

# THE UNIVERSITY OF MONTANA

## Montana's System of Higher Education

Montana State University, Missoula

Montana State College, Bozeman

Montana School of Mines, Butte

Western Montana College of Education, Dillon

Eastern Montana College of Education, Billings

Northern Montana College, Havre

## *A Statement of Needs, 1957 to 1970*

Prepared at the Request of the  
University Executive Council

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Data gathered mainly by the  
Institutional Research Committees  
of the six University Units

and

Supplemented and Analyzed by  
A. S. Merrill, Chairman  
Inter-Unit Committee on Institutional Research



June 1956







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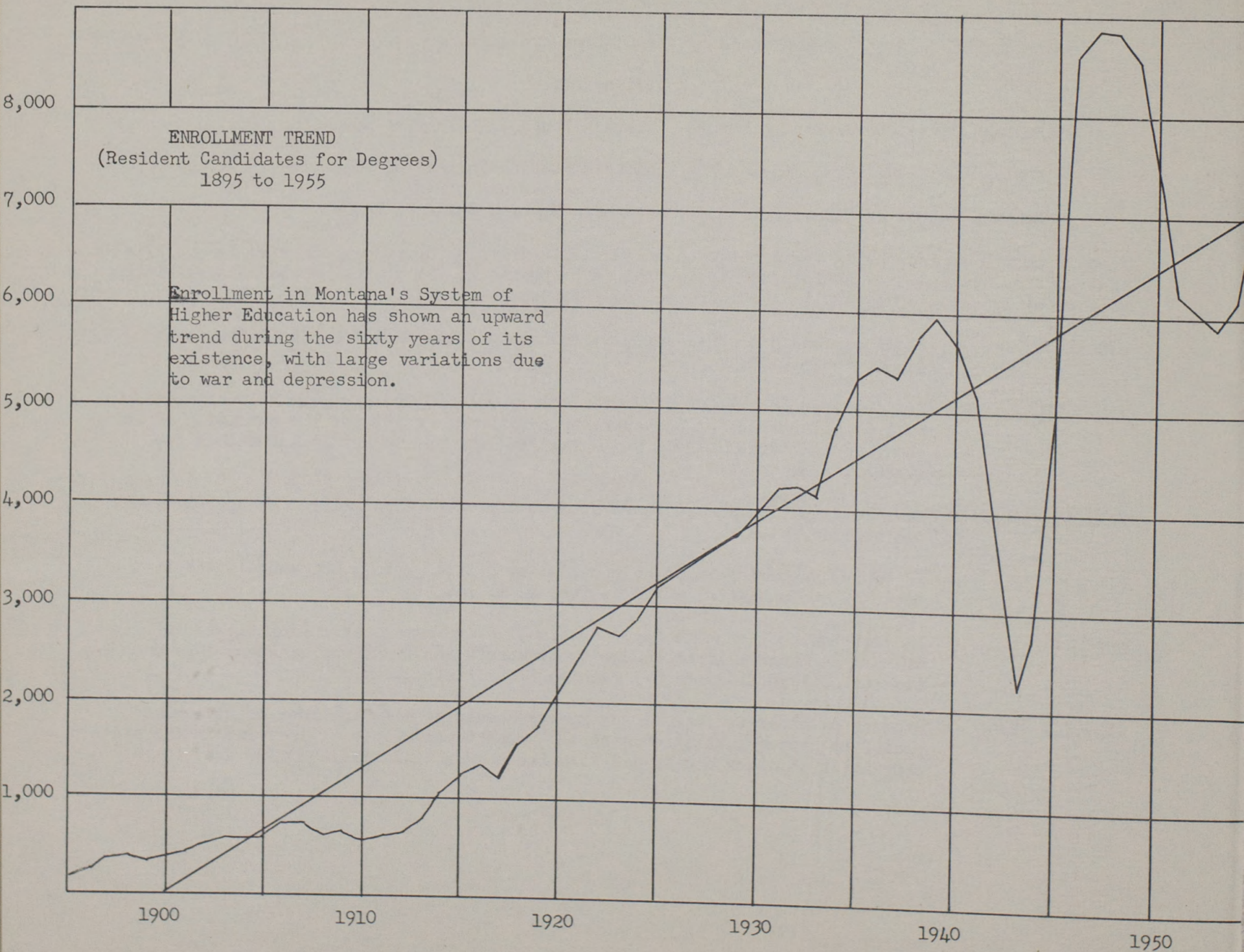
consisting of:

Montana State University, Missoula	Western Montana College of Education, Dillon
Montana State College, Bozeman	Eastern Montana College of Education, Billings
Montana School of Mines, Butte	Northern Montana College, Havre

faces a period of increasing registration coupled with a diminishing supply of properly qualified instructors. In spite of anticipated industrial developments in the state, the taxable valuation will probably not keep pace with the increased support necessary.

