	Agricultural extension work,	\$1,873.47		
93,233.10						

¹Difference of \$5,132.33 is for summer school of 1914-15. See report for that year.

TABLE 12.—State College of Washington expenditures, 1914-15.

Educational expenditures, exclusive of extension and experimental work,	Construction and lands,	\$91,808.70	Educational equipment and supplies,	\$29,010.01	College year,	\$160,722.92
	Total operating expenses,	\$278,568.45		Instruction,		\$159,092.10	Summer school,^{1}	$7,601.51
\$446,738.32	Special funds,	\$86,833.17	General operating expenses (overhead),	\$90,496.34		
Total expenditure,	\$668,169.00					
Extension and experimental work,	Construction,	\$1,705.68	Experimental work,	\$64,003.28	Extension work,	\$28,056.17
	Extension \$30,643.41	Operating expense,		\$62,089.45		Agricultural experiment station,	$6,068.31
Experimental 71,777.27	Special funds,	\$7,655.65	Agriculture extension,	\$1,547.34		
103,420.68						

¹ Of this amount \$5,132.33 was paid in the fiscal year 1913-14.

There follow next two tables, one relating to the State college and one to the State university, which deserve somewhat careful explanation and which repay study. They show the departments represented in each institution, the total number of instructors in each department (part-time teachers being reduced to a full-time basis), the average salary for each department, the total number of student clock hours, and the average number of student clock hours for each department. The student clock hour is a relatively new unit in academic measurements. It may be defined thus: One student under instruction in lecture, quiz, or laboratory for at least 50 minutes net represents one student clock hour. For example, therefore, 20 students meeting four hours a week in recitation represent 80 student clock hours. The student clock hour is, it will be observed, a different unit from the "credit hour" or the "semester hour." Usually two or three hours of laboratory work are required as the equivalent of one hour of recitation in reckoning semester or credit hours. The student clock hour does not discount laboratory hours, but reckons laboratory, lecture, and quiz exercises equally hour for hour. For example, a student taking a course in chemistry and spending one hour in lecture, one hour in quiz, and four hours in laboratory in a week would be counted as receiving six student clock hours of instruction.

The Bureau of Education has already suggested certain standards to govern the size of university and college classes. They are as follows:

1. In a lecture a professor may meet effectively as many as can comfortably hear and see him.
2. In a recitation or quiz 30 in a section is probably the largest number that can be effectively handled, but the desirable maximum for classes of this type would be from 20 to 25.
3. In laboratory work it is commonly agreed that one instructor should be provided for every 15 or 16 students.

The number of lecture, laboratory, and quiz sections which an instructor can meet in a week depends to a considerable degree upon the character of the work and the amount of labor which it involves outside of the classroom. It also is contingent to some extent upon the amount of outside writing and research which the instructor is expected to do. An examination of any department indicates that no definite number of student clock hours can be fixed for each instructor. An average for a department may, however, be safely set up. The Bureau of Education has estimated that in an institution where research work is encouraged and expected it is reasonable to expect also a departmental average of 250 student clock hours per instructor. This, it is believed, might be a fair working average for a modern State university. In a distinctively undergraduate college, on the other hand, where research is limited and where little or no

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graduate work is conducted, a departmental average of 300 student clock hours per instructor is regarded as a reasonable norm. In this connection it is worth while to note that usually an institution whose program is made up largely of laboratory work will generally record a larger number of student clock hours per instructor than an institution whose program consists chiefly of nonlaboratory courses.

TABLE 13.—University of Washington—Salaries and student clock hours for the year ending June 30, 1915.

Department.	Number of instructors.	Total salaries.	Average salary.	First semester.		Second semester.	
				Total student clock hours.	Average student clock hours.	Total student clock hours.	Average student clock hours.
COLLEGE OF LIBERAL ARTS.							
English.....	14	\$22,800	\$1,619	3,871	278.5	3,247	231.9
French.....	6	11,937	1,786	1,962	285.4	1,845	268.4
German.....	7	12,362	1,585	2,267	292.5	2,078	277.0
Greek.....	2	5,300	2,355	441	252.0	361	240.0
History.....	6	12,500	1,911	2,908	504.9	2,870	499.1
Journalism.....	5	9,645	1,794	580	178.4	659	181.7
Latin.....	2	6,000	2,182	395	143.6	465	155.0
Library economy.....	1	1,714	1,714	158	158	198	198
Oriental history.....	1	2,400	2,400	310	310	296	296
Philosophy.....	3	5,700	1,900	941	314.7	957	319.0
Political and social science.....	9	10,850	1,817	3,499	388.4	3,107	345.2
Public speaking and debate.....	2	3,900	1,950	290	145.0	621	260.5
Scandinavian languages and literature.....	1	2,100	2,100	112	112	132	132
Spanish.....	3	6,825	1,820	1,053	280.8	1,091	290.9
COLLEGE OF SCIENCE.							
Botany.....	6	10,500	1,615	2,926	457.3	2,172	334.2
Chemistry.....	13	16,975	1,460	7,299	561.4	5,761	443.1
Geology.....	4	5,950	1,487	1,252	313.0	1,324	331.0
Home economics.....	5	7,500	1,500	1,238	247.6	1,824	364.8
Mathematics.....	10	15,050	1,719	3,139	298.9	2,691	256.3
Philosophy (psychology).....	2	3,825	1,457	966	368.0	929	315.8
Physical training.....	5	7,300	1,327	2,127	396.7	2,607	455.8
Physics.....	5	9,100	1,820	1,548	291.7	1,455	270.7
Zoology.....	4	7,850	1,653	2,838	597.5	3,080	648.4
COLLEGE OF ENGINEERING, ETC.							
Civil engineering.....	10	18,445	1,800	3,117	336.9	4,137	367.7
Electrical engineering.....	3	6,975	1,993	916	261.7	920	262.8
Mechanical engineering.....	8	9,800	1,000	2,350	470.0	1,962	392.4
College of Mines.....	4	8,150	2,037	378	94.0	448	110.8
College of forestry.....	4	8,850	2,145	1,051	254.8	721	174.8
College of pharmacy.....	5	8,595	1,498	998	285.1	1,096	292.2
School of education.....	5	10,500	2,100	1,375	275.0	1,633	326.6
School of law.....	5	14,200	2,467	2,565	448.7	2,197	382.1
College of fine arts.....	6	10,700	1,783	2,312	368.0	2,038	318.9
Military training.....	2	600	300	1,624	812.0	1,838	919.0
Total.....	174	306,950	1,764	86,813	437.0	57,652	329.3

* In a short course, 42; making the total 5,800, and average hours 474.2.
 * In a short course, 133; making the total 1,463, and average hours 249.8.
 * In a short course, 362; making the total 4,399, and average hours 391.
 * In a short course, 310; making total 738, and average hours 188.3.
 * In a short course, 694; making total of 1,214, and average hours 494.6.

TABLE 14.—State College of Washington—Summary by departments, year ending June, 1915.

FIRST SEMESTER.

Departments.	Total clock hours.	Total number instructors.	Average clock hours.	Total salaries.	Average salary.
Agriculture.....	2,176	83	26.6	\$15,666	\$1,790
Botany.....	1,247	31	39.8	6,150	1,983
Chemistry.....	2,021	6	336.8	10,240	1,707
Civil engineering and mathematics.....	1,098	64	17.6	12,000	1,820
Economic science and history.....	1,639	5	327.8	8,140	1,628
Education.....	453	2	226.5	3,800	1,900
English.....	1,862	8	232.8	11,200	1,400
Home economics.....	994	3	331.3	4,300	1,433
Horticulture.....	554	4	138.5	6,960	1,737
Mechanical engineering and electrical engineering (mechanical arts, physics, and architecture included).....	1,951	113	16.8	17,925	1,586
Modern languages.....	1,571	8	196.3	9,920	1,240
Manual arts.....	28	1	28.0	46.6	46.6
Latin.....	37	1	37.0	775	1,290
Geology.....	206	2	103.0	2,300	2,200
Mining engineering.....	161	2	80.5	4,200	2,100
Pharmacy.....	214	1	214.0	4,100	2,050
Photography.....	32	1	32.0	1,800	1,800
Zoology.....	284	14	20.3	90	900
Veterinary science.....	738	23	32.1	2,800	1,217
Forestry.....	22	1	22.0	2,200	2,200
Music.....	342	8	42.8	6,500	812
Total.....	17,632	194.3			1,640

SECOND SEMESTER.

Agriculture.....	2,183	84	25.9	\$15,530	\$1,849
Botany.....	744	31	24.0	6,025	1,944
Chemistry.....	2,117	6	352.8	10,340	1,723
Civil engineering and mathematics.....	1,080	64	16.9	12,000	1,875
Economic science and history.....	1,086	5	217.2	8,140	1,628
Education.....	720	2	360.0	3,800	1,900
English.....	1,974	8	246.8	11,200	1,400
Home economics.....	838	3	279.3	4,600	1,533
Horticulture.....	350	4	87.5	6,930	1,732
Mechanical engineering and electrical engineering (mechanical arts, physics, and architecture included).....	1,662	104	15.9	17,950	1,721
Modern languages.....	1,474	8	184.3	9,920	1,240
Manual arts.....	86	1	86.0	1,200	1,200
Latin.....	146	1	146.0	1,400	1,400
Geology.....	319	2	159.5	4,200	2,100
Mining engineering.....	103	2	51.5	4,100	2,050
Pharmacy.....	360	1	360.0	1,800	1,800
Photography.....	36	1	36.0	90	900
Zoology.....	386	14	27.6	2,800	1,999
Veterinary science.....	1,064	44	24.2	9,220	1,979
Forestry.....	22	1	22.0	2,200	2,200
Music.....	588	8	73.5	6,500	812
Total.....	17,315	234.8			1,633

The relation of the distribution of student clock hours to the salary paid in a given institution is close, and it is a matter of considerable importance to the teaching staff. For example, if the curriculum of an institution demands that each student shall be under instruction on the average for 20 hours a week, then for every 500 students 10,000 student clock hours of instruction must be provided. If instructors carry an average of 300 student clock hours each, 33 or 34 instructors will be required to serve this student body of 500. Suppose the institution has \$67,000 to spend on teachers' salaries and employs 40 instead of 33 instructors, the average load of student clock hours will, of course, be reduced, but so will the average salary.

The Bureau of Education is also on record concerning the salaries which collegiate institutions, especially the stronger State institutions, should try to pay. It has declared that for the time being an average salary of \$2,600 for a department should be regarded as the reasonable minimum.¹ The practice of the stronger institutions throughout the country indicates that this average will be necessary to command men of the desired quality. In departments which expect to retain men of distinction a higher average salary must be paid.

With the aid of one more factor in addition to those already exhibited, certain fairly definite information concerning the average cost per student may be obtained. This factor is the average number of students in attendance. This is not the same as the catalogue enrollment. The usual catalogue statement of enrollment includes all students who have attended the institution during any part of the year of 12 months. Often the summer enrollment is large. As a rule the number of students in actual attendance rises from the opening of college in September for about two weeks to a maximum and then declines, because of withdrawals, until the close of the term. The second term usually opens with increased numbers, again reaching a maximum shortly after the opening date and then gradually declining until the close of the year. An average of the two high tides in enrollment may under very liberal interpretation be regarded as the average attendance. The difference between this average attendance and the reported catalogue enrollment may be seen by referring to Table 15. The average attendance computed in the fashion described for the year 1913-14 at the University of Washington was 2,318. The catalogue enrollment was 3,340. For the year 1914-15 the average attendance was 2,684. The catalogue enrollment was 4,050.

To determine, then, the average cost per student the items listed in the first tabulations under the heading of *operating expenditures* (including the *total educational, equipment and supplies*, the *total general operating expenses* and *cost of instruction*), less the expenditures for the summer term, are taken. The average attendance for the same year is then used as a divisor. The two following tables (Tables 15 and 16) show the average cost per student at the State university and the State college for the years 1913-14 and 1914-15.

Tables 17 and 18 in this chapter were secured in answer to the specific and repeated requests of members of the commission that some calculations be submitted showing the cost per department. The actual cost of different departments the committee has found it exceedingly difficult, perhaps impossible, to determine. The nearest approach that could be made seemed to be to secure the cost of a student clock hour in each department. This has been done for both institutions and appears in the last column of Tables 17 and 18.

¹ This does not apply to subcollegiate departments, where a lower average may properly prevail.

It was obtained by adding the total amount paid for salaries in each department and the amount spent for departmental equipment and supplies. The general operating expense or overhead expense was then divided among the separate departments in accordance with the ratio which the salary budget for each department bore to the general salary budget. This amount, as its proportion of the overhead, was then added to the two departmental items already mentioned, and the total divided by the number of student clock hours for the department. A word of caution should be added against the drawing of too wide inferences from this table. As contributory evidence, however, it may have some value.

TABLE 15.—*University of Washington—Cost per student, based on enrollment two weeks after day of registration, for the years 1913-14 and 1914-15.*¹

Students enrolled:	
October 1, 1913, first semester.....	2,263
February 16, 1914, second semester.....	2,373
Total.....	4,636
Average attendance for year.....	2,318
Total expenses.....	\$517,506
Cost per student of average attendance.....	\$223.49
Students enrolled:	
October 1, 1914, first semester.....	2,724
February 15, 1915, second semester.....	2,645
Total.....	5,369
Average attendance for year.....	2,684.5
Total expense.....	\$517,506
Cost per student of average attendance.....	\$192.77

TABLE 16.—*Washington State College—Cost per student, based on enrollment two weeks after day of registration, for the years 1913-14 and 1914-15.*²

Students enrolled:	
October 1, 1913, first semester.....	947
February 16, 1914, second semester.....	972
Total.....	1,919
Average attendance for year.....	959.5
Total expense.....	\$343,865
Cost per student of average attendance.....	\$358.37
Students enrolled:	
October 1, 1914, first semester.....	1,013
February 15, 1915, second semester.....	956
Total.....	1,969
Average attendance for year.....	984.5
Total expenses.....	\$285,299
Cost per student of average attendance.....	\$289.79

¹ In both years the only expense items used were (1) "Total operating expenses"—which include educational equipment, instructional salaries, and overhead—and (2) such items of "construction" as correspond to comparable items in the State college. Buildings and all special funds, as well as all extension division items, were excluded.

² In both years the only expense items used were (1) "Total operating expenses"—which include educational equipment, instructional salaries, and overhead—and (2) such items of "construction" as correspond to the items in the university's budget of repairs and betterments and campus improvement and upkeep. Buildings and all special funds, as well as all extension and experiment station items, were excluded.

TABLE 17.—University of Washington—Student clock hour cost based on class reports of the first and second semesters, 1914-15.

EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

Departments	Salaries	Department equipment		Overhead	Total	Student clock hours per week		Total for year	Student clock hour costs
		Undergraduate	Graduate			First semester	Second semester		
College of Liberal Arts									
English	\$20,468.04	\$784.66		\$7,132.07	\$28,390.77	3,871	3,847	128,138	\$0.2217
French	12,646.32	266.86		4,404.49	17,323.67	1,963	1,945	68,628	0.3152
German	12,778.00	474.77	\$141.88	4,276.19	17,160.84	2,267	2,078	78,210	0.2736
Greek	4,783.33	104.00	180.21	1,665.05	6,732.59	441	381	14,488	0.4685
History	12,878.05	787.47	560.16	4,484.13	18,670.81	2,903	2,903	103,914	0.1707
Latin	8,437.39	1,113.48		2,084.26	12,475.13	580	580	22,302	0.5594
Journalism	9,888.25	1,156.74	87.44	2,240.05	8,917.48	366	366	15,480	0.6483
Liberal economy	2,491.46	151.49		570.93	2,210.90	168	168	6,588	0.3782
Oriental languages and literature	5,533.33	1,178.97		867.57	3,644.05	310	310	1,008	3.6000
Philosophy	15,920.61	483.10		1,943.95	8,705.26	941	957	34,184	0.4648
Political and social sciences	3,867.36	184.48		6,613.65	22,057.26	3,489	3,107	118,868	0.3978
Public speaking and debating	2,083.32	312.37	70.80	1,728.02	3,170.87	250	250	14,568	0.2285
Scandinavian	1,570.68	42.16	30.84	2,078.69	8,122.87	1,038	1,032	4,862	0.3215
Spanish	1,570.68	42.16	30.84	2,078.69	8,122.87	1,038	1,032	4,862	0.3215
College of Science									
Botany	10,887.17	4,350.97	302.11	3,790.71	19,420.96	2,926	2,172	91,764	0.2118
Chemistry	19,944.76	16,830.36		6,044.41	49,719.53	7,209	6,701	235,080	0.1860
Geology	6,481.54	910.88		2,249.90	9,632.32	1,222	48	4,688	0.2075
Physics	8,080.19	6,439.67		2,785.86	17,295.67	1,253	1,188	46,868	0.3694
Mathematics	13,172.17	1,242.95		6,327.34	26,191.70	3,159	2,691	104,640	0.2480
Mathematics and astronomy	4,846.99	810.48	449.24	1,688.76	8,091.25	946	829	32,310	0.2600
Physics and astronomy	9,045.15	1,744.40		2,681.98	11,741.90	2,127	2,607	88,413	0.1406
Zoology	7,539.92	2,343.30		2,921.61	12,463.73	2,658	1,455	54,414	0.2280
College of Engineering									
Civil engineering	18,408.08	1,613.69	20.00	6,411.49	26,453.16	3,117	4,187	130,572	0.2028
Electrical engineering	8,303.97	1,220.43	42.81	2,891.24	12,458.44	916	823	32,144	0.3170
Mechanical engineering	10,869.06	1,870.01		3,059.27	15,948.36	2,350	1,443	77,616	0.2012
College of Mines	8,589.68	2,040.94		2,890.36	13,660.90	376	310	1,723	0.7854
College of Forestry	9,073.14	1,272.13	70.40	3,156.11	13,574.77	1,051	731	31,993	0.4366
College of Pharmacy	7,982.72	268.44	14.74	2,757.99	10,981.89	968	1,060	37,002	0.2914
School of education	10,467.64	439.54	88.45	3,444.83	14,640.46	1,375	1,523	54,544	0.2704

School of law	14,491.63	831.11	5,045.98	19,537.60	2,665	2,197	86,716	2,279
College of fine arts	10,443.98	704.37	2,528.59	13,676.94	312	2,033	78,210	1,907
Military training	1,005.00		270.63	2,136.80	34	1,388	54,216	686
Total	266,943.23	54,226.63	106,876.20	471,006.20	58,813	55,600	2,087,638	2,269
Including short course						56,763	2,079,668	2,273
Machine stations	1,462.60	568.74	508.24	2,540.48				
Library	1,882.00	2,768.47	3,106.97	14,907.64				
Summer school	14,141.78	1,866.26	4,924.00	21,028.01				
Grand total	321,479.48	69,663.09	115,418.41	509,568.33				

Does not show the accurate distribution with reference to instructional duties. The proportional assignment of salaries to instruction has been made in the report referred to in the accompanying note. The difference between the salary amounts credited to the departments in this report and the actual expenditures for salaries and student clock hours for the year ending June 30, 1916, is, in the main, the difference between salary authorizations and actual expenditures. The figures shown for July 1, 1914, and June 30, 1915. The faculty are paid in 12 installments, beginning with August. So in all cases where new men were brought into departments in 1914-15 the figures show only 11 monthly salary, the twelfth month being after June 30. A smaller difference is accounted for by increases in salaries, the increase being shown only for 11 months.

The cost per student at the university is exceedingly, almost disastrously, low. On the other hand, at the State college the cost per student is higher than in other institutions for which the bureau has been able to get comparable figures.¹ For example, in the year 1914-15 the cost per student at the Iowa State University was \$274.50. At the Iowa State College it was \$271, and at the Iowa State Teachers College \$170. Institutions that are largely technical are generally expensive, and allowance must be made for extra cost of laboratory instruction where such preponderates.² Agricultural and mechanical colleges, being for the most part technical institutions and having also expensive tracts of land to operate, probably cost more per student throughout the country than do State universities of similarly good equipment. Nevertheless, it is the opinion of the committee that the State college can reduce its student cost by such readjustments as will raise the departmental and institutional average of student clock hours.

TABLE 18.—State College of Washington—Expenditures by departments, 1914-15.

Departments.	Salaries.	Equip-ment and supplies.	Overhead.	Total.	Student clock hours (year).	Student clock-hour costs.
Agriculture.....	\$14,549.86	\$2,432.81	\$7,791.05	\$24,773.72	78,402	\$6.8160
Architecture.....	4,512.50	310.87	2,001.96	6,825.33	6,354	1.0742
Botany.....	8,362.29	3,651.97	3,684.32	15,698.58	36,838	.4390
Chemistry.....	14,244.44	5,675.53	6,255.85	26,175.82	74,484	.3514
Economic science and history.....	7,820.96	314.63	3,451.70	11,587.29	48,690	.2382
Education.....	3,799.92	604.97	1,690.15	6,095.04	21,114	.2887
English.....	11,374.88	220.64	4,970.82	16,566.34	69,048	.2399
Forestry.....	2,149.93	215.57	966.11	3,331.61	1,674	1.9920
Geology.....	4,199.83	370.03	1,840.28	6,410.14	9,486	.6758
Home economics.....	4,670.69	2,337.59	2,071.10	9,079.38	32,076	.2750
Horticulture.....	6,717.46	454.03	3,180.38	10,351.87	16,272	.6362
Latin.....	3,619.96	77.97	1,638.26	5,336.19	3,200	1.5611
Mathematics and civil engineering.....	10,298.92	568.26	4,531.10	15,398.28	39,006	.3947
Mechanical and electrical engineering.....	12,574.82	1,444.12	5,961.17	20,980.11	58,680	.3575
Mining and metallurgy.....	4,137.92	1,118.05	1,833.95	7,079.92	4,782	1.4868
Modern languages.....	9,892.14	126.51	4,332.80	14,351.45	54,510	.2617
Music and fine arts.....	4,611.00	134.52	1,559.50	6,305.02	18,758	.3362
Pharmacy.....	1,650.00	427.56	781.05	2,858.61	10,332	.2738
Veterinary science.....	8,669.80	1,777.90	4,635.98	15,083.68	32,436	.4650
Zoology.....	3,324.99	1,090.91	1,787.07	6,202.97	12,114	.5104
Total.....	142,081.39	23,354.43	64,807.59	230,243.41	626,516	.3675
Elementary science.....	14,641.53	919.94	6,428.55	21,990.02		
Physical education.....			2,801.79	2,801.79		
Summer school.....	7,501.81	1,338.76		8,840.57		
Extension.....			6,843.56	6,843.56		
Experimental station.....			10,114.85	10,114.85		
Grand total.....	164,224.43	29,019.01	71,236.14	264,479.58		

By way of conclusion certain generalizations may be made.

The average salary paid at both institutions is far too low. The salaries at the State college are lower than those at the university.

¹ As already noted, the Bureau of Education has used the methods outlined in this chapter for the study of costs, student clock hours, and average enrollment only in investigations of the State institutions of Iowa and Washington.

² Laboratory instruction constitutes 54.3 per cent of the student clock hours at the university and 64.7 per cent of the student clock hours at the college.

In the long run neither can hope to get or keep men of distinction for such small remuneration. Below are tables showing the salary scales of all State higher institutions and the number receiving each grade of salary at the Washington institutions.

The instructing staff at the university is badly overloaded with student clock hours. The committee does not see how it is possible for it to do work of real university grade under such conditions.

The instructing staff at the State college is, on the whole, carrying a very light load of student clock hours. The average for the institution is lower than that of any other institution that the Bureau of Education has studied. For example, the average for the year 1914-15 at the Iowa State Teachers College was 321. At the Iowa State College of Agriculture and Mechanic Arts it was 312, and at the Iowa State University 252. The average in certain departments at the Washington State College is very low indeed. This is in spite of the fact that for some years 20 credit hours of teaching a week has been considered a normal program for each instructor.¹

¹ Credit hours, as the term is used here, means the number of hours a week that instructors hold class exercises (laboratory exercises usually counting one hour for three). No institution that valued its reputation for high standing, except a State institution—which is often the victim of circumstances and must sometimes compromise its principles in the face of legislative prejudice—would dare to demand such a large number of teaching hours of its instructors. If the members of the staff of the Washington State College had actually obeyed what was understood to be the rule and had taught 20 hours a week each, the effect on the standards of the college would have been serious. Fortunately, the rule has been more honored in the breach than in the observance.

TABLE 19.—Salaries of the teaching force in State universities and State colleges.

Names of institutions.	President.		Deans.		Professors.		Associate professors.		Assistant professors.		Adjunct professors.		Instructors.		Aidstaunts.		Tutors and others.		Houses in addition to salary.		
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Maximum.	Minimum.	Maximum.	Maximum.	Minimum.	Maximum.	Maximum.	Minimum.	Yes.	No.
Alabama Polytechnic Institute.....	6,000	3,200	2,400	1,800	2,400	1,800	1,800	1,500	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Alabama.....	5,000	3,000	2,800	2,500	2,800	2,500	2,200	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Arizona.....	4,000	3,000	2,800	2,500	2,800	2,500	2,200	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Arkansas.....	12,000	8,000	5,000	3,000	4,000	3,000	3,000	2,500	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
University of California.....	6,000	3,200	3,000	2,000	3,000	2,000	2,000	1,600	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Colorado.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,700	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
Colorado School of Mines.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,700	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
State Teachers College of Colorado.....	4,500	2,500	1,800	1,500	2,000	1,500	1,500	1,200	800	1,200	800	700	600	500	450	300	100	100	0	0	0
Connecticut Agricultural College.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,700	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
Dakota College.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,700	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Florida.....	3,600	2,000	2,000	1,800	2,000	1,800	1,800	1,400	1,000	1,200	1,000	800	700	600	500	450	300	100	100	0	0
Florida State College for Women.....	3,450	2,060	2,000	1,900	2,000	1,900	1,900	1,400	1,000	1,200	1,000	800	700	600	500	450	300	100	100	0	0
University of Georgia.....	6,000	3,000	2,800	2,000	2,800	2,000	2,000	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
Georgia School of Technology.....	6,500	2,700	1,800	1,500	2,000	1,500	2,000	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
North Georgia Agricultural College.....	2,500	1,500	1,500	1,200	1,500	1,200	1,200	1,000	800	1,000	800	700	600	500	450	300	100	100	0	0	0
College of Hawaii.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
University of Idaho.....	2,800	2,000	2,000	1,800	2,000	1,800	1,800	1,400	1,000	1,200	1,000	800	700	600	500	450	300	100	100	0	0
University of Illinois.....	6,000	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
University of Iowa.....	6,000	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
Purdue University (Iowa).....	7,000	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
Iowa State College of Agriculture and Mechanic Arts.....	7,500	4,500	3,500	2,500	3,500	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
Iowa State Teachers College.....	5,000	3,000	2,800	2,000	2,800	2,000	2,000	1,800	1,000	1,500	1,000	800	700	600	500	450	300	100	100	0	0
State University of Iowa.....	7,500	4,500	3,500	2,500	3,500	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
University of Kansas.....	6,000	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
Kansas State Agricultural College.....	6,500	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
State University of Kentucky.....	5,500	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
Louisiana State University and Agricultural and Mechanical College.....	5,000	4,000	3,000	2,500	3,000	2,500	2,500	2,000	1,500	2,000	1,500	1,200	1,000	900	800	700	600	500	400	0	0
University of Maine.....	6,000	2,800	2,700	3,000	1,625	2,000	1,500	1,400	1,200	1,400	1,200	1,000	800	600	500	450	300	100	100	0	0

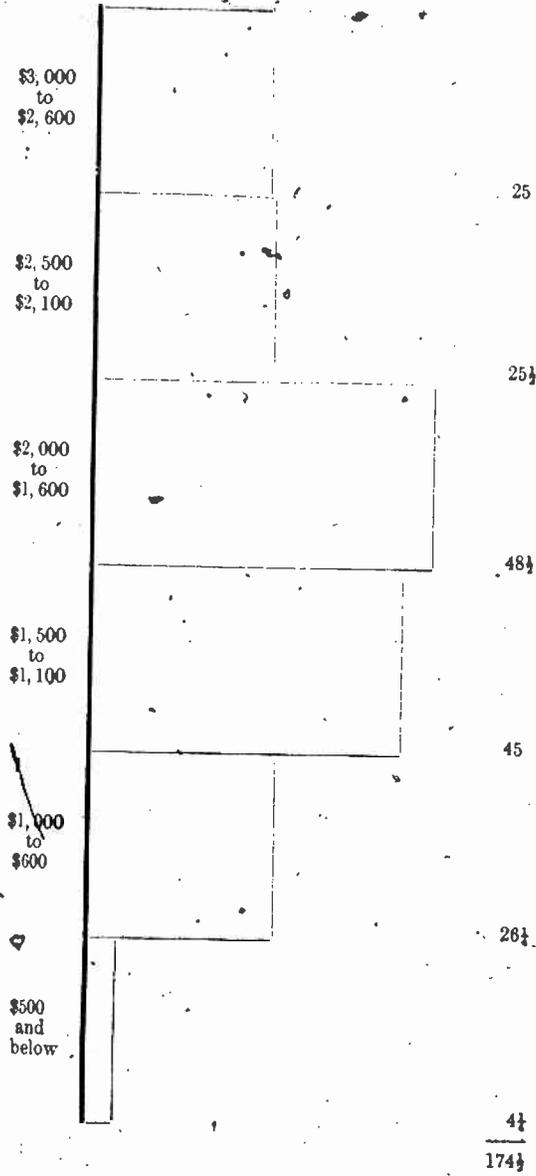
THE STATE INSTITUTIONS AND PUBLIC EDUCATION.

No.	Institution	1,400	1,800	2,750	1,800	1,620	2,500	1,800	2,150	1,600	1,200	720	1,090	900	540	420	No.	Yes	No.	Yes
21	Maryland Agricultural College	1,400	1,800	2,750	1,800	1,620	2,500	1,800	2,150	1,600	1,200	720	1,090	900	540	420	0	No.	Yes	0
22	Massachusetts Institute of Technology	3,000	4,000	2,750	3,600	2,500	2,500	1,800	2,150	1,600	1,650	1,000	1,000	900	540	420	0	No.	Yes	0
23	University of Michigan	10,000	5,000	1,800	4,000	2,000	3,000	2,000	2,000	1,700	1,900	900	750	300	300	300	0	No.	Yes	0
24	Michigan Agricultural College	5,000	3,500	2,000	3,000	2,300	2,300	2,000	2,000	1,350	1,600	550	400	300	300	300	0	No.	Yes	0
25	University of Minnesota	10,000	7,500	3,000	5,000	2,100	3,000	2,300	2,500	1,500	1,800	850	600	240	90	600	0	No.	Yes	0
26	Mississippi Agricultural and Mechanical College	3,500	2,500	2,000	2,500	2,000	1,500	1,500	1,200	1,200	1,100	600	240	90	600	90	31	No.	Yes	0
27	Mississippi Industrial Institute and College	3,500	1,500	1,200	1,800	1,000	1,000	1,000	1,000	800	1,000	720	150	300	200	100	0	No.	Yes	0
28	University of Mississippi	2,600	2,750	2,000	2,000	1,650	2,000	1,600	1,100	3,000	1,400	1,000	900	300	200	100	3	No.	Yes	0
29	University of Missouri	7,500	4,000	2,400	3,000	2,400	2,400	1,800	1,600	1,500	1,500	1,000	750	500	400	100	0	No.	Yes	0
30	Missouri College of Agriculture and Mechanical Arts	4,000	3,000	2,000	3,000	2,000	2,000	2,000	2,200	1,500	1,500	1,000	1,400	600	400	100	0	No.	Yes	0
31	Montana State School of Mines	2,000	1,200	1,800	2,750	1,800	2,000	1,800	2,200	1,500	1,500	1,000	1,400	600	400	50	0	No.	Yes	0
32	University of Nebraska	6,000	3,000	2,000	3,000	2,500	2,000	1,800	1,700	900	1,300	600	1,200	400	300	50	0	No.	Yes	0
33	University of Nevada	6,000	3,000	2,000	3,000	2,500	2,000	1,800	1,800	1,500	1,200	1,100	1,200	600	300	50	0	No.	Yes	0
34	New Hampshire College of Agriculture and Mechanical Arts	6,000	2,500	1,800	2,500	1,600	1,600	1,600	1,700	1,200	1,200	1,100	1,200	600	300	50	0	No.	Yes	0
35	Burien College (N. J.)	6,000	2,000	2,000	2,500	1,800	2,000	1,800	1,800	1,500	1,500	1,400	1,200	600	450	50	0	No.	Yes	0
36	University of New Mexico	4,000	2,000	2,000	2,000	1,500	1,500	1,300	1,200	1,000	1,500	1,400	1,200	900	450	50	0	No.	Yes	0
37	New Mexico School of Mines	3,000	2,000	2,000	2,000	1,000	1,000	1,000	1,200	1,000	1,200	1,200	600	600	450	50	0	No.	Yes	0
38	New Mexico College of Agriculture and Mechanical Arts	4,500	2,500	2,200	2,100	1,200	1,800	1,800	2,400	1,800	1,800	1,700	1,200	600	400	50	0	No.	Yes	0
39	New York State College for Teachers	6,000	3,000	2,700	3,000	2,500	2,500	2,000	2,400	1,800	1,700	1,200	1,000	550	150	100	0	No.	Yes	0
40	Cornell University (N. Y.)	10,000	8,000	3,500	6,000	2,500	2,500	2,500	2,500	2,000	2,000	1,200	1,200	50	400	50	0	No.	Yes	0
41	University of North Carolina	4,000	2,750	2,500	2,500	2,300	2,000	1,600	1,550	1,250	1,200	800	600	400	50	50	0	No.	Yes	0
42	North Carolina College of Agriculture and Mechanical Arts	4,500	2,700	2,000	2,700	1,800	1,800	1,500	1,600	1,400	1,800	700	360	100	100	100	0	No.	Yes	0
43	North Dakota Agricultural College	6,000	3,700	3,000	3,000	1,800	1,800	1,800	2,100	1,400	1,500	1,000	550	150	300	300	0	No.	Yes	0
44	Ohio University	6,000	3,200	2,800	3,000	2,400	2,400	1,700	2,000	1,400	1,500	800	650	600	500	700	0	No.	Yes	0
45	Ohio State University	6,000	3,000	1,700	3,100	1,400	1,400	1,400	1,500	1,500	1,400	900	1,100	500	300	250	0	No.	Yes	0
46	Mississippi University (Ohio)	7,000	5,000	3,000	3,500	2,000	2,000	1,800	2,200	1,250	1,800	1,000	900	700	300	250	0	No.	Yes	0
47	University of Oklahoma	5,000	3,000	2,000	2,500	2,000	2,000	1,500	1,700	1,200	1,500	500	500	200	200	200	0	No.	Yes	0
48	Oklahoma Agricultural and Mechanical College	7,500	2,800	2,000	2,500	1,800	2,000	1,500	1,750	1,200	1,300	350	1,400	300	300	300	0	No.	Yes	0
49	Oklahoma State School of Mines and Metallurgy	2,700	2,000	2,000	1,800	1,800	1,800	1,500	1,400	1,400	1,400	1,200	1,200	600	300	300	0	No.	Yes	0
50	Oregon State Agricultural College	7,000	3,100	2,400	3,000	1,700	2,100	1,500	2,000	1,200	1,500	900	900	500	500	500	0	No.	Yes	0
51	University of Oregon	2,000	2,750	2,500	2,500	1,600	1,600	1,400	2,200	1,100	1,200	600	900	600	600	600	0	No.	Yes	0
52	University of Puerto Rico	2,000	1,400	1,400	1,400	1,700	1,350	1,200	2,200	1,400	1,400	800	1,200	600	600	600	11	No.	Yes	0
53	Rhode Island State College	2,000	2,000	3,000	2,000	1,000	1,000	1,000	1,500	1,400	1,400	1,350	405	300	300	300	2	No.	Yes	0
54	The Citadel, the Military College of South Carolina	2,500	2,000	2,000	2,000	1,700	1,700	1,500	1,600	1,500	1,500	800	800	600	600	600	2	No.	Yes	0
55	Geoson Agricultural College (S. C.)	4,500	3,000	2,500	2,000	1,800	1,700	1,700	1,700	1,500	1,500	900	1,200	900	800	800	2	No.	Yes	0
56	University of South Carolina	8,000	2,500	2,000	2,000	2,000	1,500	1,500	1,700	1,500	1,200	800	1,200	800	600	600	15	No.	Yes	0

TABLE 19.—Salaries of the teaching forces in State universities and State colleges—Continued.

Names of institutions.	President.		Deans.		Professors.		Associate professors.		Assistant professors.		Adjunct professors.		Instructors.		Assistants.		Tutors and others.		Homes in addition to salary.		
	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	Maximum.	Minimum.	Maximum.	Minimum.	Maximum.	President.	Professors.	
1																					
21 South Dakota State College of Agriculture and Mechanic Arts.	\$3,000	\$1,200	\$3,000	\$1,000	\$3,000	\$1,000	\$2,100	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	Yes	0	
22 Southern State School of Mines.	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	No.	0	
23 University of South Dakota.	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	2,800	1,800	Yes.	1	
24 University of Texas.	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	2,000	1,200	No.	0	
25 Agricultural and Mechanical College of Texas.	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	3,000	2,000	Yes.	0	
26 College of Industrial Arts (Tex.).	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	4,500	2,400	Yes.	0	
27 Agricultural College of Utah.	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	5,500	3,000	Yes.	2	
28 University of Utah.	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	No.	0	
29 University of Vermont and State Agricultural College.	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	Yes.	0	
30 Virginia Polytechnic Institute.	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	5,000	2,800	Yes.	0	
31 University of Virginia.	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	5,000	3,000	No.	0	
32 Virginia Military Institute.	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	4,500	2,500	Yes.	10	
33 College of William and Mary (Va.).	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	Yes.	0	
34 State College of Washington.	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	2,000	1,500	Yes.	0	
35 West Virginia University.	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	4,000	2,400	Yes.	0	
36 University of Wisconsin.	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	7,000	3,000	Yes.	0	
37 University of Wyoming.	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	4,700	2,500	Yes.	4	

Diagram of University of Washington faculty salaries for year ending June 30, 1915.



Washington State College faculty salaries as shown on pay roll for June, 1915.

Professors, heads of departments:	
7, at.....	\$3,000
2, at.....	2,600
2, at.....	2,400
6, at.....	2,200
1, at.....	1,900
3, at.....	1,800
Professors:	
1, at.....	2,500
1, at.....	2,100
5, at.....	2,000
3, at.....	1,900
4, at.....	1,800
2, at.....	1,620
2, at.....	1,600
Associate professors:	
1, at.....	1,900
1, at.....	1,700
1, at.....	1,600
Assistant professors:	
2, at.....	1,800
2, at.....	1,700
2, at.....	1,650
3, at.....	1,600
6, at.....	1,500
5, at.....	1,400
5, at.....	1,320
Instructors:	
1, at.....	1,500
2, at.....	1,400
2, at.....	1,320
15, at.....	1,200
4, at.....	1,100
2, at.....	1,000
1, at.....	900
2, at.....	750
1, at.....	600

Chapter VI.

PRESENT SCOPE AND FUNCTIONS OF THE STATE COLLEGE AND STATE UNIVERSITY.

I.—LEGISLATIVE PROVISIONS.

(1) *The university.*—The act of January 24, 1862,¹ which created and incorporated the University of the Territory of Washington, declared that the university should provide the inhabitants of the Territory with the means of acquiring a thorough knowledge of the

¹ Laws of Washington Territory, 1861-62 (Jan. 24, 1862, secs. 2, 9).

various branches of literature, science, and arts. To accomplish this end, the act provided that "at least" four departments should be established: A department of literature, science, and arts; a department of law; a department of medicine; a military department. These departments were to be organized and such others added as the regents should deem necessary and the state of the university fund should allow.

Concerning the original intent of the Territorial legislature in this act, in the light of contemporary educational policy, there can be little doubt that in 1862 a university was designed to cover the entire field of college or university instruction, and that the expressions "literature, science, and arts" were to be interpreted in the most general sense, it being remembered that the changes in the policy of State higher education fostered by Federal legislation began with the Morrill Act approved by the National Congress nearly six months later.

These provisions of 1862 were reenacted by the legislature in a law approved January 23, 1863,¹ and remained in force throughout the Territorial period. During that period the university maintained courses covering the liberal arts and sciences² and at times normal courses and commercial courses, but the work of the institution was, for the most part, of subcollegiate grade. Within that period no department of law or medicine was put into operation.

Neither the enabling act nor the State constitution dealt specifically with the functions of the university, but the first State legislature enacted³ that the object of the university should be to provide "a liberal education and thorough knowledge of the different branches of literature, the arts and sciences with their varied applications," and that, "as far as practicable," the course of study should begin "in the collegiate and scientific departments at the points where the same are completed in the high schools."

By the act of 1893⁴ it was provided that:

The aim and purpose of the University of Washington shall be to provide * * * a liberal instruction in the different branches of literature, science, art, law, medicine, mechanics, industrial training, military science, and such other departments of instruction as may be established therein from time to time by the board of regents.

In the code of public instruction enacted in 1897⁵ the law of 1893 (above) was reenacted, but with the striking out of the terms "mechanics and industrial training." Meanwhile the following courses had been announced in the catalogue of the university: Mining engineering, 1894; civil engineering, 1895; electrical engineering, 1895; pharmacy, 1895; forestry, 1895. Little had been done in any of these subjects, however.

¹ Law of Washington Territory, 1862-63, p. 477.

² Session Laws, 1860, p. 394, sec. 2.

³ Session Laws, 1866, ch. 122, sec. 6 (p. 290).

⁴ Session Laws, 1897, Title IV, ch. 1, sec. 183, p. 427.

In the revision of the code of instruction in 1909¹ the functions of the university were left unchanged, and the provisions of the law of 1897 are therefore still in force.

(2) *Federal legislation affecting higher education.*—In 1862 the Federal Government extended its policy of granting land and money in aid of higher education in the several States and Territories. The first important provision was contained in the first Morrill Act, approved July 2, 1862,² which provided that certain lands be appropriated to the several States, the income from which—

shall be inviolably appropriated by each State which may take and claim the benefit of this act to the endowment, support, and maintenance of at least one college where the leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts, in such manner as the legislatures of the States may respectively prescribe, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions in life.

In an act approved July 23, 1866,³ the first Morrill Act was amended so as to provide:

That when any Territory shall become a State and be admitted to the Union such new State shall be entitled to the benefits of the said act of July 2, 1862, by expressing the acceptance therein required within three years from the date of its admission into the Union, and providing the college or colleges within five years after such acceptance, as prescribed in this act.

The second Morrill Act, approved August 30, 1890⁴—

to apply a portion of the proceeds of the public lands to the more complete endowment and support of the colleges for the benefit of agriculture and the mechanic arts established under the provisions of an act of Congress approved July 2, 1862—

outlined further the courses of study to be offered in colleges receiving the benefit of Federal funds, the money available through this law—

to be applied only to instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their applications in the industries of life and to the facilities for such instruction.

By act of Congress (the Nelson Amendment) approved March 4, 1907,⁵ "for the further endowment of agricultural colleges" appropriations of funds from the National Treasury were provided for purposes implied in the Morrill Act and in the title of that law, with the further provision:

That said colleges may use a portion of this money for providing courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts.

¹ Session Laws, 1909, Title 11, ch. 1, sec. 2, p. 238.

² 12 Stat. L., 503, sec. 4.

³ 14 Stat. L., 209.

⁴ 26 Stat. L., 417.

⁵ 34 Stat. L., 1256, 1261.

In the Hatch Act, approved March 2, 1887,¹ provision was made—
to establish agricultural experiment stations in connection with the colleges established in the several States under the provisions of an act approved July 2, 1862, and of the acts supplementary thereto.

Finally the Smith-Lever Act, approved May 8, 1914, was—
to provide for cooperative extension work between the agricultural colleges in the several States receiving the benefits of an act of Congress approved July 2, 1862; and of acts supplementary thereto, and the United States Department of Agriculture.

This act provides:

That, in order to aid in diffusing among the people of the United States useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same, there may be inaugurated in connection with the college or colleges in each State now receiving, or which may hereafter receive, the benefits of * * * (the Morrill Acts, etc.) * * * agricultural extension work which shall be carried on in cooperation with the United States Department of Agriculture.

SEC. 2. That cooperative agricultural extension work shall consist of the giving of instruction and practical demonstrations in agriculture and home economics to persons not attending or resident in said colleges in the several communities, and imparting to such persons information in said subjects through field demonstrations, publications, and otherwise; and this work shall be carried on in such manner as may be mutually agreed upon by the Secretary of Agriculture and the State agricultural college or colleges receiving the benefits of this act.

Under the provisions of the Smith-Lever law the State of Washington would be eligible to receive as maximum amounts of Federal funds:

* 1914-15.....	\$10,000	1919-20	\$38,266
1915-16.....	16,523	1920-21.....	43,702
1916-17.....	21,958	1921-22	49,138
1917-18.....	27,394	1922-23	54,571
1918-19	32,830	Thereafter.....	54,571

However, to secure amounts above \$10,000, the State or other parties must make available amounts equal to the amounts appropriated by the Federal Government.

The State of Washington by an act of the legislature approved March 28, 1890, accepted the terms of the Morrill Act of 1862 and of the Hatch Act of 1887. Section 2 (concerning the Morrill Act) reads as follows:

That all moneys derived by virtue of said act of Congress from the sale of lands and of land scrip shall be immediately deposited with the treasurer of the State of Washington, who shall invest and hold the same in accordance with the provisions of the fourth section of the aforementioned act of Congress, approved July 2, anno Domini, 1862, and the moneys so invested shall constitute a permanent and irreducible fund to be entitled "The fund for the promotion of instruction in agriculture and the mechanic arts," and the income derived from said funds shall be expended under the direction of the commission of technical instruction. (An act appointing this commission was approved on the same date.)

¹ 24 Stat. L., 440. Cf. also 25 Stat. L., 176, 841, and 34 Stat. L., 63.

Section 4 of the same act concerning the Hatch Act provided that—

The treasurer of the State of Washington is hereby authorized to receive all moneys to which the State of Washington may become entitled under the provisions of said act of Congress approved March 2, anno Domini 1887, and moneys so received by the said treasurer shall be applied under the direction of the commission of technical instruction to the uses and purposes of the agricultural experiment station established in connection with the Department of Agriculture of the Washington Agricultural College and School of Science.

Provision was made subsequently to receive the benefit of the other Federal acts above mentioned.

It follows, therefore, that as long as the State of Washington receives the benefits of the Federal appropriations of land and money the State is under obligation in return therefor to provide and support a college or colleges in which—

(1) "The leading object shall be, without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to agriculture and the mechanic arts in such manner as the legislature of the State may prescribe, "in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." (First Morrill Act, sec. 4.)

(2) There shall be provided "instruction in agriculture, the mechanic arts, the English language, and the various branches of mathematical, physical, natural, and economic science, with special reference to their application in the industries of life." (Second Morrill Act, sec. 1.)

(3) There may be provided "courses for the special preparation of instructors for teaching the elements of agriculture and the mechanic arts." (Nelson amendment.)

(4) There shall be provided, "under the direction of the college or colleges or agricultural department of colleges, a department to be known and designated as 'an agricultural experiment station.'" (Hatch Act; Adams Act.)

(5) There shall be provided, in connection with the agricultural college, "cooperative agricultural extension work * * * in agriculture and home economics." (Smith-Lever Act, secs. 1 and 2.)

It is to be noted always that the agreement to provide such instruction and to perform such duties as those outlined above is an agreement between the State of Washington and the United States (not between the United States and any institution of the State), and that the legislature of the State is expressly authorized by the terms of the Morrill Act to provide such instruction "in such manner as the legislatures of the States may respectively prescribe." (Morrill Act, sec. 4.)¹

(3) *The State college.*—December 23, 1864,² an act was passed by the legislature of the Territory—

for the location of an agricultural college of Washington Territory, under the provisions of an act of Congress donating lands to the several States and Territories which may provide colleges for the benefit of agriculture and the mechanic arts.