ENROLLMENT	Registration in the six units will increase from 7400 for 1955-56 to about 21,000 in 1969-70.
TAX SUPPORT	Tax money to the amount of approximately \$21,000,000 per year will be necessary by 1969 to provide for the current operational budget for the education of this group at an average level, and surely our aim should not be lower than the average.
TAXABLE VALUATION	Taxable Valuation should increase from a present \$586 million to approximately one billion.
MILLAGE	If entire support were to be provided by a millage tax, the annual rate in the later nineteen sixties would be over 22 mills.
BUILDINGS	In addition to the needs for operation, an average of approximately two million dollars per year will be needed to construct the buildings in which this oncoming tide of college students may receive their instruction.
TAXATION STUDY	Studies on other sources of tax moneys should be made in order to give some relief to property taxation. At the present rapid rate of increase in the state's population, Montana's over-all taxation burden will still be moderate.







## Higher Education in Montana

### A Study of Needs, 1957 to 1970

The State of Montana, along with all of the nation, faces a particularly critical period for its system of higher education. Birth rates are high. Industry and the professions are insisting more and more upon college degrees. It appears that the state is beginning to see a greatly accelerated industrial development within its borders. Knowing these factors, the state can face the problem and solve it before an emergency arises.

The children are already born who will attend our colleges from the present to the early seventies. Not only have they been born; they have been counted. On the basis of actuarial principles, studies furnish us with excellent estimates of the number who will be of normal college age, the "College Age Population", for approximately seventeen years in the future. The size of this reservoir largely determines the enrollment in our colleges.

The cost of educating each college student is subject to several measurable factors. Experience has furnished us with a basis of estimating this with a satisfactory degree of accuracy.

Table I has been compiled to show in simplified form the result of a careful study of this problem, giving as a result the millage rate on the projected Taxable Valuation in the state which would be necessary to carry all of such operational cost. In the following pages a full explanation will be given of the processes used in arriving at these results as well as some suggestions of alternative methods of financing.



TABLE 1

Estimates of Financial Needs for Operating the Montana System of Higher Education, 1957 - 1970

<u>Year</u>	Taxable Valuation (Millions) <u>I</u>	Autumn Enrollment (F T E students) <u>II</u>	Tax Money per Student <u>III</u>	Tax Money Required <u>IV</u>	Millage Rate for full Coverage <u>V</u>
1957-58	635	9,534	950	9,057,300	14.3
1958-59	660	10,369	925	9,591,325	14.5
1959-60	685	11,500	935	10,752,500	15.7
1960-61	710	12,765	945	11,684,925	16.5
1961-62	735	13,686	950	13,001,700	17.7
1962-63	760	14,234	955	13,593,470	17.9
1963-64	785	14,697	960	14,109,120	18.0
1964-65	810	15,477	965	14,935,305	18.4
1965-66	835	16,687	970	16,186,390	19.4
1966-67	860	17,996	975	17,546,100	20.4
1967-68	885	19,378	980	18,990,440	21.5
1968-69	910	20,351	985	20,045,735	22.0
1969-70	935	20,967	990	20,757,330	22.2
1970-71	960	21,786	1,000	21,786,000	22.7



## Brief Description of Table I

The figures in Table I on the page opposite are, of course, projections into the future. The processes by which they were arrived at will be fully explained in later pages. All money values are in terms of 1956 dollars; in case of inflation, adjustments would be necessary. Briefly, the various columns are:

I TAXABLE VALUATION for the State of Montana, the figure upon which the millage tax for the support of higher education is based. The valuation is expressed in millions of dollars.

II MONTANA ENROLLMENT is the "Full-time equivalent" autumn quarter registration in the six units of the (Greater) University of Montana. The full-time-equivalent is the sum of the number of full-time students and one-third of the number of students with limited registration, on the assumption that part-time students carry, on the average, about one-third of a full-time student load. The six units normally register about five-sixths of all four year college students who attend such institutions in the state.