¹ For court decisions on this point, see appendix to Ch. VI.

² Laws of Washington Territory, 1864-65, p. 20.

Another similar law was passed January 2, 1865.¹ Nothing came of either, nor was any action taken further during the Territorial period.

On March 28, 1890,² an act was passed "to create a commission of technical instruction and to establish a State agricultural college and school of science." Section 6 of that act stated—

That the object of said college shall be to train teachers of physical science and thereby to further the application of the principles of physical science to industrial pursuits.

Section 8 read as follows:

That the said commission shall make provisions that all instructions given in the college shall, to the utmost practicable extent, be conveyed by means of practical work in the laboratory. Said commission shall provide, in connection with said college, the following laboratories: One physical laboratory or more, one chemical laboratory or more, and one biological laboratory or more, and suitably furnish and equip the same. Said commission shall provide that all male students shall be trained in military tactics. Said commission shall establish a department of said college to be designated the department of elementary science, and in connection therewith provide instruction in the following subjects: Elementary mathematics, including elementary trigonometry; elementary mechanics; elementary and mechanical drawing; land surveying. Said commission shall establish a department of said college to be designated as the department of agriculture, and in connection therewith provide instruction in the following subjects: First, physics, with special application of its principles to agriculture; second, chemistry, with special application of its principles to agriculture; third, morphology and physiology of plants, with special reference to the commonly grown crops and their fungous enemies; fourth, morphology and physiology of the lower forms of animal life, with special reference to insect pests; fifth, morphology of the higher forms of animal life, and in particular of the horse, cow, sheep, and swine; sixth, agriculture, with special reference to the breeding and feeding of live stock and the best mode of cultivation of farm produce; seventh, mining and metallurgy. * * * Such commission may establish other departments of said college, and provide courses of instruction therein, when those are, in its judgment, required for the better carrying out of the objects of the college.

Failure to agree on the location of the college led to another law, approved March 9, 1891—

to provide for the location and maintenance of the agricultural college, experiment station, and School of Science of the State of Washington.

This act provided in section 2 that—

The agricultural college, experiment station, and school of science created and established by this act shall be an institution of learning * * * devoted to practical instruction in agriculture, mechanic arts, natural sciences connected therewith, as well as a thorough instruction in all branches of learning upon agriculture and other industrial pursuits.

Section 3 provides that—

The course of instruction of the agricultural college, experiment station and school of science shall embrace the English language, literature, mathematics, philosophy,

¹ Laws of Washington Territory, 1864-65, p. 32.

² Session Laws, 1890, pp. 280 ff.

civil and mechanical engineering, chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, and political, rural, and household economy, horticulture, moral philosophy, history, mechanics, and such other sciences and courses of instruction as shall be prescribed by the regents of this institution of learning.

Section 10 provided that—

The said college and experiment station shall be entitled to receive all the benefits and donations made and given to similar institutions of learning in other States and Territories of the United States by the legislation of the Congress of the United States now in force or that may be enacted.

Section 13 continued the force of section 8 of the law of 1889:

SEC. 13. This act shall not be construed as impairing section eight (8) of the act to establish a commission of technical instruction of the session laws of 1889.

Such are the laws of the State determining the functions and scope of the State College of Washington at the present time.

As the only college at present designated by the State legislature to receive the benefits of the Federal funds, the State college must perform the functions previously outlined.

By specific acts of the State legislature, it must provide instruction in agriculture, the mechanic arts, the natural sciences related thereto, all branches bearing on agriculture and other industrial pursuits, the English language, literature, mathematics, philosophy, civil and mechanical engineering, chemistry, animal and vegetable anatomy and physiology, the veterinary art, entomology, geology, political economy, rural economy, household economy, horticulture, moral philosophy, history, mechanics, mining and metallurgy, elementary science (including elementary mathematics, elementary mechanics, elementary and mechanical drawing, land surveying), and such other courses as the board of regents may have instituted or may institute.

II.—PRESENT SCOPE OF THE WORK OF THE COLLEGE AND OF THE UNIVERSITY.

(1) *The college.*—With the exception of philosophy, the State college at the present time is offering instruction in all the branches of learning specifically mentioned by law as within its scope. In addition, it offers courses in forestry, pharmacy, music, architecture, electrical engineering (which may in some senses be classed as mechanical engineering), foreign languages (French, German, Latin, Spanish, Scandinavian), oral expression, and dramatic art. In the following list are indicated the various groups of subjects offered according to the catalogue of 1915, together with the number of courses offered in each group:

Mathematics (20), civil engineering (27), chemistry (37), botany (85), zoology, including entomology (24), agriculture (54), horticulture (30), forestry (17), English (37), economic science, including some commerce (22), history (12), political science (8), mechanical engineering (35), electrical engineering (21), physics (18), architecture (28).

German (20), French (13), Spanish (5), Scandinavian (8), mining engineering (21), geology (19), home economics (24), pharmacy (12), veterinary science (36), Latin (19), rural law and readings in Blackstone (2 listed in department of Latin), education (including psychology) (12, plus courses in special methods in departments of agriculture, botany, chemistry, home economics, English, history, Latin, mathematics, modern languages, physics, physical education listed in those departments), manual arts (15), music (48), fine arts (21), oral expression and dramatic art (22), elementary science (6 courses, each three years in length, in agriculture, horticulture, mechanic arts, commercial, home economics, general), military science (4), physical education (11), mechanic arts (36)—a total (excluding elementary science, military science, and physical education) of 755 separate courses offered in 1914-15, when (excluding summer-school students and those enrolled in elementary science) 1,021 students were in attendance.

During the first semester of 1914-15 the number of courses of collegiate grade actually given was 274, of which 89 enrolled less than 5 students each. During the second semester the number of courses actually given was 293, of which 98 enrolled less than 5 students each. Of all semester-collegiate courses actually given in 1914-15, nearly one-third enrolled from 1 to 4 students each.¹

(2) *The university.*—With the exception of medicine, which is represented by certain premedical courses only, the State university at the present time is offering instruction in the branches of learning specifically mentioned in the law. In addition it offers courses in four forms of engineering, in forestry, pharmacy, education, home economics, architecture, music, journalism, commerce, fine arts.

In the following list are indicated the various groups of subjects offered according to the catalogue of 1915, together with the number of courses (in parentheses) offered in each group:

Botany (37), chemistry (37), English (47), French (17), Italian (2), German (29), Greek (14), Latin (20), Spanish (14), Scandinavian (10), geology (30), history (40), home economics (26), journalism (16), mathematics and astronomy (45), oriental history, etc. (8), philosophy and psychology (27), physical education (16), physics (26), political and social science, including commerce (40), public speaking and debate (10), zoology (19), education (32, plus courses in special methods listed in other departments), chemical engineering (16), civil engineering (39), electrical engineering (22), mechanical engineering (34), music (25+), architecture, design and drawing (4), forestry (48), law (48), mining engineering and metallurgy (54), pharmacy (17)—a total of 863 separate courses offered in 1914-15 when (excluding summer school students) 3,307 students were in attendance.

During the first semester of 1914-15 the number of courses actually given was 398, of which 95 enrolled less than 5 students each. During the second semester 421 courses were actually given, of which 102 enrolled less than 5 students each. Of all semester courses actually given in 1914-15 nearly one-quarter enrolled from 1 to 4 students each.

¹ Cf. Table 21, p. 89.

III.—ENROLLMENTS AT THE STATE COLLEGE AND AT THE STATE UNIVERSITY IN 1914-15.

(1) *Distribution according to major departments.*—With some unimportant allowances for differences in administrative organization and nomenclature, the distribution of students at the State college and at the university according to major departments of study may be seen from the following table:

TABLE 20.—Enrollments at the State college and university, 1914-15.¹

Major courses.	College.				University.				Both.			
	Full standing for 4-year courses.	Short courses.	Special students.	Total.	Full standing.	Short courses.	Special students.	Total.	Full standing.	Short courses.	Special students.	Total.
Liberal arts ¹	205			205	890		96	986	1,095		90	1,191
Science ²	46			46	268		14	282	314		14	328
Engineering:												
Civil.....	29			29	146		5	151	175		6	180
Electrical ³	58			58	180		48	228	238		48	286
Mechanical.....	36			36	93		1	91	128		1	127
Mining.....	26			26	70	38	5	113	98	38	5	139
Chemical.....					64		1	65	64		1	65
Forestry.....	5	(⁴)		5	77	20	10	107	82	20	10	112
Pharmacy.....	17	21		38	70		17	87	87	21	17	125
Education.....	30			30	76		18	94	106		18	124
Veterinary science.....	14	26		40					14	26		40
Home economics ⁵	96			96	248		9	258	345		9	354
Architecture.....	13			13	12			12	25			26
Agriculture ⁶	258	97		355					258	97		355
Music ⁷	23	12		35	98		16	114	121	12	16	149
Journalism ⁸					136		4	140	136		4	140
Commerce.....					102	40	16	158	102	40	15	158
Premedical.....					68			68	68			68
Preparatory to law.....					100			100	100			100
Library economics.....					65			65	65			65
Law.....					107		88	190	107		88	190
Elementary science.....			11 256	256								256
Mechanic arts ¹⁴			9	9								9
Totals ¹⁵	856	156	11 265	1,277	2,860	98	343	3,307	3,722	254	688	4,584
Summer school.....				235				743				1,118
Grand total.....				1,512				4,050				5,702

¹ Figures taken from data for the State college submitted on sheet headed "Students majoring in the various departments" and data for the university on sheets headed "Enrollment, 1914-15", together with data on pages 510 and 511 of the bulletin of the university of Washington, April, 1915, catalogue. Figures indicate only the numbers of students specializing in certain courses. Figures for those studying in various fields are much greater.

² Includes at the State college economic science and history, English (general course), Latin, modern languages, and such other general courses as are not separately listed in the State college enrollment. At the university includes students registered in the college of liberal arts, except home economics, journalism, library economy, commerce, and law preparatory departments.

³ Includes at the State college botany, chemistry, economic biology, geology, mathematics and physics, sociology. Includes at the State university all enrollment of the school and college of science, except home economics and premedical courses.

⁴ Includes hydroelectrical engineering.

⁵ Three months' course.

⁶ Three-year courses, admission to which is based on less than 15 units of secondary school work.

⁷ Includes at the State university students in the college of liberal arts majoring in home economics, and in the college of science majoring in home economics.

⁸ Includes at the State college horticulture.

⁹ Six weeks' course.

¹⁰ Includes at the State college a few others majoring in fine arts in general or other departments.

¹¹ Some courses covered in the department of English at the State college.

¹² Two-year course.

¹³ Work in general of secondary school grade.

¹⁴ Subcollegiate courses in manual arts.

¹⁵ Excludes double registration.

(2) *Students enrolled in various departments.*—The following table indicates the gross enrollment in various departments of the State college and of the State university for 1914-15, each student being counted as many times as his name was found in the class lists in each department.

TABLE 21.—*Gross enrollment in 1914-15.*¹

Courses.	College.				University.			
	Number of courses given.		Gross enrollment.		Number of courses given.		Gross enrollment.	
	First semester.	Second semester.	First semester.	Second semester.	First semester.	Second semester.	First semester.	Second semester.
Liberal arts ²	66	76	1,430	1,308	136	131	3,977	3,980
Science ³	44	49	813	822	71	78	2,957	2,424
Engineering:								
Civil.....	14	9	132	85	21	27	480	644
Electrical.....		9	39	55	14	15	228	181
Mechanical.....	15	12	216	150	20	23	521	475
Mining.....		7	28	24	12	13	89	115
Forestry.....		8	11	21	14	14	236	167
Pharmacy.....	4	6	87	73	10	12	159	160
Veterinary.....	7	5	140	116	21	22	492	708
Home economics.....	9	13	159	218				
Architecture.....	11	10	159	141	16	14	512	400
Agriculture.....	8	8	35	64	3	4	86	79
Horticulture.....	24	23	467	483				
Music.....	9	12	117	83				
Journalism.....	15	16	125	168	20	21	652	660
Law.....					10	12	200	224
Fine arts (other) ⁴	7	10	48	71	27	30	1,152	1,185
Mechanic arts ⁵	18	18	71	95	3	5	125	134
Elementary science ⁶	69	76	1,252	1,154				
Total.....	343	369	5,079	4,931				
Total collegiate grade.....	274	293	3,827	3,777	308	421	11,877	11,616

¹ These figures are taken from enrollment figures supplied for this purpose by the registrars of the two institutions. In the case of the State college the figures for elementary science were separated from the figures for the other departments.

² Including English, foreign language, history, economic, social, and political science, philosophy, etc.

³ Including botany, chemistry, geology, mathematics, zoology, etc.

⁴ Including painting, drawing, expression and dramatic art, public speaking.

⁵ Special noncollegiate course at the State college.

(3) *Geographical distribution of students, 1914-15.*—The geographical distribution of the students in attendance at the State college and at the university in 1914-15 (including summer schools of 1914) was as follows (duplicates excluded):

TABLE 22.—*Distribution of university and State college enrollments in 1914-15 according to counties in which students reside.*

Counties.	College.			University.			Both.		
	Regular session.	Summer session ²	Total.	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.
Adams.....	14	3	17	8	2	10	22	5	27
Asotin.....	17	2	19	8	2	10	25	4	29
Benton.....	20	2	22	7	4	11	27	6	33
Grays Harbor.....	11	2	13	45	11	56	56	13	69
Chelan.....	18	7	25	18	13	31	36	20	56
Clallam.....	11	2	13	8	2	10	19	4	23
Clarke.....	10	2	12	15	6	21	25	8	33
Columbia.....				2	2	4	2	2	4
Cowlitz.....	15	3	18	16	3	19	31	6	37
Douglas.....	3	6	9	5	1	6	8	7	15
Ferry.....	8	4	12				8	4	12
Franklin.....	4		4	1		1	5		5
Garfield.....	12	3	15	3	1	4	15	4	19
Grant.....	13	3	16	1	2	3	14	5	19
Island.....	5	8	13	2	4	6	7	12	19
Jefferson.....	10	6	16	18	2	20	28	8	36
King.....	75	129	104	2,003	252	2,255	2,078	281	2,359
Kitsap.....	11	2	13	25	13	38	36	15	51
Kittitas.....	20	8	28	24	8	32	44	16	60
Klickitat.....	6	1	7	5	6	11	11	7	18
Lewis.....	17	2	19	35	14	49	52	16	68
Lincoln.....	28	6	34	10	5	15	38	11	49
Mason.....	4	4	8	12		12	16	4	20
Okanogan.....	14	7	21	11	4	15	25	11	36
Pacific.....	2	1	3	11	7	18	13	8	21
Pend Oreille.....	1	2	3	1		1	2	2	4
Pierce.....	56	192	148	174	37	211	230	129	359
San Juan.....	2		2	11	1	12	13	1	14
Skagit.....	14	7	21	47	11	58	61	18	79
Skamania.....	2	2	4	1		1	3	2	5
Snohomish.....	47	9	56	83	35	116	130	42	172
Spokane.....	157	31	188	105	35	140	262	66	328
Stevens.....	16	9	25	7	2	9	23	11	34
Thurston.....	24	7	31	14	9	23	38	16	54
Walla Walla.....	36	17	53	22	10	32	68	27	95
Wahkiakum.....	5	2	7				5	2	7
Whatcom.....	33	4	37	67	20	87	90	24	114
Whitman.....	296	78	374	11	7	18	307	85	392
Yakima.....	52	14	66	82	18	100	114	32	146
State.....	1,089	387	1,476	2,898	547	3,445	3,977	934	4,911
Out of State.....	127	32	159	159	357	516	484	225	709
Not accounted for.....			8	82	3	85	62	3	73
Grand total.....	1,216	419	1,635	3,307	743	4,050	4,523	1,162	5,685

¹ Includes short-course winter session (95 students).
² Summer schools maintained at Puyallup, Pierce County.

TABLE 23.—Distribution of university and State college enrollment in 1914-15 according to the three main sections of the State.

Sections of State.	College.			University.			Both.		
	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.
Western ¹	313	182	525	2,532	412	2,964	2,995	594	3,489
Central ²	157	50	207	180	71	231	317	121	438
Eastern ³	589	155	744	176	64	240	785	219	1,004

¹ West of Cascades.
² A summer school is maintained at Puyallup, Pierce County.
³ East of Cascades and west of Ferry, Lincoln, Adams, Franklin, Walla Walla (western boundaries).
⁴ Remainder of State.

The fuller meaning of this geographical distribution of students becomes clear when these figures are reduced to per cents. The two tables following present such figures.

TABLE 24.—Per cents of the total enrollment of the State institutions from each of the three main sections of the State.

Section of State.	College.			University.			Both.		
	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.
Western.....	31.5	47.1	35.6	88.4	75.3	86.3	72.8	63.6	71.0
Central.....	14.5	12.9	14.0	5.6	13.0	6.7	8.0	13.0	9.0
Eastern.....	54.0	40.0	50.4	6.0	11.7	7.0	19.2	23.4	20.0
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

TABLE 25.—Per cents of the total number of collegiate students residing in each of the three main sections of the State enrolled at the university and the State college.

Institutions.	Western section.			Central section.			Eastern section.		
	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.	Regular session.	Summer session.	Total.
College.....	11.8	30.6	15.0	49.5	41.3	47.2	77.0	71.2	75.5
University.....	88.2	69.4	85.0	50.5	58.7	52.7	23.0	28.8	24.5

From these figures a number of important facts may be observed, as follows:

- (1) Attendance at the State college or university is determined to a considerable extent by geographical factors.
- (2) About 85 per cent of the enrollment at the university is from west of the Cascade Mountains.
- (3) About one-half of the enrollment at the State college is from the eastern part of the State.

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(4) About 70 per cent of the total number of students in the higher institutions of college grade are from west of the Cascade Mountains, about one-tenth from the central portion of the State, and about one-fifth from the eastern part of the State.

(5) Of students attending such institutions from the western part of the State, 85 per cent are at the university and 15 per cent at the State college.

(6) Of students attending such institutions from the eastern part of the State, about three-fourths are at the State college and one-fourth at the university.

(7) Students from the central part of the State are about equally divided between the two institutions.

For purposes of comparison the distribution of the population in the three sections of the State, according to the census of 1910, is added.

TABLE 26.—Population, by sections, in 1910.

Sections.	Population.	Per cent.
Western.....	735,576	64
Central.....	124,303	11
Eastern.....	285,397	25
Total.....	1,145,276	100

IV.—TOTAL INSTRUCTION GIVEN IN REGULAR SESSIONS, 1914-15.

The actual work of the two institutions is not indicated by the number of courses offered or given, nor by the numbers of students enrolled in major departments, nor yet by the gross enrollment. Probably the most accurate measure is the aggregate number of student clock hours of instruction. This is determined by multiplying the number of hours (including laboratory, etc.) per week that a course is given for a semester by the number of students enrolled in that course. Thus, a class which meets for any kind of instruction five hours per week (per semester), and in which 20 students are enrolled provides 100 student clock hours.¹

In the following table are indicated the number of student clock hours actually given in 1914-15 in the State college and in the university,² together with the number of "full-time" instructors engaged.³

¹ Cf. definition in Ch. V, p. 87.

² This table presents a summary of certain portions of Tables 13 and 14.

³ Certain instructors give but a fraction of their time to the work of instruction or divide their time between two or more departments. In estimating the number of instructors in each department these persons are reckoned as fractional instructors.

TABLE 27.—Instructors and student clock hours in 1914-15.

Departments.	College.				University.			
	Number of instructors.		Student clock hours.		Number of instructors.		Student clock hours.	
	First semester.	Second semester.	First semester.	Second semester.	First semester.	Second semester.	First semester.	Second semester.
Agriculture.....	8½	8½	2,178	2,183				
Architecture.....	2	2	99	242	(1)	(1)	(1)	(1)
Botany.....	3½	3½	1,247	774	6½		2,226	2,172
Chemistry.....	6	6½	2,021	2,117	13		7,299	5,809
Education.....	2	2	453	720	5		1,876	1,683
Mathematics.....	6½	6½	1,098	1,069	10½		3,189	2,961
Civil engineering.....					10½		3,117	4,399
Mining engineering.....	2	2	161	103	4		376	783
Electrical engineering.....					3½		916	920
Mechanical engineering.....	9½	8½	1,852	1,440	5		2,350	1,962
Physics.....					5½		1,568	1,455
English.....	8	8	1,862	1,974	14		3,877	3,247
History.....	5	6	1,639	1,066	6½		2,908	2,870
Economic, social, and political science.....					9		3,489	3,107
Modern languages.....	8	8	1,671	1,474	19½		5,394	5,146
Ancient languages.....	1	1	37	146	5		896	826
Home economics.....	3	3½	994	838	5		1,262	1,394
Horticulture.....	4	4	554	350				
Geology.....	2	2	208	319	4		1,222	1,463
Zoology.....	1½	1½	264	399	4½		2,858	3,060
Forestry.....	1	1	22	71	4½		1,061	1,215
Pharmacy.....	1	1	214	360	5½		998	1,096
Fine arts.....	8	8	342	599	6½		2,312	3,033
Law.....					5½		2,565	2,197
Veterinary.....	2½	4½	738	1,064				
Philosophy and psychology.....	(2)	(2)	(2)	(2)	5½		1,907	1,786
Photography.....	1½	1½	32	86				
Manual arts.....	1	1	86	28				
Oriental history.....					1		310	366
Library economy.....					1		168	198
Public speaking.....	(2)	(2)	(2)	(2)	2		280	321
Total.....	85½	86½	17,632	17,315	167		55,062	53,767

1 Cf. fine arts.
2 Cf. education.

3 Cf. English.
4 Excluding physical education and military tactics.

V. GRADUATES OF THE TWO INSTITUTIONS.

(1) *The college.*—The range of the instruction provided at the State college in the past and at present may be noted from the degrees granted to its graduates. Summarized data are available for the years 1897 to 1915 only.¹

¹ Compiled from catalogues for 1915.

TABLE 28.—Degrees granted by the State college.

Courses.	1897-1914		1915		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Agriculture.....	67	6.6	27	20.6	94	8.3
Horticulture.....	42	4.2	11	8.4	53	4.6
Engineering:						
Civil.....	91	9.0	4	3.1	95	8.4
Electrical.....	96	9.5	9	6.9	105	9.2
Mechanical.....	19	1.9	1	.8	20	1.8
Mining.....	47	4.7	4	3.1	51	4.6
Home economics.....	69	6.9	12	9.2	81	7.1
Chemistry.....	30	3.0	4	3.1	34	3.0
Zoology.....	14	1.4			14	1.2
Botany.....	25	2.0	1	.8	21	1.8
Geology.....	6	.6			6	.5
English.....	57	5.7	6	4.6	63	5.6
Economic science and history.....	88	8.7	10	7.6	98	8.6
B. A. (general).....	27	2.7	8	6.1	35	3.0
B. S. (general).....	12	1.2	6	4.6	18	1.6
Education.....	27	2.7	6	4.6	33	2.9
Mathematics and physics.....	10	1.0	1	.8	11	1.0
Modern languages.....	27	2.7	3	2.3	30	2.6
Latin.....	9	.9			9	.8
Forestry.....	1	.1			1	.1
Architecture.....	1	.1			1	.1
Pharmacy, B. S. in.....	5	.5			5	.4
Pharmacy, graduates in.....	164	16.2	7	5.3	171	15.1
Veterinary medicine, B. S. in.....	8	.8	2	1.5	10	.9
Veterinary medicine, graduates in.....	63	6.2	6	4.6	69	6.2
Music, B. A. in.....	7	.7			7	.6
Music, graduates in.....	9	.9	3	2.3	12	1.1
Total.....	1,016		131		1,147	
Counted twice.....	11				11	
Net total.....	1,005	100.8	131	100.2	1,136	101.0

Apparently in the early history of the State college a relatively small proportion of the total number of degrees was granted in the field of agriculture, a relatively large proportion in engineering, and a relatively large proportion in the liberal arts. There were also many degrees of "graduates in pharmacy." It appears from the degrees granted in 1915, however, that agriculture is coming to its own in the State college.¹ This becomes more apparent when figures are grouped as follows:

TABLE 29.—Per cents of graduates.

Courses.	1897-1914	1915
	Per cent.	Per cent.
Agriculture and horticulture.....	10.5	20.0
Engineering.....	25.1	13.9
Home economics.....	6.8	9.2
Veterinary.....	7.0	6.1
Sciences.....	9.2	9.3
Liberal arts.....	20.7	20.6
Other departments.....	21.2	12.2
Total.....	100.8	100.2

(2) *The university.*—A similar tabulation of the degrees granted by the university during the same period appears in Table 30.

¹ In the year 1914-15 the total expenditure of the State college for agriculture was \$283,286, or 51 per cent of its total budget. This does not include instruction in botany, zoology, chemistry, and other necessary scientific foundations for all agricultural study and experimentation.

TABLE 30.—Degrees granted by the university.
BACHELOR DEGREES.

Courses.	1876-1914		1915		Total.	
	Number.	Per cent.	Number.	Per cent.	Number.	Per cent.
Bachelor of arts.....	1,294	54.28	142	40.23	1,436	52.46
Bachelor of arts in education.....	1	.04			1	.04
Bachelor of science.....	43	1.80	51	14.46	94	3.43
Bachelor of science in home economics.....	14	.58			14	.51
Bachelor of science in college of engineering.....	9	.38	6	1.70	15	.55
Bachelor of science in chemical engineering.....	13	.55	4	1.13	17	.63
Bachelor of science in civil engineering.....	80	3.36	10	2.83	90	3.28
Bachelor of science in electrical engineering.....	76	3.19	16	4.53	92	3.36
Bachelor of science in mechanical engineering.....						
Bachelor of science in college of mines.....	28	1.17	6	1.70	34	1.24
Bachelor of science in mining engineering.....			1	.28	1	.04
Bachelor of science in geology and mining.....	60	2.52	3	.85	63	2.30
Bachelor of science in metallurgical engineering.....	7	.29	2	.57	9	.33
Bachelor of science in college of forestry.....	2	.08			2	.07
Bachelor of science in forestry.....	8	.34	5	1.42	13	.47
Bachelor of science in pharmacy.....	21	.88	2	.57	23	.84
Graduate in pharmacy, Ph. C.....	24	1.43	6	1.70	30	1.46
Certificate in pharmacy.....	164	6.46	17	4.82	181	6.28
Bachelor of laws.....	13	.55			13	.47
Bachelor of music.....	251	14.72	41	11.61	292	14.33
Business graduates.....	4	.17	5	1.42	9	.33
Total.....	2,212	92.79	317	89.81	2,529	92.40

GRADUATE DEGREES.

Master of arts.....	136	5.71	13	3.68	149	5.44
Master of arts in education.....	1	.04	3	.85	4	.15
Master of science.....	11	.46	14	3.97	25	.91
Master of science in education.....	2	.08			2	.07
Master of science in chemical engineering.....	1	.04			1	.04
Master of science in civil engineering.....			1	.28	1	.04
Civil engineering.....	1	.04			1	.04
Electrical engineering.....	4	.17	1	.28	5	.18
Mining engineering.....	4	.17	2	.57	6	.22
Master of science in forestry.....	2	.08			2	.07
Master of science in pharmacy.....	8	.34	1	.28	9	.33
Ph. D.....	1	.04	1	.28	2	.07
Total graduate degrees.....	172	7.21	36	10.19	208	7.60
Total bachelor degrees.....	2,212	92.79	317	89.81	2,529	92.40
Counted twice.....	2,384	100.00	353	100.00	2,737	100.00
Net total.....	271		5		276	
Normal diplomas granted.....	2,113		348		2,461	
Life diplomas granted.....	619		108		727	
	84		79		163	

The following table indicates the professional distribution of the graduates of the State university, 1876-1915, according to present occupations:

TABLE 31.—Professional distribution of State university graduates.

Agriculture.....	25	Home making.....	471
Business.....	119	Law.....	839
Chemistry.....	9	Literary and newspaper work.....	33
Engineering.....	270	Pharmacy.....	161
Fine arts.....	21	Religious and social.....	21
Forestry.....	11	Unknown.....	66
Government science.....	67		
Education.....	810	Total.....	2,491

Particularly noticeable here are the number engaged in "home making," emphasizing the importance of home economics, and the number engaged in teaching, emphasizing the importance of education in the university.

APPENDIX TO CHAPTER VI.

The competence of a State legislature to determine the college or colleges to receive the benefits of the Federal acts and to distribute functions as it may see fit has been determined by the State and Federal courts too often to leave any ground for doubt. (156 Mass., 150 (30 N. E., 555); 51 Miss., 381; 39 Southern, 929; 17 R. I., 815 (21 Atl., 916); 14 Wyo., 318 (84 Pac., 90) (206 U. S., 278); 136 U. S., 152.)

Thus in the case of the Wyoming Agricultural College *v. Irvine* (84 Pac., 90) (decision affirmed by the Supreme Court of the United States) it was held:

(1) That the act of Congress July 2, 1862, and act of Congress August 30, 1890 (first and second Morrill Acts), constituted a grant to the several States, and not to the colleges competent to receive the same in the States to be received through the State as a mere conduit.

(2) It was the duty of the State legislature to select the beneficiary entitled to receive and expend the funds received under the congressional acts.

(3) That the Wyoming Agricultural College * * * was a public corporation whose charter did not constitute a charter which the State was prohibited from impairing.

(4) That under the act of July 2, 1862, a college may be a department or college of the State university whose leading object is instruction in the subjects prescribed by the acts of Congress (Morrill and Hatch Acts), and it makes no difference that a majority of the students are enrolled in other departments.

(5) That the donations are to the State, and not to any institutions of the State.

In the case of the State *versus* Vicksburg & Nashville Railroad Co. (51 Miss., 381) the court said:

The discretionary power of the legislature over the subject is full. The legislature is free to establish one or more colleges of the character described in the act of Congress and make them the recipients of the interest of their support, or it may bestow it, as it has done, upon the universities. Both of them are subject to change and modification by the legislature. Against the State neither can set up a vested right to property or corporate franchise.

In the case of the State (of Florida) *versus* Bryan (39 Southern, 929) the court held that the legislature had the power to prescribe what college or colleges should be the recipient or recipients of the interest in the fund derived from the sale of lands donated in the Morrill Act; the power to bestow it for such purposes and upon a university of the State, as it might elect; the power to withdraw the interest from any institution of learning which had been the recipient of it and found another institution at any time it might elect to do so and make it the recipient of said interest for such instruction.

In the case of Massachusetts Agricultural College *versus* Marden, State Treasurer, et al. (30 N. E., 555), the supreme court of Massachusetts held that:

Under act of Congress August 30, 1890, providing for the payment to the various States of money for the more complete endowment and maintenance of colleges for the benefit of agriculture and the mechanic arts now established, or which may be hereafter established, in accordance with act of Congress July 2, 1862, States are not restricted in the use of the money to one college in each State or to colleges established subsequent to the act of 1862.

Chapter VII.

WARRANTED AND UNWARRANTED DUPLICATION.

THE PRINCIPLE OF MAJOR AND SERVICE LINES.

Nineteen States, of which Washington is one, maintain colleges of agriculture and mechanic arts as separate institutions not connected with the State university. The harmonious and economical adjustment of these two types of institutions to the performance of the State's educational task and the establishment of definite and equitable relations between them constitute possibly the greatest problem in educational administration in the United States. Three elements in the problem have proved most fruitful causes of difficulties. They are, first, the common belief that a college of agriculture and mechanic arts is in its nature a "lower" type of institution than a university and that it can not properly be ranked with a university; second, the confusion of the words "university" and "universal," with the result that many—some university authorities among them—believe that a university is under implied contract with its sponsors to teach everything; and, third, the development of an almost superstitious horror of duplication of courses. This last has been stimulated in many cases by partisan institutional officials for selfish ends. It is worth while to discuss these three matters briefly.

Unquestionably the State university was at first intended to be the ranking institution in the State. It was assumed that all higher training would center in it. But most State universities were established before the differentiation of higher education into separate specialized fields of subject matter. This development has taken place within 50 years. The same period has seen the rise of the land-grant college. Land-grant colleges have indeed borne an important part in the great modern movement which has led to the elevation of applied science among the learned professions; they have contributed largely to this differentiation of professional lines which marks present-day higher education.

In the beginning the land-grant college was undoubtedly not of equal standing with the university. In some States it is still on a lower academic level, but in States where higher education in both the applied subjects and the older scholastic subjects has been best supported and most wisely administered the disparity between these two types of institutions has wholly disappeared. It should be emphasized that it remains with the institutions and with the States to establish the full educational equivalence of the land-grant college and the university. If the land-grant college has as high entrance requirements, as severe educational standards, and is able a corps of instructors, it is a university (no matter what it is called), doing work of equal rank with that offered by the uni-

versity proper. More especially is this true of the land-grant colleges which have developed graduate courses and encouraged research in the applied sciences. In Washington, it might be remarked in passing, the complete educational parity between the university and the land-grant college has long been established and is generally recognized. Neither institution has yet developed graduate work to any large extent, although the university has now made a beginning in this field. The committee is happy to contribute its testimony as to the high standards set by the State college for entrance and their rigid enforcement, as well as to the serious and valuable character of the research work already done by members of the staff.

It is generally admitted by all who study education that no university, no matter how wealthy, can cover the whole field of human knowledge. No university can longer be universal. Every university must, to a certain degree, specialize; it must give higher training—if possible, the highest—in those subjects and professions which its constituents ought to know or to practice. Some universities can, of course, provide for instruction and research in more different lines than others. But the test of a university's standing and greatness is not the size of the territory over which it spreads. The true tests are the quality of the work which it does and the eminence of the scholars who make up its faculty. A university is an institution where men are taught to think universally, not one that attempts to cover the universe.

Those States which maintain separate land-grant colleges have in effect divided their universities and have created a university system. If they have been wise enough early enough to differentiate the functions of the two institutions, they may have assigned to one the liberal arts and the learned professions, to another the applied sciences and agriculture, or they may have made some other division; but unfortunately few States have possessed this wisdom. In any event it must be recognized that where a State university system exists, instead of a single institution, the field of the university proper is likely to be abbreviated. This is entirely just, and from the point of view of the State may not be a disadvantage. In fact the existence of two or more institutions of collegiate rank undoubtedly increases the total number of students who avail themselves of higher education. Every institution exerts a strong, magnetic pull on its immediate environment.¹

The word "duplication" has become a bogey. Many believe it designates what is tantamount to a crime in public or institutional management. Duplication, however, is of two kinds. One of these is perfectly harmless, justifiable, desirable, necessary. The other is exceedingly undesirable, first on the ground of expense and second on the ground of the animosities which it engenders.

¹ See tables on p. 98 and p. 99, ch. 6.

What is the extent of harmless necessary duplication? First of all, the fundamental subjects, such as English, a limited amount of modern languages, physics, chemistry, biology, history and economics, and many more must be taught in every institution of collegiate grade. The maintenance of a college without them is unthinkable, even if it is a strictly technical institution. These subjects form a sort of universal groundwork. Moreover, the allegation so often made that duplication is expensive and wasteful is probably untenable as applied to such subjects as have just been mentioned. Work in elementary mathematics, in chemistry, or in English composition may be just as economically carried on in two or three places as in one, if the instructors are paid at the same rate, the classes are of the same size, and each plant is full to the point of saturation. Similarly, laboratory space for several hundred elementary students in biology or physics may as well be provided in two places as in one. Duplication of this sort is not unlike that which prevails among all high schools. It constitutes neither an educational nor a fiscal problem for the State. The important thing is to keep clearly in mind the distinction between such duplication as this and the kind of duplication discussed in the next paragraph.

In any but the most populous and wealthy States the proposition that the State should establish out of hand two or more schools of law or medicine or dentistry would not be seriously considered. The demand for men trained in these professions would not warrant it, and the expense, unless justified by the demand, would be an inexcusable extravagance. Probably no State would at present think of establishing two graduate schools to conduct costly research in the same departments for a few students each. In the same way it is doubtful whether any State not already having two or more schools of engineering would seriously contemplate the establishment of more than one. Engineering education constantly becomes more expensive and involves constant additions to institutional equipment in the shape of costly appliances. Training in these and other professional lines is largely a thing by itself. It builds to some extent (in some lines more than in others) on the fundamental subjects mentioned in the preceding paragraph. It does not itself constitute, however, a component part of the training for some other pursuit. In other words, one may have to study chemistry and mathematics before one can study medicine, but one does not have to study medicine in order to study chemistry or law. If the committee were to make a sweeping generalization, it would say that duplication in professional lines (except teacher training, for which few States provide sufficient opportunities) is highly undesirable.

Not only is duplication of professional training expensive, but it has proved in almost every State the source of institutional rivalries, jealousies, and antagonisms which have brought a train of evils in-

their wake. Higher institutions have been dragged into politics. Issues which should have been settled on their merits have been settled by partisan votes. The true end of State institutions, the service of the State, has been abandoned in favor of petty schemes for personal or institutional aggrandizement. This has been so generally the history of States where professional training is duplicated in two or more institutions as to point unmistakably to the advisability of a clear definition of the field of each higher institution.

In a recent report on the State higher institutions of Iowa (already cited) the Bureau of Education has laid down as a working principle of differentiation what is described as the principle of "major and service lines of work." The following paragraphs discussing this principle are quoted with few modifications from that report:

In accordance with this principle of major and service lines, each State institution should have assigned to it certain major fields which it may be expected to develop to their fullest extent. Agriculture at the State college is such a major line. Latin, German, French, history, political science, psychology at the State university are such major lines. Service lines are such subordinate subjects as are essential to the proper cultivation of a major line. The amount is generally not large. English is such a service line for engineering and agriculture at the State college. Institutions may well overlap as regards the relation of their service lines to one another and more particularly as regards the relation of their major to their service lines. English is a major line at the State university, a service line at the State college, but there should be no material overlapping of major lines.

In many parts of the educational field such a division affords a rational and practicable principle of administration. If, for example, it reserved as major lines to the land-grant college (reference is not now being made to the Washington State College) agriculture, veterinary medicine, home economics, and certain departments of engineering, then all other subjects would be regarded as service subjects, in no case to be developed beyond the point at which the needs of the major subjects are supplied. A moderate amount of elementary collegiate work might be given in the languages and humanities and certain of the sciences, for instance, but they would presumably never go beyond these rudimentary stages. At the State university, on the other hand, agriculture, if cultivated at all, would in the same way have a place only as a service subject contributory to the major lines allotted to the institution.

Certain subjects do not fall readily into line on such a principle of division. Chemistry, for example, has an obvious place at the State university and also at the State college. Chemistry is involved in many agricultural and engineering processes and problems. It is, of course, fundamental also to the work of the experiment stations. Physics, zoology, and botany present similar perplexities. Such cases of overlapping, however, might, if the main principle is accepted, be easily settled by means of conferences of representatives of the faculties of institutions affected, together with representatives of the governing boards.

Once this principle of major and service lines is adopted, the whole situation clears up, not only as regards intramural work, but also as regards extension work. An institution would be permitted to do extension work only in a major line.

In the following chapter the application of this principle of major and service lines to the Washington higher institutions, especially the State college and State university is suggested as far as the committee judges it wise to apply it.

Chapter VIII.

DIFFERENTIATION OF FUNCTIONS OF THE STATE UNIVERSITY AND THE STATE COLLEGE.

The complete differentiation of the functions of the State higher institutions of Washington would have to be based on the following assumptions: That all are parts of a single State system of higher education or State university system; that no one part should attempt to cover the whole field; that the sole object of the system is to serve the State economically and effectively and not to serve any particular institution or locality; that this larger State service can best be accomplished by friendly cooperation, rather than by competition and rivalry; and that no institution should attempt to maintain a particular branch of training when it can be proved that greater benefit would accrue to the State if this branch were cultivated elsewhere. If the problem of differentiation were approached by the university and State college in this spirit, it would doubtless be necessary to disregard the sanction of State laws, which may provide that certain subjects may be taught at one or the other institution, and to consider the question entirely with a view to the higher good of the State. Laws, in so far as they are mandatory, can be easily amended, if the present institutional beneficiaries favor their amendment. If they are merely permissive, institutional policies can be changed without recourse to legislative action.

It is perhaps impossible to bring about at once and by a single drastic action an absolutely complete differentiation of the fields of State institutions in any State where the institutions affected have been long established and have built up extensive patronage and costly equipment. Certain peculiar local factors may also enter into the question, making a sweeping reorganization at least temporarily unwise. In the committee's judgment, Washington is one of the States in which these inhibiting factors to some extent exist. Two of these factors are the great size of the State and the peculiar distribution of the population. Nevertheless, the committee believes that the principles just enunciated and those discussed in the preceding chapter should underlie all future State and institutional policies, and that every reasonable endeavor should be made, as soon as the public mind is adjusted to the idea, to reduce to the lowest minimum the area of duplication in advanced and professional work. On the basis of these assumptions the committee submits the following propositions, stated as briefly as possible, with reference to the appropriate fields of the Washington State higher institutions.

The recommendations are separated into three groups. The first group contains recommendations to which the committee assumes there will be general assent.

1. The Washington State College should develop as major lines agriculture,¹ veterinary medicine, economic science in its applications to agriculture and rural life, and the training of high-school teachers of agriculture, home economics, and mechanic arts. This means the development of work in these subjects to the fullest extent, including not only professional courses, but the prosecution of research and of graduate work (except in the courses for the training of teachers) as the call may arise and the resources of the institution permit. The institution would be, with respect to these departments, of full university rank. It should, moreover, be encouraged to extend these departments freely.²

2. Law, medicine (if established at all), graduate work in liberal arts and the pure sciences, commerce, journalism, and the professional training of high-school teachers, superintendents, and educational administrators should be considered major lines for the State university.

The second group of proposals will doubtless arouse some objection, but the committee is convinced that any impartial observer from without the State would come to the same conclusions.

The committee recommends that architecture, forestry, and pharmacy be cultivated as major lines by the university alone. The first two of these subjects, architecture and forestry, might well be retained as service lines at the State college, with special emphasis on rural architecture in the one case and on wood-lot cultivation in the other.

The evidence upon which the committee bases its recommendation with regard to architecture and forestry is of a twofold nature. In the first place, the location of the university is much more favorable to the prosecution of work in these departments. The university is in the center of the great building operations of the State. The State college, on the other hand, is in the midst of a sparsely settled rural district, offering few opportunities to the student for observation of architectural achievements. The university is comparatively close to the principal lumbering industries in the State, and the greater part of the forests are on the western side of the Cascade Range. The State college is located in a region which is, for the most part, treeless. Its students must travel many miles to come into contact with logging operations. Aside from the advantages of location, which indicate to the committee the advisability of concentrating work in these departments at the university, attention is called to the present costs and actual enrollments in these departments at both institutions. Reference to Tables 17 and 18, chapter 5, and to

¹ This recommendation does not exclude the encouragement of research and advanced work in the sciences fundamental to agriculture in the direction of their practical applications.

² It is understood that the State college should have exclusive control and direction of all agricultural and horticultural extension, experimentation, and demonstration work.

Tables 20, 21, 27, and 28, chapter 6, will furnish further corroboration of the committee's decision.

In the case of pharmacy a different set of reasons dictate the recommendation. The university, to be sure, has a considerable advantage in point of enrollment (see Tables 20, 21, and 27, ch. 6). Nevertheless, pharmacy is not an expensive department when conducted at an institution already well supplied with chemical, biological, and bacteriological laboratories. Reference to the cost tables in chapter 5 will indicate that the cost of the department of pharmacy is not in either institution large enough to constitute a noticeable burden. The principal reasons for the committee's recommendation are, first, that it believes it advisable to restrict wherever possible the area of duplication; second, that pharmacy is closely allied to medical work, and in time, no doubt, the university will develop at least the preliminary years of medical training; and, third, that the largest demand for trained druggists is on the western side of the State. The number of drug stores in the three main divisions of the State are as follows: Western, 406; central, 70; eastern, 208.

The third group of proposals relates to the State's provision for engineering (including mining), the position of liberal arts at the State college, and the position of home economics at the State university. The committee has found it most difficult to determine a principle of division which shall not do more harm than good. It has finally decided to recommend the continuance, for the present, of duplication in these fields with certain minor limitations.

The committee has already recorded its opinion that, if the State did not now have two schools of engineering, it probably would not establish more than one. However, the two schools are very palpable realities. They are vital factors in the institutional organization of both the college and the university. Under these circumstances the elimination of duplication in the field of engineering might prove—indeed in the committee's opinion would most certainly prove—more expensive in its drain on intangible institutional values than it is worth. If a division of the work in engineering to obviate duplication were contemplated, however, the committee conceives that it would be possible in one of three ways.

1. The work in engineering might be divided horizontally, so that one institution (probably the State college) should offer only undergraduate work, possibly only work in the first two or three years, and the other institution should be a strictly graduate engineering school or at least of senior college grade. Whether the line of demarcation be on the higher or lower level suggested, the committee admits that the strict horizontal division would be difficult to enforce.

2. In the report of the Bureau of Education on the Iowa State institution already several times cited, a vertical or topical division of

engineering between the State university and the State college is recommended. On this principle certain branches of engineering would be assigned to one institution and the others to the other. The committee at one time hoped that it might be possible to recommend a similar vertical division in Washington. In conferences with engineering experts, however, the opinion has always been expressed that the peculiar needs of engineers practicing in the northwest would render any such vertical division, especially as affecting the fields of civil, mechanical, and electrical engineering, well-nigh impossible.

3. Another principle of division advocated by some partisans of both institutions is the concentration of all engineering at one institution. Cogent arguments may be advanced for the union of all engineering work at either place. In substance they are as follows: For the consolidation of all engineering at the State college, it may be urged that the land-grant college is a college of agriculture and mechanic arts, that mechanic arts has usually been interpreted as synonymous with engineering, and that nearly all the land-grant colleges in the country have developed to a greater or less extent highly specialized courses in engineering. In two States, Indiana and Oregon, the division under discussion has been made and all engineering work concentrated at the State Agricultural and Mechanical College. In Washington, State laws also prescribe engineering as among the branches of learning in which the college is to provide instruction. For the concentration of engineering work at the university it may justly be argued that the university is the center of a populous, rapidly growing, industrial district where there is an ever-increasing demand for trained engineers and where young men undergoing training in engineering branches may have the benefit of observing at close range most of the principal operations which they will later be called upon to perform. It is further urged that work in the applied sciences is for the modern university a natural and necessary complement of work in the pure sciences and that the applied sciences themselves benefit by close contact with departments devoted to pure research. It is also pointed out that the enrollment in the various engineering branches in the university is several times as large as that in the college.

The more the committee has studied the question the more it has been impressed with the strength of the position of at least the fundamental branches of engineering in the curricula of both institutions. It believes that while a college of agriculture and mechanic arts may be maintained with engineering on a lower basis than full professional courses, nevertheless in Washington this seems to be exceedingly undesirable. Unquestionably, also, engineering has established itself as one of the vital departments at Pullman. On the other hand the committee is equally convinced that the phenomenal develop-

ment of courses in engineering at the university represents the dynamic drive of a real demand, a demand which could not be met by an institution 400 miles away, a demand which, unless all signs and portents fail, will continue to increase.

In view of these considerations the committee recommends that civil, mechanical, and electrical engineering be continued as major lines at both institutions. It is the more reconciled to this recommendation for two reasons: First, because the plants and engineering equipment of both institutions are now used almost, if not quite, to their full capacity. The concentration of both schools at a single point would entail considerable expense for new equipment. It is probable that, while it costs somewhat more to give the training in two places than in one, the added expense is, under these circumstances, not very great. Second, because the development of the State of Washington has already called, and will undoubtedly in the future call for a larger percentage of trained engineers than are needed in most other States. The accompanying diagram shows the increases in the number of graduates in engineering from the two institutions. The maintenance of two schools of engineering (somewhat differentiated as is suggested below), while an unwarranted extravagance for a State like Iowa or North Dakota, may be justified in the State of Washington.

Granting the justification of duplication of the three fundamental branches of engineering, the committee recommends certain limitations which will prevent the most sweeping future duplications, as follows:

1. Chemical engineering, already established at the university, should be restricted to that institution.¹
2. Graduate work in engineering branches, when developed, should be developed at the university and not at the State college.
3. The establishment of new lines of engineering at either institution should be authorized by the regents only after a joint conference of representatives of both faculties and both boards.
4. The committee is persuaded that only one school of mining engineering is needed in the State of Washington. It has studied the evidence presented by the officers of the college of mines at the university and of the department of mining engineering at the State college. No one of its members can pretend to expert knowledge in this or an allied line. In view of this fact, and of the weight of evidence brought forward in support of both schools, the committee is unwilling to hazard a decision as to which should be retained. It recommends that the matter be laid before a group of mining experts from

¹ A course in chemical engineering is also announced in the 1915 catalogue of the State college. In the year 1914-15 students were enrolled in chemical engineering at the State college as follows: Freshmen, 8; sophomores, 3; juniors, 1.

Number of Degrees Conferred

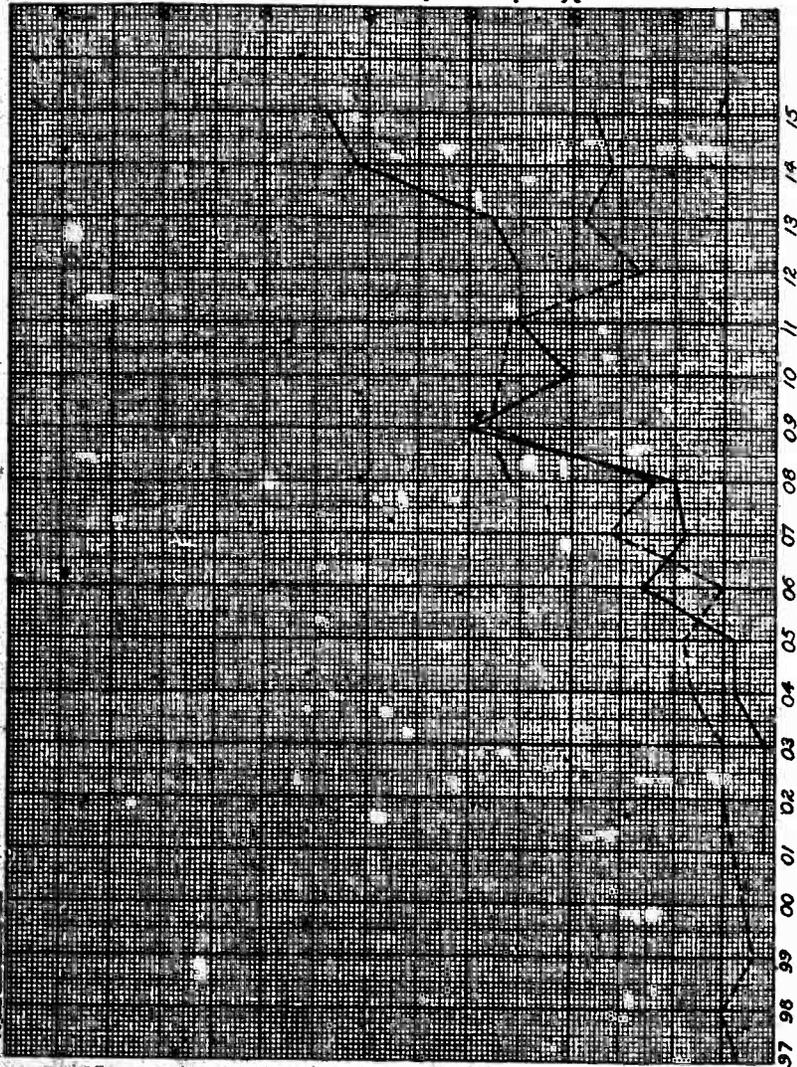


DIAGRAM 21.
 Graduates in engineering (not including mining); University; State College

outside the State, no one of whom shall have any connection with either institution and the majority of whom shall be members of the American Society of Mining Engineers.

Under different local conditions, the committee would recommend the discontinuance of degree courses in liberal arts at the land-grant college. Liberal arts courses should ordinarily be included in the work of the land-grant college only in such amounts as will wisely reinforce the technical or semitechnical specialized curricula for whose development the institution was constituted. The Bureau of Education has already put itself on record to this effect. However, there are several reasons why the committee believes that courses in liberal arts leading to the bachelor's degree should continue to be given at the Washington State College. In the first place this work has formed a very large part, for a while indeed perhaps the major part, of the work of the State college during the past 25 years. It has, on the whole, had a highly beneficial influence on the life of the institution. Probably it did for a time bulk too large, but this tendency has now righted itself. Work in liberal arts is not now absorbing an undue part of the resources of the college. Confirmation of these statements may be had by referring to Tables 20, 21, 27, 28, and 29, chapter 6, and to the financial tables of chapter 5. But the principal reason for the continuance of these courses is a geographical one. The counties in the eastern part of the State are from 200 to 400 miles from the university. The committee believes that a State the size of Washington can well afford to maintain two liberal arts colleges in widely separated regions. The committee recommends, however, that courses in these departments at the State college be not allowed to expand into graduate work.¹

In most other States the committee would as unhesitatingly recommend the limitation of home economics at the State university to the scope of a service department. Such a recommendation is in accordance with the custom which has developed professional work in home economics at the land-grant colleges. The preferred position of the land-grant college for this type of training is also recognized by Federal laws. In view, however, of the very great demand for the various kinds of training in home economics that has manifested itself at the university, the committee is led to recommend that home economics be considered a major line at both the State college and the State university. In the extension field it recommends that the university make no attempt to offer instruction in home economics outside of King County. The large and increasing funds which will be at the disposal of the State college for extension work in home economics (see p. 83, ch. 6) render it unwise for the State to spend

¹ The approval of the continuance of a full department of liberal arts in the State college necessarily carries with it the approval of the training of high-school teachers in all liberal arts subjects.

money on this subject through the agency of the university extension division.

Evidence brought to the attention of the committee has demonstrated that the university may well contemplate the development of two other lines of work as major lines. These are departments of marine engineering and of fisheries. Both of these lines relate closely to industries of great importance to the life of the district in which the university is situated. There could be no question as to which of the two State institutions should develop them.

In the event that the propositions made in this chapter receive the indorsement of the commission¹ and are adopted either by the legislature or by the governing boards of the institutions, the committee would suggest one other device to facilitate minor adjustments. This is a conference of representatives of the faculties of both institutions for the purpose of determining the scope of instruction and research in those departments which, through their nature and their connection with other subjects, are likely to overlap. Chemistry and botany, for example, are such departments. This conference might be assembled whenever the need appeared. It should not be formal in character.

The committee believes that the proposals made in this chapter should not be regarded as an undue limitation on the State college; indeed, it is confident that if these suggestions were carried out they would prove the greatest stimulus to the development of the institution. To meet the full needs of the State in only one of the lines allotted to it under such a division would tax the resources of an institution far richer than this. The discontinuance of professional work in the lines suggested should afford relief. The proposal that these subjects be taken over by the university is more likely to prove a temporary embarrassment than a benefit to the latter institution. With its present inadequate support, the university probably would not welcome any addition to its tasks. Nevertheless, the logic of location renders such redistribution of departments as is here proposed essential to a wise and economical State procedure.

But the committee desires to reaffirm its high appreciation, already several times implied, of the great contribution made by the State college to the life of the State. Despite its location, which has always been a handicap, it has evolved into an institution of which every citizen has a right to be proud. For many years it apparently failed to realize the possibility of a college of agriculture in a State of such large agricultural interests and such diversified agricultural conditions. Recently, however, this incomplete realization has been to a great extent remedied and a proportion of the institution's energies devoted to this field more nearly commensurate with the magnitude of the problems to be solved. In the other fields that

¹ Referring to the State legislative commission to which the survey report was rendered.

it has entered the State college has been a potent force. Its engineers have made engineering history in the Northwest. It has developed a department of veterinary medicine that ranks with the best in the country. The department of elementary science has met the needs of hundreds of boys and girls whom no other institution could serve. The department of liberal arts has given a sound, general college education in a wholesome environment. In the matter of standards the college has kept faith with itself; indeed it has been among the leaders in the establishment of high standards in the land-grant colleges of the country. In suggesting the readjustments proposed in this chapter the committee is nowise unmindful of these contributions.

SUMMARY OF RECOMMENDATIONS.

1. Agriculture, veterinary medicine, economic science in its application to agriculture, and the training of high-school teachers of agriculture, home economics, and mechanic arts to be major lines at the State college.
2. Law, medicine, graduate work in liberal arts and pure science, professional training of high-school teachers and school superintendents, commerce, journalism, architecture, forestry, and pharmacy to be major lines at the State university.
3. Duplication to be recognized in certain branches of engineering, in home economics, and in liberal arts.
4. Civil, electrical, and mechanical engineering to be taught at both the State college and the State university.
5. Chemical engineering to be a major line at the State university exclusively.
6. The development of further departments or branches of engineering to be submitted to a joint conference before their establishment at either institution.
7. The maintenance of but one school of mining, its location to be determined by the advice of mining experts.
8. Degree courses in liberal arts with the training of high-school teachers in the same, to be continued at the State college, but no graduate work in these lines to be offered.
9. Home economics to be developed for the present without restriction at both the State university and the State college, but no extension work in home economics to be undertaken by the university outside of King County.
10. The approval of the establishment of courses in marine engineering and fisheries at the State university as soon as its resources permit.
11. The appointment of a conference composed of representatives of the faculties of both institutions to meet from time to time to adjust cases of overlapping, especially in the field of graduate work.

Chapter IX.

DEPARTMENTS OF EDUCATION IN THE STATE COLLEGE AND UNIVERSITY.

In this chapter additional comment on the special functions of the State university and the State college in the direction of teacher training is submitted.

The State normal schools prepare teachers for the elementary schools of the country and city, and it is elsewhere urged that this should be considered their chief function, at least until such time as there is an ample supply of teachers for the elementary schools of this State. It is expected that some of the graduates of the normal schools will for the present continue to teach in the high schools of one and two years, especially when these are connected directly with elementary schools and taught in the same buildings, and that some will, after experience in practical work and further study in higher institutions, become teachers in four-year high schools, superintendents, supervisors, and teachers or directors of special subjects. To the university and the State college should be left the work of giving professional training to high-school teachers, supervising school officers and educational investigators, including teachers in normal schools and colleges. The college and the university should be accorded such support as will enable them to give the best possible preparation to sufficient numbers of men and women to supply the constantly increasing demand.

That teachers in high schools and higher institutions should have academic education at least equivalent to that represented by graduation from a standard college has long been admitted. The State Board of Education of Washington has indeed imposed this requirement upon candidates for teaching positions in all accredited high schools. In addition to their knowledge of the subjects taught, teachers of adolescent youth need a broad outlook on economic, industrial, social, and civic life, an understanding of the relation of the subjects which they teach to other subjects taught in the schools, and a breadth of general culture which the college and university can best give. Certainly no less degree of scholarship and professional knowledge should be expected and required of principals and supervisors, who must formulate and direct the work of the teachers under their charge, and of superintendents who are responsible also for the work of elementary schools, and who must determine the policies and administer the business affairs of county and State school systems.

STATE COLLEGE.

The organic act creating the State College of Washington states that one of the objects of the college should be to train teachers of physical science and thereby further the application of the principles

of physical science to industrial pursuits. The Nelson amendment to the Morrill Act, increasing by \$25,000 the annual appropriation made by the Federal Government to the land-grant colleges, provides that colleges may use part of this fund to maintain courses for the special preparation of instructors in the elements of agriculture and the mechanic arts. The Commissioner of Education has urged that this provision be interpreted to mean a very liberal portion of the fund in those institutions which have not considerable funds for this purpose from other sources. Evidently the intent of the clause in the organic act and the intent of the clause in the Nelson amendment are one and the same, to prepare teachers of industrial subjects and of the sciences in their practical applications to industry. The committee is of the opinion that this should continue to be the principal aim of the department of education in the State college. Every high school in the State should have one or more teachers of these subjects; the larger schools should have several, and the demand for supervisors in country and city and for college and normal-school instructors in these subjects may be expected to increase.

These facts should be constantly borne in mind in arranging courses in the department of education in the college. It should also be remembered that teachers of the industrial and applied-science subjects need much more than the skill in manipulation which has too often been thought sufficient. They need a firm grasp of the scientific principles involved in the industries, an understanding of the relation of these industries to life and a mastery of those principles of education necessary to give a certainty of success in teaching.

In order to do this work for the State and to comply with the law which requires the college to collect information as to schemes of technical instruction adopted in other parts of the United States and in foreign countries, and to cooperate with the university and the normal schools in the promotion of the educational interests of the State the college department of education will probably need additional equipment. It is especially desirable that those who are preparing to teach industrial subjects may have the opportunity to do actual teaching. Possibly arrangements for this can be made with schools at or near Pullman. The committee recommends that the State college do not prepare teachers for the elementary schools.¹

UNIVERSITY.

The committee is very definitely of the opinion that the task of preparing young men and women for service as teachers for normal schools and high schools (except for special subjects, preparation in which can better be given at the State college) and the preparation of

¹ The committee also suggests that in view of its unusually good courses in music the administration of the State college may well consider the advisability of preparing teachers in this subject. The same person might well teach domestic science and arts and music in a small high school.

superintendents, supervisors, and principals, together with provision for general educational investigation and research, belong to the university. Its college of education should be strengthened, as may be needed to enable it to do this work well.

Early in its history the university gave courses in education, serving in a way as a normal school before the normal schools were established. The courses in education were assembled in a "school of education" in 1913, and in 1914 this school was changed into a "college of education." The increase in the number of undergraduate students taking education courses in the past four years has been very rapid. Moreover, there were 51 graduate students enrolled in education courses in 1915-16, as against 24 in 1911-12. Of 148 students in the graduate school this year, 36, nearly 24 per cent, are majoring in education. This is nearly twice as many as are majoring in any other subject and three times as many as the number in the next highest subject but one. This year there are enrolled in the college of education 110 students, distributed as follows: Freshmen 34, sophomores 12, juniors 23, seniors 9, specials 20, unclassified 12.

The contribution which the university and the State college have made to the system of public education of the State is indicated by the fact that in 1915-16 of 1,947 high-school teachers and principals and city superintendents in the State, 514 were trained wholly or partly in the university and 221 in the State college. Almost half of the whole number received part or all of their higher academic and professional preparation in these two institutions.

In the years 1914-15 students from the university went as teachers to all the counties in the State save one. Of 2,484 persons who have graduated at the university, 810 are reported as teaching. This is more than twice as many as are engaged in any occupation except homemaking, two and one-half times as many as are engaged in the practice of law, three times as many as are engaged in engineering, and six and one-half times as many as are in business. Of these 810 persons who are engaged in teaching, 550, or 68 per cent, are teaching in universities, colleges, and high schools, or are serving as superintendents, principals, supervisors, and librarians, while 260, or 32 per cent are in elementary schools. These figures show that the preparation of teachers constitutes a very important part of the work of the university. The fact that of the 714 calls made upon the university for teachers in 1914-15, 60 per cent were for superintendents, principals, and teachers in colleges and high schools indicates the kind of educational service for which the people at large think the university should prepare. Since this is the largest college of education in the Northwest, it will naturally become a source of supply for teachers and school officers not only for the State of

Washington, but to some extent for this entire section and also for Alaska.

The State has already provided in its normal schools, where the service can be performed better and with greater economy, the means of preparing teachers for the elementary schools, and will no doubt extend these means as it becomes conscious of the need of doing so. The committee therefore recommends that the university do not engage in this work.

Every school or college of education should have under its control a school for demonstration, practice, and research on or near its campus. The committee recommends the provision of these facilities at both the university and the State college.

State systems of education present many difficult problems in the solution of which school officers need the kind of expert help which a well-equipped university school of education should be able to give. This is especially true of a new, vigorous, and rapidly developing State like Washington. The committee believes that the college of education of the university should receive such support as will enable it to do this work.

SUMMARY OF RECOMMENDATIONS.

1. The discontinuance of the training of elementary teachers by the State university and the State college.
2. The provision at or near the State university and the State college of facilities for practice, demonstration, and research.

Chapter X.

AGRICULTURAL SCHOOLS.

Until very recently agriculture was not taught in the elementary or secondary schools of the State, and it is taught now only to a very limited extent. According to a ruling of the State board of education, pupils who complete the eighth grade are expected to stand an examination on agriculture, manual training, or domestic science. But teachers of the elementary schools have had little or no preparation for teaching these subjects and are not required to pass examinations on either of them before being granted a certificate, which may be accepted as a license to teach. In 1913-14, according to the report of the State superintendent of public instruction, only 4 per cent of the students in the high schools were studying agriculture. About 8 per cent of the number enrolled in the first year of the high school took Agriculture I. One per cent of the number in the second high-school year took Agriculture II. One-third of 1 per cent of the number in the third high-school year took Agriculture III, and one-third of 1 per cent of the number in the fourth high-school

year took Agriculture IV. The figures for manual training for that year are somewhat better, being 16 per cent, 11 per cent, 7 per cent, and 5 per cent, respectively, and the figures for domestic science and home economics are still better in the first two high-school years, but not so good as for manual training in the last two high-school years. In 1915-16 about 50 per cent more were taking agriculture in the high schools than in 1913-14. There is also an increase in the number of girls taking home economics. The time may come when the majority of boys and girls in the high schools of the country will study agriculture, manual training, and home economics extensively, but it will not be soon, nor do the majority of boys and girls who live in the country as farmers and farmers' wives attend high school. There are therefore now, and will be for many years, a very large number of older boys and girls and young men and young women who are to live in the country and engage in the pursuits of farming and country homemaking who have had no opportunity of instruction in these important subjects either in the elementary or in the high schools. Most of them are too old to be expected to attend the high schools and take a regular high-school course for the sake of getting the little work offered in agriculture and home economics, and no high school, except the very largest, can afford to offer enough work in these subjects to take all the time of any student even for five or six months in the winter. Again, most of these boys and girls, though of college age, are not prepared to enter the State college. Opportunity, therefore, for them to get any systematic and practical instruction in these subjects, so important for the welfare of themselves and of the State, must come through schools established and organized for this particular purpose.

In his report to the subcommittee of the joint committees of the committee on educational institutions of the senate and the committee on education of the house of representatives of the legislature, 1915, the Commissioner of Education suggested the advisability of the establishment of two schools of agriculture in the two sections of the State, one in direct connection with the State college at Pullman, the other somewhere in the western part of the State.

The committee hereby reaffirms this recommendation with a slight modification. It has elsewhere commended the work of the department of elementary science at the State college. Work similar to that contemplated in this recommendation is now given by the department of elementary science. As far as the recommendation bears on agricultural work of subcollegiate grade at Pullman, therefore, the committee merely desires to emphasize anew its importance to the State and to urge the still greater development of facilities for prosecuting it. The other school, it is believed, might be located at or near the experiment station at Puyallup.

The committee's conception is that both these schools should admit boys and girls 16 years old and over who have completed an elementary school course, and more mature young men and women of even less school preparation. For the convenience of those students, no doubt a large majority, who must work on the farm during the spring and summer, the sessions of these schools should be limited to six months in the year, as in the agricultural school of the University of Minnesota, or there might be two sessions, a winter session of 5½ months, to be attended mostly by boys and young men, and a summer session of 4½ months, to be attended mostly by girls and young women, although both sexes should be admitted to both sessions. This last arrangement would better enable the schools to keep their faculties employed and to carry on their work through the entire year. Later it may be found desirable to establish another school of this type.

There are many agricultural schools of this grade, and for purposes similar to those to be served here, in other States and countries. A tabulated statement of the organization, attendance, and work of some of these is appended.

TABLE 32.—Special schools of agriculture.

Name and location.	Date established.	Value of—		Support by—		Cost of maintenance.	Acres owned by school.	Secondary pupils.	
		Plant.	Equip-ment.	State.	City.			Men.	Women.
ARKANSAS.									
Fourth District Agricultural School, College Station	1910	\$270,000	\$8,000	\$40,000		\$20,000	500	163	78
First District Agricultural School, Jonesboro	1910	180,000	15,000	40,000		28,000	468	67	48
Third District Agricultural School, Magnolia	1910	180,000	3,000	40,000		25,000	400	42	38
Second District Agricultural School, Russellville	1910	120,000	2,500	40,000		14,000		98	52
COLORADO.									
Fort Lewis School of Agriculture and Mechanical Arts	1911	200,000		30,000		17,644		27	10
MASSACHUSETTS.									
Smith's Agricultural School, Northampton	1908	79,000	8,000	4,000	\$7,500	11,000	94	34	
Bristol County Agricultural School, Westport	1913	85,000	10,000			16,000	110	60	4
MINNESOTA.									
Northwest School of Agriculture, Crookston	1906	325,000	40,000						
West Central School and Station, Morris		250,350	22,110	24,000	6,063	27,408		57	49
NEBRASKA.									
Nebraska School of Agriculture, Curtis	1910	150,000	10,000	30,000	1,500	21,500	160	56	52

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TABLE 32.—Special schools of agriculture—Continued.

Name and location.	Date established.	Value of—		Support by—		Cost of maintenance.	Acres owned by school.	Secondary pupils.	
		Plant.	Equip-ment.	State.	City.			Men.	Women.
NEW YORK.									
New York State School of Agriculture at Alfred University, Alfred	1908	\$199,842	\$32,818	\$43,000			230	138	55
New York State School of Agriculture at St. Lawrence University, Canton							230	92	50
New York State School of Agriculture, Cobleskill	1911	75,000	10,000			\$40,000	85		
New York State School of Agriculture, Farmingdale	1916	473,000	37,000			50,380	308	150	
New York State School of Agriculture, Morrisville	1908	98,050	32,500	46,990		37,000	200	120	73
VERMONT.									
Vermont State School of Agriculture, Randolph Center	1910	40,000	5,000	10,000	\$450	10,000		78	
Vail State School of Agriculture and Industry, Lyndon Center	1910								
WISCONSIN.									
Marinette County School of Agriculture, Marinette	1907					7,304			
Dunn County School of Agriculture, Menomonee	1902			1,000	800	10,000		50	16
La Crosse County School of Agriculture, Onalaska	1909	60,000	10,000	6,000	1,300	14,500		37	19
Racine County School of Agriculture, Rochester	1912	40,000	10,000			4,600			
Marathon County School of Agriculture, Wausau						6,800			
Milwaukee County School of Agriculture, Wauwatosa	1912	267,600	43,138	67,538	5,279	65,031	136	114	85
Winnebago County School of Agriculture, Winneconne	1906					9,254			

¹\$8,000 of this from county.

If such schools are established in Washington, they should be under the immediate control of the regents and the president of the State college.

SUMMARY OF RECOMMENDATIONS.

1. The further development of the facilities of the department of elementary science at the State college for agricultural instruction of subcollegiate grade.
2. The establishment at Puyallup, or somewhere else in the western part of the State, of another school of agriculture of subcollegiate grade under the direction and control of the State college.

Chapter XI.

MINOR QUESTIONS OF ADMINISTRATION AND STATEMENTS AS TO THE SUPPORT OF THE STATE UNIVERSITY AND STATE COLLEGE.

There are several minor matters of administration to which the committee has given some consideration. Three schools at the State college now admit students with two years of high-school preparation (see p. 38). Students, if 19 years of age, are also admitted with 8 units of high-school training to the certificate course in pharmacy at the university. The committee believes that the time is ripe for the requirement of high-school graduation (15 units or 30 credits) of all students entering the college or the university, except for those 21 years of age or older, and except for students in the department of elementary science at the State college. This recommendation has the indorsement of the heads of the schools concerned.

The committee has been much impressed by the value of the work carried on by the department of elementary science at the State college. It is of the opinion that this work is making a most important contribution to the life of the State. Under the wise limitations as to scope which have already been adopted, it believes that this work should be still further strengthened and extended. To this end it recommends the partial reorganization of the administrative relationship of this department to the college. The department should have a teaching staff entirely its own and it should be separately housed.

The surprisingly large number of classes at both institutions having enrollments of less than five students each calls for careful study.¹ In advanced courses enrollments are likely to be small. This is one of the factors in the large expense of advanced work. In elementary and intermediate courses, however, small classes can often be avoided by care on the part of the administration. The committee recommends that the administrative officers of both institutions take this matter of small classes under examination.

At both the State college and the university the number of hours required in the major subject is often excessive in that it unduly limits the opportunity of the student to obtain the desired breadth of training. The committee is of the opinion that the administrators of both institutions may profitably give this problem serious consideration.

Reference has already been made (p. 75, Ch. V) to the number of credit teaching hours required of professors at one institution. State institutions have a tendency to exact a larger number of hours of teaching of their professors than do the well-established private

¹ See p. 67, Ch. VI.

universities. Some of the most productive and distinguished men in the larger American universities on private foundations conduct but six or eight classroom exercises a week. Teaching of university grade requires time for sound preparation, for reflection, and for arrangement of material. The physical presence of professors in classrooms can be secured by rule for any number of hours a week, but the amount of effective teaching can hardly be increased by this means. The committee recommends that 15 credit teaching hours a week be regarded as the absolute maximum and that a smaller maximum be encouraged.

The committee has been unable in the time at its disposal to arrive at any but the most general conclusions with reference to the support of the State college and university. It submits these conclusions for what they may be worth. They are:

1. That Washington has not been spending as much money on its State collegiate institutions in proportion to their needs and the State's wealth as many other progressive States, and that both should be more liberally supported.
2. That the State college is for the most part well housed and the pressure on its plant is not extreme. On the other hand, the salaries paid its teachers are considerably below what should be paid to competent men in institutions of this character (see p. 69, Ch. V). In the last two years the amount spent per student has been somewhat higher than the per capita outlay in other institutions which the Bureau of Education has studied. However, the committee especially calls attention to the fact that in order to meet the needs of the State in the direction of agricultural instruction, extension, and experimentation alone, this institution will require largely increased appropriations.
3. That the State university has for a number of years been starved. It is housed, in part, in buildings which are unworthy of a great university in a great and wealthy State. Its expense per student during the last two years is much lower than the similar expense in any institution of university rank which the Bureau of Education has studied. The legitimate expansion of the institution in the directions already noted, especially the development of a college of commerce, demands large increases in its support.

As reinforcement of these conclusions the committee calls attention to the summaries and diagrams representing State expenditures in Chapter I, to the institutional cost sheets in Chapter V, and also to the budgets for the next biennium arranged in the same form as the cost sheets referred to and appended to this chapter.

RECOMMENDATIONS.

1. The requirement of high-school graduation of all students entering the college or university, except for those 21 years of age or older, and except for students in the elementary science department of the State college.
2. The modification of the administrative relationships of the department of elementary science at the State college.
3. The serious consideration by the administrative officers of both institutions of the large number of small classes.
4. The possible revision of the excessive major requirements at both institutions.
5. The establishment of 15 hours of classroom teaching a week as the maximum at the State college and State university and the encouragement of a lower maximum.

**SUMMARY OF RECOMMENDATIONS RELATING TO STATE UNIVERSITY
AND STATE COLLEGE.**

1. The provision for the formulation of State policies in higher education—
 - (a) Through joint meetings of boards of regents, or
 - (b) Through the extension of the functions of the State board of education, or
 - (c) Through the creation of a State council of education.
2. Agriculture, veterinary medicine, economic science in its application to agriculture, and the training of high-school teachers of agriculture, home economics, and mechanic arts to be major lines at the State college.
3. Law, medicine, graduate work in liberal arts and pure science, professional training of high-school teachers and school superintendents, commerce, journalism, architecture, forestry, and pharmacy to be major lines at the State university.
4. Duplication to be recognized in certain branches of engineering, in home economics, and in liberal arts.
5. Civil, electrical, and mechanical engineering to be taught at both the State college and the State university.
6. Chemical engineering to be a major line at the State university exclusively.
7. The development of further departments or branches of engineering to be submitted to a joint conference before their establishment at either institution.
8. The maintenance of but one school of mining, its location to be determined by the advice of mining experts.
9. Degree courses in liberal arts with the training of high-school teachers in the same to be continued at the State college, but no graduate work in these lines to be offered.
10. Home economics to be developed for the present without restriction at both the State university and the State college, but no extension work in home economics to be undertaken by the university outside of King County.
11. The approval of the establishment of courses in marine engineering and fisheries at the State university as soon as its resources permit.
12. The appointment of a conference composed of representatives of the faculties of both institutions to meet from time to time to adjust cases of overlapping, especially in the field of graduate work.

13. The discontinuance of the training of elementary teachers by the State university and the State college.

14. The provision at or near the State university and the State college of facilities for practice, demonstration, and research.

15. The further development of the facilities of the department of elementary science at the State college for agricultural instruction of subcollegiate grade.

16. The establishment at Puyallup, or somewhere else in the western part of the State, of another school of agriculture of sub-collegiate grade under the direction and control of the State college.

17. The requirement of high-school graduation of all students entering the college or the university, except for those 21 years of age or older, and except for students in the elementary science department of the State college.

18. The modification of the administrative relationships of the department of elementary science at the State college.

19. The serious consideration by the administrative officers of both institutions of the large number of small classes.

20. The possible revision of the excessive major requirements at both institutions.

21. The establishment of 15 hours of classroom teaching a week as the maximum at the State college and State university and the encouragement of a lower maximum.

Building needs for next biennium.

I. General classroom needs:	
1. Unit 20, philosophy, psychology, and English.....	\$172,000.00
2. Unit 21, a science building.....	200,000.00
	\$372,000.00
II. Special laboratory construction:	
1. Greenhouses for botany and pharmacy.....	5,000.00
2. Forestry greenhouse and demonstration laboratory.....	5,000.00
3. Forest products laboratory.....	26,000.00
4. Hydraulic laboratory.....	16,000.00
5. Addition to foundry building.....	5,000.00
6. Anatomy, bacteriology, and school of fisheries laboratory.....	5,500.00
	62,500.00
Total building needs.....	434,500.00
Total approximate building income.....	230,000.00
Balance needed to complete building program for biennium.....	214,500.00

The building income will, therefore, be inadequate for the needs of the coming biennium. We have on this account decided that it will be best to consider the item of \$62,500 for special laboratory construction under the mill-tax appropriation rather than under the operation of the university building fund.

Bacteriology ..
 Botany ..
 Chemistry ..
 Civil engineerin
 Commerce ..
 Education ..
 Electrical engin
 English ..
 Extension divisi
 Fisheries ..
 Forestry ..
 Forest product
 French and Ita
 Geology ..
 German ..
 Graduate schoo
 Greek ..
 History ..
 Home economi
 Home economi
 Hydraulic labo
 Industrial resea
 Journalism and
 Latin ..
 Law ..
 Library ..
 Marine enginee
 Marine station
 Mathematics ar
 Mechanical eng
 Military trainin
 Mining ..
 Museum ..
 Music and fine
 Oriental langua
 Pharmacy ..
 Philosophy ..
 Physical educat
 Physics ..
 Political and so
 Psychology ..
 Public speakin
 Scandinavian
 Spanish ..
 Zoology ..
 College of engin
 College of libe
 College of scient
 Dean of men, if
 Dean of women

Departmental
 equipment.

	1917-1919.
Greenhouses for botany and pharmacy.....	\$5,000.00
Forestry greenhouse and demonstration laboratory.....	5,000.00
Forest products laboratory.....	26,000.00
Hydraulic laboratory.....	16,000.00
Addition to four dry building.....	5,000.00
Anatomy laboratory and fish hatchery.....	5,000.00
Bacteriology animal house.....	500.00
	62,500.00

Special laboratory constructions, \$62,500.

(See II above.)

UNIVERSITY OF WASHINGTON BUDGET.

Comparing biennium..... 1915-1917
 With forecast for..... 1917-1919

1915-1917..... \$1,110,000.00
 Forecast, 1917-1919..... 1,588,800.00

Legislative mill-tax appropriations only.

Overhead.

	1915-1917.	
	Salaries.	Labo equipm and suppl
Administration.....	\$87,340.00	
Library.....	21,360.00	\$2,00
Campus.....	2,640.00	30,00
Catalogues and reports.....		5,60
Freight and express.....		1,80
Fuel.....		30,00
Furniture and fixtures.....		4,20
Grading, sidewalks, sewer and other connections, new buildings.....		
Instrument shop.....		2,60
Janitor.....	23,780.00	2,80
Miscellaneous.....		1,70
Museum.....	4,840.00	3,00
Office supplies and printing.....		8,60
Postage.....		3,00
Power, light, and heat.....	22,660.00	30,10
Repairs.....	6,300.00	11,00
Telegraph and telephone.....	1,800.00	2,00
Traveling expenses.....		5,00
	172,970.00	139,00

State College of Washington, estimated expenditures Apr. 1, 1915, to Mar. 30, 1917.

\$1,112,093.26	
Above amount includes the following:	
State appropriation	\$793,217.00
and United States appropriations:	
Morrill fund	100,000.00
Hatch (experiment station)	30,000.00
Adams (experiment station)	30,000.00
Smith-Lever (extension)	35,491.50
Local receipts	123,384.76

State college exclusive of extension and experimental work.

Construction and lands.

1915-1917.
\$121,154.25
1917-1919.
\$977,500.00

	1915-1917.
Mechanic arts building	\$52,100.00
Agricultural building	47,700.00
Walls and piers	217.05
Extension water system	114.40
Extension lighting system	1,748.00
Extension tunnel and heating system	5,557.90
Extension sewer system	136.75
Improvement athletic field	160.15
Cement walks	1,015.00
Paved roads	5,479.00
Grading around new buildings	1,357.00
Post office in Bryan Hall	1,545.00
Purchase Windus tract	2,770.00
Cellar Stevens Hall	512.00
Cellar Ferry Hall	742.00
	121,154.25

Total operating expense.

1915-1917.
\$582,601.51
1917-1919.
\$684,195.00

State College of Washington, estimated expenditures Apr. 1, 1917, to Mar. 30, 1919.

\$1,912,048.50	
Above amount includes the following:	
Requested State appropriation	\$1,569,557.74
and United States appropriations:	
Morrill fund	100,000.00
Hatch (experiment station)	30,000.00
Adams (experiment station)	30,000.00
Smith-Lever (extension)	57,608.00
Estimated local receipts.	124,884.76

Special funds.

1915-1917.
\$171,100.00
1917-1919.
\$172,700.00

	1915-1917.	1917
Farm and creamery	\$104,500.00	\$105.
Horticulture	5,000.00	5.
Machine shop	3,500.00	4.
Music tuitions	19,500.00	20.
Locker and towel	600.00	
Veterinary hospitals	17,500.00	17.
Photo shop	1,800.00	1.
Other departments	8,000.00	8.
Operation storeroom	2,500.00	2.
Controlling account	1,200.00	1.
Deposits refunded	7,000.00	7.
	171,100.00	172.

Construction and lands.

1915-1917.
\$4,300.00
1917-1919.
\$5,000.00

Experimental and extension work.

1915-1917.
Extension.... \$69,472.50
Experiment station.... 167,675.00
237,147.50
1917-1919.
Extension.... 129,078.50
Experiment station.... 247,675.00
377,653.50

Operating expense.

1915-1917.
\$214,347.50
1917-1919.
\$354,153.60

Special funds.

1916-1917.
\$18,500.00
1917-1919.
\$18,500.00

	1915-1917.	1917-
Agricultural experiment station	\$16,500.00	\$16,50
Agricultural extension work	\$2,000.00	\$2,00

	1917-1919.
Completion mechanic arts building.....	\$46,000.00
Completion agricultural building.....	46,000.00
Wing to college hospital.....	3,000.00
Additional land Puyallup station.....	30,000.00
Additional land college farm (300 acres), at \$150.....	45,000.00
Dairy building and creamery.....	50,000.00
Farm machinery building.....	50,000.00
Armory.....	70,000.00
Two new barns (dairy barn and horse barn).....	20,000.00
Shops, carpenter and automobile.....	20,000.00
Mining and geology building.....	75,000.00
Completion library book stacks.....	7,000.00
Fireproof herbarium.....	10,000.00
Annex to home economics building.....	20,000.00
Additional silos.....	2,500.00
Woman's building.....	75,000.00
Additional live stock for farm.....	8,000.00
Additional greenhouses.....	15,000.00
Paved roads in campus.....	5,000.00
Stadium.....	20,000.00
Community building on site purchased by alumni.....	50,000.00
Paving streets adjoining campus.....	10,000.00
	<hr/>
	677,500.00

Educational equip-
ment and sup-
plies.

1915-1917.
\$71,795.00
1917-1919.
\$80,800.00

	1915-1917.	1917-1919.
Library, books, etc.....	\$5,000.00	\$8,000.00
Agriculture.....	5,500.00	7,000.00
Architecture.....	2,000.00	2,000.00
Botany.....	9,000.00	9,000.00
Chemistry.....	11,000.00	12,000.00
Economic science and history.....	1,700.00	1,700.00
Education.....	1,700.00	2,000.00
Elementary science.....	4,000.00	4,000.00
English.....	2,000.00	2,000.00
Forestry.....	500.00	500.00
Geology.....	1,200.00	1,200.00
Home economics.....	5,500.00	6,000.00
Horticulture.....	2,000.00	2,000.00
Latin (3 months, Apr. 1 to June 30, 1915).....	45.00	
Mathematic and civil en- gineering.....	2,500.00	2,500.00
Mechanical and electrical en- gineering.....	5,000.00	6,000.00
Mining and metallurgy.....	2,000.00	2,000.00
Modern languages.....	750.00	1,000.00
Music and fine arts.....	300.00	300.00
Pharmacy.....	1,000.00	1,000.00
Veterinary science.....	4,600.00	5,000.00
Zoology.....	2,500.00	2,500.00
Summer school.....	2,000.00	2,000.00
	<hr/>	<hr/>
	71,795.00	80,800.00

Instruction.

1915-1917.
\$322,731.51
1917-1919.
\$333,790.00

1915-1917.

1917-1919.
\$105,000.00
5,000.00
4,000.00
20,000.00
700.00
17,500.00
1,800.00
8,000.00
2,500.00
1,200.00
7,000.00
<hr/>
172,700.00

Overhead expense.

1915-1917.
\$188,165.00
1917-1919.
\$219,605.00

	Salaries.	La equip and ph
Administration.....	\$41,000.00	\$8,000.00
Library.....	11,500.00	
Fuel.....		40,000.00
Heat, light and power.....	4,800.00	
Postage and stationery, gen- eral.....		1,000.00
Regents and general travel expenses.....		6,000.00
Telephone and telegraph, general.....		2,000.00
Advertising.....		1,000.00
Rental conservatory.....		1,000.00
Janitor.....	6,700.00	13,000.00
Printing, general.....		5,000.00
Miscellaneous, drayage and contingent.....		7,000.00
Repairs.....		12,000.00
Care of grounds.....		7,000.00
Cruising public lands (college endowment).....		1,000.00
Military, including encamp- ment.....	2,125.00	2,000.00
Physical education.....	11,600.00	2,000.00
	<hr/>	<hr/>
	77,625.00	110,000.00

Experimental work.

1915-1917.
\$116,875.00
1917-1919.
\$226,175.00

	Salaries.	La equip supp and exp
Administration.....	\$8,325.00	\$13,000.00
Agriculture.....	17,175.00	14,000.00
Botany.....	7,550.00	4,000.00
Chemistry.....	6,025.00	1,000.00
Horticulture.....	3,000.00	7,000.00
Veterinary.....	950.00	1,000.00
Zoology.....	4,000.00	3,000.00
Puyallup experiment sta- tion.....	20,700.00	32,000.00
	<hr/>	<hr/>
	67,725.00	79,000.00

Extension work.

1915-1917.
\$67,472.50
1917-1919.
\$137,978.50

	Salaries.	La equip supp and exp
Administration.....	\$9,675.00	\$8,000.00
Agriculture.....	31,225.00	14,000.00
Home economics.....	3,700.00	
	<hr/>	<hr/>
	44,700.00	22,000.00

* Includes salary as supervising architect of new buildings.

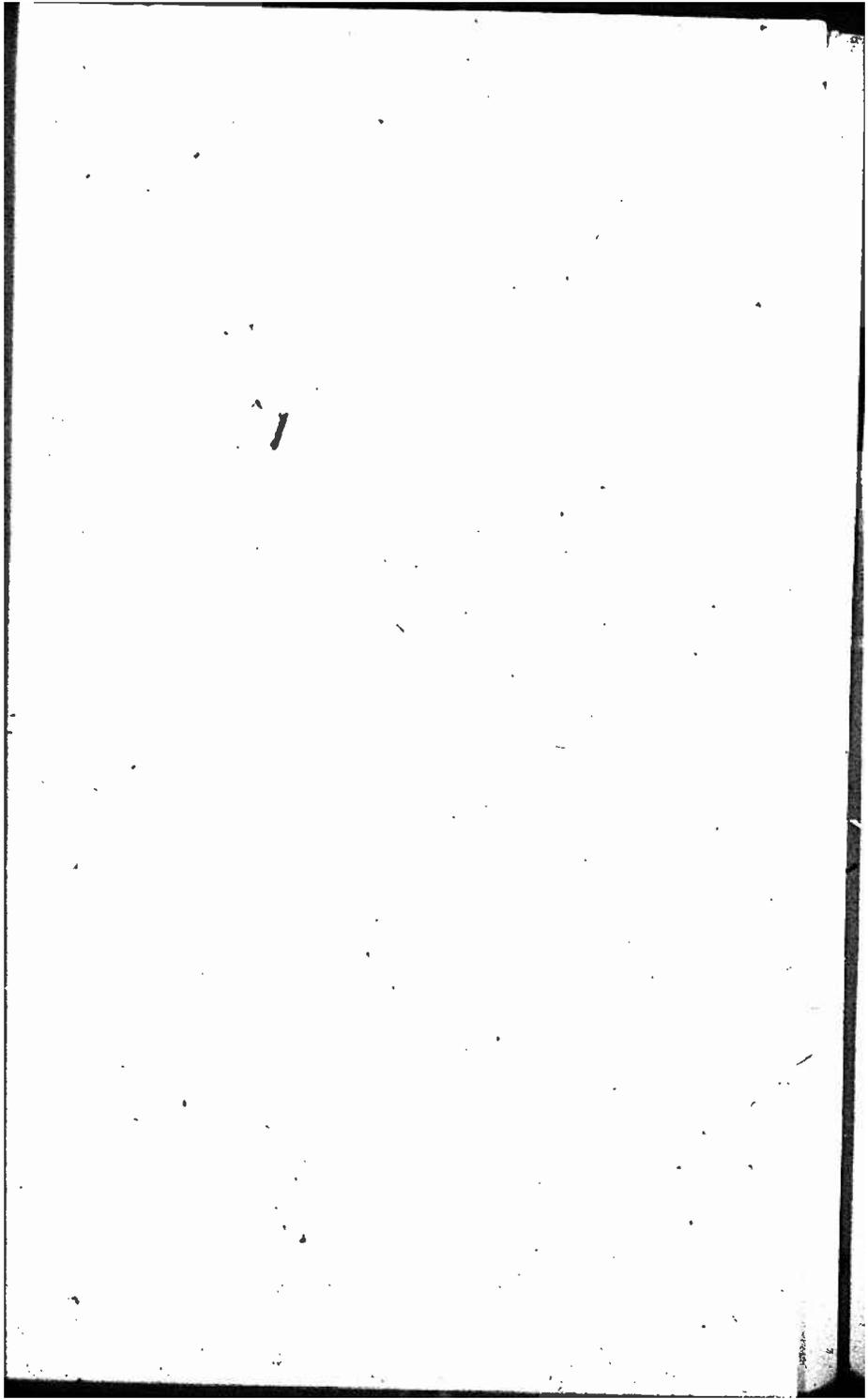
	1915-1917.	1917-1919.
.....	\$5,000.00	\$5,000.00
.....	5,500.00	7,000.00
.....	2,000.00	2,000.00
.....	9,000.00	9,000.00
.....	11,000.00	12,000.00
and his		
.....	1,700.00	1,700.00
.....	1,700.00	2,000.00
.....	4,000.00	4,500.00
.....	2,000.00	2,700.00
.....	500.00	2,800.00
.....	1,200.00	1,200.00
.....	5,500.00	6,500.00
.....	2,000.00	2,500.00
Apr. to		
civil en-	45.00	
trical en-		
gineer-	2,500.00	2,500.00
gineer-		
ing	5,000.00	6,000.00
.....	2,000.00	2,000.00
.....	750.00	1,000.00
.....	300.00	100.00
.....	1,000.00	1,000.00
.....	4,000.00	5,000.00
.....	2,500.00	2,500.00
.....	2,000.00	2,500.00
.....	71,795.00	80,800.00

	1915-1917.	Labor, equipment, and sup- plies.	1917-1919.	Labor, equipment, and sup- plies.
Salaries.			Salaries.	
.....	\$11,000.00	\$6,000.00	\$19,000.00	\$6,500.00
.....	11,500.00		17,140.00	
.....	4,800.00	40,000.00	5,000.00	42,500.00
.....		1,000.00		1,500.00
.....		6,000.00		6,000.00
.....		2,925.00		3,000.00
.....		1,200.00		1,200.00
.....		1,440.00		1,440.00
.....	6,700.00	13,500.00	7,000.00	16,000.00
.....		5,000.00		6,000.00
.....		7,800.00		7,500.00
.....		12,000.00		20,000.00
.....		7,500.00		8,000.00
.....		1,775.00		2,500.00
.....	2,125.00	2,200.00	2,725.00	2,200.00
.....	11,500.00	2,500.00	12,000.00	3,000.00
.....	77,625.00	110,540.00	92,265.00	127,340.00

	1915-1917.	Labor, equipment, supplies, and travel expense.	1917-1919.	Labor, equipment, supplies, and travel expense.
Salaries.			Salaries.	
.....	\$8,325.00	\$13,225.00	\$10,825.00	\$17,225.00
.....	17,175.00	14,675.00	25,175.00	25,150.00
.....	7,530.00	4,075.00	10,050.00	9,475.00
.....	6,025.00	1,625.00	7,500.00	5,100.00
.....	3,000.00	7,375.00	5,800.00	7,775.00
.....	850.00	1,300.00	2,200.00	2,650.00
.....	4,000.00	3,800.00	5,000.00	5,175.00
.....	20,700.00	32,175.00	26,700.00	61,475.00
.....	67,725.00	79,150.00	91,960.00	134,225.00

	1915-1917.	Labor, equipment, supplies, and travel expense.	1917-1919.	Labor, equipment, supplies, and travel expense.
Salaries.			Salaries.	
.....	\$9,675.00	\$9,530.00	\$11,675.00	\$15,530.00
.....	21,325.00	18,470.00	28,825.00	23,470.00
.....	3,700.00	4,772.50	10,000.00	18,478.50
.....	34,700.00	32,772.50	50,500.00	57,478.50

	1915-1917.	1917-1919.
Agriculture	\$31,050.00	\$39,050.00
Architecture	9,000.00	9,000.00
Botany	16,850.00	22,300.00
Chemistry	28,150.00	32,870.00
Economic science and his-		
tory	15,700.00	20,460.00
Education	7,600.00	10,600.00
Elementary science	29,550.00	33,000.00
English	22,950.00	28,950.00
Forestry	4,400.00	5,400.00
Geology	8,400.00	9,400.00
Home economics	9,500.00	12,020.00
Horticulture	13,500.00	15,000.00
Latin (3 months; abolished as a department June 30, 1915)	580.00	
Mathematics and civil en-		
gineering	20,600.00	21,800.00
Mechanical and electrical en-		
gineering	27,500.00	30,680.00
Mining and metallurgy	8,250.00	9,850.00
Modern languages	19,800.00	28,360.00
Music and fine arts	4,300.00	10,500.00
Pharmacy	3,700.00	5,900.00
Veterinary science	17,400.00	18,000.00
Zoology	6,650.00	7,650.00
.....	309,730.00	370,790.00
Summer school, year 1915, 9 months	7,501.51	(1917) 6,000.00
Summer school, year 1916, 6 months	5,500.00	(1918) 7,000.00
.....	\$22,731.51	\$33,790.00



SECTION II.—GENERAL REVIEW OF THE PUBLIC-SCHOOL SYSTEM.

It has been impossible for the committee in the time allotted to survey in detail the public schools of the State. Only those general aspects of the public-school system have been considered which are believed to be of vital importance to the progressive development of the system as a whole.

These are treated very briefly under the following heads:

1. Support of the public schools.
2. County school administration and supervision.
3. Public-school teachers.
4. Special preparation for rural teachers.
5. Certification of teachers.
6. Instruction in the schools.

Chapter XII.

SUPPORT OF THE PUBLIC SCHOOLS.

Washington has been comparatively liberal in the support of its public schools, and in the main the plan used for levying and apportioning the school funds is thoroughly sound.

The State utilizes three units for tax purposes—

- (a) The State.
- (b) The county.
- (c) The local district.

It is eminently fair that the State at large should be taxed to support all the schools of the State, for education is the business of the State just as much as it is the business of a community or an individual. Washington is a large Commonwealth extremely varied in topography and natural wealth. It is rich in grain, fruit, minerals, and lumber, but it has also large sections of semiarid lands, where the population is sparse and poor. In these sections, where the amount raised by local taxation is correspondingly low, it is right that the State at large should give liberal aid. County taxation is justifiable on similar grounds. Since the county is the unit for civil administration, it is reasonable to expect that it should tax itself for the maintenance of all its schools alike, and divide equitably among the schools the taxes from such public carriers as railways

and steamship lines. Finally, a considerable amount of local taxation is necessary to keep alive and foster the local interest in school affairs and to develop local independence and self-reliance. Since Washington distributes the burden of school taxes among the three administrative divisions, the sole question of concern in this State is whether or not these three kinds of taxes are scaled in the most equitable way.

The total levies for school purposes for the fiscal year ending June 30, 1914 (the last available figures), amounted to \$13,648,534, divided

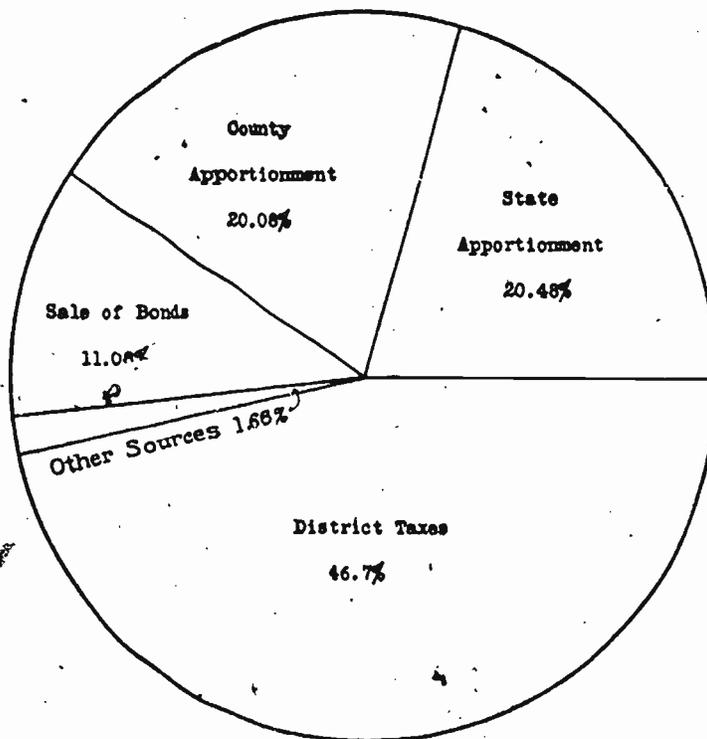


FIG. 1.--Sources of school-district revenues for the year ended June 30, 1914.

as follows: State apportionment, \$2,794,806; county apportionment, \$2,739,107; school district taxes, \$6,376,886; sale of bonds, \$1,510,400; other sources, \$227,335. In addition there were balances on hand sufficient to make the total levies and balances \$17,465,627. Of this total, \$13,774,643 represents the actual disbursements for common-school purposes during the year. These facts are shown graphically in figures 1 and 2.

The graphs disclose that practically 60 per cent of the taxes come from district levies. There is, however, general agreement through-

out the country that the bulk of the funds for school maintenance should come from State and county rather than from local effort; in other words, that local district taxation should be used only for buildings and similar local advantages, and that State and county should pool their efforts for all other purposes. California, for example, has a uniformly good system of rural, village, and city schools, in the mountains and the valleys, in the fruit belt, and in the arid sections, because it wisely relies on State and county taxation to maintain all its schools, seldom resorting to local taxation for other than building

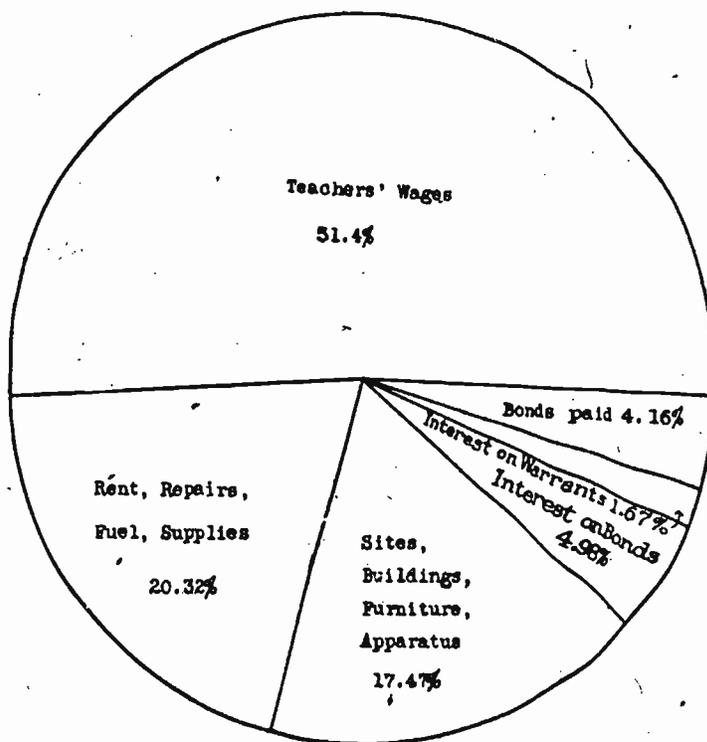


FIG. 2.—Distribution of warrant and capital disbursements for the year ended June 30, 1914.

purposes. Washington strives to equalize the natural inequalities in the State's taxable wealth for the schools through an excellent method of apportionment, but, unfortunately, this is not sufficient to overcome the fundamental inequalities in the general tax system.

The committee recommends that a careful study of the best tax systems in other States be made to ascertain a fair and equitable basis for scaling up the State and county taxes levied in the State.

The school taxes are applied through three separate funds: The general school fund, the building fund, and the bond-redemption

fund. The general school fund includes the following: State appropriations or "current State school fund," county appropriations, and district maintenance levies. The apportionment of the current State school fund for 1916 is graphically shown in figure 3.¹

The system of apportionment is based on the soundest principle. The two vital factors in school cost are the teaching force and the children actually utilizing the schools, i. e., the children in daily attendance. These two factors have been made the basis in apportioning the general school fund in Washington, the current State school

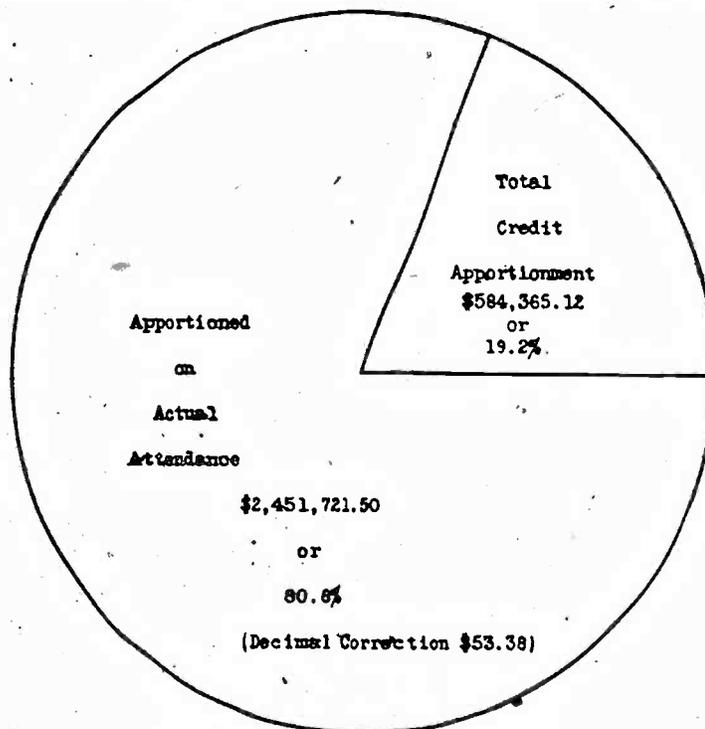


FIG. 3.—State current school fund, 1916-16, \$3,086,140.

fund being apportioned entirely on the basis of daily attendance, and the county appropriation on the basis of two-thirds for attendance and one-third for teachers needed.

A full analysis follows, showing how the current State school fund for 1916 is apportioned:

503,614 census-children at \$10 each equals \$5,036,140, if all is collected.
 \$3,086,140 less \$99,300 bonus to high-school grades equals \$2,986,840.

¹ A full statement of this fund has just been published by the State department of education, Olympia, as Bulletin No. 19.

\$2,946,840 divided by 39,918,540 days (basis of apportionment) equals 7.382 cents per day.

(39,918,540 days at 7.382+ cents per day equals \$2,946,787.)

(\$2,946,840 less \$2,946,787 equals \$53, correction due to decimal.)

\$3,036,140 divided by 33,213,683 days (total actual days, all schools, all credits excluded) equals 9.141+ cents per day.

33,213,683 multiplied by 9.141+ cents equals \$3,036,063. Decimal correction, \$77 \$2,062,555 (direct tax portion) less \$89,300 equals \$1,973,255.

\$1,973,255 (tax portion) divided by 39,918,540 equals 4.94+ cents per day.

39,918,540 multiplied by 4.94+ cents equals \$1,971,976. Decimal correction, \$1,279.

Actual attendance rate per diem (all credits excluded), 9.141+ cents.

Present basis of apportionment, rate per diem (one-half high-school attendance credit, private-schools credit, institute credit, 2,000-day credit, consolidation credit, defective credit, evening school credit, parental-school credit, sickness credit, actual-attendance credit), equals 7.382 cents+ \$89,300 high-school grades.

TABLE 33.—Credits itemized.

Basis of apportionment.	Days.	Rate per day (cents).	Amount.	
1. One-half high-school attendance credit.....	1 2,269,248	7.382	\$169,737.87	1.80
2. Private schools.....	1,622,201	7.382	119,750.87	1.94
3. \$100 bonus to high-school grades.....			89,300.00	2.94
4. Institute.....	922,586	7.382	68,105.20	2.24
5. 2,000 days' attendance.....	678,127	7.382	50,069.23	1.64
6. Consolidation.....	632,000	7.382	46,654.24	1.53
7. Defective.....	267,820	7.382	19,772.47	.64
8. Evening schools.....	177,810	7.382	13,069.03	.43
9. Parental.....	83,346	7.382	6,152.60	.20
10. Sickness.....	23,644	7.382	1,745.41	.05
Total amount to credits.....			564,365.12	19.20
11. Basis of apportionment.....	33,213,683	7.382	2,451,771.50	
Decimal correction.....			53.38	
Total.....	39,918,540	7.382	3,036,140.00	

¹ Excluding 286 for Skamania and 80 for Stevens.
² Equals actual attendance (33,213,683 days) less 1,525 days.

Although the underlying principle is correct, in minor details the system should be changed. The attorney general of the State ruled (Oct. 7, 1915) that (1) the 2,000-day credit attendance, (2) the one-half high-school credit attendance, (3) the credit attendance in parental schools, and (4) the credit attendance for defectives should not be counted in "arriving at the basis of attendance for the apportionment of two-thirds of the county apportionment." This needs reconciliation with the State basis. The credit attendance is the growth of years. Many of the items included should be modified or discontinued altogether. The State superintendent of public instruction has urged such modification on various occasions.

The committee is of the opinion that a careful revision of the whole system of apportioning both the current State school fund and the county fund should now be undertaken.

Chapter XIII.

COUNTY SCHOOL ADMINISTRATION AND SUPERVISION.

When Washington organized its school system, the State borrowed its plans largely from the older States. In the early days this organization was adequate for all purposes, but the State is now rapidly outgrowing it. The fact is recognized not only by the educational leaders, but by the laity of the State as well. The present chapter is devoted to a brief outline of the system of administration and supervision so far as it concerns the county and its subdivisions.

Section 1 of paragraph 97 of article 1 of the school code provides that "for purposes of supervision and administration each county in the State shall constitute one county school district." The supervisory and administrative control of the county school district is delegated to a county superintendent and such assistants as may be provided him by law. The superintendent's administrative function, however, is largely neutralized by the powers of the directors of the local districts into which the county is divided, so that in matters of school administration the county loses much of its significance. In practice Washington utilizes the county as the unit of school supervision. For purposes of taxation, also, the county is important.

Three units are used in the United States for local educational administration: The district, the township, and the county. The district unit belonged to the original pioneer system. It came into use by common consent in early days when nothing else was possible and generally preceded all school legislation. Wherever a sufficient number of families gathered in a new settlement they organized their own schools as best they could. The families served by a single school formed the original district unit.

The present small district school organization in Washington is an outgrowth of the early system used in New England and the Middle West. While pioneer conditions prevailed in the State this organization proved satisfactory, but now that Washington has become a flourishing Commonwealth, the small district is less able to provide the most economical kind of school organization. The district unit must either be abandoned or reinforced through other means.

The township unit of administration belongs to New England and a few States westward. It would not be a practicable device for this State, and may be passed by in the discussion.

The county unit, on the other hand, which had its origin in the Southern States and has more recently spread to several Northern and Western States, is better adapted to the changing conditions of such a State as Washington. The county system of organization usually centralizes school effort by placing practically all educational authority in the hands of a small county board of education, which elects a professionally prepared educator as county superintendent

and executive secretary. This educator is charged with the selection of all the teachers of the county. Questions of school policy, establishment of new schools, closing of small, ineffective schools or their consolidation into large central schools, and similar matters are decided by the board. The prevention of the duplication of schools and the consequent reduction of the number of teachers, the establishment of careful grading, and the adoption of courses of study appropriate to the community—these are some of the improvements which have usually followed the inauguration of the county system of organization and which tend to make this system both effective and economical.

But even the county system of school administration as just outlined does not prove satisfactory under all conditions. In Washington many of the counties are too large and the population too scattered to warrant the general adoption of such a system. Okanogan County, for example, has an area equal to New Hampshire and is more difficult to traverse. The population is comparatively small, living in great measure under pioneer conditions. The same is true of other large sections of the State. In view of these facts the committee is inclined to advocate for the present a flexible policy of school administration. It is probably better that the sparsely populated counties retain, for the time being at least, the local district organization and seek a remedy for the defects of general administration and supervision in some other way. For such of the Washington counties, however, as have a well-distributed population of, say, not less than 6,000 census children, a permissive county organization might be authorized by law to allow the most compact and best populated sections of the State to experiment with the system.

The early county superintendent in the United States was created as a clerical and financial functionary to apportion locally the school taxes, to make statistical reports to the State department of education, and, incidentally, to visit schools and stimulate interest in educational affairs. The office called for no special qualifications, and could be filled from the general electorate as easily as any other county office. But recently educational problems have changed, and the superintendent's work has become greatly enlarged. Many new powers and functions have been conferred upon the county superintendent. The office can not now be filled satisfactorily except by a well-educated person of broad experience and executive ability.

The Washington school code, dealing with the subject of county superintendent, is in harmony with the old conditions when any layman of reasonable ability could fill the office well. It reads:

No person shall be eligible to hold the office of county superintendent of schools who shall not at the time of his election or appointment have taught in the public schools of this State two school years of nine months each, and who shall not at the time of such election or appointment hold a first grade or higher certificate.

This minimum requirement of experience and preparation does not guarantee to the county persons fit for the important office of superintendent. Entirely too often the incumbents have less preparation for their work than do the majority of the teachers under their direction. This is a serious evil. Again, the State, which otherwise pays rather liberal salaries, provides for the county superintendent a salary utterly inadequate and out of proportion to the importance of the office. In fact the post is so poorly paid that there is no incentive for any person to prepare for it. The salaries range from \$480 per annum to \$2,000, averaging about \$1,138. Consequently, it is not uncommon to find county superintendents who are obliged to preach, to plow, or to keep shop, and to make of their educational office a side issue. As a remedy for this condition the committee recommends that the eligibility and salary clauses in the code be changed so that any person, in order to be eligible to the office of county superintendent, shall hold a professional certificate valid in this State; shall have had at least five years of professional experience, and shall have had not less than two years of advanced preparation of college or normal school grade in addition to being graduated from a secondary school. The minimum salary, it is recommended, shall be \$1,200, and the maximum, \$3,000. In case eligible persons can not be found in the county, candidates should be chosen from some other county.

Even with the right kind of county superintendent, the problem of providing effective schools would not be solved. In addition to expert administration, there is urgently needed in the schools of the State—and particularly in the rural schools—close professional supervision. Indeed, with adequate supervision, no further reorganization would probably be needed for years to come. Ohio, West Virginia, and other States have attacked the problem by subdividing the county into supervision districts on the basis of one supervisor to not more than 30 teachers (or schools) under his jurisdiction. The supervisor should preferably live in his supervision district, although he should be responsible for his work to the county superintendent, who is his superior officer. In order to equalize educational opportunities the State should pay part of the supervisor's salary. In return the supervisor should be nominated by the State superintendent of schools, or by the State board of education, and his appointment should be ratified finally by the local boards of the districts comprised in the supervision unit.

The committee is convinced that the lack of professional supervision in the rural and village schools is one of the greatest weaknesses in the whole school system, and recommends that legislation be passed to remedy it by subdividing the counties for supervision purposes.

Chapter XIV.

PUBLIC SCHOOL TEACHERS.

STATISTICS OF GENERAL TRAINING, PROFESSIONAL PREPARATION, AND TENURES.

Liberal school support and efficient school administration are essential in a progressive school system; but more important still is a well educated, professionally trained teaching body. The professional preparation and general education of the present body of Washington teachers are discussed in the following paragraphs.

In the year 1912-13 the common schools of Washington employed 8,459 teachers, of whom 6,795 were women; in 1913-14 the number had increased to 8,639, of whom 6,928 were women; in 1914-15 there were 9,068, of whom 7,276 were women.

The committee, working in cooperation with the State department of education, recently sent a questionnaire to every teacher in service to ascertain the preparation each had had, the length of service, and several other important facts. At the time of the filing of this report the questionnaires had not all been returned. Final tables could not therefore, in every instance, be given. However, the data for many counties were complete, and for purposes of comparative statistics the figures are wholly satisfactory. The data on high schools also were complete.

According to the returns there are 1,947 high-school teachers, 987 men and 960 women; 1,737 teachers of one-room schools reported. This number should probably be increased to about 1,800. In addition to the teachers in one-room schools, 4,202 elementary teachers reported. This number should probably be increased to about 5,500. The total of these three groups would give the State a present teaching force of about 9,248 in elementary and secondary schools.

Of more importance than mere numbers is the kind and amount of preparation of the teachers intrusted with the education of the future citizenry of the State. The study has disclosed that Washington teachers on the whole are better prepared for their profession than teachers in many other States. This statement refers only to the amount of time spent in academic and professional institutions, and furnishes no final criterion of the absolute effectiveness of the instruction secured. It appears from Table 34 that in a total of 1,737 teachers of one-room schools reporting, 1,158 have some professional preparation and 302 have none. This is set forth graphically in figures 16 and 17 in Section III. Professional preparation, as the term is used here, ranges from attendance at a university, college, or normal school for one or more summer schools to graduation from advanced courses in these schools. Other elementary teachers make a better showing, only 5 per cent reporting no professional preparation.

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Figures compiled by the United States Bureau of Education (Bulletin, 1914, No. 49) give the average number of teachers without any professional preparation in places of less than 2,500 people, as 32.3 per cent, and the average for the Western Division of States as 22.9 per cent. A comparison of these figures with those given in the preceding paragraph is not unfavorable to Washington. Nevertheless, the fact remains that 1 out of 5 rural teachers and 1 out of 20 other elementary teachers in the State have no training for their tasks, and

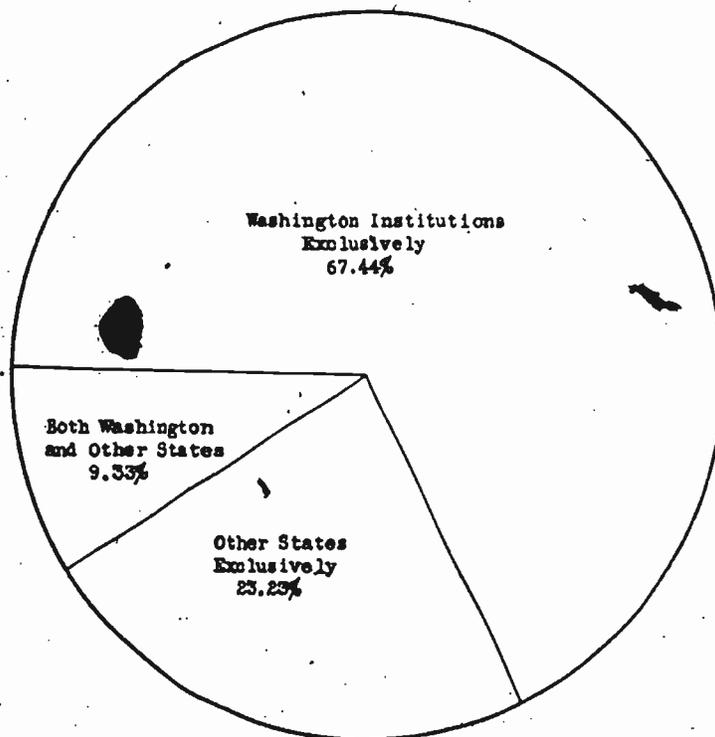


FIG. 4.—Rural teachers trained in Washington institutions and institutions of other States.

a still larger number do not have as much or as efficient preparation as the public has a right to expect.

The State occupies a unique place in one respect, namely, that it has been able to depend on other States farther east to prepare nearly one-half of its teaching staff. For the future there will probably be a gradual decline in this supply of foreign-trained teachers until a minimum is reached. Teachers from the older States are attracted to Washington by the better salaries paid, and by the apparently greater opportunities for winning worthy positions in life. Out of the total of 1,947 Washington high-school teachers, 949

have had all their preparation in other States, and 274 have attended schools both outside the State and in it, while only 606 are exclusively from Washington institutions. Probably the time is at hand to consider carefully the conditions under which extra-State teachers should be accredited and certificated. Up to the present their influx into the State has been stimulating to the home product and has given the young State better teachers than it could otherwise have received. The ratio of State and extra-State rural and other elementary teachers is seen in figures 4 and 5.

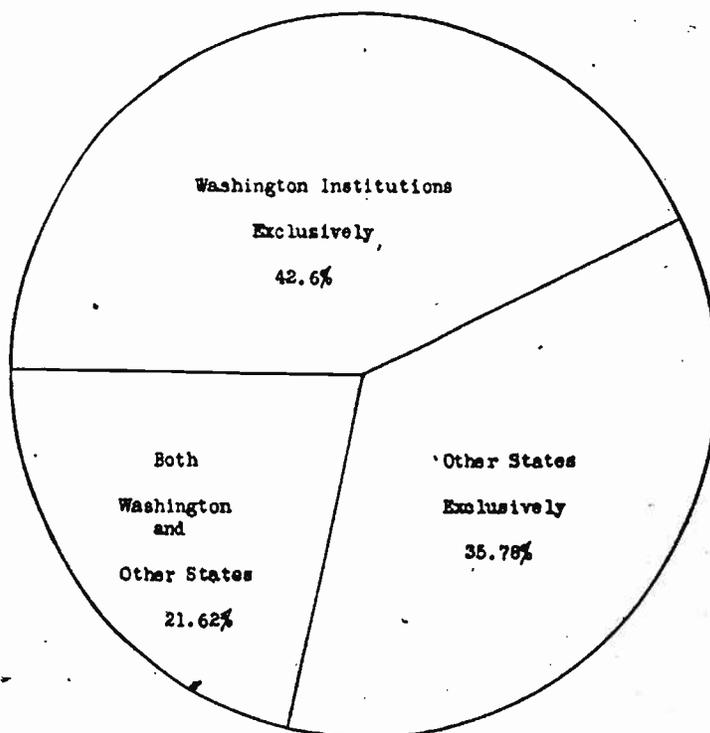


FIG. 5.—Elementary teachers (other than rural) trained in Washington institutions and institutions of other States.

Figures presented elsewhere in this report¹ show certain significant facts, namely: (1) That the university and colleges devote considerable attention to preparing elementary-school teachers, a task for which they have poor facilities, and in performing which they duplicate the work of the normal schools; and (2) that a considerable number of teachers find their way into the service from the university and colleges by the county-examination route. These have had no professional preparation worth mentioning. The report later emphasizes the fact that the preparation of elementary school

¹ See Figures 16 and 17 in Section III; also Table 34.

teachers is the peculiar function of the normal schools. For this they are better adapted than the colleges. In the preceding section it was also recommended that the colleges should be discouraged from offering courses for elementary teachers.¹

Figures 6 and 7 indicate the institutions attended by rural and other elementary teachers one term or more. The comparison naturally favors the elementary group. Of teachers in one-room schools 8.28 per cent have had elementary-school preparation only, and 15.56

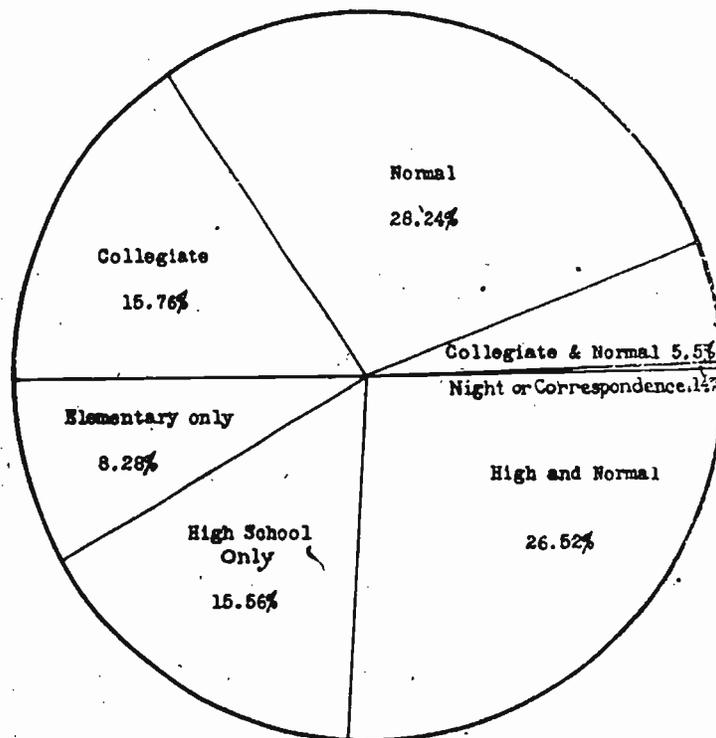


FIG. 6.—Institutions attended one term or more. (Teachers of one-room schools.)

per cent high-school preparation only (which does not always mean the completion of high-school courses). Of the other elementary teachers, 1.77 per cent report elementary preparation only, and 4.78 per cent high-school preparation only. While conditions in regard to the academic preparation of teachers are more serious in some other States, it is evident that in the interests of its children Washington can not continue to intrust 8 per cent of its one-room schools to teachers whose formal training has not extended beyond the curriculum of the very school in which they teach. The committee's con-

¹ See Ch. IX, p. 112 et seq.

ception of the academic and professional preparation which should be required of all teachers is set forth in the section on normal schools.

Figures 8 and 9 call attention to another serious condition. Too many teachers, once they are certificated, are satisfied to remain scholastically *in statu quo*. For example, 47.33 per cent of teachers in one-room schools and about one-third of the other elementary teachers have attended no educational institutions while in service. This is probably due in a large measure to the exceptional ease with

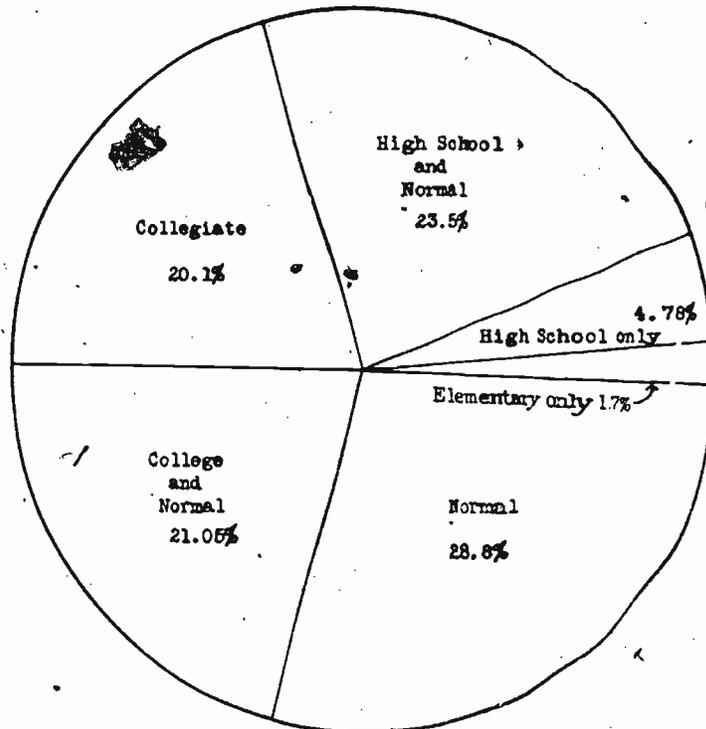


FIG. 7.—Institutions attended one term or more. (Elementary teachers in other than one-room schools.)

which certificates can be renewed in this State. As a remedy the committee suggests that some new compulsory plan be adopted for the further training of all teachers while in service. Such a plan can advantageously be worked out by the normal schools in cooperation with the State department of education. (See Section III, p. 177 et seq.)

Long tenure is an indication of professionalized teaching. The amateur teacher never remains long in the profession or in any one place. The survey has disclosed that teacher tenures in Washington

are a trifle better than the average for the United States as a whole. Figures 10 and 11 give the teaching experience of all except high-school teachers. They show (1) that one-fourth of all the teachers in one-room schools do not teach more than one school year, and that the percentage of other elementary teachers reporting similarly brief tenures is much smaller; (2) that one-third of the rural teachers have taught more than five years, and that fully 65 per cent of other elementary teachers teach five years and over.

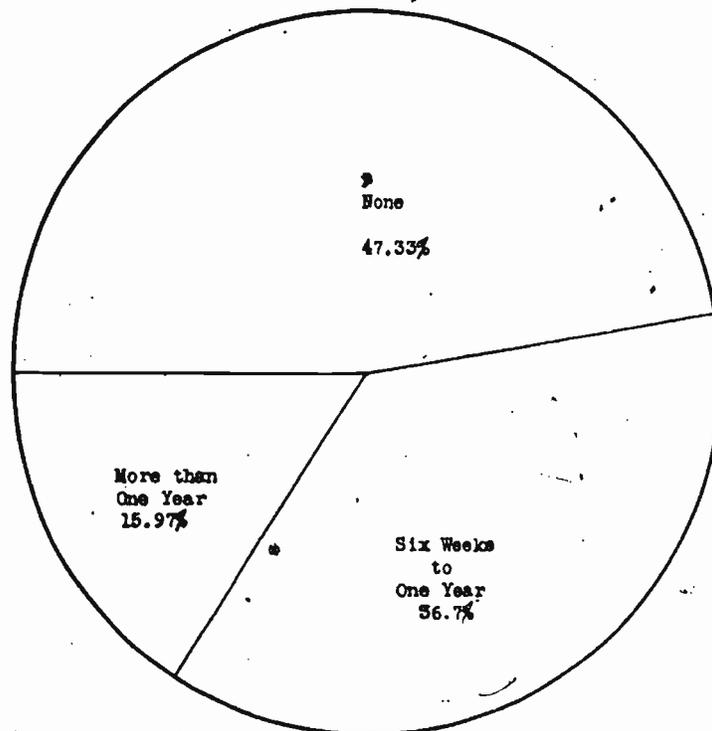


FIG. 8.—Per cent of teachers attending institutions while in service. (One-room teachers.)

The large number of very short tenures in rural schools is due to the fact that these schools alone are willing to accept inexperienced teachers. It is one of the inconsistencies of the American school system that the rural schools, which, with the new demands, are becoming the most difficult of all for a beginner, should continue as practicing grounds for all kinds of apprentices. The cure for this defect lies with the State. Not until the State demands a specialized preparation of rural teachers will the practice cease. On the other hand, the comparatively large number continuing in the profession

in Washington for more than five years is probably due to the good salaries and to the efforts made to house teachers properly by providing teachers' cottages. The average salaries paid teachers in the State are \$105.79 for men and \$83.85 for women. The remuneration is sufficient to secure for the State long and effective service.

The conditions revealed by figures 12 and 13, which disclose the longest tenure in one place, are similar to those already discussed. Long tenure in one place is held to be of such importance that several

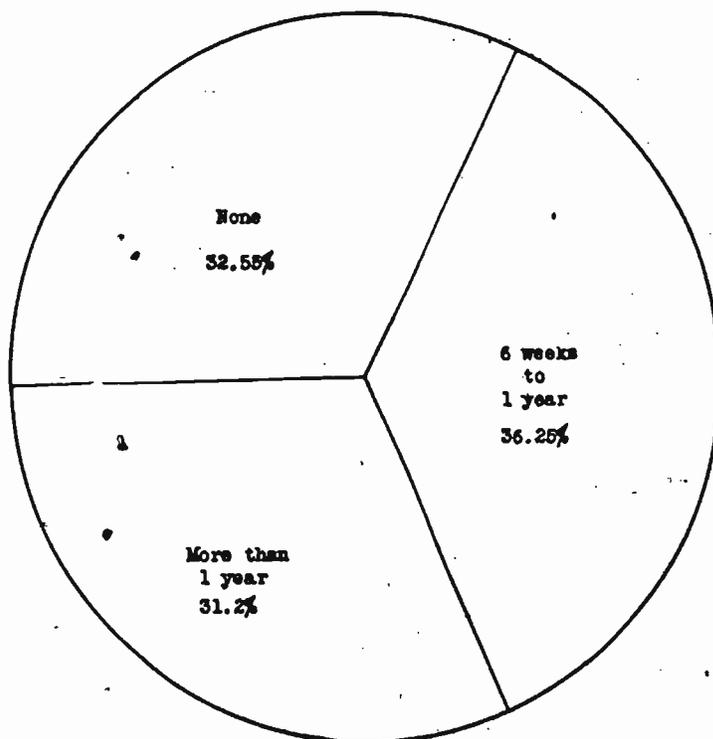


FIG. 9.—Per cent of teachers attending institutions while in service. (Elementary teachers in other than one-room schools.)

States—notably Wisconsin and Indiana—have passed laws recently to encourage teachers to continue indefinitely in the same community. These laws provide that the State, in addition to the salary supplied by the community, shall pay the teacher something like \$5 monthly for the second year, \$10 monthly for the third year, and \$15 monthly for each subsequent year. A penalty clause is also attached to provide against local salary reduction to offset the State's contribution. Such a law is recommended for Washington.

Chapter XV.

SPECIAL PREPARATION FOR RURAL TEACHERS.

The educational needs of rural-school teachers have already been alluded to, but the committee believes the subject is important enough to warrant special discussion.

It is not sufficient that teachers in rural schools should have as much general education and professional skill as teachers in the elementary grades of the city schools. In addition they need a

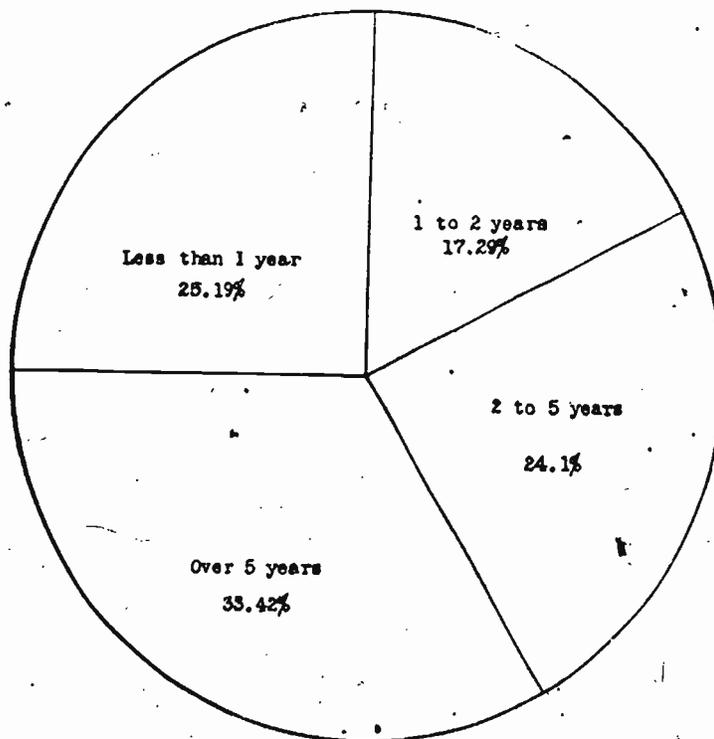


FIG. 10.—Teaching experience in years. (Teachers in one-room schools.)

wider range of knowledge and a knowledge of some subjects not necessary for the success of teachers in elementary schools in the city. It has long been accepted that the schools must give the tools of learning—reading, writing, arithmetic, and elementary geography—and educate for the duties and responsibilities of citizenship. To direct this work teachers in country and city schools need practically the same educational preparation. Human interests and the fundamental requirements of good citizenship are substantially the same in city and country. But it is now agreed that the schools must also prepare children, to some extent at least,

for their vocational life, and the demand that the schools shall perform this function more fully grows from year to year.

While in the cities the occupations of the masses of the people are more varied than in the country, the division of labor has been carried to a very high degree, and the year's work of very many people has been reduced to a constant repetition of a few simple processes, many, if not most, of which may be learned largely by imitation and continued with a fair degree of success without any very comprehensive knowledge of the fundamental principles involved. In the

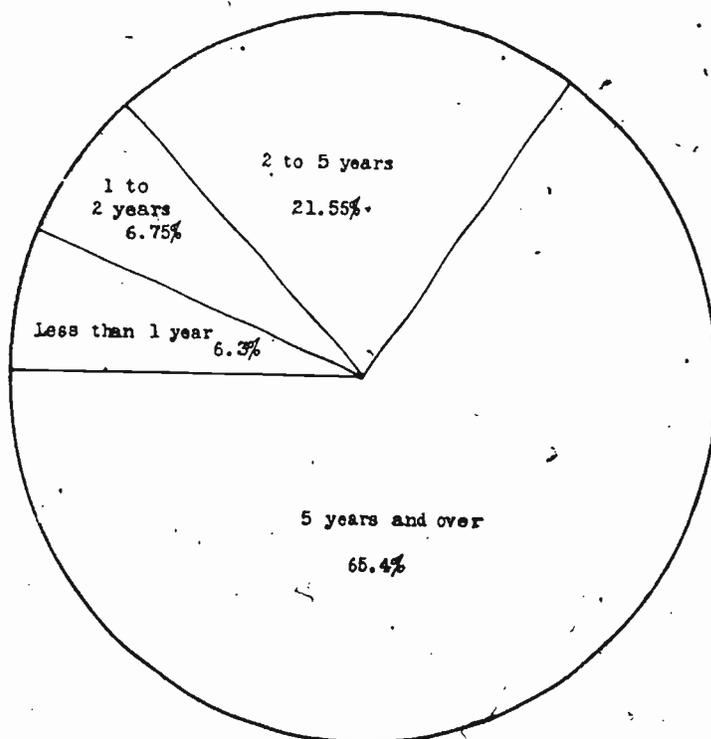


FIG. 11.—Total teaching experience in years. (Elementary teachers in other than one-room schools.)

country, on the contrary, most men are engaged in one occupation, that of farming, and most women in making and caring for their country homes. In neither of these occupations has division of labor been carried very far, nor do they readily lend themselves to the application of this principle. The farmer who owns the farm which he cultivates (86.3 per cent of the farms in the State of Washington are operated by their owners, according to the Federal census of 1910, and only 13.7 per cent are operated by tenants) must, in order to do his work intelligently and to be sure of any degree of success, have a mastery of a wide range of very

different processes to be applied under varying conditions from day to day and from season to season. He should have also a working knowledge of the physics and chemistry of the soil, of fertilizing and the means of preserving the fertility of the soil, of plant and animal life, of plant and animal breeding, of methods of tillage, and of harvesting, preserving, and storing crops of many kinds, of feeding and caring for different kinds of animals, of plant and animal diseases, of the operation, care, and repairing of all kinds of farm machinery, of such engineering as is required in

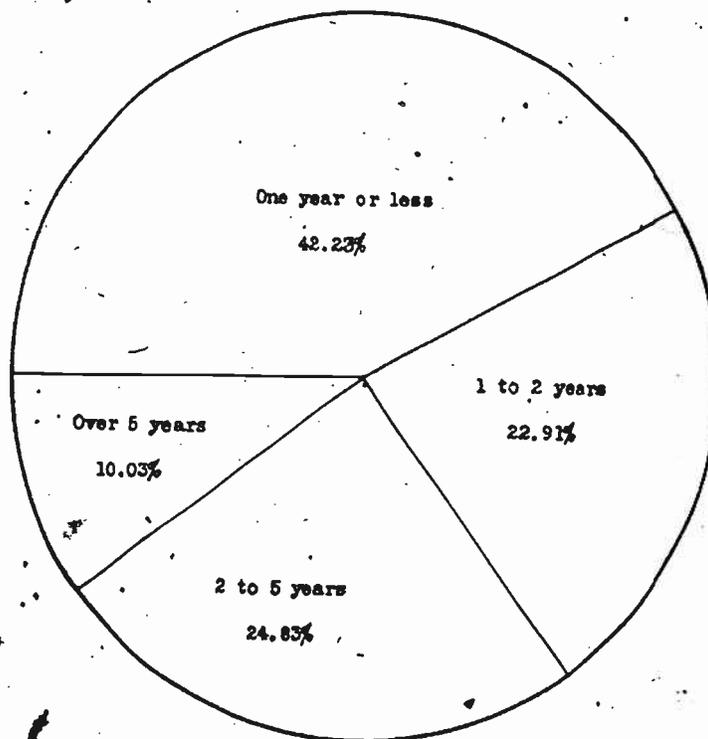


FIG. 12.—Longest tenure in one place. (Teachers in one-room schools.)

road building, terracing, draining, and irrigating; and in controlling small streams, of bookkeeping and accounting, marketing and many forms of rural economy, of the elementary principles of forestry, and of such forms of architecture, carpentry, and stone and brick masonry as are necessary for planning and building houses, barns, silos, sheds, fences, and gates.

The task of the farmer's wife is to make the country home sanitary, convenient, comfortable—a fit place for herself and her husband to live in happily, and for their children to be born and reared in. In this she can not have the help of sanitary inspec-

tors and other useful agents of the more complex urban communities. She must know how to select and prepare a wholesome, balanced ration for the members of her family, how to clothe them most suitably and economically, how to care for the health of herself and her children without the constant help of the physician, and how to guide her children in their early mental and moral development. She must also know how to buy and sell to advantage a large variety of produce and household necessities, how to care for vegetable and flower gardens and poultry. She

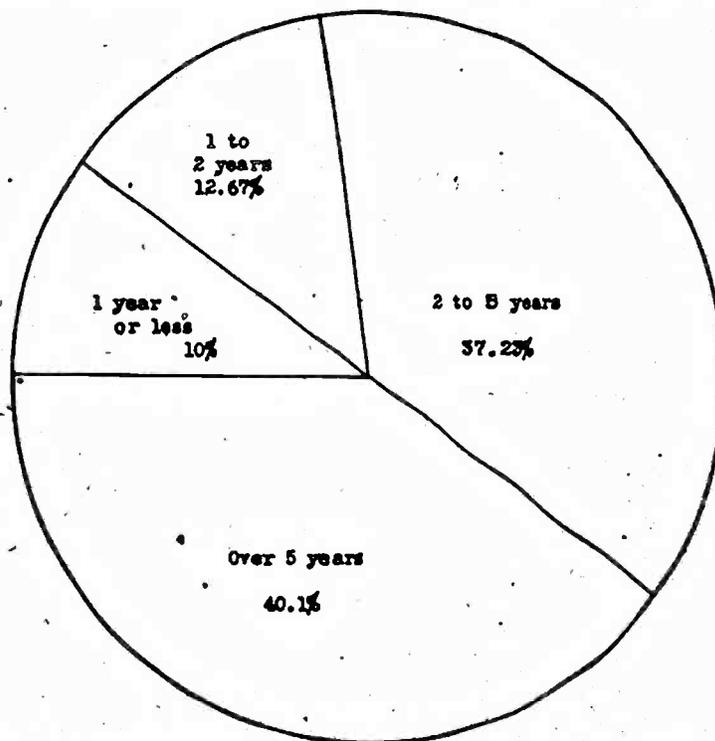


FIG. 13.—Longest tenure in one place. (Elementary teachers in other than one-room schools.)

should have such a knowledge of the general operation of the farm as will enable her to sympathize with her husband's work and to advise him in it; and it is always possible that she may be left the task of managing the farm alone and that the living and education of her children may depend upon her ability to do so successfully. All these things need to be known by the farmer and the farmer's wife, not only in process but also in principle, since through a knowledge of principles alone can one work intelligently under ever-changing conditions.

Only a small per cent of country boys and girls of Washington as yet go through the high schools. Therefore, whatever the schools are to do toward teaching them or putting them in the way of learning these principles and practices of their vocational life must be done in the elementary schools.

If the rural schools are to teach what country people need to know, the teachers of these rural schools must know these things also, and know how to teach them, and the schools in which the teachers are educated and trained must prepare for this work. It may be a large and difficult task, but there is no way to avoid it. It must be met squarely, or else the rural schools will fail in this very important function, demanded by modern life and changing social ideals. To prepare teachers for rural elementary schools, therefore, normal schools should give more extended, and more practical courses in all the sciences that pertain to country life. For this they need larger equipment of laboratories and sufficient land for cultivation of farm crops, produce, and vegetables to enable them to demonstrate the more important processes of farming, gardening, and fruit growing. Each normal school should also have the use of a house to be fitted up and kept as a model country home. It should have the use of one or more rural schools to be made as nearly as possible into model schools for observation and practice, and should put itself and its students into close touch with as many schools as may be reached by any practicable means of transportation. The cost of equipment for preparing teachers for rural schools need not be very large, but it is important that it should be provided as early as possible. ~~Already~~ something has been done in this direction at each of the normal schools, but not enough at any one of them.

All persons preparing to teach in rural schools should be encouraged to remain through the entire three years of the normal-school course, as recommended later in this report.¹ Those who leave at the end of two years should be expected to continue their studies in the vocational side of their work and to return from time to time to the normal schools for further instruction. Since approximately half of the elementary teachers of the State are in rural schools, and all of these must be vocational teachers to some extent at least, this special preparation of rural teachers should be accepted by the normal schools as a large and important part of their work.²

¹ See Section III, p. 177 et seq.

² There is a growing demand for special teachers of gardening in city schools, gardening to be done in both school gardens and at the homes of the children, in both cases under the direction of the school. As this is a valuable phase of educational work for city children, and since the demand for teachers to direct such work will probably be permanent, the normal schools might well make provisions for their preparation. This might easily be done in connection with the preparation of rural teachers in agriculture. The State college might also prepare teachers for this work through the cooperation of its departments of agriculture and education.

Chapter XVI.

CERTIFICATION OF WASHINGTON TEACHERS.

Public-school teachers in Washington are certificated in several different ways. The higher institutions of learning are authorized by law to issue certificates and diplomas. City schools issue high-school, grammar-school, primary, and special certificates; and the county superintendents issue temporary and special certificates. The majority of the public-school teachers, however, are certified by the State superintendent of public instruction. The office of the State superintendent issues several thousand certificates annually. The centralization of certification through the superintendent's office on the basis of State-wide examination makes for uniformity and fairness. Nevertheless, the Washington system has serious defects which should be remedied. These are chiefly due to the fact that very few changes have been made in the method of certification since it was first established.

The following are the "common-school certificates" issued by State authority:

- (a) Third-grade certificates;
- (b) Second-grade certificates;
- (c) First-grade primary certificates;
- (d) First-grade certificates;
- (e) Professional certificates;
- (f) Permanent certificates;
 1. Permanent first-grade primary certificates;
 2. Permanent first-grade certificates;
 3. Permanent professional certificates;
- (g) Life certificates.

The third-grade certificate is the lowest grade of certificate issued by the State. It may be procured by any person 18 years of age who has passed an examination in the common-school subjects, with minimum grades of 70 per cent in arithmetic and grammar, and 60 per cent in reading, penmanship and punctuation, United States history, physiology and hygiene, geography, theory and art of teaching, orthography, and Washington Manual. Almost any person coming out of the elementary schools can get a third-grade certificate by doing a small amount of outside reading. In the early days of the State's history, when teachers were few and difficult to obtain, such certificates were necessary; but this is no longer the case. It is shown elsewhere (p. 177 et seq.) that the professional schools of the State and other States should hereafter be able to supply enough professionally prepared teachers to obviate the necessity of resorting to recruits of low-grade certification.

A large number of the holders of these third-grade certificates are employed in the one-room rural schools of the State, and far too many find service in the other elementary schools. In a total of 1,737 teachers in one-room schools reporting to the committee (see fig. 14), 20.07 per cent hold third-grade certificates, while in a total of 4,269 other elementary teachers (see fig. 15) a little more than 3 per cent have similar certificates.

The most unfortunate feature of the law relating to certification is that third-grade certificates may, in actual fact, become permanent

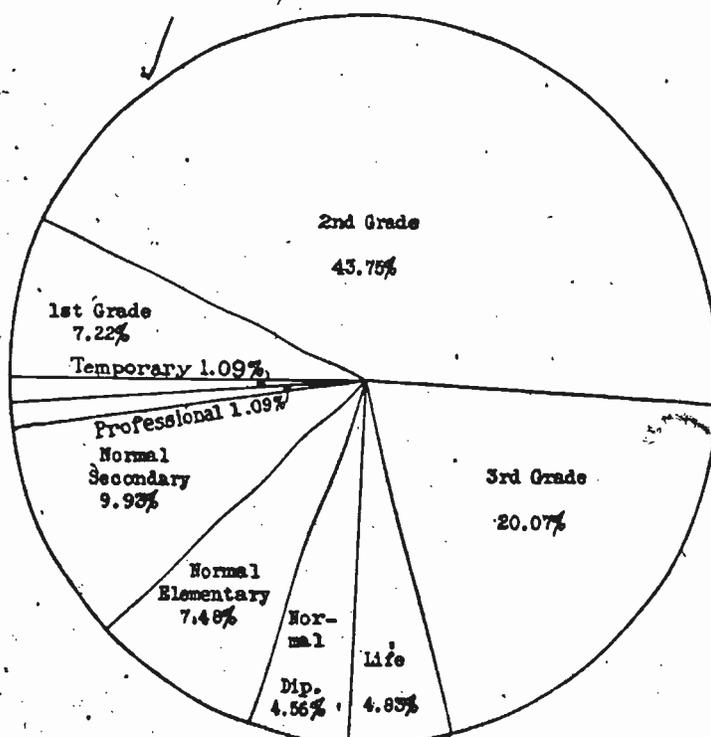


FIG. 14.—Washington certification. (One-room rural teachers.)

certificates if the holder takes advantage of paragraph 316, article 1 of the school code. Teachers who are able to make their third-grade certificates permanent under this "90 per cent clause" should be encouraged to secure a higher form of certificate.¹ However, as has been implied above, the committee is convinced that third-grade certificates are no longer necessary in this State. It recommends that they be discontinued at an early date.

¹ See table of examination for teachers' certificates, p. 143.

Respectively 43.7 per cent and 28.6 per cent of rural and other elementary teachers in the State teach on the second-grade certificate. The subjects required are the same as for the third-grade with the addition of music, but the standing required on examination is higher. The second-grade certificate should be the lowest grade of certificate granted hereafter, but the law under which it is renewed should be modified. The act reads:

This certificate shall be valid for two years, but may be renewed if, during the life of the certificate, the holder has complied with any one of the following conditions,

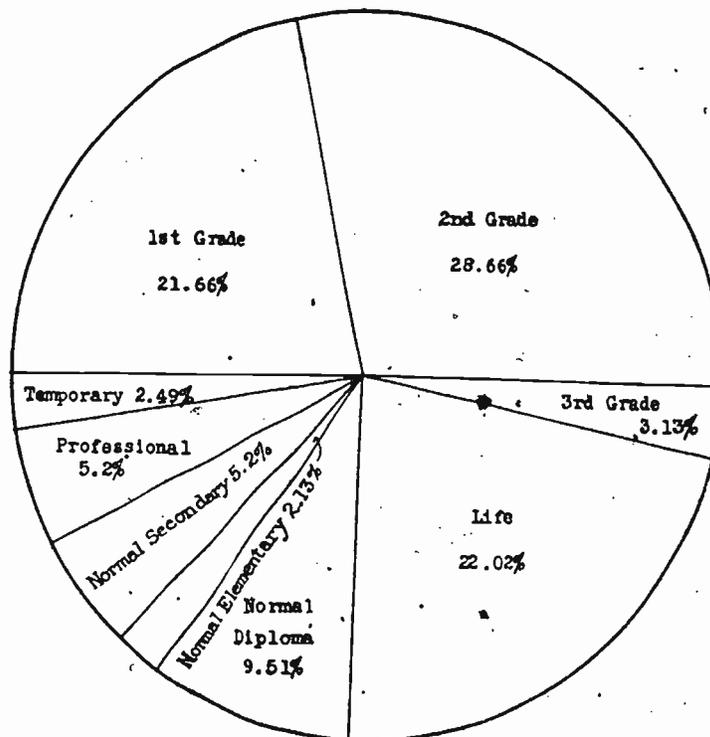


FIG. 15.—Washington certification. (Elementary teachers in other than one-room schools.)

to wit: (1) An attendance of one semester at an accredited school of higher education or of six weeks at an accredited summer school when satisfactory work was done in three subjects and certified to by the principal of such school. (2) Upon 16 months of successful teaching.

The renewal condition based on professional study in a school of higher education is excellent and should be the only basis for renewing the certificate, at least until the State can see its way clear to organize a thorough-going system for the further training of teachers in service.¹ Renewal "upon 16 months of successful teaching" is of

¹ See proposals made in Section III, p. 126 et seq.

doubtful value, for no supervising officer will refuse to subscribe to such renewal, except in extreme cases.

No teacher should be permitted to instruct in the new vocational subjects and the other subjects which have recently come to be regarded as essential in the curricula of modern schools who has not himself been examined in these subjects. Such is not the case under the laws of Washington. Many teachers are at the present time obliged to instruct in subjects with which they have little acquaintance and in which they have not been examined. The examination schedules for practically all the certificates issued under State authority are limited, for the most part, to the traditional courses of study. This appears from the analysis made by the State board of examiners set forth below:

Examination schedules for teachers' certificates.

Subjects for examination.	Grade of certificate and length of validity.			
	Temporary.	Third (1 year).	Second (2 years).	First primary (5 years).
All grades of 90 per cent or above on a valid certificate issued by this department or obtained during life of such certificate will be accepted so long as applicant has a certificate in full force.	No examination required; see rules of State board of education, Circular 10, sent upon application.	Reading, grammar, penmanship and punctuation, history of United States, physiology and hygiene, arithmetic, geography, theory and art of teaching, orthography, Washington State Manual.	Same as third grade, and music.	Same as second grade, and any 4 of the following: Nature study, drawing, literature, physical geography, psychology, history of education.
Subjects for examination.	Grade of certificate and length of validity.			
	First (5 years).	Professional (5 years).	Life, unless revoked for cause.	Permanent, unless revoked for cause.
All grades of 90 per cent or above on a valid certificate issued by this department or obtained during life of such certificate will be accepted so long as applicant has a certificate in full force.	Same as second grade, and any 4 of the following: Physics literature, algebra, physical geography, botany, psychology.	Same as first grade, and any 8 of the following not taken in securing a first-grade certificate: Plane geometry, geology, botany, zoology, civil government, psychology, history of education, bookkeeping, composition, general history, Latin, German, political economy.	Same as first grade, and any 10 of the following not taken in securing a first-grade certificate: Plane geometry, geology, botany, zoology, civil government, psychology, history of education, bookkeeping, composition, general history, Latin, German, political economy.	First-grade and professional certificates may be made permanent without additional examination.

Attention is called to the fact that not a single one of these certificates requires examination in the modern vocational subjects, and

yet the outlined course of study for the common schools of the State of Washington, adopted February 21, 1910, includes manual training and household economics one hour per week throughout the eighth grade, and forestry, agriculture, or horticulture three days per week in the same year. In addition, nature study is given in the first and second years, and manners and morals are included as a general exercise throughout the year.

The committee recommends that the examination schedules be thoroughly revised to conform to the work actually required of the teachers in the schools.

It was disclosed above that fully one-fifth of all the rural and other elementary-school teachers in the State have no professional preparation. A large number of these persons have gained whatever knowledge they may possess about the business of teaching from pedagogical books, from brief summer institutes, and experimentation in the classroom. In the opinion of the committee the facilities for the training of teachers provided within the State, together with the supply of professionally prepared teachers coming to Washington from other States, are now adequate to warrant the imposition of a minimum professional requirement for all public-school teachers. Other States, for example Nebraska and Missouri, have laws to this effect. Washington might well follow their lead. If it should see fit to do so, the plan adopted should give the teachers in the field ample time to meet the new requirements. In order to work no hardship on anyone, five or six years from the time the act is passed might be allowed in which to procure the required professional preparation. But for specific recommendations as to legislation, see Section III, pp. 177 and 180.

The schools suffer probably as much from the insufficient academic preparation of the teachers as from any other cause. The traditional elementary curriculum does not furnish either the broad culture or the scientific and practical knowledge essential to the comprehension of modern civilization. No person whose academic preparation is limited to the elementary school has a sufficient foundation on which to build his teaching career. Indeed, graduation from an accredited four-year high school ought to be regarded as the minimum requirement for all the teachers in the State. It is the conviction of the committee that within a reasonable time no person should be granted a teacher's certificate who is not a graduate from a four-year high school. As in the case of professional preparation discussed above, teachers should be allowed ample time to meet this additional requirement. The necessary legislative provisions are suggested in Section III, p. 177, et seq.

Chapter XVII.

INSTRUCTION IN THE SCHOOLS.

The committee regrets that it has been unable, by reason of the limited time at its disposal, to study at first hand the content of the public-school courses and the methods and quality of instruction; for these matters furnish, after all, the final evidence of the efficiency of the schools. Under the circumstances the brief discussion in this chapter is necessarily based on documentary evidence mainly.

The common-school course of study.—The course adopted in 1910 for the rural and graded elementary schools of the State contains, in addition to the fundamental studies, a considerable number of subjects of great instructional and inspirational value, such as history and mythology, geography, literature, nature study and agriculture, and manual arts. Mention has already been made of the fact that teachers are not examined in all the subjects they are expected to teach. The extent to which teachers are actually unprepared in certain common-school subjects is indicated in the tables at the end of this section.

It may be said in passing, however, that of the teachers in one-room schools 264 teach agriculture, 85 manual training, 86 music and drawing, 71 high-school subjects, 41 history and civics, without preparation. Table 37 contains a similar statement with regard to the defective preparation of elementary teachers. Moreover, in view of the incompleteness of the reports, the numbers given probably represent only a small part of the teachers who are actually without preparation in the subjects listed.

The people of the open country and rural-minded villages need their own peculiar preparation for successful living. The course of study in use in Washington and in many other States is based largely on urban needs and on tradition. Some agriculture and some manual arts have been added recently to the already crowded course, much as a patch is applied to an old garment. What is needed is to renew the woof and the warp of the cloth, or, to change the figure, to have the new subject matter permeate the whole course of study as yeast leavens an entire lump. The revitalized rural-school curriculum must be based on what the farmer and his wife ought to know. In this way only can Washington expect to develop its greatest resource, the land. Even such a course of study will not and should not keep all the people on the land. Those who are innately city-minded will inevitably find their way to town. But the solution of the greatest problem in this State—the rural or agricultural problem—must lie largely in providing for the rural schools a course of study especially adapted to rural needs, and in permitting no one to teach in

rural districts who has not been specifically prepared for this kind of work.

The committee recommends that a thoroughgoing study be made of the rural-school curriculum in the State, with a view to eliminating nonessentials and substituting instead those modern educational elements necessary to prepare people to live contented and remunerative lives in farm communities. The obligation of the normal schools to provide special courses for persons preparing to be rural teachers is discussed in Section III (p. 181).

TABLE 35.—Statistics affecting qualifications of Washington teachers in one-room schools—PART I.

Counties.	Number of teachers and grades taught.		Teachers holding Washington certificates, and number of each grade.										Number of teachers, with institutions attended one term or more.					Attended institute.		Attended institutes while in service.			
	Right.	Less than eight.	First grade.	Second grade.	Third grade.	Life.	Normal diploma.	Normal elementary.	Normal secondary.	Professional.	Temporary.	College.	Normal.	College and normal.	Night or correspondence.	High normal.	High school only.	Elementary school only.	Regular.	Irregular.	None.	Six weeks to one year.	More than one year.
Adams.....	4	20	4	18	13	2	4	3	3	1	3	15	11	2	15	6	9	2	48	3	2	17	13
Asotin.....	2	15	2	11	8	1	1	1	1	1	3	3	6	1	1	1	1	1	18	4	10	11	11
Benton.....	2	8	2	4	3	1	1	1	1	1	1	3	3	1	3	2	3	3	14	4	8	7	7
Chelan.....	4	21	4	18	7	1	1	2	1	1	2	9	11	1	7	4	5	10	30	3	15	11	11
Chewaucum.....	4	20	4	17	14	1	1	2	2	1	2	9	11	1	7	4	3	3	20	3	14	6	6
Columbia.....	4	13	1	17	5	1	1	1	1	1	1	6	5	1	4	4	3	3	17	3	15	6	6
Cowlitz.....	8	23	6	20	13	2	1	3	3	1	1	3	4	1	3	2	5	9	35	2	11	14	4
Douglas.....	3	19	2	7	11	1	1	2	1	1	1	4	6	1	8	1	6	6	20	3	14	7	7
Ferry.....	8	12	3	11	8	1	1	1	1	1	3	12	12	2	6	4	4	7	45	3	24	6	4
Garfield.....	3	18	2	16	10	1	1	1	1	1	1	11	11	1	8	1	6	3	23	1	17	12	5
Grant.....	20	46	7	33	13	2	1	2	2	1	1	17	24	0	13	6	4	7	65	8	27	33	13
Grays Harbor.....	6	11	1	13	6	1	1	1	1	1	1	4	12	1	4	4	1	7	21	1	7	10	4
Island.....	7	11	1	12	3	1	1	1	1	1	1	2	3	1	3	2	1	10	10	1	4	4	
Jefferson.....	16	23	3	12	3	3	3	4	1	1	1	6	6	4	6	5	2	19	40	5	19	8	8
King.....	10	12	2	11	2	1	1	1	1	1	1	4	4	4	6	5	2	19	5	12	4	4	
Klickitat.....	14	35	8	21	9	2	2	6	2	1	1	8	8	4	8	5	7	30	4	15	6	3	
Lewis.....	38	26	3	21	5	1	2	2	2	1	1	5	5	7	15	15	2	52	5	31	18	8	
Lincoln.....	52	48	3	37	12	4	2	16	7	1	1	10	22	7	20	5	2	64	2	31	4	11	
Mason.....	9	14	2	13	4	2	1	2	1	1	1	3	3	8	5	10	2	86	22	46	2	25	
Pacific.....	18	20	3	16	9	2	1	4	2	1	1	7	9	2	12	1	4	25	2	13	6	6	
Panama.....	21	21	1	23	12	1	3	4	3	1	1	13	4	4	8	2	4	33	4	18	14	6	
Pierce.....	6	9	2	9	3	1	2	2	1	1	1	2	6	1	5	2	2	14	2	10	2	7	4
San Juan.....	2	3	1	2	1	1	1	1	1	1	1	19	19	1	7	14	7	56	1	22	28	7	7
Shastah.....	6	9	3	7	3	1	1	2	1	1	1	8	6	4	4	3	2	23	16	3	8	8	8
Snohomish.....	12	12	1	10	2	1	1	1	1	1	1	3	3	1	4	4	3	18	3	6	7	7	7
Spokan.....	40	60	4	47	15	4	3	10	5	1	2	6	8	4	8	16	7	24	2	24	2	6	6
Stevens.....	34	31	3	35	16	4	1	4	2	1	1	5	6	4	26	18	9	60	4	37	31	19	13

Turkey	15	20	1	2	10	1	2	7	6	14	7	1	6	4	4	35	1	16	17	2
Washington	9	4	2	2	4	1	2	2	1	5	1	1	1	4	9	3	1	6	4	2
Walla Walla	17	11	1	1	3	12	1	1	7	6	3	1	3	5	31	2	2	13	4	2
Whitman	38	67	8	8	8	52	20	13	28	21	1	1	23	8	28	4	16	12	1	
Yakima	10	10	2	2	3	11	3	1	9	10	1	1	1	2	122	8	3	11	19	
Pond Oreille	12	13	3	4	15	2	2	2	3	10	1	1	0	2	24	4	10	11	7	
Total	565	781	126	106	643	286	71	67	232	416	81	2	390	229	1,344	128	697	540	235	
Grand total	1,472																			
	1,470										1,472									
	1,462										1,472									

TABLE 35.—Statistics affecting qualifications of Washington teachers in one-room schools—PART II.

Counties.	Number of teachers and years taught.				Longest tenure in same position.				Teachers having persons dependent upon them.				Number of teachers teaching certain subjects without preparation.								Criticism by teachers on course of study.		
	Less than one year.	One to two years.	Two to five years.	Over five years.	One year or less.	One to two years.	Two to five years.	Over five years.	None.	One to two.	More than two.	Helping.	Agriculture.	Manual training and domestic science.	Musical or drawing.	Printing.	Writing.	Horticulture.	History or civics.	None.	Nature study or geography.	Favorable.	Unfavorable.
Adams.....	15	8	12	16	12	14	14	1	31	19	9	3	6	3	1	1	4	1	1	31	1	43	4
Asotin.....	4	7	11	4	7	7	1	12	6	6	2	2	1	1	2	2	2	2	1	8	1	17	2
Benton.....	6	9	11	4	9	7	2	10	6	6	3	3	1	1	1	1	1	1	1	8	1	17	2
Chelan.....	4	6	11	4	6	7	2	10	6	6	3	3	1	1	1	1	1	1	1	8	1	17	2
Chittenden.....	7	6	8	10	17	4	7	10	11	9	6	3	1	1	1	1	1	1	1	17	1	25	3
Charley.....	11	7	8	10	25	4	7	10	11	9	6	3	1	1	1	1	1	1	1	17	1	25	3
Columbia.....	6	6	6	10	6	9	7	10	11	9	6	3	1	1	1	1	1	1	1	17	1	25	3
Cowlitz.....	9	9	11	17	25	12	7	10	11	9	6	3	1	1	1	1	1	1	1	17	1	25	3
Douglas.....	13	7	11	17	35	12	7	10	11	9	6	3	1	1	1	1	1	1	1	17	1	25	3
Ferry.....	8	8	10	10	10	10	2	1	12	11	11	8	4	4	1	1	1	1	1	11	1	17	2
Franklin.....	6	8	10	10	12	10	2	1	12	11	11	8	4	4	1	1	1	1	1	11	1	17	2
Garfield.....	12	8	11	18	16	16	3	1	20	25	12	7	7	4	1	1	1	1	1	11	1	17	2
Grant.....	13	7	11	11	2	4	10	6	20	20	12	7	7	4	1	1	1	1	1	11	1	17	2
Grays Harbor.....	2	2	2	11	2	4	10	6	8	8	4	4	1	1	1	1	1	1	1	11	1	17	2
Island.....	4	4	4	10	2	4	10	6	8	8	4	4	1	1	1	1	1	1	1	11	1	17	2
Kearney.....	10	10	12	13	6	7	12	10	8	8	4	4	1	1	1	1	1	1	1	11	1	17	2
King.....	5	5	6	14	4	7	10	6	8	8	4	4	1	1	1	1	1	1	1	11	1	17	2
Knapelook.....	5	5	6	14	4	7	10	6	8	8	4	4	1	1	1	1	1	1	1	11	1	17	2
Klickitat.....	18	11	13	15	19	7	9	11	11	10	7	6	3	3	1	1	1	1	1	11	1	17	2
Lewis.....	13	9	21	23	10	15	21	20	37	15	10	7	6	3	1	1	1	1	1	11	1	17	2
Linn.....	23	23	29	29	33	19	27	22	56	36	20	10	9	6	3	3	3	3	3	11	1	17	2
Mason.....	4	8	8	7	3	4	17	6	10	10	8	6	3	3	1	1	1	1	1	11	1	17	2
Skamania.....	7	16	10	10	6	11	7	7	20	12	5	2	2	2	1	1	1	1	1	11	1	17	2
Wasco.....	17	5	19	7	7	7	6	7	20	12	5	2	2	2	1	1	1	1	1	11	1	17	2
Walla.....	17	5	19	7	7	7	6	7	20	12	5	2	2	2	1	1	1	1	1	11	1	17	2
Whitman.....	4	4	4	4	4	4	4	4	16	16	4	4	4	4	1	1	1	1	1	11	1	17	2
Yakima.....	2	3	4	8	6	3	6	4	10	5	3	3	3	3	1	1	1	1	1	11	1	17	2
Yamhill.....	20	16	11	26	11	12	13	9	13	6	18	11	1	1	1	1	1	1	1	11	1	17	2
Zillah.....	20	16	11	26	11	12	13	9	13	6	18	11	1	1	1	1	1	1	1	11	1	17	2

TABLE 37.—Statistics affecting qualifications of Washington elementary teachers (other than of one-room schools)—PART I.

Counties.	Number of grades taught.				Washington certification.										Institutions attended one term or more.					Institutions attended while in service.		
	Four or more.	Two to four.	Less than two.		Life.	Normal diploma.	Normal elementary.	Normal secondary.	Professional.	Temporary.	Collegiate.	High school and normal.	High school.	Elementary only.	Normal.	Collegiate and normal.	None.	Six weeks to one year.	One year or more.			
Adams	11	14	7		4	4				1	2	10	6		13	4	7	12	10			
Asotin	2	10	13		5	9					5	12	1		3	16	4	14	11			
Benton	8	20	19		4	9					5	12	1		13	16	4	14	11			
Chelan	19	39	30		14	6					18	12	2		24	30	12	21	45			
Chittenden	9	12	15		10	9				1	8	7	2		9	9	12	11	14			
Columbia	10	74	19		3	9				1	30	19	14		21	14	47	20	27			
Cowlitz	15	15	11		7	2				1	4	4	2		7	6	6	13	13			
Coville	18	20	13		5	3				1	10	14	10		16	7	25	18	21			
Douglas	5	3	7		3	3				2	7	7	8		6	1	9	3	9			
Ferry	4	12	6		5	4				1	5	1	1		7	2	9	4	2			
Franklin	11	26	6		2	1				2	5	1	1		5	6	10	6	6			
Garfield	11	26	6		2	1				2	5	1	1		5	6	10	6	6			
Gem	24	67	83		20	11				3	28	13	13		13	4	12	15	11			
Grant	2	9	9		4	4				2	2	2	1		3	5	1	7	3			
Grays Harbor	2	4	4		4	4				3	2	2	1		3	4	3	9	3			
Island	2	4	4		4	4				3	2	2	1		3	4	3	9	3			
Jackson	87	424	474		240	40				15	272	209	45		214	263	387	317	1			
King	3	13	13		19	10				15	15	18	5		24	24	26	26	1			
Kittitas	6	38	38		21	13				13	24	24	5		29	43	23	23	1			
Klickitat	6	13	9		1	1				1	9	4	4		2	10	10	10	1			
Lewis and Clark	10	78	47		20	27				2	21	36	5		62	19	46	43	84			
Linn	7	31	14		6	10				1	10	15	2		15	8	24	17	11			
Mason	6	9	4		1	4				2	6	7	1		4	2	10	7	2			
Okanogan	13	27	3		2	6				2	9	5	1		4	6	10	12	17			
Pacific	60	172	121		89	13				6	14	12	12		22	17	19	25	25			
Pend Oreille	4	6	6		10	6				9	16	7	7		22	62	150	110	122			
Shelton	35	32	32		22	19				3	1	3	3		1	1	4	3	2			
Shoemaker	4	10	10		2	2				2	10	23	3		49	19	53	32	34			
Snohomish	44	68	35		20	10				3	12	1	4		1	1	6	2	2			
Spokan	46	123	229		143	28				5	60	39	14		60	39	68	68	6			
Stevens	14	20	13		5	5				2	8	3	5		15	15	27	27	10			
Thurston	12	47	11		16	12				3	15	15	6		14	8	16	10	21			
Wahkiakum	4	5	5		1	1				2	3	3	3		13	13	19	22	26			
Walla Walla	4	5	5		1	1				1	1	1	1		1	2	3	3	3			

Walla Walla.....	15	25	52	23	25	3	30	5	1	6	5	4	25	10	3	1	26	24	25	37	40
Wahconah.....	95	73	92	37	42	7	70	37	10	31	5	1	22	31	0	1	28	24	25	37	40
Walla Walla.....	23	44	57	25	53	7	17	11	3	5	8	5	17	44	3	2	35	44	54	77	79
Walla Walla.....	26	94	81	35	70	11	27	19	7	9	8	5	39	42	4	1	40	28	30	50	54
Walla Walla.....	2	8	9	2	7	.....	5	2	.....	1	1	.....	2	.....	1	2	37	49	62	55	74
Walla Walla.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total.....	719	1,890	1,556	845	1,118	122	859	371	83	203	203	97	830	970	197	73	1,190	870	1,345	1,499	1,292
Grand total.....	.....	4,157	.....	.....	.....	.....	3,901	.....	.....	.....	.....	.....	.....	.....	4,130	.....	.....	.....	.....	4,136	.....



Table 37.—Statistics affecting qualifications of Washington elementary teachers (other than of one-room schools)—PART II.

Counties.	Teaching experience in years.					Longest tenure in same position.			Institution attended.		Persons dependent on teacher.			Subjects taught without preparation.						Criticism of course.		Sex of teacher.			
	Less than one year.	One to two years.	Two to five years.	Five years and over.	One year or over.	One to two years.	Two to five years.	Over five years.	Regular.	Irregular.	None.	One or more.	Helping.	Kindergarten.	Primary.	High school subjects.	Manual training.	Domestic science.	Agriculture.	Others.	None.	Favorable.	Unfavorable.	Male.	Female.
Adams.....	3	1	8	17	5	4	13	7	29	19	3	7	1	1	1	1	3	1	1	1	24	26	3	6	22
Asotin.....	2	1	8	15	2	11	11	11	25	13	11	2	1	1	1	1	1	1	1	1	21	26	6	6	22
Benton.....	2	2	17	23	2	11	13	11	45	25	17	3	1	1	1	1	1	1	1	1	37	43	4	3	34
Chelan.....	2	2	10	16	2	10	10	22	83	42	40	6	1	1	1	1	1	1	1	1	77	89	8	11	77
Chittenden.....	10	6	27	56	14	15	17	21	38	15	20	2	1	1	1	1	1	1	1	31	33	4	3	34	
Clark.....	2	1	11	17	9	13	19	8	31	13	17	1	1	1	1	1	1	1	1	87	88	5	23	80	
Columbia.....	3	1	11	35	6	11	24	11	60	10	10	1	1	1	1	1	1	1	1	27	28	3	7	24	
Cowlitz.....	10	7	13	24	6	11	15	11	17	15	16	1	1	1	1	1	1	1	1	53	53	3	11	54	
Douglas.....	4	4	4	9	3	6	9	3	21	14	10	1	1	1	1	1	1	1	1	16	20	1	4	17	
Ferry.....	1	1	7	13	1	3	5	2	14	10	7	3	1	1	1	1	1	1	1	18	21	1	3	12	
Franklin.....	6	4	9	19	7	2	2	4	10	1	4	7	1	1	1	1	1	1	1	10	10	0	2	10	
Garfield.....	5	8	9	18	16	25	27	27	137	7	86	55	3	1	1	1	1	1	1	83	37	6	1	16	
Grays Harbor.....	5	8	46	85	16	25	66	6	137	7	86	55	3	1	1	1	1	1	1	123	138	6	16	122	
Jefferson.....	2	4	6	4	2	1	6	3	6	5	3	1	1	1	1	1	1	1	1	5	8	1	1	8	
Klickitat.....	4	24	103	84	3	4	6	2	714	273	523	393	69	1	1	1	1	1	1	8	10	1	1	8	
Knapalla.....	10	8	23	33	12	9	14	17	90	4	46	41	7	2	1	1	1	1	1	875	962	25	84	908	
Kittitas.....	12	10	26	32	17	14	14	17	79	3	38	44	7	3	1	1	1	1	1	64	85	9	14	80	
Klickitat.....	2	14	48	50	27	15	20	20	123	2	8	15	4	1	1	1	1	1	1	70	75	7	13	80	
Lewis.....	23	10	19	14	13	9	25	7	62	15	45	11	1	1	1	1	1	1	1	26	28	2	5	23	
Lincoln.....	3	6	6	4	4	4	9	5	32	18	11	1	1	1	1	1	1	1	1	116	120	15	28	107	
Mason.....	3	6	6	4	4	4	9	3	18	1	8	1	1	1	1	1	1	1	1	44	49	3	9	43	
Okanogan.....	4	4	14	21	12	14	16	18	43	2	19	2	1	1	1	1	1	1	1	15	19	2	3	16	
Pacific.....	7	7	10	39	9	14	27	19	67	2	40	22	2	1	1	1	1	1	1	38	40	2	4	39	
Snohomish.....	16	25	59	202	47	44	85	186	303	96	148	208	6	1	1	1	1	1	1	316	330	37	54	302	
Skagit.....	2	5	5	4	4	4	9	2	9	4	4	5	1	1	1	1	1	1	1	5	8	1	1	8	
Snohomish.....	14	11	30	60	23	24	28	44	111	8	63	56	1	1	1	1	1	1	1	98	106	14	23	94	
Spokane.....	1	1	11	11	2	7	5	6	13	2	9	6	1	1	1	1	1	1	1	7	13	1	1	13	
Stevens.....	19	7	27	52	21	20	54	66	145	6	49	100	2	1	1	1	1	1	1	126	135	14	24	127	
Suwanah.....	6	5	15	22	3	8	13	13	39	7	268	219	41	1	1	1	1	1	1	406	442	26	36	452	
Thurston.....	6	5	15	22	3	8	13	13	43	7	31	24	2	1	1	1	1	1	1	30	45	2	6	41	
Wahkiakum.....	1	1	21	34	6	10	22	33	66	6	21	33	6	1	1	1	1	1	1	60	61	9	15	65	
Walla Walla.....	1	1	4	7	1	2	5	6	10	3	8	6	1	1	1	1	1	1	1	6	9	1	1	6	

Wells Falls.....	3	7	27	45	5	13	34	50	96	6	62	34	6	1	7	14	84	92	10	12	90							
Whitewater.....	19	27	69	135	24	35	106	96	232	8	100	120	20	2	5	25	198	215	15	34	206							
Wausau.....	5	12	44	73	12	17	62	43	132	2	81	52	1	5	5	10	110	127	7	20	174							
Washburn.....	18	16	40	117	22	32	69	60	184	7	105	74	12	1	2	4	19	128	130	11	14	173						
Wood County.....	1	2	8	8	3	2	7	7	18	1	11	8	1	2	1	1	13	18	1	1	18	23						
Total	289	277	887	2,092	413	626	1,547	1,077	3,039	522	2,064	1,853	236	7	25	41	72	95	133	186	3,310	3,882						
Grand total																							4,115	4,135	4,141	4,143	4,069	4,199

SUMMARY OF RECOMMENDATIONS DEALING WITH THE PUBLIC-SCHOOL SYSTEM.

1. A comparative study of State systems of taxation to ascertain a fair and equitable basis for scaling up the State and county taxes levied in Washington.
2. A revision of the system of apportioning the current State school fund and the county fund.
3. A revision of the qualifications and salaries of county superintendents.
4. The provision of professional supervision in rural communities and the subdivision of the counties for supervision purposes.
5. The encouragement of long teaching tenures by supplementing salaries on the basis of years taught in the same community.
6. The abolition of third-grade certificates.
7. The revision of the requirements for renewing second-grade certificates until such certificates are finally discontinued.
8. The revision of the examination schedules for the several kinds of certificates.
9. The establishment of minimum professional requirements for all persons teaching in this State.
10. The establishment of minimum academic requirements for all persons teaching in this State.
11. The thoroughgoing revision of the common-school course of study, and the adoption of a distinctively rural course of study for schools of the open country.

SECTION III.—THE STATE NORMAL SCHOOLS.

Chapter XVIII.

GENERAL CONSIDERATIONS.

The State normal schools of Washington are, in law and common practice, an integral part of the State system of higher education. Their function in this system should properly be determined by State needs rather than by sectional or local desires. Education is the business of the State. The institutions in which its teachers are prepared are supported by all the citizens of the State. The State, therefore, has the right to demand that these institutions be so administered as to give to the people the largest possible returns in well-prepared teachers, without waste of funds or needless duplication of courses and expensive equipment. To the attainment of this end the special fields of the normal schools and also of the departments of education at the University of Washington and the Washington State College must be clearly defined.

With respect to the sphere of the normal schools the State code provides (sec. 11, par. 57, ch. 2) that:

The State board of education shall prescribe courses of study for the normal schools of the State as follows: (1) An elementary course of two years; (2) a secondary course of two years; (3) advanced courses of two and three years; (4) a complete course of five years; (5) an advanced course of one year for graduates from colleges and universities. Upon the satisfactory completion of any one of these courses, a student shall be awarded an appropriate certificate or diploma as follows: Upon the completion of the elementary course, a certificate to be known as an elementary normal school certificate, which shall authorize the holder to teach in any elementary school for a period of two years; upon the completion of the secondary course, a certificate to be known as a secondary normal school certificate, which shall authorize the holder to teach in the common schools of the State for a period of three years; upon the completion of any advanced course, a diploma to be known as a normal school diploma, which shall authorize the holder to teach in the common schools of the State for a period of five years; and upon satisfactory evidence of having taught successfully for three years such person shall receive a life diploma countersigned by the superintendent of public instruction.

Under the code, therefore, only elementary certificates limit the holders to service in the elementary schools. All other certificates authorize the holders to teach in the "common schools" of the State, which (sec. 1, par. 1, ch. 1) include "high and elementary

schools, schools for special help and discipline, schools or departments for special instruction."

On the other hand the State board of education—in which is vested the power to examine and accredit secondary schools, as well as to prescribe the courses of study for the normal schools, and to investigate and approve the requirements for entrance to and graduation from the normal schools—can to some extent limit the force of the normal-school certificates and diplomas. By action taken at a meeting held December 29, 1910, the State board virtually excluded normal-school graduates from teaching in fully accredited high schools. An excerpt from the minutes reads:

No school shall be accredited which does not have three or more teachers giving their entire time to the work of instruction. The scholastic preparation of any high-school teacher shall be such as to especially qualify him to give instruction in the subjects which he teaches. The minimum scholastic attainment, except for teachers of special subjects, should be graduation from a standard college, except in the case of instructors who, by reason of native ability, experience, and scholastic training, are considered by the inspector as having qualifications equivalent to such graduation. In no case shall the State board accept the work of an instructor who shall have scholastic training less than graduation from the advanced course of the State normal schools of Washington or its equivalent; *Provided*, That this rule shall not disqualify any teacher employed in high-school work in this State prior to January 1, 1911.

Before examining in detail the present status of the Washington State normal schools and suggesting changes of policy, the committee desires to lay down a few general premises bearing upon the fundamental purposes and limitations of all normal schools.

The first efforts to prepare elementary school teachers in the United States were made about 75 years ago in New York State, which subsidized a few of its private academies for this important task. Shortly afterwards Massachusetts and other States began to prepare elementary and grammar school teachers in the first regular normal schools. At that time teachers needed for the academies (there being practically no other high schools) were trained for the most part in the colleges and universities. The policy thus established has been adhered to consistently down to the present time in the northeastern section of the country. The replies to a recent questionnaire on normal-school functions show that all the normal schools in New England and New York and practically all in Pennsylvania confine their energies to the preparation of teachers for schools below high-school rank, leaving the training of high-school teachers to the departments of education in colleges and universities.

In the Middle West and West the normal schools have generally developed contemporaneously with the State universities and colleges and have often become well established as the chief institutions for

teacher training, while the universities were struggling to lay good foundations for college courses in arts and sciences. In some of these States the normal schools have developed into colleges of education, competing for prestige and patronage with the schools of education in the universities and colleges.

From the point of view of the economical and effective use of the State's educational machinery, the policy represented by the north-eastern States is unquestionably the wiser one. The teaching force and physical equipment of normal schools all over the country have been selected and the general professional atmosphere developed with a view to one paramount purpose, namely, the training of elementary teachers. Whatever the ambitions of certain institutions, the momentum of the normal school is in this direction. The peculiar and exacting nature of this task prevents the successful adaptation of the normal school to secondary ends. The committee's dictum on this point is based on the study of many normal schools in all parts of the country. It is convinced that not until the normal schools of a State have completely fulfilled their major function, the preparation of elementary teachers, may they profitably devote their surplus energies and equipment to preparing teachers for higher schools. Normal schools have not satisfied this major function so long as the State is obliged to draw for part of its teachers upon the professionally unprepared, who enter the service by the examination route, or so long as the normal schools are unable to give a specialized preparation to both rural and other elementary teachers.

Moreover, certain other considerations should not be forgotten. The physical equipment required in preparing teachers for elementary schools is comparatively inexpensive; but the laboratories and other equipment needed to prepare teachers for high schools are much more costly. For a normal school to provide facilities for higher teacher training often entails an expense out of proportion to the results attained. Schools which embark upon this enterprise generally fall victims also to another tendency equally calculated to defeat their main purpose. The attention of the stronger members of their staffs is concentrated upon a small group of advanced students while the younger pupils are left to the care of the less efficient instructors.

A point may be reached in the growth of any normal school when very great numbers of students result in loss of efficiency through crowded classes, overworked instructors, and particularly through strained training-school facilities. In no school is the intimate touch of instructor and student so important as in the normal school. France limits its normal-school attendance to about 100 students per

school; Denmark has 20 normal schools for elementary teachers, the attendance at any one seldom reaching 100 students. Similar conditions prevail in other European countries.

The school of education in the University of Washington antedates the establishment of the normal schools; but so great has been the pressure of the other activities in this institution and in the State college that until recently educational courses have not had much opportunity for development. Even yet the facilities for practice teaching are meager and must be greatly improved if the university and college are to give adequate preparation to high-school teachers. Meanwhile Ellensburg and Cheney State Normal Schools were established and more recently the school at Bellingham. The normal schools have devoted most of their energies to the elementary school field, although quite a number of graduates have gone into important high-school positions and supervisory work. The time is now evidently at hand when the State must determine whether these schools shall be permitted to develop into teachers' colleges—free to prepare teachers of all kinds—or shall be limited to a definite field. In the following chapters the committee sets forth its findings, based on a study of the three normal schools and the present need for well-trained teachers in the State.

Chapter XIX.

TEACHERS TRAINED IN NORMAL SCHOOLS AND OTHER INSTITUTIONS.

The following table, in addition to other interesting information, gives in column 5 the amount spent for normal schools for each 100 children of school age, and in column 6 the amount spent for normal schools for each \$1,000 spent for public schools in all the States. It appears that Washington ranks fifth in column 5 and twenty-seventh in column 6. The State is liberal in its support of normal schools, judged on the basis of the number of children to be served. Compared with the support given the other parts of the public-school system, however, the normal schools are not very generously supported.

TABLE 38.—Value of property in the various States—Expenditures for normal schools.

States.	Total value of property in millions.	Value of property for each child 5 to 18 years of age (1913).	Number of adults for each 100 children 5 to 18 years of age (1910).	Number of men 21 years and over for each 100 children 5 to 18 years of age (1910).	Amount spent for normal schools for each 100 children 5 to 18 years of age (1913-14).	Amount spent for normal schools for each \$1,000 spent for public schools (1912-13). ¹
North Atlantic Division:						
Maine.....	1,030	\$5,900	241	120	\$77.57	\$25
New Hampshire.....	613	6,300	252	123	46.95	85
Vermont.....	497	9,500	237	119	23.99	10
Massachusetts.....	5,753	7,300	246	116	61.71	19
Rhode Island.....	893	6,600	231	111	50.71	25
Connecticut.....	2,154	7,900	251	115	47.35	16
New York.....	21,913	9,900	239	117	22.41	8
New Jersey.....	5,362	8,100	222	110	22.63	8
Pennsylvania.....	14,137	6,900	208	105	12.53	5
North Central Division:						
Ohio.....	8,552	7,300	227	113	8.19	13
Indiana.....	4,951	7,200	211	106	20.88	9
Illinois.....	14,598	10,000	213	108	43.36	14
Michigan.....	5,169	7,100	214	109	61.14	20
Wisconsin.....	4,282	6,400	183	93	157.41	58
Minnesota.....	5,287	8,900	185	99	48.50	17
Iowa.....	7,437	12,700	195	98	4.40	12
Missouri.....	5,546	6,300	195	98	39.22	27
North Dakota.....	2,038	10,900	186	93	93.72	47
South Dakota.....	1,331	7,500	175	96	85.95	34
Nebraska.....	3,605	10,700	182	95	77.75	28
Kansas.....	4,394	9,400	190	98	66.28	24
South Atlantic Division:						
Delaware.....	294	5,700	215	107		
Maryland.....	2,002	5,700	196	94	14.07	10
Virginia.....	2,173	3,400	153	74	36.16	28
West Virginia.....	2,180	6,800	161	84	42.46	35
North Carolina.....	1,745	2,200	133	63	23.46	37
South Carolina.....	1,301	2,500	124	58	23.32	42
Georgia.....	2,299	2,600	137	66	18.30	21
Florida.....	1,015	4,300	165	87		
South Central Division:						
Kentucky.....	2,152	3,100	160	79	23.74	24
Tennessee.....	1,834	2,700	152	74	21.16	25
Alabama.....	2,050	2,900	138	67	14.77	20
Mississippi.....	1,306	2,100	160	65	7.04	18
Louisiana.....	2,057	3,800	144	70	18.57	15
Texas.....	6,552	5,000	142	72	19.89	14
Arkansas.....	1,758	3,400	139	70	16.60	21
Oklahoma.....	4,321	7,300	145	78	36.86	34
Western Division:						
Montana.....	1,113	12,300	261	165	64.77	9
Wyoming.....	346	10,200	209	179		
Colorado.....	2,286	11,100	231	125	19.36	6
New Mexico.....	502	4,700	162	88	62.44	52
Arizona.....	487	8,600	213	129	210.30	52
Utah.....	735	6,300	169	85		
Nevada.....	441	28,400	269	180		
Idaho.....	591	5,900	190	113	93.09	24
Washington.....	3,065	10,400	255	151	90.19	16
Oregon.....	1,843	11,100	263	148	26.05	16
California.....	8,023	15,500	301	169	108.66	13

¹ Cents not included.
² Amounts spent for public normal education not included.
³ Recent reorganization accounts for low figures.

Several questions will naturally arise in the mind of any citizen. Does the State get proportionately good returns from its investment? Are the teachers trained in the normal schools fitted to serve the farmers' and the fruit growers' children as well as the children of merchants and bankers? All the people of Washington help to maintain the schools and the children of all the people should have equal opportunities to share in the benefits of the State investment.

The section on the public-school system gives in detail an analysis of the number and kind of teachers necessary to supply the needs of the State. In 1914-15, 9,068 teachers were required for the rural, other elementary, and high schools. The salaries paid are attractive, in 1914-15 averaging \$105.79 per month for male teachers and \$83.85 per month for women. Teachers remain longer in the profession than formerly, and teaching in the State appears to be approaching a professional status. Although the State is growing in population, and consequently needs annually a larger number of teachers,

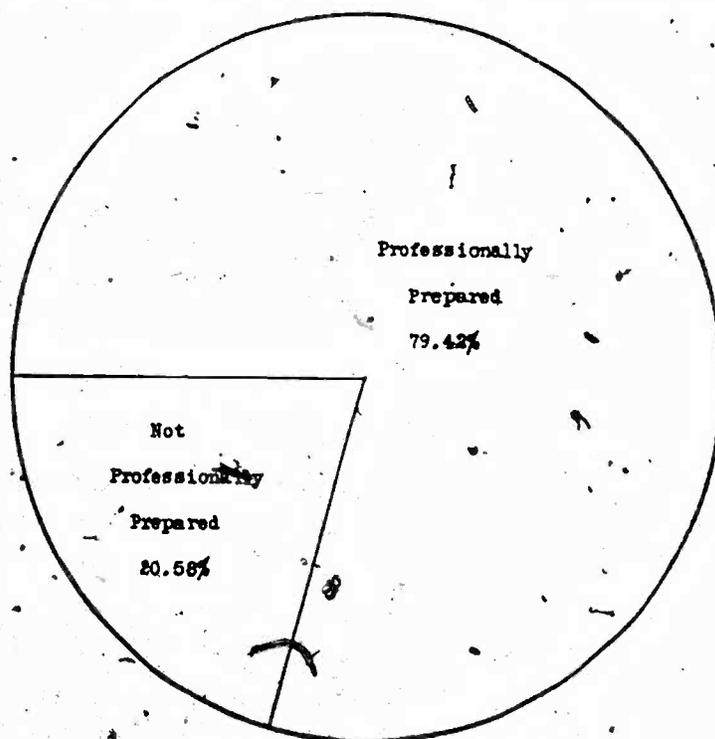


FIG. 16.—Per cent of rural teachers professionally prepared and not prepared.

the actual number of new teachers required is for the present about stationary—ranging from 1,000 to 1,200. Probably this condition will continue, as a result of the growing stability in the profession, the increasing tenures, and good salaries.

It has already been pointed out that large numbers of public school teachers have had insufficient or defective professional training and that many are teaching subjects for which they have had no regular preparation. (See Sec. II, p. 133 and p. 150). Figures 16 and 17 present a graphical recapitulation of some of these facts. They show

that 20.58 per cent of all rural teachers and 5 per cent of all other elementary teachers have no professional preparation. It might be added that many others have had only as much as can be secured at an institute or summer school. It seems patent to the committee that, if the State is to rid itself of the very serious handicap to the

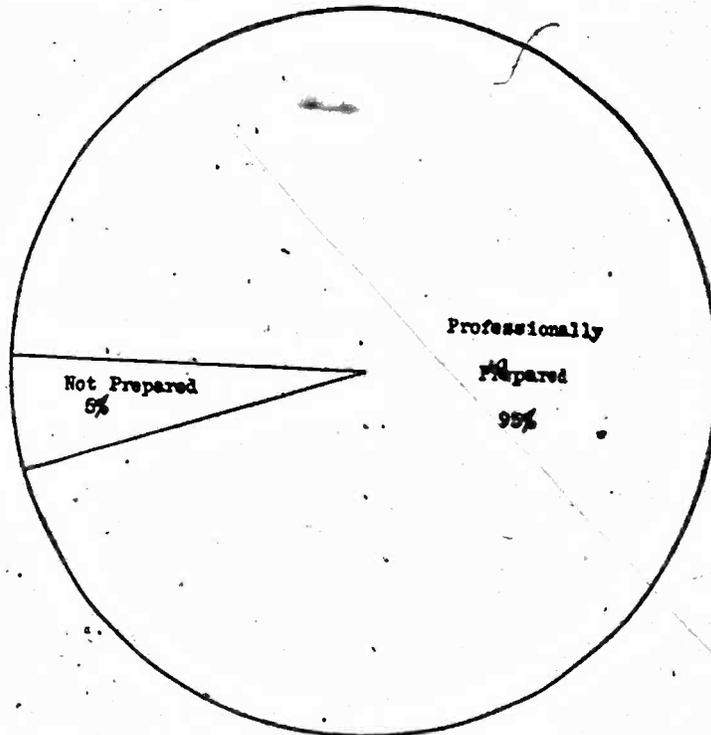


FIG. 17.—Per cent of elementary teachers (other than rural) professionally prepared and not prepared.

effectiveness of its public school system which this large body of untrained teachers imposes, it must provide in, or through the agency of, the normal schools for the further academic and professional training of elementary teachers in the service.

The following table shows the kinds of certificates and the number of each kind in force in the State in 1914:

TABLE 39.—*Teachers' certificates in force in Washington, in 1914.*

Kind of certificate.	Number.	Per cent.
1. State certificate.....	57	0.66
2. State university normal diploma.....	215	2.50
3. State college normal diploma.....	50	.58
4. Normal elementary.....	190	2.21
5. Normal secondary.....	334	3.90
6. Normal advanced.....	555	6.46
7. Life certificate.....	709	8.95
8. Professional.....	288	3.35
9. Permanent first grade.....	634	7.33
10. First grade.....	1,376	14.85
11. Second grade.....	2,471	28.79
12. Third grade.....	848	9.87
13. Special.....	673	4.34
14. Temporary.....	529	6.16
Total.....	8,599	100.00

The normal schools have furnished 1,079, or 12.57 per cent, of these certificates and the State university and State college 265, or 3.08 per cent. To be sure many teachers have been in attendance at the normal schools who did not complete any special courses, and therefore have received no school diploma or certificate. The following table gives the total number of diplomas and certificates issued by the normal schools in 1914-15:

TABLE 40.—*Total number of certificates and diplomas issued by the normal schools in 1914-15.*

Schools.	Life diplomas.	Diplomas.	Secondary certificates.	Elementary certificates.	Total.
Cheney.....	88	107	100	62	357
Ellensburg.....	59	61	28	32	180
Bellingham.....	123	202	179	112	616

This total of 1,153 diplomas and certificates does not represent an equal number of new teachers, since the 270 life diplomas were granted to successful teachers in service. Many of the remaining 883 were former teachers. Probably the number of new candidates who went forth from the normal schools last year did not exceed 600. Of these, only 370 were full graduates with the normal school diploma. When to these are added less than 100 new candidates entering the profession during the year from the university and State college, it is clearly evident that the field of elementary-teacher training is not fully occupied by the professional schools of the State, without reference to the question as to whether or not the work is properly divided among them.

Figures 18 and 19 show that of the rural and other elementary teachers reporting academic and professional preparation received in the State a surprisingly large number have attended the university

and colleges. Thus nearly one-third of all teachers in one-room rural schools have been in attendance some time at the colleges, as have nearly 47 per cent of all other elementary teachers. It has already been recommended that the practice which these figures indicate of relying on the colleges for the professional preparation of elementary teachers should be discontinued. These institutions do not have the training-school facilities or school atmosphere essential to the best results in elementary-teacher training. But it

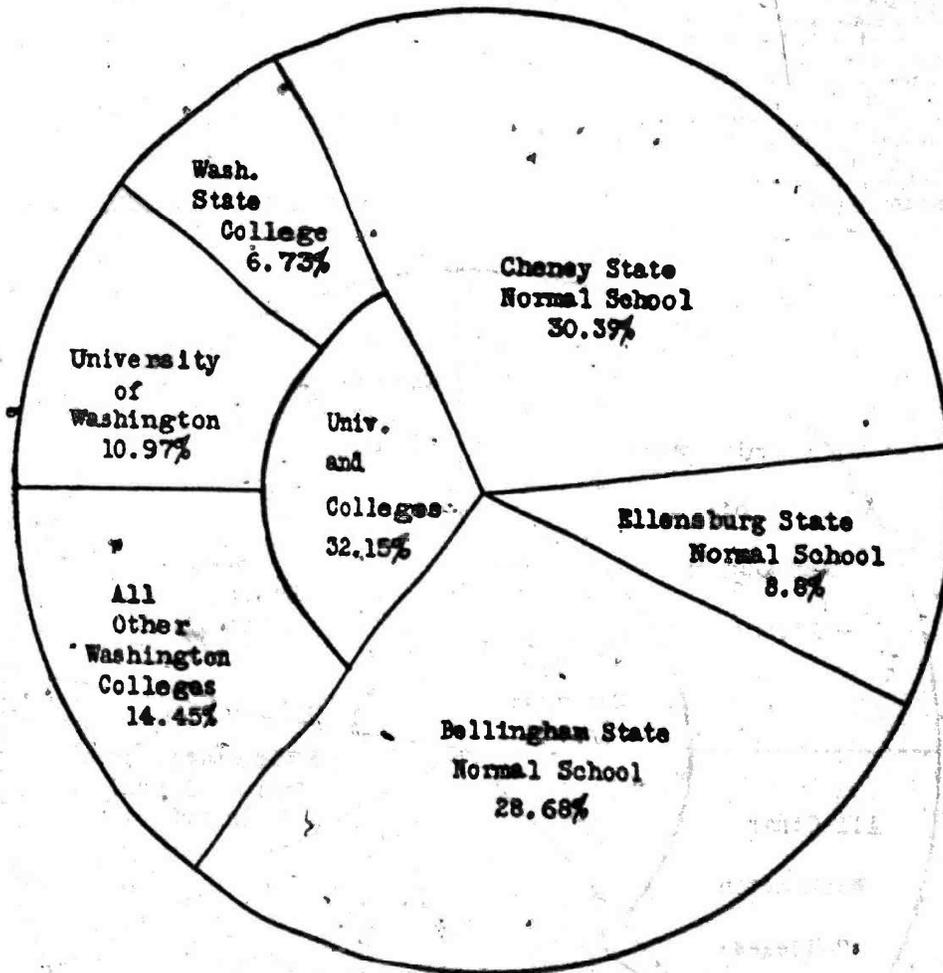


FIG. 18.—Preparation in Washington institutions. (Teachers of one-room schools.)

should at the same time be recognized that the full occupation by the normal schools of the field of elementary-teacher training can not be brought about until the State decides to demand definite standard academic and professional requirements of all persons teaching in the schools of the State.

Meanwhile, it is pertinent to inquire to what extent have the normal schools contributed high-school teachers. The answer is given in the table on the following page.

TABLE 41.—High-school teachers trained in Washington institutions and in institutions in other States.

	Male.	Female.	Post-graduate.	Graduate.	Partial course.	Elementary course.	Summer school.	Net total.
Totals.....	987	960	35	1,818	698	57	52	1,947
University of Washington.....			35	351	156		36	582
Washington State College.....				147	63		6	278
Other Washington colleges.....				81	52		1	104
Cheney State Normal School.....				44		24	3	71
Ellensburg State Normal School.....				11		14		25
Bellingham State Normal School.....				48		19	6	71
Colleges in other States.....				907	337			
Normal schools in other States.....				231	90			
Outside institutions exclusively.....								949
Washington institutions exclusively.....								606
Both outside and State institutions.....								274
Training not given.....								48
Normal schools not named.....								56
Colleges not named.....								14

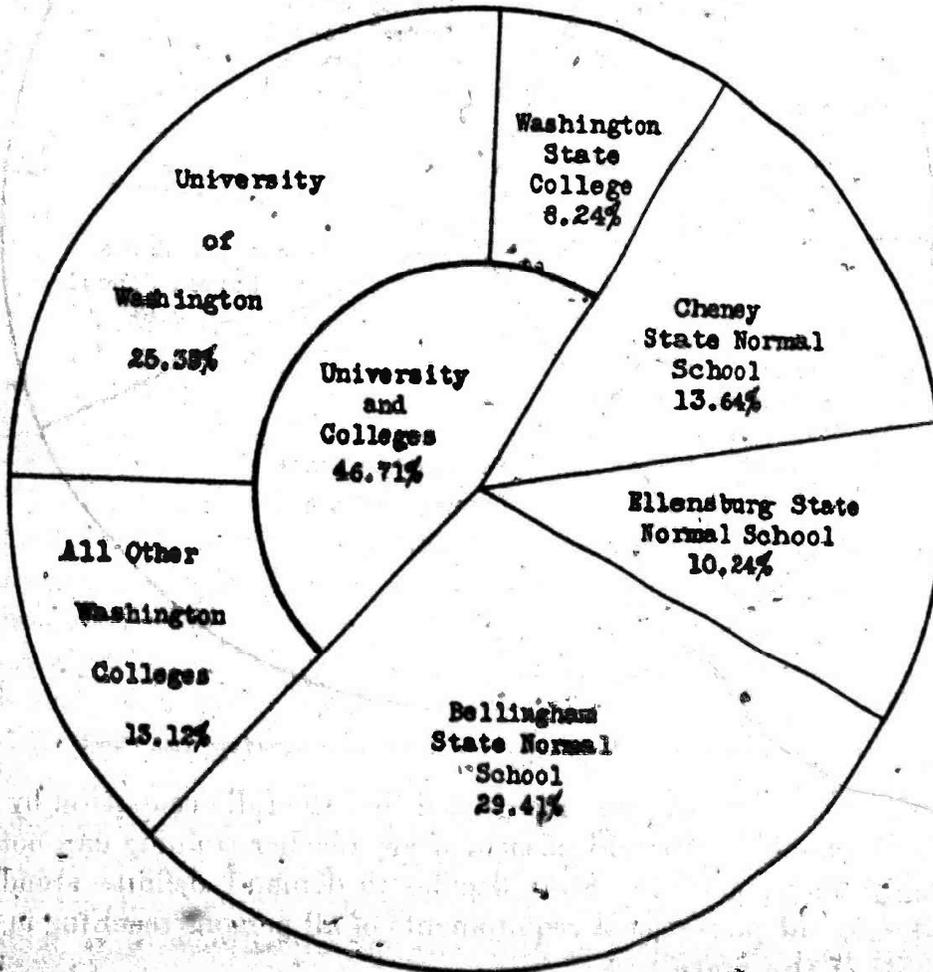


FIG. 18.—Preparation in Washington institutions. (Elementary teachers in other than one-room schools.)

The table shows that 949 Washington high-school teachers have received their preparation in higher institutions outside the State; that only 606 have been prepared wholly in this State; and that

274 have both State and extra-State preparation. But the outstanding fact is that 1,485 high-school teachers are university and college graduates, while only 332 are normal-school graduates. Of the teachers prepared wholly in Washington, 579 are graduates of the university and the various colleges, while only 101 are graduates from the normal schools. Some of both groups have, of course, attended both college and normal school. Up to the present time, therefore, somewhat less than one-fifth of all the secondary-school teachers trained in Washington institutions have had only normal-

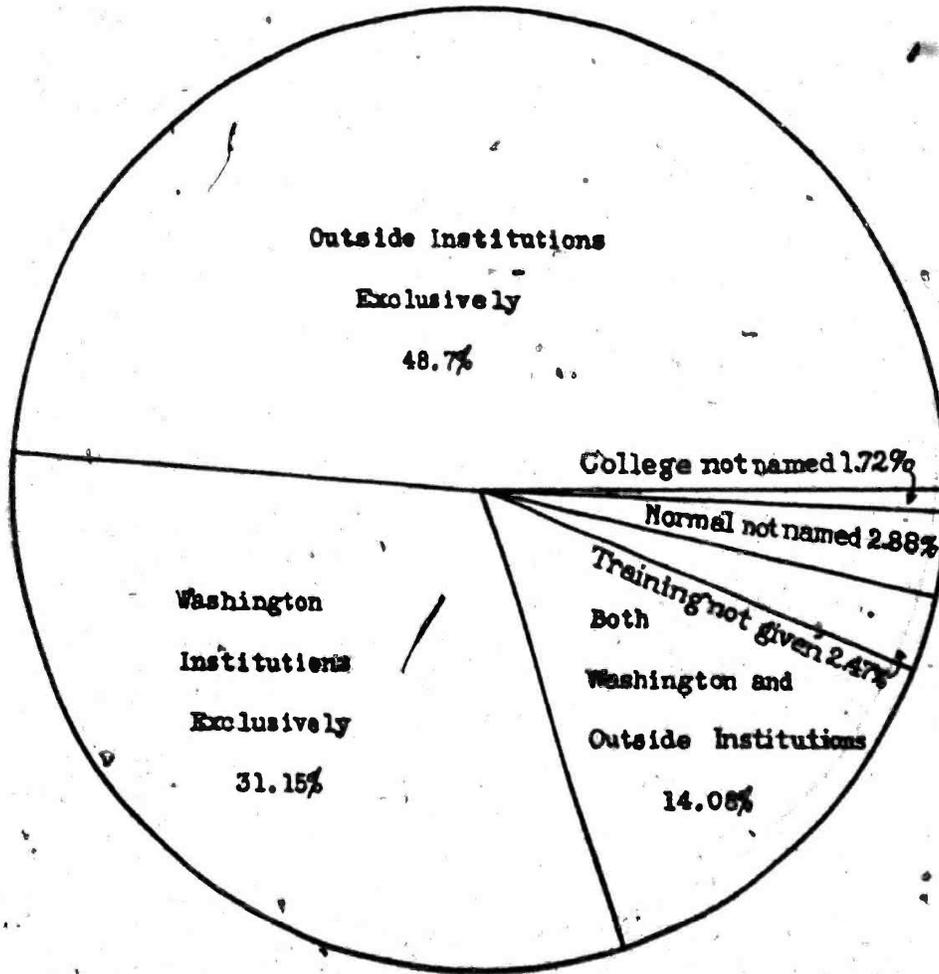


FIG. 20.—Per cents of high-school teachers prepared in Washington institutions and in institutions outside the State.

school preparation. This analysis is reinforced graphically in figures 20 and 21.

Chapter XX.

STANDARDS AND PROPOSED COURSES.

The committee proposes at this point to summarize what seem reasonable standards for a satisfactory State system of teacher preparation, standards which might serve to determine the future

policy of this State. Indeed, it is believed that in their essential features these standards might be applied with profit in most other States also. The summary is followed in this and the succeeding chapter by a series of recommendations designed to bring the practice of the Washington State normal schools into harmony with the proposed standards.

1. The State should require certain definite academic and professional attainments of all teachers.

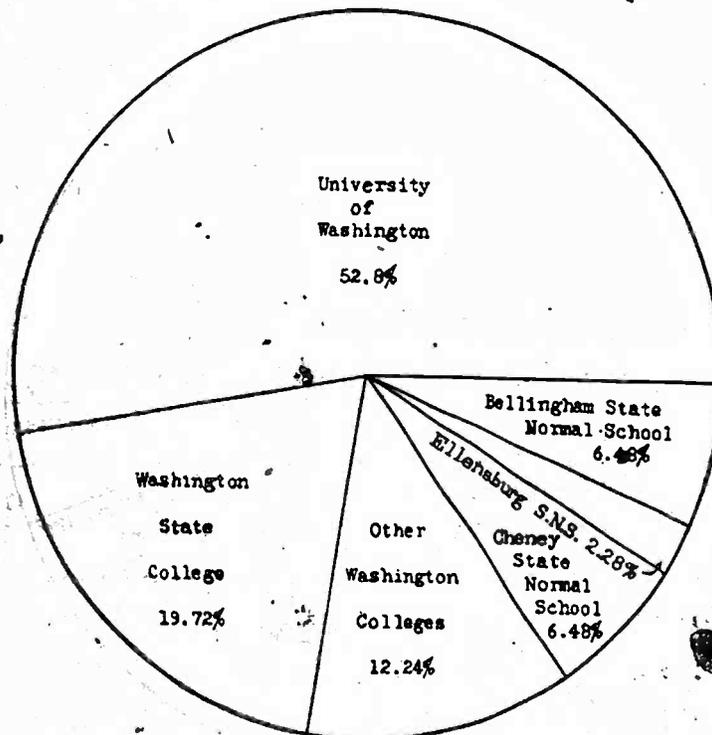


FIG. 21.—Per cents of high-school teachers prepared in various Washington institutions.

2. The entrance requirements of the State normal schools should gradually be raised to graduation from a four-year accredited high-school course.

3. The lowest grade of certificate to be issued by the normal schools after 1921 should represent two years of study above high-school graduation. After 1922 the normal diploma should be given only to those who have finished satisfactorily a full course of three years.

4. The ultimate standard of attainment for all persons teaching in the State should be graduation from an accredited high school and at least two years of professional preparation.

5. The process of elimination should be gradual, to permit teachers in service to meet the new requirements without undue hardship.
6. The normal schools should organize thoroughgoing extension courses for the teachers in service.¹
7. The normal schools should recognize a special obligation to provide appropriately trained teachers for rural communities.
8. The normal schools should offer differentiated courses of study representing two and three years of work above high-school graduation.
9. The principal function of the normal schools should be the preparation of elementary teachers; while the principal function of the departments of education of the State university and the colleges should be the preparation of high-school teachers.

To secure the establishment of the first five of these standards, the committee recommends:

1. That, beginning with the first quarter of the school year 1917-18, the first year of the elementary course and the first year of the complete course as now given be discontinued, and that for that year the minimum requirement for admission to any regular course in a State normal school be made, the completion of three full years of the course of an accredited high school or its equivalent.
2. That, beginning with the first quarter of the school year 1918-19, the second year of the elementary course, the second year of the complete course as now given, and the first of the secondary course, be discontinued and that thereafter the completion of a course of four years in an accredited high school or its equivalent be required for admission to any regular course in a State normal school.
3. That after the close of the summer session of 1921 all certificates given for the completion of courses representing less than two years of study after the completion of a high-school course of four years be discontinued.
4. That after the close of the summer session of 1922 a certificate be awarded for the completion of a full course of three years, 72 weeks, above the high-school course of four years, or its equivalent, and a normal-school diploma for the completion of a full course of three years, 108 weeks, above the high-school course of four years.
5. That since there will be for a long time in the service of the elementary schools of the State many teachers of less academic and

¹ The principal features of the Iowa system of normal-school extension, which is one of the best conceived and most successful, are as follows:

It is exclusively aimed to supplement the previous training of teachers. To this end, study centers are organized in as many localities as possible (94 out of 99 counties now have them). Meetings are held on Saturdays, usually in a high-school building and under the direction of the county superintendent of schools. About four hours in the morning and afternoon combined are devoted to the weekly sessions. Heads of departments at the State Teachers' College, and specially qualified local teachers, city superintendents, and other persons conduct instruction at these centers. The whole extension enterprise is under a director, who is a member of the staff of the State Teachers' College. The subject matter studied comprises the usual subjects of the school curriculum.

professional preparation than will be required by the higher standards in use after 1922, special provision be made at the summer sessions of the normal schools for these teachers, and that such irregular courses be offered as may be necessary to meet their needs. All such teachers should be required to attend the summer sessions of some normal school, university, or college for the full term at least once in two years.

The following figures indicate that but a small number of the present matriculants of the three schools would be affected by the first two of the proposed changes. At Cheney, in a total attendance of 605 students, 57 fall below four-year high-school rank; in a total of 962, at Bellingham, 116 are below high-school graduation, 39 being reported as having preparation equivalent to that of fourth-year high-school pupils; in a total of 322 at Ellensburg, 88 are below high-school graduation, and 30 of these entered as fourth-year pupils. In other words, in an aggregate attendance of 1,899 at the three schools, 261 are below high-school graduation. Many of this class of students are mature people, practical teachers, who in their earlier years were deprived of high-school facilities. Under the new plan, these teachers would be provided for by the normal-school extension service recommended in the next chapter, and need not seek the normal schools unless ready to take the required courses.

Below are suggested differentiated two and three year courses based on graduation from a four-year accredited high school. Courses of this general type are contemplated in standard number 8 above.¹

TWO-YEAR COURSE.		Credits.
Professional work.....		40
Academic work.....		20
Free electives.....		20
THREE-YEAR COURSE.		
Professional subjects.....		40
Academic subjects.....		40
Free electives.....		40
SPECIALIZED TWO-YEAR COURSES.		
<i>Kindergarten course.</i>		
Professional subjects:		
Observation and practice teaching.....		10
Educational psychology.....		5
Educational sociology.....		5
Kindergarten practice.....		5
Special methods for kindergarten.....		10
Class management.....		5
Total.....		40
General subjects, including music, drawing, expression, and physical education.....		20
Electives.....		20

¹ These courses were prepared in conference by the normal-school presidents of the State.

Primary course.

Professional subjects:	Credits.
Observation and practice teaching.....	10
Educational psychology.....	5
Educational sociology.....	5
Primary methods.....	5
Special methods for primary grades.....	10
Class management.....	5
Total.....	40
General subjects, including music, drawing, expression, and physical education.....	20
Electives.....	20

Grammar-school course.

Professional subjects:	
Observation and practice teaching.....	10
Educational psychology.....	5
Educational sociology.....	5
Grammar-grade methods.....	5
Special methods for the upper grades.....	10
Class management.....	5
Total.....	40
General subjects, including music, drawing, expression, physical education, sociology, economics, and government.....	20
Electives.....	20

Rural-school course.

Professional subjects:	
Observation and practice teaching.....	10
Educational psychology.....	5
Rural sociology.....	5
Rural-school methods.....	5
Special methods for rural schools.....	10
Class management.....	5
Total.....	40
General subjects, including music, drawing, agriculture, and physical education.....	20
Electives.....	20

THREE-YEAR SPECIALIZED COURSES.

Professional subjects:	
Educational psychology.....	8
Educational sociology.....	4
Methods of teaching.....	10
Class management.....	4
Observation and practice teaching.....	10
Economics or social science.....	4
Total.....	40
Academic work.....	40
Electives, such as manual training or home economics, public-school music or public-school art, physical education and play, etc.....	40
Total.....	120

Chapter XXI.

EXTENSION AND THE FURTHER TRAINING OF TEACHERS IN SERVICE.

If the measures just outlined looking toward the establishment of definite standards of academic and professional training for all public-school teachers in the State are adopted, the State is under obligation to provide means whereby the teachers already in service may meet the new requirements. The committee, therefore, recommends, as a corollary of the recommendation made above on minimum requirements, that the State be divided into extension service districts, one for each normal school, and that each normal school organize an extension service for its district on such lines as may appear best suited to the needs of the district and of the State. The committee is inclined to favor the type of extension service which has recently been successfully established in Iowa by the State Teachers' College,¹ but it believes that the determination of the exact plan of extension to be adopted in Washington should be made by the heads of the normal schools acting in conference.

Further steps leading to the full professionalization of the corps of elementary teachers in the State are proposed in the following recommendations:

1. That for all students who leave the normal school with any kind of certificate or diploma which may be accepted as a license to teach in the schools of the State the State board of education shall, with the assistance of the presidents of the normal schools and the heads of the departments of education in the State university and the State college, prepare such courses of study, including both professional and cultural (scientific and literary) subjects as may be completed within a period of three years by devoting to them not less than 10 hours a week for 10 months of each year; that examinations on portions of these courses be held from time to time, and that no person be granted a permanent license to teach in the public schools of the State until after he has passed a final examination on all courses prescribed. The final examination should be passed not earlier than two nor later than five years after the time of leaving the normal school.

2. That State, county, and city superintendents and supervisors be required to give special attention to young teachers who are pursuing these prescribed courses of study and have not yet been granted a permanent license to teach. Before granting a permanent license to any teacher the State board of education should require, in addition to a statement that such teacher has passed a satisfactory

¹ For a brief account of this system, see p. 177.

examination on the prescribed course of study, a specific report from a qualified superintendent, supervisor, or inspector that this teacher has taught satisfactorily not less than 16 months in the schools of the State, and this report should be accompanied by detailed record of the work done, showing its excellencies and its defects, within the past 8 months.

3. That the same policy in regard to permanent licenses to teach in the elementary schools of this State be pursued with teachers entering the service from other States or from other schools than the State normal schools in this State. The first license granted to any such teacher should be a temporary license. To secure a permanent license the candidate should be required to pass examinations on the prescribed courses of study proposed in 1 and 2 above.

4. That when the normal schools have put into operation the standards recommended in this report—namely, (a) graduation from an accredited four-year high school as a prerequisite for admission, (b) two years of work above high-school graduation for the normal school certificate, and (c) three years of work above high-school graduation for the normal-school diploma—the State fix by law minimum salaries for teachers holding normal-school certificates and for teachers holding normal-school diplomas, the difference between the minimum salaries of the two classes being such as may seem justified by the different degrees of preparation, and that it provide by law for a definite increase in the minimum salaries of both classes of teachers when they have complied with the requirements for and have been granted permanent licenses. This law should also be made to apply to teachers from other States and from other schools in this State, but it should not be so construed as to discriminate in any way against the teachers from the State normal schools, on the one hand, or to discourage good teachers from other States and schools from entering the service in this State.

Some beginnings have been made in all the normal schools for preparing rural teachers for their difficult tasks. The preparation can best be accomplished through distinct departments organized for this purpose. The normal schools at Cheney and Bellingham have such departments already organized, with two instructors in each giving their time exclusively to the work. At Ellensburg one instructor gives part of his time only to the special training of rural teachers. The committee recommends that these departments in the normal schools be gradually enlarged and that their organization include (1) a head of department, (2) an extension service, and (3) one or more rural practice and critic teachers.

Chapter XXII.

ATTENDANCE, FACULTIES, AND FUTURE POLICY.

The following table gives the attendance by years in the three normal schools for the last 11 years:

TABLE 42.—State normal schools—Attendance by years.¹

Years.	Cheney.	Ellensburg.	Bellingham.
1905-6.....	305	187	285
1906-7.....	350	210	327
1907-8.....	349	164	335
1908-9.....	417	248	409
1909-10.....	508	284	465
1910-11.....	650	353	448
1911-12.....	582	337	396
1912-13.....	626	341	478
1913-14.....	725	324	588
1914-15.....	858	365	704
1916 ²	605	232	962

¹ Including summer attendance, but counting no names more than once.

² To Mar. 31 only.

³ In addition to these figures, Cheney has 60 correspondence students.

⁴ In addition to these figures, Bellingham has 80 correspondence students.

The school at Ellensburg, by reason of its location far from large cities, has been of slow growth. The school at Cheney has had a satisfactory growth, and has reached an attendance commensurate with its instructional force and equipment. The school at Bellingham, on the other hand, has practically outgrown its equipment; it should be given increased appropriations, or some of its students should be diverted to other schools. The committee realizes the difficulty of putting the latter suggestion into practice, since school attendance depends largely on conditions beyond ordinary control.

The following summary, showing (1) preparation and experience of faculty members, (2) salaries paid, (3) total number of subjects taught, (4) total teaching hours per instructor, (5) average students per hour, and (6) average student clock hours per week, furnishes a more exact basis for a comparative study of the three schools:

TABLE 43.—Comparative study of salaries, teaching hours, etc., in Washington normal schools.

Institutions.	Regular normal-school instructors. ¹	Average salary of regular instructors.	Total number of subjects taught.	Average teaching hours per week.	Average number students per hour.	Average student clock hours per week.
Ellensburg.....	14	\$1,700	95	19	23	282
Cheney.....	24	1,666	72	14	32	428
Bellingham.....	30	1,712	.....	17	.....	559

¹ For the detail tables from which this summary is derived, see Appendix D.

² The principals and supervisors whose work is exclusively in the training school are not included; only regular normal-school instructors are counted.

³ This average would be increased by about one-third if time of regular instructors devoted to training school supervision were included.

The State normal school at Ellensburg has only 14 regular faculty members listed. The school is weak in rural and agricultural work, and should have additional instructors in these departments at least. The Ellensburg school also shows a larger number of hours per instructor than the other schools, because of the larger number of subjects offered and the smaller list of instructors. The average number of students per hour is smaller than it should be, which accounts for the small number of student clock hours.

The school at Cheney is the best balanced of the schools. The faculty is probably large enough for all present purposes. The average hours per week are few (although here, as in the other schools, the average would be materially increased by counting time devoted to supervision). The average number of students per hour is not excessive, but a smaller number would undoubtedly increase the efficiency of the instruction. The total number of student clock hours is close to the standard.

The instructional staff at Bellingham is larger than at the other schools, but this is justified by the larger attendance. The average number of students per class is not reported, but will exceed that of the other schools.

The committee suggests the following standards of internal administration for the general guidance of the administrative officers:

1. The number of classroom hours per instructor in a normal school should not exceed 20 per week;¹
2. The average salary (excluding the administrative head) should approach \$2,000;
3. Classes should not exceed 30 or 35, except in lecture work;
4. The average number of student clock hours carried by normal-school instructors may range between 300 and 400;¹ the reasonable load in any given case being determined by the type of work required.

Applying these standards to the Washington normal schools, it appears that:

- (a) The school at Ellensburg is operated at only about two-thirds of its capacity;
- (b) The school at Cheney is operated at a trifle less than its full capacity; and
- (c) The school at Bellingham is crowded beyond normal capacity.

The value of normal schools depends more than does the value of schools of other kinds on the number of students who complete the work of their higher classes rather than on the number in lower

¹In Sec. I, p. 121, the committee recommended a smaller maximum number of teaching hours per week for instructors in the university and State college. It should be noted in this connection that teaching periods in normal schools are likely to be shorter and that much of the work is more strictly of a routine character, involving less outside study and research.

classes or on the total enrollment. It is only in the higher classes with students more mature both in scholarship and in age that the most important part of the professional work can be done, including practice teaching in the training schools. Students who leave the normal schools from the lower classes, without having done this work have made little more advance in professional preparation than they might have made by attending college an equal length of time. The normal schools should therefore strive to hold students until they have completed one of the regular courses. When the normal schools of Washington have been reorganized, as herein recommended, they might well require a declaration of purpose on the part of the student to remain through the two years at least, as one of the conditions of admission.

But there is a very definite limit to the number of students that can be taught to best advantage in the last year of the normal school. During this last year every student should teach under critical supervision at least an hour a day throughout the entire year, under conditions as nearly as possible like those which must be met in the schools of the State. As a rule, the opportunities for such practice teaching can not be multiplied indefinitely. For this and many other reasons the normal school should not be a large school. As has already been stated, in the normal schools of western European countries the attendance is limited. When more teachers are needed the State establishes more schools, instead of increasing beyond desirable limits the attendance at the schools already in existence. In this country those States in which a similar policy is pursued appear to be more effectively served by their normal schools. (For attendance at public normal schools see Appendix C.) Already two of the normal schools of Washington have as many students as they should have for best results, if not more. It is also quite evident that these three normal schools will never be able to supply to the State all the well-prepared teachers needed, even after making full allowance for all that may come from other States and schools. At present about 1,000 new teachers are needed for the elementary schools each year. Of these, approximately 350 can be had from other States and other schools. The normal schools of this State should, therefore, turn out approximately 650 well-educated, well-trained new teachers every year. Though the school population, and consequently the total number of teachers needed, are both increasing, and though the relative number of teachers coming from other States may be expected to decrease with the receding tide of immigration from the older States, still an annual output of 700 new teachers from the normal schools of this State will probably be sufficient to supply the demand for the immediate future. One reason for the

large present demand is the short professional life of a considerable percentage of the teachers. But it is the common experience that if teachers are well prepared and successful, they tend to remain longer in the profession.

To turn out this number of trained teachers annually, at least four normal schools will be needed. The committee therefore recommends that steps be taken for the establishment of another normal school at a very early date, somewhere in western Washington. That the new school should be located in this part of the State is evident, since approximately two-thirds of the people of the State live west of the Cascades, and the school at Bellingham now has more students than both of the others taken together. The millage tax set apart for the support of the new school should be not less than the average tax for the three schools now in existence. Even with this increase in the number of schools, the expenditures of the State for normal schools will be less in proportion to the total expenditures for public schools than in several other States.¹

¹ See p. 168.

**SUMMARY OF RECOMMENDATIONS RELATING TO THE NORMAL
SCHOOLS.**

1. The restriction of the field of the State normal schools to the preparation of elementary teachers until all elementary schools are supplied with professionally trained teachers.
2. The gradual increase of the entrance requirement to graduation from a four-year high school.
3. The granting of no normal school certificate after the summer session of 1921 for less than the completion of two years of normal school work above high-school graduation.
4. The award after the summer session of 1922 of a certificate for the completion of a two-year course and of the normal-school diploma for the completion of a three-year course.
5. The establishment of special summer and irregular courses to enable teachers in service to fulfill the new academic and professional requirements.
6. The provision by the normal schools of differentiated courses of study of two and three years, respectively, above high-school graduation.
7. The division of the State into extension service districts, one for each normal school, within which each normal school shall organize an extension service for the teachers of the State.
8. The preparation of courses of study for the further training of teachers in service, the satisfactory completion of which shall be necessary to secure a permanent license to teach.
9. The eventual establishment by the State of minimum salaries for teachers holding normal-school certificates and normal-school diplomas.
10. The considerable enlargement of the courses and facilities at all three normal schools for the preparation of rural-school teachers.
11. The organization of a fourth normal school.

SUMMARY OF RECOMMENDATIONS OF SURVEY COMMITTEE.

I. STATE UNIVERSITY AND STATE COLLEGE.

1. The provision for the formulation of State policies in higher education--
 - (a) Through joint meetings of boards of regents, or
 - (b) Through the extension of the functions of the State board of education, or
 - (c) Through the creation of a State council of education.
2. Agriculture, veterinary medicine, economic science in its application to agriculture, and the training of high-school teachers of agriculture, home economics, and mechanic arts to be major lines at the State college.
3. Law, medicine, graduate work in liberal arts and pure science, professional training of high-school teachers and school superintendents, commerce, journalism, architecture, forestry, and pharmacy to be major lines at the State university.
4. Duplication to be recognized in certain branches of engineering, in home economics, and in liberal arts.
5. Civil, electrical, and mechanical engineering to be taught at both State college and the State university.
6. Chemical engineering to be a major line at the State university exclusively.
7. The development of further departments or branches of engineering to be submitted to a joint conference before their establishment at either institution.
8. The maintenance of but one school of mining, its location to be determined by the advice of mining experts.
9. Degree courses in liberal arts with the training of high-school teachers in the same to be continued at the State college, but no graduate work in these lines to be offered.
10. Home economics to be developed for the present without restriction at both the State university and the State college, but no extension work in home economics to be undertaken by the university outside of King County.
11. The approval of the establishment of courses in marine engineering and fisheries at the State university as soon as its resources permit.
12. The appointment of a conference composed of representatives of the faculties of both institutions, to meet from time to time to adjust cases of overlapping, especially in the field of graduate work.

13. The discontinuance of the training of elementary teachers by the State university and the State college.
14. The provision at or near the State university and the State college of facilities for practice, demonstration, and research.
15. The further development of the facilities of the department of elementary science at the State college for agricultural instruction of subcollegiate grade.
16. The establishment at Puyallup, or somewhere else in the western part of the State, of another school of agriculture of subcollegiate grade under the direction and control of the State college.
17. The requirement of high-school graduation of all students entering the college or the university, except for those 21 years of age or older, and except for students in the elementary science department of the State college.
18. The modification of the administrative relationships of the department of elementary science at the State college.
19. The serious consideration by the administrative officers of both institutions of the large number of small classes.
20. The possible revision of the excessive major requirements at both institutions.
21. The establishment of 15 hours of classroom teaching a week as the maximum at the State college and State university and the encouragement of a lower maximum.

II. THE PUBLIC-SCHOOL SYSTEM.

1. A comparative study of State systems of taxation to ascertain a fair and equitable basis for scaling up the State and county taxes levied in Washington.
2. A revision of the system of apportioning the current State school fund and the county fund.
3. A revision of the qualifications and salaries of county superintendents.
4. The provision of professional supervision in rural communities and the subdivision of the counties for supervision purposes.
5. The encouragement of long teaching tenures by supplementing salaries on the basis of years taught in the same community.
6. The abolition of third-grade certificates.
7. The revision of the requirements for renewing second-grade certificates until such certificates are finally discontinued.
8. The revision of the examination schedules for the several kinds of certificates.
9. The establishment of minimum professional requirements for all persons teaching in this State.
10. The establishment of minimum academic requirements for all persons teaching in this State.

11. The thoroughgoing revision of the common-school course of study, and the adoption of a distinctively rural course of study for schools of the open country.

III. THE NORMAL SCHOOLS.

1. The restriction of the field of the State normal schools to the preparation of elementary teachers until all elementary schools are supplied with professionally trained teachers.

2. The gradual increase of the entrance requirement to graduation from a four-year high school.

3. The granting of no normal-school certificate after the summer session of 1921 for less than the completion of two years of normal-school work above high-school graduation.

4. The award after the summer session of 1922 of a certificate for the completion of a two-year course and of the normal-school diploma for the completion of a three-year course.

5. The establishment of special summer and irregular courses to enable teachers in service to fulfill the new academic and professional requirements.

6. The provision by the normal schools of differentiated courses of study of two and three years, respectively, above high-school graduation.

7. The division of the State into extension-service districts, one for each normal school, within which each normal school shall organize an extension service for the teachers of the State.

8. The preparation of courses of study for the further training of teachers in service, the satisfactory completion of which shall be necessary to secure a permanent license to teach.

9. The eventual establishment by the State of minimum salaries for teachers holding normal-school certificates and normal-school diplomas.

10. The considerable enlargement of the courses and facilities at all three normal schools for the preparation of rural-school teachers.

11. The organization of a fourth normal school.

APPENDIX A.

University of Washington—Salaries and student clock hours for the year ending June 30, 1915.

Department and instructors.	Salary	Student clock hours.	
		First semester.	Second semester.
COLLEGE OF LIBERAL ARTS.			
<i>English:</i>			
Head professor.....	\$3,000	238	318
Professor.....	2,400	337	309
Associate professor.....	2,200	204	247
Assistant professor.....	2,200		
Assistant professor.....	1,000	349	294
Assistant professor.....	1,700	270	279
Assistant professor.....	1,700	282	196
Instructor.....	1,600	187	85
Instructor.....	1,600	132	275
Instructor.....	1,100	232	206
Teaching fellow.....	1,100	284	233
Teaching fellow.....	900	180	229
Teaching fellow.....	650	192	180
Teaching fellow.....	450	114	141
Teaching fellow.....	450	170	138
Teaching fellow.....	700	237	
Teaching fellow.....	450	127	127
Total (instructors, 14).....	22,600	3,871	3,247
Average.....	1,619	276	232
<i>French:</i>			
Professor.....	3,000	144	114
Associate professor.....	1,900	334	280
Assistant professor.....	1,700	370	325
Assistant professor.....	800	114	122
Assistant professor.....	1,600	200	170
Instructor.....	1,500	350	305
Instructor.....	1,100	274	355
Instructor.....	337	176	196
Total (instructors, 6½).....	11,937	4,062	3,845
Average.....	1,736	285	268
<i>German:</i>			
Head professor.....	2,800	118	140
Assistant professor.....	1,700	288	285
Assistant professor.....	1,600	335	265
Instructor.....	1,000	339	368
Instructor.....	1,400	302	270
Instructor.....	1,300	325	328
Instructor.....	1,200	360	328
Instructor.....	650	128	94
Graduate assistant.....	112	72	
Total (instructors, 7½).....	12,362	2,267	2,078
Average.....	1,595	292	277
<i>Greek:</i>			
Dean.....	3,000	51	45
Assistant professor.....	1,800	306	316
Associate professor.....	500	81	
Total (instructors, 2½).....	5,300	441	361
Average.....	2,355	252	240
<i>History:</i>			
Head professor.....	3,000	530	619
Professor.....	2,400	281	279
Associate professor.....	2,200	450	452
Instructor.....	2,200	998	752
Research assistant.....	1,300	644	768
One teaching fellow.....	1,200		
Student assistant.....	450		
Student assistant.....	150		
Total (instructors, 6½).....	12,900	2,903	2,870
Average.....	1,911	505	490

† On leave.
 ‡ Substituted for another professor.
 § Total instructors reduced to full time basis.
 ¶ See also Spanish.
 * Half time.
 † Half time, not included here, given to extension instruction.
 ‡ See also Latin.
 § No instruction.

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University of Washington—Salaries and student clock hours for the year ending June 30, 1915—Continued.

Department and instructors.	Salary.	Student clock hours.	
		First semester.	Second semester.
COLLEGE OF LIBERAL ARTS—continued.			
<i>Journalism:</i>			
Head professor.....	\$2,500	303	195
Assistant professor.....	2,100	113	177
Instructor.....	2,000	113	166
Pressman.....	1,200	164	121
Student assistant.....	1,030		
Student assistant.....	150		
	75		
Total (Instructors, 5½).....	9,645	580	650
Average.....	1,794	178	182
<i>Latin:</i>			
Head professor.....	3,000	88	90
Associate professor.....	1,500	124	183
Assistant professor.....	1,500	183	192
Total (Instructors, 2½).....	6,000	395	465
Average.....	2,182	144	155
<i>Library economy:</i>			
Instructor (¾ time).....	750	27	63
Instructor (¾ time).....	500	56	88
Instructor (¾ time).....	250	51	33
Instructor (¾ time).....	125	34	
Instructor (¾ time).....	80		14
Total (Instructor, 1).....	1,714	168	198
Average.....	1,714		
<i>Oriental history:</i>			
Head professor.....	2,600	310	296
<i>Philosophy:</i>			
Head professor.....	3,000	231	660
Instructor.....	1,500	270	201
Instructor.....	1,200	410	96
Total (Instructors, 3).....	5,700	911	957
Average.....	1,900	314	319
<i>Political and social science:</i>			
Head professor.....	3,000	492	297
Professor.....	3,000	508	423
Assistant professor.....	2,000	339	270
Assistant professor.....	1,700	238	396
Assistant professor.....	1,600	342	396
Instructor.....	1,350	450	390
Instructor.....	1,200	420	353
Instructor.....	1,200	168	276
Instructor.....	1,200	432	306
Total (Instructors, 9).....	16,350	3,409	3,107
Average.....	1,817	385	345
<i>Public speaking and debate:</i>			
Head professor.....	2,500	186	262
Professor.....	1,400	104	259
Total (Instructors, 2).....	3,900	290	521
Average.....	1,950	145	260
<i>Scandinavian language and literature:</i>			
Head professor.....	2,100	112	132
<i>Spanish:</i>			
Head professor.....	2,000	270	223
Associate professor.....	2,000	307	233
Assistant professor.....	1,800	280	289
Instructor.....	225		150
Assistant professor.....	800	196	196
Total (Instructors, 3½).....	6,825	1,053	1,091
Average.....	1,820	281	291

1 No instruction.
2 See also Greek.

3 Total instructors reduced to full time basis.
4 See also French.

University of Washington—Salaries and student clock hours for the year ending June 30, 1915—Continued.

Department and instructors.	Salary.	Student clock hours.	
		First semester.	Second semester.
COLLEGE OF SCIENCE.			
<i>Botany:</i>			
Head professor.....	\$2,800	490	316
Professor.....	2,300	872	520
Assistant professor.....	1,500	708	492
Teaching fellow.....	1,000	320	289
Graduate assistant.....	450		375
Graduate assistant.....	450		150
Student assistant.....	600	212	
Student assistant.....	150	30	30
Student assistant.....	150	384	
Student assistant.....	150		
Total (Instructors, 6).....	10,500	2,026	2,172
Average.....	1,615	457	334
<i>Chemistry:</i>			
Head professor.....	3,000	3,322	2,170
Professor.....	2,400	391	298
Associate professor.....	2,000	872	683
Assistant professor.....	1,800	1,680	1,544
Instructor.....	1,600	130	72
Instructor.....	1,400	672	929
Instructor.....	1,000	232	80
Graduate assistant.....	450		
Stockman.....	900		
Two stockmen (at \$400).....	1,200		
Stock assistant.....	200		
Stock assistant.....	250		
Stock assistant.....	50		
Lecture assistant.....	250		
Graduate assistant.....	225		
Total (Instructors, 13).....	18,975	7,299	5,761
Average.....	1,460	561	443
<i>Short courses—</i>			
Professor.....			48
<i>Geology:</i>			
Dean (science).....			
Assistant professor.....	2,000	570	609
Assistant professor.....	1,800	168	241
Instructor.....	1,600	614	474
Student assistant.....	150		
Student assistant.....	150		
Student assistant.....	150		
Lecturer.....	100		
Total (Instructors, 4).....	5,950	1,252	1,324
Average.....	1,487	318	331
<i>Short courses—</i>			
Assistant professor.....			18
Instructor.....			120
<i>Home economics:</i>			
Head professor.....	2,100	213	138
Assistant professor.....	1,700	268	264
Instructor.....	1,400	484	33
Instructor.....	1,400	405	222
Instructor.....	1,200	380	176
Total (Instructors, 5).....	7,800	1,252	1,324
Average.....	1,560	360	264
<i>Mathematics:</i>			
Head professor.....	3,000	123	101
Associate professor.....	2,400	233	233
Associate professor.....	2,100	211	240
Assistant professor.....	1,700	378	350
Assistant professor.....	1,300	306	218
Assistant professor.....	1,600		
Instructor.....	1,500	326	177
Instructor.....	1,400	374	306
Instructor.....	1,300	360	208

¹ Acting president.

² On leave.

194 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

University of Washington—Salaries and student clock hours for the year ending June 30, 1915—Continued.

Department and Instructors.	Salary.	Student clock hours.	
		First semester.	Second semester.
COLLEGE OF SCIENCE—continued.			
<i>Mathematics—Continued.</i>			
Instructor.....	\$1,300	340	266
Instructor.....	1,200	338	310
Graduate student.....	225	78	88
Graduate student.....	225	76	92
Total (Instructors, 10½)	18,050	3,139	2,691
Average.....	1,719	299	256
<i>Philosophy (psychology):</i>			
Professor.....	1,050	36	30
Instructor.....	1,500	858	648
Instructor.....	1,200	72	151
Teaching fellow.....	75		
Total (Instructors, 2½)	3,825	966	829
Average.....	1,457	368	316
<i>Physical training:</i>			
Director.....	2,400	773	822
Instructor.....	1,500	230	389
Instructor.....	1,200		
Instructor.....	1,000	275	398
Instructor.....	900	849	882
Assistant.....	300		16
Total (Instructors, 5½)	7,300	2,127	2,507
Average.....	1,327	387	456
<i>Physics:</i>			
Head professor.....	3,000	299	546
Assistant professor.....	2,000	548	424
Assistant professor.....	1,500	180	330
Instructor.....	1,400	643	156
Teaching fellow.....	450		
Teaching fellow.....	450		
Teaching fellow.....	225		
Student assistant.....	75		
Total (Instructors, 5½)	9,100	1,568	1,455
Average.....	1,699	292	271
<i>Zoology:</i>			
Head professor.....	3,000	753	1,012
Assistant professor.....	1,800	513	670
Instructor.....	1,400	726	744
Instructor.....	1,200	846	654
Student assistant.....	150		
Student assistant.....	150		
Student assistant.....	150		
Total (Instructors, 4½)	7,850	2,838	3,080
Average.....	1,653	607	648
COLLEGE OF ENGINEERING.			
<i>Civil engineering:</i>			
Dean (engineering).....	3,000	140	114
Professor.....	2,500	89	129
Professor.....	2,400	311	350
Associate professor.....	1,900		362
Assistant professor.....	1,800	265	474
Assistant professor.....	1,500	268	190
Assistant professor.....	1,500	654	608
Instructor.....	1,400	440	280
Instructor.....	700	278	552
Instructor.....	1,200	572	486
Student assistant.....	600		72
Student assistant.....	85		
Student assistant.....	60		
Total (Instructors, 10½)	18,445	3,117	4,137
Average.....	1,800	337	368
<i>Short course—</i>			
Professor.....			22
Assistant professor.....			200
Instructor.....			40

1 Substitute for assistant professor.
 2 Rowing; hours not available.

3 On leave, first semester.
 4 Substitute for assistant professor, first semester.

University of Washington—Salaries and student clock hours for the year ending June 30, 1915—Continued.

Department and instructors.	Salary.	Student clock hours.	
		First semester.	Second semester.
COLLEGE OF ENGINEERING—continued.			
<i>Electrical engineering:</i>			
Head professor.....	\$3,000	152	212
Assistant professor.....	1,900	215	186
Instructor (1).....	425	88	40
Instructor.....	1,400	323	332
Graduate assistant.....	200	108	78
Student assistant.....	50		72
Total (instructors, 3).....	6,975	916	920
Average.....	1,963	262	263
<i>Mechanical engineering:</i>			
Head professor.....	3,000	258	183
Associate professor.....	2,000	250	279
Assistant professor.....	1,500	686	490
Instructor.....	1,700	412	416
Instructor.....	1,600	741	594
Total (instructors, 5).....	9,800	2,350	1,962
Average.....	1,960	470	392
COLLEGE OF MINES.			
Dean.....			
Assistant professor.....	3,000	88	207
Assistant professor.....	2,000	82	132
Assistant professor.....	2,000		
Student assistant.....		206	104
Student assistant.....	250		
Student assistant.....	250		
Student assistant lecturer.....	250		
Student assistant lecturer.....	400		
Total (instructors, 4).....	8,150	376	443
Average.....	2,037	91	111
<i>Short course—</i>			
Dean.....			
Assistant professor.....			120
Assistant professor.....			90
Assistant professor.....			100
COLLEGE OF FORESTRY.			
Dean.....			
Associate professor.....	2,700	295	241
Assistant clerk.....	2,300	116	190
Instructor.....	2,200	322	108
Lecturer.....	1,400	318	192
Lecturer.....	250		
Total (instructors, 4).....	8,850	1,051	721
Average.....	2,145	255	175
<i>Short course:</i>			
Dean.....			
Associate professor.....			74
Assistant professor.....			63
Instructor.....			213
Instructor.....			144
COLLEGE OF PHARMACY.			
Dean.....			
Associate professor.....	3,000	124	110
Instructor.....	1,900	490	546
Instructor.....	1,000	384	368
Assistant.....	1,300		72
Assistant.....	1,000		
Student assistant.....	150		
Student assistant.....	225		
Student assistant.....	120		
Total (instructors, 5).....	8,595	998	1,096
Average.....	1,495	285	292
SCHOOL OF EDUCATION.			
Dean.....			
Professor.....	3,000	529	593
Assistant professor.....	2,500	124	303
Assistant professor.....	2,000	414	253
Assistant professor.....	1,800	193	214
Instructor.....	1,200	115	270
Total (instructors, 5).....	10,500	1,375	1,633
Average.....	2,100	275	327

1 On leave.
 2 Substitute for assistant professor.
 3 State food analysis; not counted in teaching except one for one-fourth time second semester.



196 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

University of Washington—Salaries and students clock hours for the year ending June 30, 1915—Continued.

Department and instructors.	Salary.	Student clock hours.	
		First semester.	Second semester.
SCHOOL OF LAW.			
Dean.....	\$3,000	340	356
Professor.....	3,000	441	374
Professor (lecturer, 1).....	1,000	258	198
Professor.....	2,400	459	342
Assistant professor.....	2,100	537	525
Assistant professor.....	2,100	382	306
Lecturer (1).....	600	125	96
Total instructors, 51.....	14,200	2,565	2,197
Average.....	2,437	449	382
COLLEGE OF FINANCE.			
Dean.....	2,500	365	426
Assistant professor (architecture).....	1,000	302	36
Assistant professor.....	1,000	106	138
Assistant professor.....	1,000	228	158
Assistant professor.....	600	39	36
Assistant professor.....	200	68	60
Instructor.....	500	112	98
Instructor.....	1,300	504	536
Instructor.....	400	80	98
Instructor (architecture).....	800	375	255
Assistant.....	300	28	22
Band master.....	350	105	90
Student assistant.....	150		
Total instructors, 64.....	10,700	2,312	2,033
Average.....	1,678	362	319
MILITARY TRAINING			
Commandant.....		1,624	1,388
Student assistant.....	150		
Total (instructors, 2).....	600	1,624	1,388
Average.....	600	812	694

Washington State College—Salaries and student clock hours for first semester, year 1914-15.

Title of instructor.	Salary.	No. of course.	Value	Clock hours.	Students	Student clock hours
Soil physicist.....	\$2,000	Agr. 1.....	4	6	52	312
		Agr. 8.....	3	4	3	12
		Agr. 21.....	3	3	15	45
					369	
Professor of farm crops.....	\$2,000	Agr. 4.....	5	7	25	175
Assistant agronomist.....	\$1,400	Agr. 5.....	2	2	9	18
Professor of agriculture.....	3,000	Agr. 17.....	1	1	4	4
Professor of agricultural engineering.....	1,600	Agr. 20.....	5	7	7	49
Associate professor of animal husbandry.	1,800	An. Husb. 1.....	5	7	46	322
		An. Husb. 1.....	5	7	27	189
		An. Husb. 1.....	5	7	36	252
		An. Husb. 9.....	1	2	13	26
					789	
Professor of animal husbandry.....	2,000	An. Husb. 2.....	2	2	22	44
		An. Husb. 7.....	3	3	30	108
		An. Husb. 6 and 17.....	2	2	45	90
					242	
Assistant professor of poultry husbandry.	\$1,500	An. Husb. 16.....	3	4	7	28

* Experiment station pays \$1,000 of this.
 * Experiment station pays \$300 of this.
 * Experiment station pays \$1,253 of this.
 * Students in electrical engineering, 35 lacking.
 * Extension division pays \$750 of this.



Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor	Salary	No. of course	Name	Clock hours	Stu. seats	Student clock hours
Assistant professor of architecture.	\$1,000	2	Arch. 5	2	8	16
			Arch. 13	4	1	6
			Arch. 17	1	1	2
			Arch. 33	4	10	40
						64
Professor of architecture.	3,000	2	Arch. 11	2	2	4
			Arch. 35	1	4	4
			Arch. 44	4	2	16
			Arch. 51	1	7	7
						35
Director of experiment station and professor of botany	11,500	4	Bot. 1	6	30	216
			Bot. 101	4	20	180
			Bot. 70	5	2	10
						406
Associate professor of plant physiology.	1,000	4	Bot. 4	0	45	270
			Bot. 43	3	1	8
			Bot. 46	3	19	78
			Bot. 91	2	39	78
						1356
Assistant professor of botany.	1,400	5	Bot. 14	6	17	102
			Bot. 45	8	1	8
						110
Associate professor of botany and assistant in experiment station.	11,800	5	Bot. 10	8	41	328
			Bot. 18	4	3	12
			Bot. 71	3	7	35
						375
Associate professor of chemistry.	1,600	5	Chem. 1	8	65	520
			Chem. 12	5	33	264
			Chem. 13	5	30	240
						1,024
Dean of faculty and professor of chemistry.	3,000	Chem. 1	5	8	32	416
Assistant professor of chemistry.	1,320	5	Chem. 3	8	25	200
			Chem. 20	3	2	10
						210
Assistant professor of chemistry.	1,320	5	Chem. 6	0	2	18
			Chem. 19	3	39	117
			Chem. 22	5	1	9
			Chem. 45	2	10	40
						184
Associate professor of physiological chemistry.	1,800	5	Chem. 11	5	11	55
			Chem. 1	5	7	70
			Home Econ. 31	5	8	64
						189
Instructor in chemistry.	1,200	Chem. 12	5	6	62	
Professor of sanitary engineering.	1,800	1	Civil Eng. 4	1	15	15
			Civil Eng. 5	1	18	18
			Civil Eng. 9	5	32	160
			Civil Eng. 14	3	3	9
			Civil Eng. 20	3	3	9
						206

¹ Experiment station pays \$1,500 of this.
² Pickett 3, 4, or 3 hours.

¹ Experiment station pays \$450 of this.
² \$1,500 of this is salary as dean.

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Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Stu- dents.	Student clock hours.
Professor of railway and highway engineering.	\$2,100	Civil Eng. 10.....	5	10	6	60
		Civil Eng. 19.....	2	2	8	16
		Civil Eng. 21.....	3	3	3	9
		Civil Eng. 22.....	2	2	3	6
						91
Vice president and professor of mathematics and civil engineering.	\$3,000	Civil Eng. 11.....	5	7	3	21
		Civil Eng. 13.....	5	5	5	25
		Civil Eng. 16.....	2	2	15	30
		Civil Eng. 24.....	3	3	12	36
						112
Instructor in civil engineering.....	1,200	Civil Eng. 30.....	2	4	11	44
Professor of dairying.....	\$1,800	Dairying 1.....	3	4	53	212
		Dairying 7.....	2	4	13	52
		Dairying 15.....	1	2	16	32
						296
Instructor in dairy practice.....	1,200	Dairying 4.....	2	3	8	24
Second instructor in dairying.....	1,200	Dairying 6.....	5	8	10	80
		Dairying 9.....	2	3	1	3
						83
Instructor in economic science.....	1,200	Econ. 9.....	5	3	9	27
		Econ. 39.....	5	5	17	85
		Econ. 42.....	3	3	13	39
		Econ. 43.....	2	2	9	18
						169
Professor of economic science.....	2,200	Econ. 31.....	5	5	59	295
		Econ. 35.....	3	3	25	75
		Econ. 36.....	2	2	23	46
						416
Professor of psychology.....	2,200	Educ. 3.....	5	5	42	210
		Educ. 11.....	2	2	22	44
		Educ. 20.....	3	3	13	39
						293
Assistant professor of education.....	1,600	Educ. 5.....	2	2	14	28
		Educ. 6.....	3	3	25	75
		Educ. 17.....	3	3	9	27
		Educ. 19.....	2	2	15	30
						160
Professor of applied electricity.....	1,900	Elec. Eng. 1.....	5	5	12	60
		Elec. Eng. 10.....	2	2	9	18
		Elec. Eng. 15.....	3	3	5	15
		Elec. Eng. 131 ^a			4	
		Elec. Eng. 35.....	2	4	(^b)	
						93
Professor of mechanical engineering and electrical engineering.	3,000	Elec. Eng. 5.....	5	5	9	45
		Mech. Eng. 13.....	3	3	12	36
						81
Assistant professor of English.....	1,600	English 1.....	5	5	20	100
		English 28.....	3	3	23	69
		English 29.....	3	3	25	75
		English 30.....	2	2	26	52
		English 31.....	2	2	16	32
						328

^a \$3,600 of this is salary as vice president.
^b Experiment station pays \$300 of this.

^c Temporary course.
^d Students lacking.

Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Professor of English.....	\$2,400	English 4.....	5	2	11	22
		English 11.....	5	3	6	18
		English 28.....	3	3	16	48
		English 40.....	5	3	13	39
		English 30.....	2	2	25	50
Instructor in English.....	1,200	English 4.....	5	3	11	177
		English 28.....	3	3	21	33
		English 29.....	3	3	18	63
		English 30.....	2	2	15	54
		English 30.....	2	2	15	30
		English 31.....	2	2	6	12
		English 38.....	2	2	17	34
					14	
					240	
Instructor in English.....	1,200	English 18.....	5	3	6	18
		English 28.....	3	3	26	78
		English 28.....	3	3	19	57
		English 30.....	2	2	28	56
		English 34.....	3	3	11	33
					242	
Instructor in English.....	1,200	English 28.....	3	3	17	51
		English 28.....	3	3	19	57
		English 30.....	2	2	41	82
		English 51.....	2	2	7	14
					204	
Assistant professor of English.....	1,500	English 28.....	3	3	20	60
		English 28.....	3	3	22	66
		English 30.....	2	2	27	64
		English 30.....	2	2	15	30
		English 30.....	2	2	6	12
		English 50.....	2	2	9	18
		English 46.....	3	3	11	33
					283	
Assistant professor of English.....	1,700	English 28.....	3	3	10	57
		English 28.....	3	3	20	87
		English 28.....	3	3	20	60
		English 30.....	2	2	15	30
		English 48.....	5	3	3	9
					243	
Student assistant in English.....	400	English 28.....	3	3	23	69
		English 30.....	2	2	24	48
					117	
Instructor in expression.....	300	Expression 8.....	1	1	2	2
		Expression 5.....	2	2	1	2
		Expression 1.....	1	1	3	3
		Expression 3.....	2	2	5	10
		Expression 4.....	2	2	4	8
		Expression 7.....	1	1	10	10
		Expression 9.....	2	2	2	4
		Expression 10.....	2	2	2	4
		Expression 11.....	2	2	4	8
		Expression 14.....	1	1	3	3
		Expression 16.....	1	1	3	3
		Expression 19.....	3	1	5	5
		Expression 21.....	3	1	1	1
		Expression 30.....	1	1	1	1
		English 10.....	2	2	14	28
					68	

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Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours	Students.	Student clock hours
Instructor in fine arts.....	\$1,000	Fine Arts 1.....	2	4	38	152
		Fine Arts 1.....	2	4	1	4
		Fine Arts 8.....	2	2	3	6
		Fine Arts 16.....	5	10	1	10
		Fine Arts 17.....	5	10	1	10
		Fine Arts 18.....	5	10	2	20
		Fine Arts 20.....	5	10	1	10
		Fine Arts 22.....	1-3 or 5		1	10
						212
Professor of forestry.....	2,200	Forestry 40.....	2	2	2	4
		Forestry 45.....	2	2	3	6
		Forestry 48.....	2	2	2	4
		Forestry 49.....	2	2	4	8
						22
Instructor in French.....	1,100	French 2.....	5	5	11	55
		French 10.....	5	5	2	10
		French 19.....	5	5	5	25
						90
Instructor in German and French.....	1,500	French 2.....	5	5	5	25
		French 11.....	5	5	17	85
		German 3.....	5	5	5	25
						135
Professor of geology.....	2,600	Geology 1 and 2.....	5	5	27	135
		Geology 15.....	5	6	3	18
						153
Assistant professor of economical geology.	1,600	Geology 3.....	3	3*	6	18
		Geology 7.....	3	6	5	30
		Geology 9.....	2	3	4	7
						55
Instructor in German.....	1,100	German 10.....	5	5	32	160
		German 10.....	5	5	7	35
						195
Professor of German.....	2,200	German 4.....	5	5	12	60
		German 9.....	5	5	4	20
		German 10.....	5	5	17	85
		German 11.....	5	5	21	105
		German 17.....	5	5	9	45
		German 11.....	5	5	26	130
						445
Instructor in German.....	1,100	German 10.....	5	5	8	40
		German 11.....	5	5	19	95
		German 14.....	2	2	7	14
		German 21.....	5	5	9	45
		German 27.....	3	3	9	27
						221
Second instructor in German.....	500	German 11.....	5	5	31	65
		German 20.....	5	5	15	45
						130
Professor of political and social science.	1,620	History 2.....	5	5	37	185
		History 2.....	5	5	38	190
		History 4.....	5	3	10	30
		Sociology 7.....	5	3	22	66
						471

*Clock hours lacking.

Washington State College—Salaries and student clock hours for first semester, year
1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Assistant professor of history.....	\$1,500	History 11.....	5	3	9	27
		History 21.....	5	5	14	220
		Economy 31.....	5	5	55	217
						175
						422
Professor of history.....	1,020	History 26.....	5	5	14	70
		History 4.....	5	3	7	21
		History 52.....	5	5	14	70
						161
Instructor in textiles and clothing.....	1,100	Home Econ. 1.....	3	6	44	264
		Home Econ. 20.....	5	10	8	80
						344
Professor of home economy.....	1,800	Home Econ. 1.....	1	2	17	34
		Home Econ. 4.....	4	8	15	120+3
		Home Econ. 7.....	2	4	10	40
		Home Econ. 37.....	5	5	14	70
						264
Assistant professor of foods and cookery.....	1,400	Home Econ. 11.....	3	6	9	54
		Home Econ. 11.....	3	6	11	66
		Home Econ. 21.....	5	10	19	190
		Home Econ. 34.....	3	3	4	12
						322
Associate professor of pomology.....	1,500	Horticulture 9.....	3	4	18	64
		Horticulture 11.....	5	7	42	294
		Horticulture 23.....	2	2	15	30
						368
Instructor in horticulture.....	1,200	Horticulture 18.....	2	4	12	48
Professor of horticulture.....	2,200	Horticulture 24.....	2	2	4	8
		Horticulture 25.....	3	4	5	20
						28
Assistant professor of floriculture and gardening.....	1,650	Horticulture 26.....	3	5	2	10
		Horticulture 34.....	3	4	15	60
		Horticulture 38.....	3	5	4	20
						90
Professor of Latin.....	2,200	Latin 8.....	5	5	1	5
		Latin 11.....	5	5	3	8
		Rural law.....	2	2	12	24
						37
Instructor in metal work.....	750	Metal Art 1.....	2	4	3	12
		Metal Art 21.....	4	0	4	24
						36
Instructor in drawing.....	1,500	Drawing 5.....	(1)		2	2
		Metal Art 4.....	(1)		3	3
Professor of mathematics.....	1,900	Math. 1.....	5	5	10	50
		Math. 2 and 3.....	5	5	19	95
		Math. 5.....	5	5	10	50
		Math. 7.....	2	3	5	15
		Math. 9.....	3	3	5	15
						225

1 Value not given.

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Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor	Salary	No. of course	Value	Clock hours	Students	Student clock hours
Assistant professor of mathematics	\$1,700	Math. 2	5	5	24	120
		Math. 2 and 3	5	5	20	100
		Math. 5	5	5	19	95
		Math. 8	5	5	2	10
						325
Instructor in mathematics	1,200	Math. 2 and 3	5	5	19	95
Instructor in electrical engineering	1,200	Manual Arts 1	4	4	7	28
Assistant professor of mechanical engineering	1,400	Mech. Eng. 23	2	3	7	21
		Metal Arts 3	2	2	5	10
		Metal Arts 5	3	4	6	24
		Mech. Eng. 7	3	6	13	78
		Mech. Eng. 21	5	8	4	32
						165
Instructor in mechanical engineering	450	Mech. Eng. 20	2	4	4	16
		Metal Arts 7	3	3	5	15
		Metal Arts 40	5	10	3	30
		Metal Arts 40-41	5	10	9	90
		Metal Arts 43	3	6	3	18
		Mech. Eng. 11	5	10	1	10
						179
Assistant professor of mechanical engineering	1,500	Mech. Eng. 32	2	3	8	24
		Mech. Eng. 37	2	3	4	(1)
		Mech. Eng. 31	2	3	9	27
		Metal Arts 37	2	1	(2)	
		Mech. Eng. 8	3	3	4	12
		Mech. Eng. 12	3	3	16	48
						111
Assistant professor of manual training	1,400	Man. Arts 43	3	6	4	24
		Man. Arts 8	2	4	2	8
		Man. Arts 11	4	8	1	8
		Man. Arts 8	2		(1)	
						40
Associate professor of mechanical engineering	1,600	Mech. Eng. 1	5	8	16	128
		Mech. Eng. 1	5	8	24	192
		Mech. Eng. 1	5	8	33	264
		Mech. Eng. 15	5	5	2	10
		Mech. Eng. 24	2	2	8	16
						610
Student assistant	100	Mech. Eng. 1	5	8	5	40
Instructor in forge work	750	Mech. Eng. 2	2	4	46	184
Assistant professor of metallurgy	1,500	Min. Eng. 1	2	2	5	10
		Min. Eng. 2	3	3	3	9
		Min. Eng. 5	2	4	2	8
		Min. Eng. 10	5	9	5	45
		Min. Eng. 12	2	4	4	16
						88
Professor of mining engineering	2,000	Min. Eng. 4	5	10	4	40
		Min. Eng. 7	5	5	3	15
		Min. Eng. 9	5	9	2	18
						73
Professor of pipe organ and piano	1,100	Musio 31	5	5	10	50
		Musio 33	2	2	2	4
		Musio 35	3	3	2	6
		Piano and organ	2 1/2 or 3	(1)	15	(1)
						60

¹ Not catalogued.
² Number of students not given.

³ Report incomplete.
⁴ Private music lessons not estimated.

Washington State College—Salaries and student clock hours for first semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Instructor in voice.....	1,400	Methods.....	2½ or 5	(?)	7	(?)
		Vocal.....	2½ or 5		23	
Instructor in piano.....	(?)	Piano.....	2½ or 5	(?)	10	(?)
Professor of piano.....	1,500	Piano.....	2½ or 5	(?)	3	(?)
		Piano 3.....	2½ or 5		3	
		Piano 1.....	2½ or 5		6	
		Piano 6.....	2½ or 5		1	
		Piano 5.....	2½ or 5		1	
		Piano 7.....	2½ or 5		1	
Professor of violin.....	1,500	Violin.....	1, 2, 5	(?)	19	(?)
Instructor in voice.....	1,200	Vocal.....	2½ or 5	(?)	12	(?)
Professor of pharmacy and materia medica.....	1,800	Phar. 1.....	5	7	20	140
		Phar. 6.....	3	3	6	18
		Phar. 11.....	2	1	6	6
		Phar. 21.....	5	10	5	50
						214
Instructor in photography.....	450	Photog. 1.....	2	4	8	32
Professor of physics.....	1,800	Phys. 1.....	3	3	40	120
		Phys. 13.....	3	4	7	28
		Phys. 15.....	5	7	3	21
		Phys. 31.....	2	4	38	144
						313
Professor of Scandinavian languages.....	1,320	Scan. 1.....	5	5	5	20
		Scan. 3.....	5	5	3	15
						35
Instructor in Spanish.....	1,100	Span. 1.....	5	5	66	280
		Span. 3.....	5	5	2	10
		Span. 4.....	5	5	6	30
						320
Associate professor of anatomy and surgery.....	1,700	Clinics.....	1-3	4	30	120
		Vet. 19.....	5	7	18	126
		Vet. 21 and 25.....	5	8	11	88
		Vet. 39.....	3	4	14	56
						390
Professor of veterinary science.....	3,000	Vet. 22.....	4	5	11	55
		Vet. 24.....	5	6	42	252
						307
Assistant professor of pathology and histology.....	1,800	Vet. 30.....	1	1	11	11
		Vet. 40.....	2	3	10	30
						41
Instructor in zoology.....	1,200	Zool. 3.....	5	8	2	16
		Zool. 21.....	5	8	26	208
						224
Professor of zoology.....	2,400	Zool. 4.....	5	5	9	27
		Zool. 7.....	3	3	7	21
		Zool. 88.....	3	3	4	12
						60

1 And tuition fees.
 2 Private music lessons not estimated.
 3 Tuition fees only.

4 Experimental station pays \$600 of this.
 5 Experimental station pays \$800 of this.

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Washington State College—Salaries and student clock hours for second semester, year 1914-15.

Title of instructor.	Salary	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Professor of agricultural engineering	\$1,600	Agr. 2.....	5	7	16	112
		Agr. 2.....	5	7	16	112
		Agr. 2.....	5	7	16	112
		Agr. 2.....	5	7	10	70
		Tract. Eng.....	2	4	15	60
		Agr. 14.....	2	4	23	92
		Mech. Eng. 58.....	2	4	20	80
				7	28	
					666	
Soil physicist.....	1,200	Agr. 11.....	3	3	7	21
		Agr. 23.....	5	8	18	144
					165	
Professor of agriculture.....	3,000	Agr. 13.....	3	3	27	71
		Agr. 16.....	2	2	6	12
					83	
Professor of farm crops.....	2,000	Agr. 22.....	5	7	58	546
		Agr. 3.....	5	6	19	114
					660	
Professor of animal husbandry.....	2,000	An. Husb. 3.....	3	3	44	132
		An. Husb. 4.....	2	2	47	94
		An. Husb. 11.....	2	2	20	40
					266	
Associate professor of animal husbandry.....	1,800	An. Husb. 5.....	2	2	21	42
		An. Husb. 8.....	3	3	22	66
					108	
Assistant professor of poultry husbandry.....	1,500	An. Husb. 16.....	3	4	10	40
		An. Husb. 18.....	3	4	4	16
					56	
Professor of architecture.....	3,000	Arch. 18.....	1	2	5	10
		Arch. 25.....	3	6	27	162
		Arch. 44.....	5	10	1	10
					182	
Assistant professor of architecture.....	1,650	Arch. 36.....	1	2	15	30
		Arch. 6.....	1	1	6	6
		Arch. 42.....	3	6	3	18
		Arch. 14.....	4	6	1	6
					60	
Instructor in drawing.....	1,500	Arch. 38.....	1	2	6	12
		Fine Arts 3.....	5	10	18	180
		Metal Arts 5.....		(5)	3	(3)
		Metal Arts 4.....		(5)	2	(2)
					192	
Associate professor of plant physiology.....	1,900	Bot. 2.....	4	8	32	192
		Bot. 8.....	5	8	3	24
		Bot. 17.....	2	2	5	10
		Bot. 44.....	1-10	(5)	4	(5)
		Bot. 102.....	4	6	9	54
					280	
Professor of plant pathology.....	2,750	Bot. 7.....		(5)	1	(5)
		Bot. 41.....		(5)	9	(5)
		Bot. 44.....	1-10	(5)	1	(5)
		Bot. 51.....	3	8	10	80
					80	

1 Experiment station pays \$1,000 of this.

2 Experiment station pays \$600 of this.

3 Five-sixths time.

4 Experiment station pays \$750 of this.

5 Clock hours not given.

6 Not given.

7 Experiment station pays \$1,375 of this.

206 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Instructor in economic science.	\$1,200	Econ. 5.....	5	3	7	21
		Econ. 10.....	5	3	21	27
		Econ. 60.....	3	3	3	63
		Econ. 61.....	3	3	18	54
						165
Professor of economic science..	2,200	Econ. 31.....	5	5	33	165
		Econ. 31.....	5	5	30	150
		Econ. 37.....	6	3	6	18
						333
Assistant professor of history..	1,500	Econ. 33.....	3	3	10	30
		Econ. 34.....	2	2	9	18
		Hist. 24.....	5	5	14	70
		Hist. 25.....	5	3	18	54
						172
Professor of Latin.....	2,200	Econ. 41.....	5	5	20	130
		Econ. 12.....	5	3	2	6
						136
Assistant professor of education.	1,600	Educ. 1.....	5	7	28	196
		Educ. 8.....	3	3	29	87
		Educ. 9.....	6	5	19	95
						378
Professor of psychology.....	2,200	Educ. 3.....	5	5	46	230
		Educ. 4.....	6	8	14	112
						342
Professor of applied electricity.	1,900	Elec. Eng. 2.....	3	3	8	24
		Elec. Eng. 4.....	3	3	11	33
		Elec. Eng. 32.....	2	4	(1)	
		Elec. Eng. 34.....	3	6		
		Elec. Eng. 36.....	3	6		
						67
Professor of mechanical and electrical engineering.	3,000	Elec. Eng. 6.....	3	3	9	27
		Elec. Eng. 7.....	2	2	6	12
		Elec. Eng. 16.....	2	2	9	18
		Elec. Eng. 22.....	4	4	12	48
						105
Professor of English.....	2,400	English 4.....	2	5	17	85
		English 5.....	5	3	13	39
		English 29.....	3	3	22	66
		English 31.....	2	2	23	46
		English 33.....	5	5	28	140
						378
Instructor in English.....	1,200	English 4.....	5	5	17	85
		English 29.....	3	3	20	60
		English 30.....	2	2	42	84
		English 31.....	2	2	15	30
		English 35.....	3	3	3	9
						268
Assistant professor of English..	1,600	English 14.....	5	3	5	15
		English 28.....	3	3	23	69
		English 29.....	3	3	19	57
		English 31.....	2	2	22	44
		English 43.....	5	3	7	21
						208

¹ Not given.

² So far as given.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of Instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Assistant professor of English.	\$1,700	English 15.....	5	3	5	15
		English 28.....	3	3	17	51
		English 29.....	3	3	25	75
		English 30.....	2	2	27	54
		English 31.....	2	2	27	54
		English 49.....	6	3	3	9
						258
Do.....	1,500	English 23.....	2	2	3	6
		English 25.....	3	3	8	24
		English 28.....	3	3	13	39
		English 29.....	3	3	23	69
		English 31.....	2	2	23	56
		English 52.....	2	2	14	28
						222
Instructor in English.....	1,200	English 51.....	2	2	8	16
		English 28.....	3	3	17	51
		English 29.....	3	3	31	93
		English 31.....	2	2	19	38
		English 51.....	2	2	5	10
						208
Do.....	1,200	English 29.....	3	3	42	126
		English 31.....	2	2	42	84
		English 36.....	5	3	5	15
		English 39.....	2	2	7	14
						239
Do.....	400	English 27.....	3	3	17	51
		English 31.....	2	2	23	46
						97
Instructor in expression.....	300	Expression 1.....	1	1	3	3
		Expression 2.....	1	1	4	4
		Expression 3.....	2	2	2	4
		Expression 4.....	2	2	4	8
		Expression 5.....	2	2	1	2
		Expression 7.....	1	1	3	3
		Expression 8.....	1	1	6	6
		Expression 10.....	1	1	8	8
		Expression 11.....	2	2	1	3
		Expression 12.....	2	2	1	2
		Expression 13.....	1	1	8	8
		Expression 14.....	1	1	12	12
		Expression 15.....	1	1	1	1
		Expression 16.....	1	1	1	1
		Expression 19.....	3	1	2	3
		Expression 20.....	3	1	2	2
Expression 22.....	3	1	2	2		
						80
Instructor in fine arts.....	1,000	Fine arts 2.....	3	6	32	182
		Fine arts 4.....	2	4	1	8
		Fine arts 4.....	2	4	3	12
		Fine arts 9.....	2	2	3	6
		Fine arts 17.....	5	10	1	10
		Fine arts 19.....	5	10	2	20
		Fine arts 20.....	5	10	1	10
		Fine arts 22.....	(1)		1	(1)
Professor of forestry.....	2,200	Forestry 33.....	3	4	2	8
		Forestry 34.....	5	7	5	35
		Forestry 35.....	2	2	4	8
		Forestry 37.....	1	1	1	1
		Forestry 43.....	1	2	3	6
		Forestry 44.....	1	1	1	1
		Forestry 48.....	2	2	1	2
		Forestry 49.....	2	2	5	10

* 1 to 3 or 5.

* Not given.

208 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of instructor.	Salary	No. of course.	Value.	Clock hours	Students.	Student clock hours.
Instructor in French.....	\$1,100	French 1.....	5	5	14	70
		French 20.....	5	5	1	5
		French 23.....	5	5	4	20
						95
	1,500	French 11.....	5	5	4	20
		French 21.....	5	5	3	15
		German 8.....	5	5	1	5
		German 10.....	5	5	11	55
						95
Professor of German.....	2,200	French 21.....	5	5	30	150
		German 2.....	5	5	9	45
		German 12.....	2	2	5	10
		German 15.....	5	5	4	20
		German 19.....	3	3	3	9
						244
Professor of geology.....	2,400	Geology 1 & 2.....	5	5	39	175
		Geology 21.....	2	2	10	20
		Geology 22.....	3	3	4	20
						215
Assistant professor of economic geology.....	1,600	Geology 4.....	2	4	6	24
		Geology 5.....	3	6	7	42
		Geology 11.....	2	2	2	8
		Geology 13.....	3	6	6	30
						104
Instructor in German.....	1,100	German 20.....	5	5	20	100
		German 20.....	5	5	45	225
						325
Do.....	1,100	German 3.....	5	5	12	60
		German 4.....	5	5	9	45
		German 17.....	5	5	3	15
		German 20.....	5	5	13	65
						185
Do.....	500	German 3.....	5	5	1	5
		German 11.....	5	5	16	80
		German 16.....	5	5	2	10
		German 21.....	5	5	21	120
						215
Professor of political and social science.....	1,620	History 1.....	5	5	28	140
		History 2.....	5	5	17	85
		History 12.....	5	3	20	87
						312
Professor of history.....	1,620	History 1.....	5	5	9	45
		History 20.....	2	2	6	12
		History 22.....	5	3	9	27
		History 51.....	5	(1)	5	(1)
						84
Instructor in textiles and clothing.....	1,100	Home Econ. 3.....	2	2	38	76
		Home Econ. 20.....	5	10	15	150
						226
Professor of home economics..	1,800	Home Econ. 6.....	3	6	17	102
		Home Econ. 10.....	2	4	13	52
		Home Econ. 2.....	1	2	1	2
		Home Econ. 33.....	3	3	9	27
		Home Econ. 38.....	5	5	13	65
						248

(1) Not given.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Assistant professor of foods and cookery.	\$1,400	Home Econ. 12	3	6	17	102
		Home Econ. 36	5	8	9	72
						174
Student assistant	300	Home Econ. 21	5	10	9	190
Assistant professor of floriculture and gardening.	1,650	Hort. 1	3	4	16	64
		Hort. 33	3	5	5	25
		Hort. 37	3	6	2	12
		Hort. 39	2	3	3	9
		Hort. 40	2	3	4	12
						122
Instructor in horticulture	1,200	Hort. 3	3	4	8	32
		Hort. 31	5	6	2	12
Associate professor of pomology.	1,000	Hort. 29	3	4	9	44
		Hort. 12	2	2	8	36
		Hort. 24	2	2	6	12
		Hort. 30	2	4	12	48
						152
Professor of horticulture	2,200	Hort. 32	3	4	8	32
Assistant professor of Latin	1,400	Latin 1	5	5	1	5
		Latin 2	5	5	1	5
		Pharmacy 4	2	2	21	42
Instructor in metal work	750	Manual Arts 2	2	4	3	52
		Manual Arts 14	4	8	2	12
						16
						28
Assistant professor of mechanical engineering.	1,500	Manual Arts 6	4	4	6	24
		Mech. Eng.	3	3	7	21
		Mech. Eng. 38	2	4	3	12
Instructor in mathematics	1,200	Math. 4	4	4	8	32
		Math. 11	1	1	8	8
		Math. 13	1	1	8	8
						48
Professor of mathematics	1,900	Math. 2 and 3	5	5	17	85
		Math. 4	4	4	13	52
		Math. 6	5	5	12	60
		Math. 10	2	2	8	16
		Math. 13	1	1	14	14
		Math. 15	3	3	4	12
						239
Assistant professor of mathematics.	1,700	Math. 4	4	4	16	72
		Math. 4	4	4	13	52
		Math. 6	5	5	11	55
		Math. 13	1	1	13	13
		Math. 14	2	2	6	12
		Math. 17	3	3	5	15
						219
Instructor in electrical engineering.	1,200	Mech. Arts 2	4	4	6	24
		Mech. Arts 10	2	2	4	8
						32
Instructor in mechanical engineering.	450	Mech. Arts 8	5	5	7	35
		Mech. Arts 40	5	10	7	70
		Mech. Arts 42	3	6	2	12
		Mech. Arts 44	5	10	5	50
		Mech. Arts 50	2	4	3	12
		Mech. Arts 11	4	4	3	12
		Mech. Arts 11	5	10	20	200
						379



210 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value.	Clock hours.	Students.	Student clock hours.
Associate professor of mechanical engineering.	\$1,600	Mech. Arts 20.....	2	2	2	4
		Mech. Eng. 3.....	3	6	17	102
		Mech. Eng. 3.....	3	6	22	132
		Mech. Eng. 19.....	3	6	7	42
		Mech. Eng. 17.....	3	3	11	33
		Mech. Eng. 3.....	3	6	16	96
						409
Assistant professor of manual training.	1,400	Mn. Eng. 5.....	2	4	11	44
		Manual Arts 12....	4	2	9	18
						62
Assistant professor of mechanical engineering.	1,400	Mech. Eng. 25.....	3	6	3	18
		Mech. Eng. 27.....	2	2	2	4
		Mech. Eng. 40.....	1	1	3	3
		Mech. Eng. 42.....	2	2	4	8
						33
Instructor in foundry.....	450	Mech. Eng. 34.....	2	2	24	48
Assistant professor of metallurgy.	1,500	Mining 6.....	2	2	4	8
		Mining 6.....	2	2	2	4
		Mining 10.....	5	9	4	36
		Mining 12.....	2	4	3	12
						60
Professor of mining engineering.	2,600	Mining 8.....	5	5	4	20
		Mining 9.....	5	9	2	18
		Mining 11.....	1	1	5	5
						43
Professor of pipe organ and piano.	1,100	Music 10.....	1	1	34	34
		Music 42.....	5	5	8	40
		Music 34.....	2	2	2	4
		Music 36.....	3	3	3	3
		Organ and piano..	2½ or 5		21	
						81
Instructor in piano.....	1,400	Music 62.....	5		11	
		Vocal 26.....	2½ or 5		26	
Instructor in piano.....	(?)	Piano.....	2½ or 5		18	
Professor of violin.....	1,500	Violin.....			18	
Professor of piano.....	1,500	Piano 2.....	2½ or 5		6	
		Piano 4.....	2½ or 5		3	
		Piano 5.....	2½ or 5		2	
		Piano 6.....	2½ or 5		1	
		Piano 8.....	2½ or 5		1	
		Piano 1.....	2½ or 5		1	
		Piano 3.....	2½ or 5		2	
						11
Instructor in voice.....	1,200	Vocal.....				
Professor of pharmacy and materia medica.	1,800	Pharmacy 3.....	3	3	17	51
		Pharmacy 5.....	5	5	16	80
		Pharmacy 7.....	4	13	6	78
		Pharmacy 8.....	4	13	7	91
						300
Instructor in veterinary science.	1,320	Pharmacy 9.....	3	3	6	18
		Veterinary 24.....	5	6	26	166
		Veterinary 41.....	2	2	41	82
						312
Professor of physics.....	1,800	Photography.....	2	4	9	36
		Physics 2.....	3	4	32	128
		Physics 16.....	5	7	2	14
		Physics 20.....	5	7	6	42
		Physics 32.....	2	2	28	56
						240

1 And tuition fees.

2 Tuition fees only.

APPENDIX.

Washington State College—Salaries and student clock hours for second semester, year 1914-15—Continued.

Title of instructor.	Salary.	No. of course.	Value	Clock hours.	Students.	Student clock hours.
Professor of Scandinavian	\$1,320	Scan. 2.	5	5	3	15
		Scan. 4.	5	5	2	10
						25
Instructor in Spanish	1,100	Span. 1.	5	5	8	40
		Span. 2.	5	5	23	115
		Span. 2.	5	5	12	60
		Span. 2.	5	5	15	75
		Span. 6.	5	5	2	10
						300
Associate professor of anatomy and surgery.	1,700	Clinics.	1-5	6	32	192
		Vet. 20.	4	6	19	114
		Vet. 26.	5	5	13	65
		Vet. 42.	2	2	46	92
		Vet. 46.	1	1	11	11
						474
Professor of veterinary science.	3,000	Vet. 23.	5	7	11	77
		Vet. 25.	5	6	12	72
						149
Do.	2,000	Vet. 29.	5	5	6	30
		Vet. 44.	5	3	6	18
						48
Assistant professor of pathology and histology.	11,500	Vet. 31.	5	9	11	99
		Zool. 10.	2	10	19	190
						289
Instructor in zoology	1,200	Zool. 22.	5	8	17	136
Professor of zoology	12,400	Zool. 40.	1	1	9	9
		Zool. 37.	4	6	9	54
						63

† Experiment station pays \$600 of this.

* Experiment station pays \$800 of this.

APPENDIX

Analysis of expenditures in Washington

	Extension, campus irrigation	\$466.75
	Sidewalk, Denny Hall to street	474.78
	Clock and bell extensions	169.40
	Campus lighting system	5,177.91
	Telephone extensions	268.97
Construction,	Observatory addition	3,432.71
	Laboratory desks for chemistry	1,804.00
	Concrete cellar, chemistry	1,600.04
	Additional rooms, Denny Hall	5,504.71
	Addition to home economics building	476.69
	Roof and foundation, faculty club	2,220.51
	Repairs and alterations, museum	5,382.43
	Enlarging machine shops	794.42
	Repairs to other buildings	1,708.67
	Greenhouse	1,713.00
		31,285.19

UNIVERSITY OF WASHINGTON.
Total expenditures, 1913-1914.

\$587,594.61.	University, exclu- sive of extension.	Total operating expense.
Includes:		
State legislative appropriations	\$571,938.14.	\$486,779.61.
Student laboratory funds, dining hall, dormitories, and all other check funds	78,931.51	
Gatzert foundation and J. J. Hill for- estry building fund	3,641.26	
	587,594.61	

	Contingent	\$178.37
	Denny fellowship	833.28
	Dining hall	16,416.30
	Diploma	1,661.00
	Dormitories	2,790.83
	Instrument shop	477.49
Special funds,	Law school	4,828.29
	Locker repairs	12.40
	Commercial testing	914.02
	Military uniforms	3,333.75
	Music tuition	6,373.75
	Gatzert foundation	1,678.46
	J. J. Hill forestry building fund	1,662.82
	Summer session	1,333.53
	Deposits refunded	10,529.05
		53,871.34

Extension,

\$18,638.47.

	Telephone extensions	\$104.06
	Power and light extensions	681.06
	Power house railroad spur	172.20
Construction,	Laboratory desks for chemistry	625.00
	Hydraulic laboratory	7,068.49
	Architects' fees	1,000.00
		9,645.80

NDIX B.

Washington State higher institutions.

		Astronomy.....	\$334.51
		Botany and bacteriology.....	3,446.74
		Chemistry and pharmacy.....	10,340.07
		Civil engineering.....	1,658.91
		Education.....	759.19
		Electrical engineering.....	3,663.92
		English.....	1,344.92
		Forestry.....	1,102.40
		French and Italian.....	1,041.26
		Geology.....	714.71
		German.....	318.69
		Graduate school.....	4,460.66
		Greek.....	89.89
8.75		History.....	762.10
4.78		Home economics.....	2,989.43
9.40		Journalism.....	570.15
7.91	Educational	Latin.....	166.35
3.97	equipment and	Library.....	6,047.12
2.71	supplies,	Marine station.....	1,540.65
4.00		Mathematics.....	669.73
0.04		Mechanical engineering.....	4,381.83
4.71	\$70,576.39.	Military science.....	357.26
5.69		Mining.....	4,065.79
0.51		Music.....	1,510.31
2.43		Oriental language and literature.....	127.34
1.42		Philosophy and psychology.....	1,460.66
4.87		Physical training.....	2,597.47
3.00		Physics.....	3,451.62
		Political and social science.....	3,883.06
5.19		Printing.....	654.55
		Public speaking and debate.....	123.76
		Puro food laboratory.....	264.05
		Scandinavian.....	166.72
		Spanish.....	356.00
		Zoology.....	1,724.37
			70,576.39

	Instruction.		
			\$285,026.00.

		Administration.....	\$24,148.18
3.37		Library.....	8,707.43
1.28		Campus.....	1,320.00
3.30		Catalogues and reports.....	2,924.12
0.00		Freight and express.....	765.62
1.83		Fuel.....	12,974.73
4.49		Furniture and fixtures.....	3,632.20
4.29		Instrument shop.....	1,033.84
1.40	Overhead,	Janitors.....	10,762.50
0.02		Miscellaneous.....	1,452.77
1.75		Museum.....	228.30
1.75		Office supplies and printing.....	4,492.46
1.46	\$131,176.34.	Postage.....	1,611.76
1.82		Power, light, and heat.....	1,427.81
1.53		Repairs.....	9,727.96
0.05		Bulkhead.....	2,475.00
		Telegraph and telephone.....	113.40
		Traveling expenses.....	900.00
		Bureau inspection.....	1,505.75
			1,219.32
			150.45
			59,843.14

		Salaries.	\$11,799.68
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		Astronomy.....	\$287.89
		Botany and bacteriology.....	4,380.97
		Chemistry.....	16,630.36
		Civil engineering.....	1,012.69
		Education.....	439.54
		Electrical engineering.....	1,220.42
		English.....	784.68
		Forestry.....	1,272.12
		French.....	299.86
		Geology.....	910.88
		German.....	474.77
		Graduate school.....	3,297.00
		Greek.....	106.00
		History.....	737.47
		Home economics.....	6,439.02
		Journalism.....	1,113.48
		Latin.....	156.74
		Library.....	2,768.47
		Marine station.....	568.74
		Mathematics.....	955.06
		Mechanical engineering.....	1,870.01
		Military science.....	704.27
		Mines.....	2,040.94
0.06	Educational		
0.05	equipment and		
0.30	supplies,		
0.00			
0.00			
0.00			
0.00	\$80,900.83.		

Labor, equip-
ment, and
supplies.

		\$8,244.46
		649.50
		14,201.43
		2,924.12
		765.62
		12,974.73
		3,632.20
		1,033.84
		1,452.77
		228.30
		4,492.46
		1,611.76
		1,427.81
		10,437.49
		6,418.24
		113.40
		1,505.75
		1,219.32
		71,333.20

		Salaries.	\$3,858.60
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		Astronomy.....	\$287.89
		Botany and bacteriology.....	4,380.97
		Chemistry.....	16,630.36
		Civil engineering.....	1,012.69
		Education.....	439.54
		Electrical engineering.....	1,220.42
		English.....	784.68
		Forestry.....	1,272.12
		French.....	299.86
		Geology.....	910.88
		German.....	474.77
		Graduate school.....	3,297.00
		Greek.....	106.00
		History.....	737.47
		Home economics.....	6,439.02
		Journalism.....	1,113.48
		Latin.....	156.74
		Library.....	2,768.47
		Marine station.....	568.74
		Mathematics.....	955.06
		Mechanical engineering.....	1,870.01
		Military science.....	704.27
		Mines.....	2,040.94

Botany and bacteriology.....	\$8,794.04
Chemistry.....	16,661.94
Civil engineering.....	19,010.21
Education.....	9,429.16
Electrical engineering.....	7,454.01
English.....	21,609.67
Forestry.....	8,258.73
French.....	10,345.74
Geology.....	7,065.68
German.....	10,998.20
Greek.....	4,591.63
History.....	11,229.91
Home economics.....	5,539.59
Journalism.....	6,340.82
Latin.....	5,674.88
Law.....	12,941.47
Library economy.....	1,642.45
Mathematics and astronomy.....	16,453.83
Mechanical engineering.....	9,190.68
Military science.....	485.00
Mining.....	7,349.92
Music.....	6,189.13
Oriental language and literature.....	1,299.96
Pharmacy.....	6,409.93
Philosophy.....	5,374.85
Physical training.....	6,593.15
Physics.....	8,764.85
Psychology.....	4,658.24
Political and social science.....	11,458.26
Public speaking and debate.....	3,337.60
Scandinavian.....	1,891.63
Spanish.....	5,725.67
Zoology.....	6,525.76

Marine station.....	269,626.49
Summer session.....	1,400.00
	12,473.39
Consulting engineer.....	283,501.88
State chemist.....	300.00
Rhodes' scholarship examiner.....	300.00
Drug assistant.....	25.00
	900.00
	285,026.88

MARCH 30, 1916.
Certified correct.
HERBERT T. COUDON,
Comptroller.

Botany and bacteriology.....	\$10,881.17
Chemistry.....	19,944.79
Civil engineering.....	18,608.68

Extension,

\$15,658.47.

Telephone extensions.....	\$104.06	Educa
Power and light extensions.....	681.05	equipm
Power house railroad spur.....	172.20	supp
Laboratory desks for chemistry.....	625.00	
Hydraulic laboratory.....	7,063.49	
Architects' fees.....	1,000.00	\$60,00
Construction,		
\$9,645.80.	9,645.80	

UNIVERSITY OF WASHINGTON.

Total expenditures 1914-1915,

\$603,050.20.

Includes:

State legislative appropriations.....	\$499,891.81
Student laboratory funds, dining hall, dormitories, and all other check funds.....	102,187.15
Gatzert foundation and J. J. Hill forestry building fund.....	1,971.24
	603,050.20

University, exclusive of extension,

\$579,375.69.

Total operating expense,

\$507,850.07.

Instru

\$322,54

Contingent.....	\$1,817.63	
Denny fellowship.....	1,666.86	
Dining hall.....	15,549.84	
Diploma.....	1,314.95	
Dormitories.....	2,682.01	
Hospital benefits.....	1,290.85	
Instrument shop.....	773.03	
Law school.....	9,320.01	
Locker repairs.....	25.80	
Commercial testing.....	309.18	
Military uniforms.....	3,078.30	
Music tuitions.....	8,429.76	(overh
Gatzert foundation.....	1,401.89	
J. J. Hill forestry building fund.....	369.35	
Summer session.....	1,959.26	\$124,35
Deposits refunded.....	11,682.34	
Special funds,		
\$61,870.82.	61,870.82	

Extension,

\$23,674.51.

Mechanic arts building.....	\$68,203.56	
Agricultural building.....	63,604.71	
Coal subway.....	9,120.62	
Finishing poultry cottage.....	294.67	
Stone piers and wall.....	1,045.21	Educational
Garage.....	1,371.36	ment an
Oven, Ferry Hall.....	758.08	plies,
Extension water system.....	350.74	
Extension athletic field.....	9,135.72	
Cement walks.....	602.45	\$38,977
Paved roads.....	10,389.03	
Extension lighting system.....	631.99	
Extension sewers.....	294.00	
Farm barn and tool house.....	2,635.40	
	108,567.54	

Educational expenditures, State college, exclusive of extension and experi-

Total operating

323,674.61.

		Mechanic arts building.....	\$68,293.56	
		Agricultural building.....	63,664.71	
		Coal subway.....	9,120.62	
		Finishing poultry cottage.....	294.67	
	Construction and lands,	Stone piers and wall.....	1,045.21	Educational equip-
		Garage.....	1,371.36	ment and sup-
		Oven, Ferry Hall.....	758.08	plies.
		Extension water system.....	350.74	
	\$168,567.64.	Extension athletic field.....	9,135.72	\$38,977.35.
		Cement walks.....	602.45	
		Paved roads.....	10,389.00	
		Extension lighting system.....	631.60	
		Extension sewers.....	284.00	
		Farm barn and tool house.....	2,635.40	
			168,567.64	

Educational expenditures,
State college, exclusive of
extension and experi-
mental work,

\$569,816.52.

Total operating
expense,

\$307,256.16.

Instruction,

\$157,512.91.

STATE COLLEGE OF WASHINGTON.

Total expenditures, 1913-14,

\$663,049.62.

Includes U. S. funds, as follows:

Morrill fund, agriculture, me-	\$50,000.00
chanic arts and sciences.....	
Hatch fund, experiment station...	15,000.00
Adams fund, experiment station.	15,000.00

		Agriculture and dairy.....	\$57,132.36	
		Horticulture.....	2,728.99	
		Machine shop.....	1,792.96	
		Music tuitions.....	11,585.11	(Overhead ex-
		Veterinary hospitals.....	9,123.71	pense) general
		Locker and towel.....	673.61	operating ex-
		Controlling account.....	2,807.80	pense.
		Photo shop.....	144.80	
		Operation storeroom.....	1,024.66	
		Deposits refunded.....	3,337.40	
		Other departments.....	2,967.93	
		Museum.....	638.44	
			93,992.82	\$110,765.96.

Construction and
lands,

\$100.00

Experimental
work,

\$71,152.92.

Experimental and extension
work,

Operating expense,

Extension.....	\$20,580.66
Experimental....	72,652.44
	93,233.10

\$91,259.63.

Extension work,

\$20,106.71.

	Special funds,	Agricultural experiment station...	\$1,399.52	
		Agricultural extension work.....	473.95	
	\$1,873.47.		1,873.47	

		Mechanic arts building.....	\$40,252.78	
		Agricultural building.....	43,852.83	
		Walls and piers.....	554.35	
		Oven Ferry hall.....	16.50	
		Extension, water system.....	114.67	
		Extension, lighting system.....	72.30	
	Construction and lands,	Extension, tunnel and heating sys-		Educational equip-
		tem.....	2,001.07	ment and supplies,
		Extension, sewer system.....	35.00	
		Improvement, athletic field.....	268.08	\$40,010.01.

	Salaries.	Supplies.
	\$14,561.46	\$9,118.05
Library books and supplies	\$6,999.19	
Agriculture	1,136.99	
Architecture	894.77	
Botany	6,290.58	
Chemistry	2,395.36	
Economic science and history	937.53	
Education	524.57	
Elementary science	2,490.05	
English	1,107.22	
Forestry	358.04	
Geology	988.70	
Home economics	1,959.50	
Horticulture	436.61	
Latin	291.91	
Mathematics and civil engineering	1,320.16	
Mechanical and electrical engineering	2,239.55	
Mining and metallurgy	1,651.32	
Modern language	311.40	
Music and fine arts	758.41	
Pharmacy	615.11	
Veterinary science	2,858.29	
Zoology	1,543.10	
Summer school	1,368.99	
	38,977.35	

	Salaries.	Labor, equipment, and supplies.
Administration	\$20,099.81	\$4,633.69
Library	6,077.05	16,985.81
Fuel		9,023.45
Heat, light, and power	2,220.00	1,196.87
Postage and stationery, general		2,140.98
Reagents and general travel expense		1,266.86
Telephone and telegraph, general		529.88
Advertising		706.00
Rental conservatory		8,142.55
Janitor	2,220.00	4,491.75
Printing, general		5,110.29
Miscellaneous, drayage, etc.		10,539.14
Repairs		4,073.03
Care of grounds		2,224.09
Cultivating college lands		1,262.00
Military, including encampment	1,262.00	1,352.92
Physical education	5,033.63	1,436.30
	36,912.49	73,853.41

	Salaries.	Labor, equipment, and supplies.
Administration	\$4,322.46	\$5,192.66
Agriculture	5,451.29	6,476.81
Botany	3,131.98	1,947.47
Chemistry	1,943.43	1,889.59
Horticulture	2,216.65	2,713.29
Veterinary science	1,050.00	639.97
Zoology	3,265.26	691.21
Puyallup experiment station	12,054.51	18,166.04
	33,435.88	37,717.04

	Salaries.	Labor, equipment, and supplies.
Administration	\$3,840.00	\$1,819.46
Agriculture	6,083.33	8,363.92
	9,923.33	10,183.38

Library books and supplies	\$3,396.88
Agriculture	2,432.81
Architecture	310.87
Botany	3,651.97
Chemistry	5,675.53
Economic science and history	314.62
Education	604.97
Elementary science	919.94
English	220.64
Forestry	215.57
Geology	370.03
Home economics	2,337.59
Horticulture	454.03
Latin (abolished as a department June 30, 1915)	77.97
Mathematics and civil engineering	568.26
Mechanical and electrical engineering	1,444.12
Mining and metallurgy	1,118.05
Modern languages	126.51

Agriculture	\$12,579.34
Architecture	4,012.50
Botany	8,078.95
Chemistry	11,694.10
Economic science and history	6,774.89
Education	3,724.92
Elementary science	13,809.59
English	10,250.85
Forestry	1,999.92
Geology	4,099.89
Home economics	4,864.47
Horticulture	6,063.29
Latin	3,439.95
Mathematics and civil engineering	10,416.51
Mechanical and electrical engineering	12,749.76
Mining and metallurgy	4,332.44
Modern languages	9,522.98
Music and fine arts	3,500.00
Pharmacy	1,841.65
Veterinary science	9,990.61
Zoology	2,724.97
Summer school	146,510.58
	5,870.00
	162,380.58

Difference in total operating expenses, \$5,132.33, is for summer school 1914-15. See report for that year.

Experimental and extension work,

Extension..... \$30,580.66
 Experimental... 72,632.44
 93,213.10

Operating expense,

\$91,259.63.

Special funds, Agricultural experiment station... \$1,399.00
 Agricultural extension work..... 473.95
 \$1,873.47. 1,873.47

Construction and lands,

\$91,806.70.

Mechanic arts building..... \$40,252.78
 Agricultural building..... 43,852.83
 Walls and piers..... 554.35
 Owen Ferry hall..... 16.50
 Extension, water system..... 114.67
 Extension, lighting system..... 72.30
 Extension, tunnel and heating system..... 2,091.97
 Extension, sewer system..... 35.00
 Improvement, athletic field..... 396.98
 Cement walks..... 208.35
 Paved roads..... 1,598.32
 Grading around new building..... 1,356.54
 Post office in Bryan hall..... 1,346.13
 91,806.70

State college, exclusive of extension and experimental work,

\$456,739.32.

Total operating expense,

\$278,598.45.

STATE COLLEGE OF WASHINGTON.

Total expenditures, 1914-1915,

\$558,159.00.

Includes United States funds as follows:

Morrill fund, agricultural, mechanic arts and sciences..... \$50,000.00
 Hatch fund, experimental station... 13,687.95
 Adams fund, experiment station... 15,000.00
 Smith-I ever extension work..... 10,000.00

Special funds,

\$86,333.17.

Farm and creamery..... \$52,508.43
 Horticulture..... 2,508.99
 Machine shop..... 1,788.89
 Music tuitions..... 9,859.73
 Locker and towels..... 274.15
 Veterinary hospitals..... 8,906.91
 Photo shop..... 908.98
 Other departments..... 3,085.44
 Operation storeroom..... 1,110.65
 Controlling account..... 1,175.32
 Deposits refunded..... 3,317.68
 86,333.17

Construction,

\$1,705.68.

Extension and experimental work,

Extension..... \$29,843.41
 Experiment station..... 71,777.27
 101,420.68

Operating expense,

\$92,059.45.

Special funds,

\$7,655.55.

Agricultural experiment station... \$6,068.31
 Agricultural extension..... 1,587.24
 7,655.55

	Veterinary science.....	1,050.00	639.97
71,152.92.	Zoology.....	3,265.26	691.21
	Puyallup experiment station.....	12,054.81	18,166.04
		33,435.88	37,717.04

			Labor, equipment, and supplies.
ension work,	Administration.....	\$3,840.00	\$1,819.46
20,106.71.	Agriculture.....	6,083.33	8,363.92
		9,923.33	10,183.38

	Library books and supplies.....	\$3,396.88
	Agriculture.....	2,432.61
	Architecture.....	310.87
	Botany.....	3,651.97
	Chemistry.....	5,675.63
	Economic science and history.....	314.62
	Education.....	604.97
	Elementary science.....	919.94
	English.....	220.64
	Forestry.....	245.57
	Geology.....	370.03
	Home economics.....	2,337.59
	Horticulture.....	434.03
	Latin (abolished as a department June 30, 1915).....	77.97
	Mathematics and civil engineering.....	568.26
	Mechanical and electrical engineer- ing.....	1,444.12
	Mining and metallurgy.....	1,118.05
\$29,010.01.	Modern languages.....	126.51
	Music and fine arts.....	134.52
	Pharmacy.....	427.56
	Veterinary.....	1,777.90
	Zoology.....	1,060.91
	Summer school.....	1,338.76
		29,010.01

			Labor, equipment, and supplies.
struction,	Administration.....	\$19,476.50	\$2,993.57
39,002.10.	Library.....	5,750.43	13,628.45
	Fuel.....	2,355.00	6,216.02
	Heat, light, and power.....		376.95
	Postage and stationery, general.....		2,532.99
	Regions and general travel expense.....		1,498.13
	Telephone and telegraph, general.....		583.87
thead expense,	Rental conservatory.....	720.00	720.00
	Janitor.....	3,330.05	6,197.98
	Printing, general.....		1,984.51
\$90,496.34.	Miscellaneous, drayage, and con- tingent.....		3,789.55
	Repairs.....		5,410.90
	Care of grounds.....		3,626.36
	Cruising public lands.....		974.50
	Military, including encampment.....	1,060.60	1,719.35
	Physical education.....	5,198.66	1,065.97
		37,174.24	53,319.10

			Labor, equipment, and supplies.
	Administration.....	\$4,180.00	\$5,328.14
perimental	Agriculture.....	8,058.87	5,372.58
work,	Botany.....	3,504.06	2,336.04
	Chemistry.....	2,520.00	677.42
	Horticulture.....	1,500.00	3,639.49
	Veterinary.....	150.00	232.45
	Zoology.....	2,100.00	1,814.96
\$64,003.28.	Puyallup experiment station.....	10,323.52	12,275.76
		32,336.45	31,666.83

			Labor, equipment, and supplies.
ension work,	Administration.....	\$4,800.00	\$3,547.94
	Agriculture.....	10,367.28	6,911.60
	Home economics.....	1,000.00	1,429.25
\$28,056.17.		16,167.38	11,888.79

Agriculture.....	\$14,549.84
Architecture.....	4,512.50
Botany.....	8,362.29
Chemistry.....	14,244.44
Economic science and history.....	7,829.96
Education.....	3,799.92
Elementary science.....	14,641.53
English.....	11,374.88
Forestry.....	2,149.95
Geology.....	4,199.88
Home economics.....	4,670.69
Horticulture.....	6,717.46
Latin (abolished as a department June 30, 1915).....	3,519.96
Mathematics and civil engineering.....	10,298.92
Mechanical and electrical engineer- ing.....	13,574.83
Mining and metallurgy.....	4,127.92
Modern languages.....	9,892.14
Music and fine arts.....	4,611.00
Pharmacy.....	1,650.00
Veterinary science.....	8,669.80
Zoology.....	3,324.99
	156,722.92
Summer school.....	17,501.51
	164,224.43

* Of this amount, \$5,132.33 was paid in the fiscal year 1913-1914. The total amount is given so that cost may be determined.

APPENDIX C.

Instructors and students in public normal schools.

Institution.	Instructors.				Students.												Grads-		In children		Years in normal course.
	Num-ber.		In teachers' training courses.		Number, counting twice.		In teachers' training courses.		In business courses.		In high-school grades.		In elementary grades.		ules from teachers' training courses.		in model school.				
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female			
Daphne State Normal School.	3	6	3	2	48	74	9	10	11	12	13	14	15	16	17	18	19	20	21		
Florence, Ala.	9	11	9	11	209	305	6	47	4	4	38	23	0	0	1	2	15	36	4		
Jacksonville, Ala.	6	8	6	8	166	159	145	259	15	10	11	11	39	27	6	25	90	96	2		
Livingston, Ala.	3	15	3	15	0	402	0	402	0	0	0	0	0	0	0	0	0	0	4		
Montgomery, Ala.	3	26	9	26	413	572	184	239	0	0	23	333	0	0	0	31	123	140	4		
Troy, Ala.	15	14	4	2	126	123	10	19	0	0	37	37	70	67	12	18	50	47	4		
Trussard Normal and Mechanical College for Negroes.	10	14	2	2	106	169	106	169	0	0	0	0	0	0	0	0	0	0	4		
State Normal School.	17	0	0	0	898	631	18	45	0	0	208	153	670	433	18	43	41	120	2		
Tuskegee Normal and Industrial Institute (colored).	14	11	6	12	54	104	10	90	0	0	44	14	0	0	0	7	65	84	100		
Northern Arizona Normal School.	9	6	9	0	172	267	69	286	0	0	0	0	0	0	0	8	16	28	47		
Texas State Normal School.	10	5	4	2	115	187	115	487	0	0	0	0	0	0	0	0	0	0	4		
Brisson State Normal School.	3	2	3	2	15	37	30	35	0	0	0	0	0	0	0	0	0	0	2		
Arizona Normal School.	9	12	9	12	51	263	42	277	0	0	9	47	0	0	0	0	0	0	4		
Chico, Cal.	7	7	7	7	18	229	18	229	0	0	0	0	0	0	0	0	0	0	4		
Fresno, Cal.	15	49	15	49	35	1,370	35	1,370	0	0	9	47	0	0	0	0	0	0	2		
Los Angeles, Cal.	8	18	8	18	7	315	7	315	0	0	0	0	0	0	0	0	0	0	2		
San Diego, Cal.	6	18	6	18	0	402	0	402	0	0	0	0	0	0	0	0	0	0	2		
San Francisco, Cal.	9	32	9	32	36	947	36	947	0	0	0	0	0	0	0	0	0	0	2		
San Jose, Cal.	2	12	1	4	46	143	4	83	3	5	39	55	0	0	0	0	0	0	2		
Santa Barbara, Cal.	4	3	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	2		
Bridgman, Colo.	12	9	1	3	26	234	26	234	0	0	0	0	0	0	0	0	0	0	2		
Bridgman, Conn.	4	3	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	2		
Bridgeport City Normal School.	4	3	0	0	0	44	0	44	0	0	0	0	0	0	0	0	0	0	2		
State Normal Training School.	2	67	2	67	0	224	0	224	0	0	0	0	0	0	0	0	0	0	2		
New Britain, Conn.	5	8	5	8	0	257	0	257	0	0	0	0	0	0	0	0	0	0	2		
New Haven, Conn.	3	21	2	7	1	122	1	122	0	0	0	0	0	0	0	0	0	0	2		
Williamstown, Conn.	0	20	0	20	3	114	3	114	0	0	0	0	0	0	0	0	0	0	2		
Do.	0	20	0	20	3	114	3	114	0	0	0	0	0	0	0	0	0	0	2		
Ormond Wilson Normal School.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
Myrtilis Miner Normal School (colored).	2	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		

Statistics of 1912-13.



Instructors and students in public normal schools—Continued.

Location.	Instructors.						Students.												Children in model school.		Years in normal course.	
	Number.		In teachers' training courses.		Number counting none twice.		In teachers' training courses.		In business courses.		In high school grades.		In elementary grades.		Graduates from teachers' training courses.		Male.	Female.				
	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.	Male.	Female.				
Athens, Ga.	8	30	8	30	27	521	0	0	0	0	0	0	0	0	0	0	4	107	80	104	4	
Milledgeville, Ga.	6	40	3	19	0	576	0	0	0	0	0	0	0	0	0	0	0	125	27	118	2	
Valdosta, Ga.	5	11	5	11	0	170	0	0	0	0	0	0	0	0	0	0	0	81	33	48	2	
Albion, Idaho.	8	11	8	11	57	161	24	115	0	0	33	46	0	0	0	0	0	14	51	80	69	2
Lewiston, Idaho.	9	27	12	12	421	723	431	723	0	0	0	0	0	0	0	0	0	3	50	63	68	2
Carbondale, Ill.	11	19	11	16	421	1,073	421	1,073	0	0	0	0	0	0	0	0	0	15	17	167	141	2
Charleston, Ill.	16	21	16	21	14	578	14	578	0	0	6	21	0	0	0	0	0	5	294	283	261	2
Chicago, Ill.	12	36	0	0	5	976	87	976	0	0	0	0	0	0	0	0	0	17	136	93	79	2
De Kalb, Ill.	14	18	10	12	256	846	134	846	2	9	120	173	0	0	0	0	0	42	88	380	352	2
Western Illinois State Normal School.	42	50	38	38	473	1,916	475	1,916	0	0	0	0	0	0	0	0	0	5	150	162	2	
Western Illinois State Normal University.	3	4	3	4	0	32	0	32	0	0	0	0	0	0	0	0	0	5	240	280	2	
Normal Training School.	4	21	0	13	0	127	0	127	0	0	0	0	0	0	0	0	0	100	130	126	2	
Indiana State Normal School.	35	16	35	16	756	2,052	756	2,052	0	0	0	0	0	0	0	0	0	51	100	130	126	2
Western Normal College.	4	9	1	0	96	178	1	17	40	15	55	146	0	0	0	0	0	0	0	0	0	2
State Normal School.	36	52	21	0	577	1,868	312	1,034	0	0	245	854	0	0	0	0	0	51	185	189	154	2
Western Kentucky State Normal School.	11	0	14	9	367	493	352	471	0	0	0	0	13	19	16	23	128	16	23	128	132	4
State Normal and Industrial Institute for Colored Persons.	14	3	3	3	367	493	352	471	6	4	143	313	0	0	0	0	0	16	84	125	101	4
Frankfort, Ky.	14	22	4	1	700	1,060	700	1,060	0	0	0	0	0	0	0	0	0	18	30	119	141	2
Richmond, Ky.	11	7	11	5	167	296	47	82	1	1	67	115	52	38	14	24	20	14	24	20	21	3
Natchitoches, La.	15	15	14	11	280	743	280	743	0	0	0	0	0	0	0	0	0	17	42	136	223	4
Louisiana State Normal School.	18	22	18	22	274	1,633	274	1,633	0	0	0	0	0	0	0	0	0	29	140	154	204	5
New Orleans Normal School.	1	33	0	21	0	260	0	260	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Castine, Me.	2	10	2	7	8	112	6	112	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Eastern State Normal School.	2	14	2	14	6	251	6	251	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Farmington, Me.	2	14	2	14	6	251	6	251	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Fort Kent, Me.	1	6	1	6	50	75	50	75	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Madawaska Training School.	1	6	1	6	50	75	50	75	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Western State Normal School.	1	6	28	4	8	10	222	10	222	0	0	0	0	0	0	0	0	3	100	450	430	2
Lewiston Normal Training School.	1	9	1	9	0	18	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	2

State	Institution	2	10	2	6	4	3	47	3	47	120	1	120	1	17	75	75	2
Machias, Me.	Washington State Normal School	2	8	2	4	4	156	60	2	96	0	0	0	0	1	24	82	98
Presque Isle, Me.	Aroostook State Normal School	2	16	2	6	1	120	120	3	136	0	0	0	0	3	59	450	235
Baltimore, Md.	Baltimore Teachers' Training School	1	5	1	3	1	136	136	6	136	0	0	0	0	1	11	351	428
Do.	Colored Training School	1	3	1	3	1	30	157	1	157	0	0	0	0	3	72	28	34
Do.	Maryland State Normal School	4	12	4	9	19	324	157	31	33	0	0	0	0	3	2	40	45
Bowie, Md.	Maryland State Normal and Industrial School (colored)	4	4	4	4	4	324	33	31	33	0	0	0	0	3	2	40	45
Frostburg, Md.	Maryland State Normal School	2	8	2	4	4	156	60	2	96	0	0	0	0	1	24	82	98
Boston, Mass.	Boston Normal School	15	11	15	10	15	186	186	15	186	0	0	0	0	18	102	403	376
Bridgewater, Mass.	Massachusetts Normal Art School	8	24	8	17	8	348	348	27	348	0	0	0	0	14	142	442	376
Fall River, Mass.	State Normal School	2	1	2	1	0	55	55	0	55	0	0	0	0	0	20	194	210
Fitchburg, Mass.	Normal Training School	10	20	10	48	234	48	234	48	234	0	0	0	0	16	104	323	309
Framingham, Mass.	State Normal School	6	27	2	3	0	354	354	0	354	0	0	0	0	0	130	182	150
Hyannis, Mass.	do.	3	6	2	4	13	47	47	13	47	0	0	0	0	6	28	125	128
Lowell, Mass.	do.	5	34	5	34	0	150	150	0	150	0	0	0	0	0	70	360	352
North Adams, Mass.	do.	4	30	4	30	0	267	267	0	267	0	0	0	0	0	57	360	352
Spelm, Mass.	do.	9	20	8	11	29	348	348	29	348	0	0	0	0	4	141	268	259
Westfield, Mass.	do.	7	17	5	3	1	202	202	0	202	0	0	0	0	0	94	263	292
Worcester, Mass.	do.	6	10	6	10	2	208	208	2	208	0	0	0	0	0	72	193	299
Detroit, Mich.	Wales Martindale Normal Training School	1	27	1	9	0	148	148	0	148	0	0	0	0	0	84	300	325
Marquette, Mich.	Wales Martindale Normal Training School	19	35	16	35	3	540	540	16	540	0	0	0	0	59	250	190	128
Mount Pleasant, Mich.	Central State Normal School	16	26	16	26	158	276	158	158	276	0	0	0	0	40	223	132	144
Ypsilanti, Mich.	Michigan State Normal College	5	13	5	13	0	208	208	147	181	0	0	0	0	51	692	288	88
Duluth, Minn.	State Normal School	12	20	12	20	56	930	930	56	930	0	0	0	0	8	142	136	236
Moorhead, Minn.	do.	12	20	12	20	56	930	930	56	930	0	0	0	0	8	142	136	236
St. Cloud, Minn.	do.	13	18	13	18	71	914	914	71	914	0	0	0	0	11	134	144	86
St. Paul, Minn.	St. Paul Normal School	1	19	1	4	0	62	62	0	62	0	0	0	0	0	33	300	359
Winona, Minn.	State Normal School	13	23	12	23	30	691	691	20	691	0	0	0	0	4	31	110	17
Cape Girardeau, Mo.	Mississippi Normal College	9	10	9	10	188	366	366	6	366	0	0	0	0	4	206	104	100
Jefferson City, Mo.	State Normal School	24	19	24	19	450	752	450	752	450	0	0	0	0	84	206	104	100
Kirksville, Mo.	Lincoln Institute* (colored)	16	14	16	14	221	247	56	37	57	0	0	0	0	41	21	23	27
Warrensburg, Mo.	State Normal School	32	22	32	22	367	551	367	551	367	0	0	0	0	100	169	140	160
Springfield, Mo.	State Normal School	17	8	17	8	210	468	468	140	340	20	5	40	53	5	14	50	80
Dillon, Mont.	State Normal School	25	33	25	33	10	810	810	10	810	0	0	0	0	0	154	50	80
Chadron, Nebr.	Montana State Normal School	9	23	9	23	16	271	271	16	271	0	0	0	0	0	154	50	80
Kearney, Nebr.	do.	7	12	7	12	66	429	429	66	429	0	0	0	0	0	154	50	80
Peru, Nebr.	do.	10	17	10	17	166	429	429	166	429	0	0	0	0	0	154	50	80
Wayne, Nebr.	do.	13	11	13	11	300	475	300	475	300	0	0	0	0	0	154	50	80
Wayne, N. H.	do.	4	32	4	32	0	92	92	0	92	0	0	0	0	0	154	50	80
Plymouth, N. H.	do.	3	13	3	13	0	92	92	0	92	0	0	0	0	0	154	50	80
Elizabeth, N. J.	Normal and Training School	5	13	1	4	0	54	54	0	54	0	0	0	0	0	24	159	147
Jersey City, N. J.	Teachers' Training School	4	33	4	33	0	129	129	0	129	0	0	0	0	0	65	121	127
Montclair, N. J.	New Jersey State Normal School	4	14	4	14	8	475	475	8	475	0	0	0	0	3	133	490	420
Newark, N. J.	do.	0	14	0	14	8	475	475	8	475	0	0	0	0	3	133	490	420
Paterson, N. J.	Paterson Normal Training School	1	25	1	25	10	600	600	10	600	0	0	0	0	12	163	245	250
Paterson, N. J.	Paterson Normal Training School	1	25	1	25	10	600	600	10	600	0	0	0	0	12	163	245	250

* Statistics of 1912-13.

Instructors and students in public normal schools—Continued.

Location.	Institution.	Instructors.				Students.												Graduates from teachers' training courses.		Children in model school.		Years in normal course.
		Num-ber.		In teachers' training courses.		Number, counting home twife.	In teachers' training courses.		In business courses.	In high-school grades.		In elementary grades.		Male.	Female.	Male.	Female.					
		Male.	Female.	Male.	Female.		Male.	Female.		Male.	Female.	Male.	Female.					Male.	Female.			
I		5	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21		
San Marcos, Tex.	Southwest Texas State Normal School.	16	16	16	16	151	563	161	563	0	0	0	0	0	0	0	0	40	60	4		
Castleton, Vt.	State Normal School.	2	5	2	5	0	63	0	63	0	0	0	0	0	0	0	0	37	60	2		
Johnson, Vt.	do.	3	12	3	12	2	134	2	134	0	0	0	0	0	0	0	0	48	121	2		
East Radford, Va.	State Normal School for Women.	10	27	10	27	20	432	0	432	0	0	0	0	0	0	0	0	70	85	2		
Farmville, Va.	do.	5	11	5	11	0	253	0	253	0	0	0	0	0	0	0	0	52	123	2		
Fredericksburg, Va.	State Normal and Industrial School for Women.	62	68	71	77	717	592	17	285	4	0	187	100	509	465	0	0	198	267	2		
Hampton, Va.	Hampton Normal and Agricultural Institute (colored).	3	11	3	11	14	416	57	285	0	0	0	0	0	0	0	0	25	38	2		
Harrisonburg, Va.	State Normal and Industrial School for Women.	10	24	10	24	60	535	60	535	0	0	0	0	0	0	0	0	18	136	2		
Roanoke, Va.	Virginia Normal and Industrial Institute (colored).	15	14	15	10	99	626	94	626	0	0	0	0	0	0	0	0	81	96	2		
Richmond, Va.	do.	7	12	7	7	20	229	20	229	0	0	0	0	0	0	0	0	1	64	2		
Kilgusbury, Wash.	Concord State Normal School.	11	18	11	18	101	792	7	93	0	0	0	0	0	0	0	0	9	38	2		
Athens, W. Va.	State Normal School.	11	18	11	18	250	208	250	208	0	0	0	0	0	0	0	0	16	14	2		
Fairmont, W. Va.	Marshall College, State Normal School.	12	4	12	4	245	375	200	300	25	30	20	45	0	0	0	0	10	61	2		
Glenville, W. Va.	West Virginia Colored Institute.	19	6	19	6	133	213	26	120	3	12	53	25	51	56	8	30	2	14	2		
Huntington, W. Va.	Shepherd College, State Normal School.	3	8	3	8	125	113	73	81	0	0	52	32	0	0	0	0	17	20	2		
Institute, W. Va.	State Normal School.	3	8	3	8	129	81	49	0	0	0	57	83	0	0	0	0	6	17	2		
Shepherdstown, W. Va.	Door-Kawawase County Training School.	1	2	1	2	18	27	8	21	0	0	0	0	0	0	0	0	5	13	2		
Shepherdstown, W. Va.	Buffalo County Training School.	1	2	1	2	8	41	0	42	0	0	0	0	0	0	0	0	3	16	2		
West Liberty, W. Va.	Langlade County Training School.	1	2	1	2	0	45	0	45	0	0	0	0	0	0	0	0	0	18	2		
Albany, Wis.	Green Lake County Training School.	2	1	2	1	0	45	0	45	0	0	0	0	0	0	0	0	0	18	2		
Ashland, Wis.	Columbia County Training School.	1	2	1	2	0	51	0	51	0	0	0	0	0	0	0	0	0	18	2		
Berlin, Wis.	East Chaire County Training School.	1	2	1	2	0	31	3	31	0	0	0	0	0	0	0	0	0	21	2		
East Troy, Wis.	Wood County Training School.	1	2	1	2	0	88	7	88	0	0	0	0	0	0	0	0	0	17	2		
Gay Mills, Wis.	Rock County Training School.	1	2	1	2	0	30	0	30	0	0	0	0	0	0	0	0	0	13	2		
Grand Rapids, Wis.	State Normal School.	21	16	21	16	184	299	154	299	0	0	0	0	0	0	0	0	18	24	2		
Janesville, Wis.	do.	2	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		
La Crosse, Wis.	do.	1	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2		

APPENDIX D

STATEMENT OF MAINTENANCE, PHYSICAL EQUIPMENT, AND URGENT NEEDS OF THE THREE NORMAL SCHOOLS.

STATE NORMAL SCHOOL AT CHENEY.

1. *Maintenance.*—The school receives regularly for maintenance nine one-hundredths of 1 mill of the State millage tax. This has thus far proved ample for all purposes, and with the increase in the State's wealth should, for the future, yield an even larger revenue. Enough has been saved from the millage tax during the last few years to construct a modern dormitory for the women students and a satisfactory manual training building. Such portion of the millage tax as has been used in the past to build up the school plant should for the immediate future be used for increased salaries and larger working staff.

2. *Physical equipment.*—The school has practically been rebuilt since 1913, when its old main building was destroyed by fire. The present equipment comprises a new administration building, a manual training building, a training school building, a dormitory for girls, and a central heating plant—all on a campus of 22 acres.

The valuation of the physical plant is given by the school authorities as follows:

Training school building	\$77,000	Monroe Hall (girls' home)	\$46,000
Equipment	9,800	Equipment	8,600
Administration building	300,000	Central heating plant	3,000
Equipment	31,000	Equipment	13,000
Manual training building	13,500	Campus (22 acres)	12,000
Equipment	6,000		
		Total	519,900

Administration building.—This structure has been in use for a little over a year. It was constructed at a cost of about \$300,000 (special legislative appropriation). It is well planned and equipped with necessary furniture, apparatus, etc. The building is fireproof, and from an architectural point of view, wholly satisfactory. Indeed, it is one of the best planned and equipped normal school buildings in the country.

The Manual training building.—This new building is just being put into operation. It is ample for its purpose for some years to come.

The dormitory for girls.—This structure has also recently been completed, at a cost of \$46,000. It is well planned and affords good living quarters for the girls. A satisfactory plan of student government secures good management.

The practice school building.—This was built some years ago for practice school purposes; but it seems not to have been intelligently planned and is wholly inadequate for its purpose. This important phase of the normal school work is in charge of a director and critic teachers, but their best efforts are much hampered by the building in which they are obliged to do their work. This building should be reconstructed at an early date.

The heating plant is a temporary structure made of sheet iron and should be replaced by a permanent building.

Recommendation for new equipment:

1. A new practice school building.
2. A school farm.
3. A model rural practice school on the campus.
4. A permanent heating plant.

The normal school sends 64 per cent of all its graduates into the rural schools of the State, many going into the one-teacher schools; the others into the consolidated schools. The modern rural school is rooted to the soil, and no teacher can do the work well who has not had thorough courses in agriculture. This requires land for experimentation and demonstration purposes, which should be in addition to the small area of garden plats now in use by the department of agriculture. It is recommended that

¹ Largely temporary.

a normal school farm be procured without delay. It should lie handy to the school premises, and contain not less than 25 acres. It might be operated in cooperation with the extension service of the State College of Agriculture. A large number of the leading normal schools of the country already have similar school farms in successful operation. Rural demonstration schools conducted for the purpose of assisting county superintendents and giving demonstrations in rural-school work are operated by the normal schools in the counties adjacent to Cheney.

The model rural practice school.—The rural school department of the normal school is well organized and is doing a good work. The rural teacher, however, has a difficult field—in many respects more difficult than the town field—and requires a specialized professional preparation. Much of this may be acquired in a rural-practice school. Fifty-nine strong normal schools are already using such model rural schools to excellent advantage. It is recommended that an appropriation not to exceed \$5,000 be made for the building and equipment of such a school as soon as possible.

STATE NORMAL SCHOOL AT ELLENSBURG.

1. *Maintenance.*—The school receives for maintenance seven one-hundredths of 1 mill of the State millage tax. This amount has proved insufficient to provide for both operation and maintenance, and also for much needed equipment and new buildings. Probably the institution's present share of the millage tax will be ample for operating expenses, however, until there is a material increase in attendance. It was suggested to the committee in several quarters that the school at Ellensburg, on account of its small attendance, should be able to carry on its work with much smaller appropriations than are required by the other schools. This theory is only partly correct and fails to take account of the fact that a certain standard equipment and a well-balanced faculty are essential whether a school has 300 or 600 students. Nor should a school's influence and value to the people be judged wholly by its numerical strength. It is well to bear in mind that the Ellensburg school lies in the sparsely settled section of the State and can not depend to any extent on large cities for students. Nevertheless, it has its own field to serve, and should be given ample support to perform this service.

2. *Physical equipment.*—The normal school is located in the town of Ellensburg, on grounds which comprise about 8 acres of land, valued at approximately \$65,000. The number and value of the buildings and equipment are given by the school authorities as follows.

1. Main building (contains offices, classrooms, laboratories, auditorium, gymnasium, and library of 10,000 volumes).....	\$120,000
Equipment.....	15,000
Library.....	23,000
2. Training school.....	65,000
Equipment.....	4,500
3. Science, manual training, and heating plant.....	30,000
Equipment.....	2,200
Heating plant.....	5,200
4. Girls' dormitory.....	60,000
Equipment.....	7,000
5. Club house.....	9,000
Equipment.....	1,500
Total (including value of land).....	407,400
Total value of land.....	65,000
Total value of buildings.....	284,000
Total value of equipment.....	58,400
Total value of all properties.....	407,400

The main building.—This is the original normal school building. It was built at a time when the emphasis in schoolhouse construction was placed on the achievement of an impressive exterior rather than on sanitation and practical arrangement. The toilet facilities are entirely inadequate and should be improved without delay. The domestic science department of the school—which is rendering excellent service—is housed in the basement of this building. It should have better quarters. The gymnasium is also in the basement of the main building. It has no equipment worthy the name. The normal school library is housed in this building also. It contains about 10,000 bound volumes, well selected, and suitable to normal school use. The collection of periodicals is also very satisfactory.

The practice school (training school).—This, like the Cheney practice school, was built some years ago and is imperfectly adapted to actual needs. Neither the arrangement of classrooms, nor their sanitation, is satisfactory. The toilet facilities are particularly bad. Moreover, the building is too small for its purpose. The offices of the director and critic teachers are, for example, used regularly for class purposes. The practice school is too important an arm of the normal school to be slighted.

It is recommended that a wing be added to the present building, and that the basement of the structure now standing be entirely remodelled especially with a view to the improvement of its lighting and to the provision of additional lavatories and toilet facilities. The new wing should be of fireproof construction. Indeed, too little regard has been paid to safety and permanency in the construction of all the buildings of this school.

The science and manual training building.—This is an inexpensive building, fairly well planned, but of poor construction. Its deep basement contains the central heating plant of the school. The science laboratories and manual training shops are meagerly equipped with apparatus. Good work is being done with an equipment that should be enlarged and improved as soon as possible.

The dormitory for girls.—This is an attractive building, well kept, and well adapted to its purpose, although not very substantial or very expensive.

Recommendations for added equipment:

1. A normal school farm.
2. Either a model rural practice school on the campus or the establishment of closer relations with rural schools in the vicinity.

The arguments offered in support of similar recommendations in the discussion of the equipment of the Cheney Normal School are equally applicable in the case of Ellensburg. At Ellensburg only a small patch of ground is available for agricultural experiment and school gardens. The school has no rural practice school equipment. Visitation of outlying schools, as carried on at Ellensburg, is incidental only and of little practical value.

Separate departments in agriculture and rural school subjects.—Special attention is called to the needs of agricultural and general rural education. One instructor is charged with the work of both these departments. It is encouraging to note that the number of students in agriculture has increased from 73 in 1913-14 to 91 in 1914-15, and that the number of students in the rural education classes has increased from 14 in 1913-14, reciting two hours weekly, to 103 in 1914-15, reciting four hours weekly. These facts furnish ample evidence of the demand for the new courses, but, also, of the urgent need of reorganization and enlargement.

It is recommended that the department be divided so that one instructor can give all his time to agricultural education and that as soon as the development of the department shall warrant it he be given one or more assistants for extension work to cooperate with the rural school department. There should then be organized a complete department in rural education in charge of an expert who shall instruct in rural life problems (sociology and rural economics) and in special rural school management and rural school methods. This department should have the use of a practical laboratory—that is, a rural practice school. The committee's preference

is for a rural practice school located on the campus, where it can be used hourly. For the practice school is needed a specially prepared teacher, who can also give class periods in special rural school methods.

STATE NORMAL SCHOOL AT BELLINGHAM.

1. *Maintenance.*—This institution, like the one at Cheney, gets nine one-hundredths of 1 mill of the millage tax, an amount which has proved wholly inadequate. The school has in fact been so hampered for funds during the last biennium that it has been forced to make a reduction in salaries amounting to \$4,000. If the Bellingham Normal School is to maintain and increase its efficiency, it must either be granted larger appropriations or its student roll must be reduced.

2. *Physical equipment.*—The valuation of the physical equipment of the school is summarized in the following table:

Valuation of physical resources.

Central building, science building, training-school building, training-school annex, manual-training shop, gymnasium, Edens Hall for women, and equipment for all	\$301,000
Land, estimated value.....	44,000
Total valuation.....	345,000

The central building.—This is a large structure, which has been added to from time to time. It is of good appearance and substantial construction. The equipment and sanitary facilities are, for the most part, excellent. The building is satisfactory, although crowded to its capacity.

Gymnasium.—This is a frame annex to the main building. It is inadequate for gymnasium purposes by reason of its small size. Better facilities for gymnasium and play should be provided.

Manual-training building.—This was constructed in 1914, and while not large or expensive, is practically arranged, and will answer the purpose for which built for a number of years.

Edens Hall.—This is a dormitory for girls. It is a plain, frame structure, located on the front part of the campus, where it in a large measure destroys the harmony of an otherwise beautiful arrangement of grounds and buildings. The dormitory has been enlarged several times. As a result it contains dark, labyrinthine halls and inadequate sanitary facilities. Risk from fire is great. The dormitory facilities of the school are, on the whole, inadequate.

3. *Recommendations.*—The committee makes the following recommendations for improvement of the Bellingham school equipment:

- (1) The acquisition of more land.
- (2) The construction of a modern dormitory for girls.
- (3) The provision of a new gymnasium.
- (4) The provision of auditorium and library facilities.
- (5) The erection of a model rural school on campus.
- (6) The use of city schools for training school purposes.

(a) *More land urgently needed.*—The school is situated in a beautiful and healthful environment, but is too crowded. More land is urgently needed for campus purposes, for gardens, and for general agricultural experimentation. The trustees have recently taken options on 21 acres of land adjoining the premises. Steps should be taken to purchase this land without delay.

(b) *A new dormitory.*—The State can not afford to risk the health and lives of its women students by continuing to house them in such a building as Edens Hall. It is recommended that appropriation be made for a dormitory similar to the one at Cheney, to be erected at a cost of from \$85,000 to \$100,000, fully equipped.

(c) *A new gymnasium.*—While this is not so urgently needed as the dormitory, the present equipment is far from satisfactory. An appropriation should be made for a new gymnasium to be erected during the next biennium.

(d) The school needs additional auditorium and library facilities. It is suggested that a single building, to cost about \$85,000, may be provided to serve both purposes.

(e) *Model rural school.*—The value of a rural practice school as a part of the equipment of a State normal school has already been discussed (see pp. 222 and 223).

(f) *Additional training school facilities.*—One of the most difficult problems of a large normal school is to provide sufficient training-school facilities. This, in itself, is a strong argument for more and smaller normal schools. At Bellingham the training school is so crowded that the prospective teachers do not get ample opportunity for practice teaching. A solution of the difficulty might be reached if the normal school could arrange with the city of Bellingham to take over one or more of the city schools for training purposes, the city and normal school sharing the expense of operation. At McCord Hill, for example, the normal school makes use of the entire city system for practice school purposes, the principal of the normal school being also head of the city system. The State, which furnishes part of the funds for the maintenance of all the schools and pays for the training of the teachers for these schools, has the right to utilize schools for practice school purposes whenever the public good requires.

State normal school at Cheney.

[Data relating to regular students only, fourth quarter, 1915-16.]

Instructors, designated by letter.	Salary for regular school year only.	Different subjects taught.	Total teaching hours per week.	Average number of students per hour.	Total student clock hours per week.	Remarks.
A.....	\$2,500	5	14	43.0	602.0	Additional definite assignment as vice president and registration work.
B.....	2,400	3	18	37.0	666.0	Dean of summer session.
C.....	2,000	6	20	33.5	670.0	
D.....	1,600	4	20	30.6	612.0	
E.....	1,400	1	3	39.0	117.0	Dean of women.
F.....	2,000	4	16	26.2	467.2	
G.....	1,700	3	12	22.0	264.0	Two periods a day in training school and one period (40 minutes) in glee club.
H.....	1,200	4	9	20.6	185.4	Two periods a day in training school (bands and orchestra included).
I.....	2,000	3	12	30.8	729.6	Appointment committee work, heavy fourth quarter.
J.....	1,900	1	7	52.2	365.4	Appointment committee work, heavy fourth quarter; secretary of committee.
K.....	1,500	4	18	25.0	450.0	
L.....	1,000	3	9	9.3	83.7	Two periods per day in training school; German; boys' athletics.
M.....	1,600	7	21	10.0	210.0	
N.....	1,500	3	9	21.0	189.0	Two periods per week in training school.
O.....	1,400	5	18	25.4	457.2	Do.
P.....	1,440	2	8	18.6	148.8	Two periods per day in training school.
Q.....	1,600	1	5	29.0	145.0	Medical inspection and health work.
R.....	1,200	2	9	47.7	429.3	One period per day in training school.
S.....	1,800	6	18	17.5	315.0	Do.
T.....	1,350	1	2	52.0	104.0	Regular eighth-grade teacher in training school.
U.....	1,460	2	6	22.0	132.0	Senior student assistant.
V.....	1,460	1	3	36.0	108.0	Supervisor grades 2, 3, and 4 in training school.
W.....	2,000	1	3	41.0	123.0	Superintendent training school; also appointment committee work.
X.....	1,800	1	3	50.0	150.0	Business office.
Average of total 24 instructors.	1,696	172	10.6	32.1	371.8	

¹ Total number of different subjects taught.

226 EDUCATIONAL SURVEY OF THE STATE OF WASHINGTON.

State normal school at Ellensburg.

[Data relating to regular students only, year 1914-15.]

Instructors designated by letter.	Salary for regular school year only.	Different subjects taught.	Total teaching hours per week.	Average number of students per hour.	Total student clock hours per week.
A	\$3,000	2	4	69	276
B	1,550	5	15	19	297
C	1,500	3	12	40	484
D	1,300	1	4	39	156
E	2,000	8	29	31	909
F	1,500	4	18	15	285
G	1,300	5	12	16	200
H	1,550	8	22	17	371
I	1,200	4	11	21	228
J	750	3	6	25	150
K	1,300	3	9	10	96
L	2,000	6	21	25	535
M	1,200	2	2	29	57
N	1,100	7	14	24	332
O	1,100	5	9	18	136
P	1,300	13	27	18	490
Q	1,500	3	12	10	124
R	1,300	4	10	10	102
S	1,200	3	12	4	48
T	1,200	6	12	32	386
Average of total, 14 instructors	\$1,417	85	19	23	282

¹ The whole number of instructors, when reduced to a full-time basis, is 14.
² This is figured on a 10 months' basis only; the average for 12 months would be \$1,700.40.
³ Total number of subjects taught.

State normal school at Bellingham.

[Data affecting regular students only, year 1915-16. This school did not report the number of different subjects taught or the average number of students per hour.]

Instructors designated by letter.	Salary for regular school year only.	Total teaching hours per week.	Total student clock hours per week.
A	\$1,020	20	1,040
B	1,500	25	365
C	2,040	23	606
D	2,160	25	940
E	1,320	18	285
F	1,500	15	560
G	1,080	15	112
H	600	20	108
I	1,500	15	215
J	2,580	16	860
K	1,800	10	25
L	1,900	25	1,121
M	1,900	20	440
N	1,680	20	496
O	1,500	20	1,241
P	1,800	20	520
Q	1,260	15	264
R	1,620	23	1,128
S	1,200	20	560
T	1,500	15	250
U	1,380	28	384
V	1,200	15	260
W	1,980	12	1,334
X	1,260	5	308
Y	2,160	20	984
Z	1,500	24	435
AA	1,320	24	496
BB	1,860	20	500
CC	1,260	30	160
DD	1,200	20	621
EE	600	19	753
FF	1,500	15	190
GG	1,980	15	804
HH	1,200	26	1,050
II	1,620	15	485
JJ	1,440	15	216
KK	900	26	
LL	1,200	15	
MM	1,500	15	
Average of total, 39 instructors	1,713	17.5	568.8

¹ And as supervisor.
² And as athletic coach.
³ And laboratory work.
⁴ And as nurse.
⁵ Librarian.

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