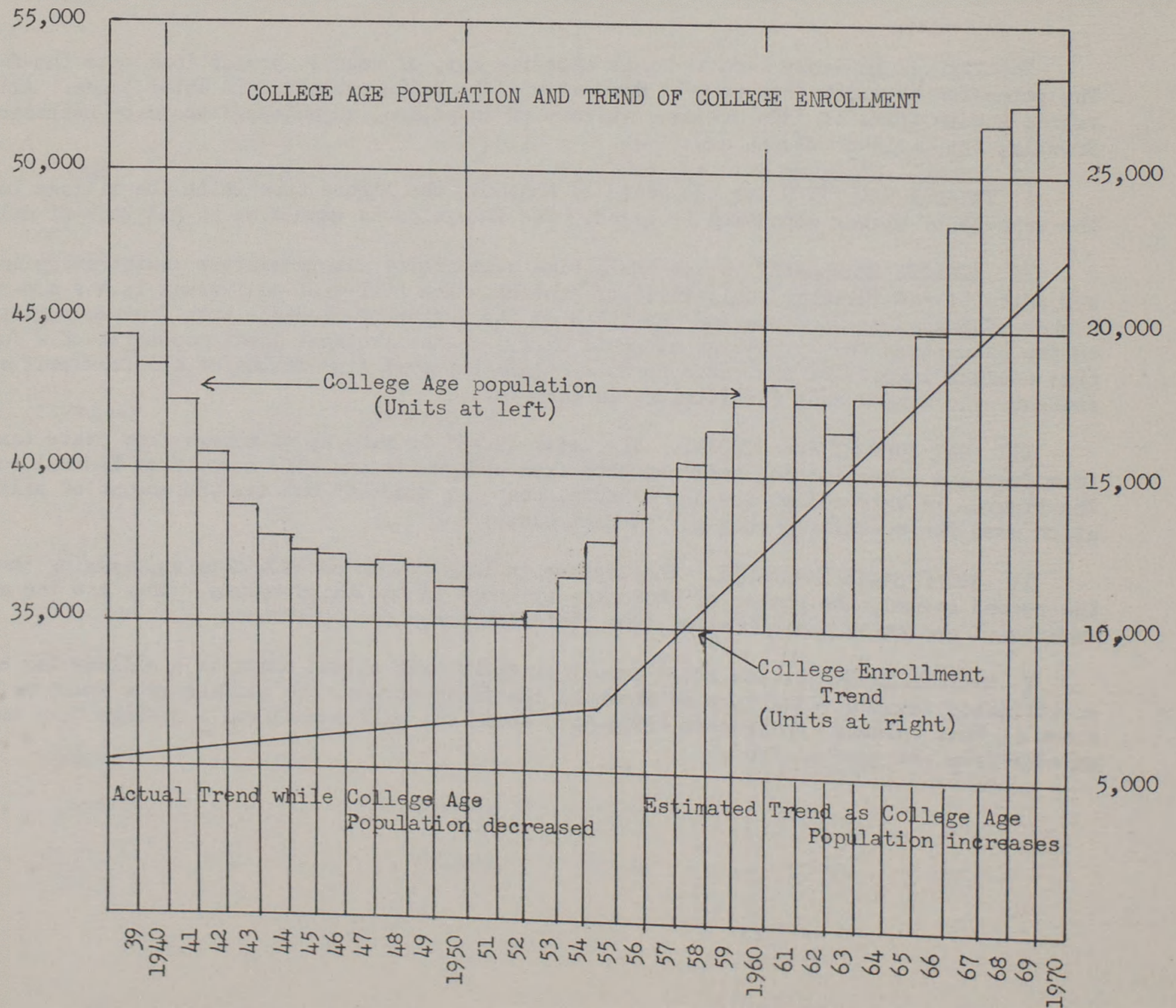
III TAX SUPPORT PER STUDENT. The total budget is made up of moneys from state taxation, from fees and other income, small amounts from endowments and some money from Federal sources. The figures in this column are not a "total cost per student" but are the amount of state taxation used for operation, on a per student basis.

IV TOTAL STATE TAX MONEY. The figures in this column are found by multiplying those in the second column, the number of students, by those in the third column. They are the annual amounts of necessary appropriation from state tax money for operation.

V MILLAGE RATE. If the total amount in the fourth column comes as a millage tax based on estimated taxable valuations as shown in the first column, the millage rate would be that shown in this column. At present (1955-56), about one half comes from a millage tax, the remainder from the general fund.



FIGURE 2





### What Are The Bases For These Estimates

THE MONTANA COLLEGE AGE POPULATION has already been defined as the sum of the 17-, 18-, 19-, and 20-year age groups in Montana. These estimates are from census data to which actuarial analysis has been applied. The figures have been taken from a nation-wide study. The rapid rate of increase becomes especially significant when compared with the decrease experienced for some years prior to 1952. This is shown graphically in Figure 3, page 10.

THE TAXABLE VALUATION for the state has followed a pattern fairly parallel to that of economic conditions. Estimates for the future must depend upon the faith the forecaster has in the economic development of the state, and his judgment of the effects of efforts to revise the bases of state-wide assessments.

For the decade from 1945 to 1955, the taxable valuation increased at an average rate of nearly \$23 million per year. In the absence of any better quantitative criterion, the future estimates have been based upon an annual increase of \$25 million. The graph on the opposite page indicates that such change seems well within the realms of probability. It may be noted that if this estimate of increase is too large, the millage rate figures are correspondingly too small.

COLLEGE ENROLLMENT. Estimates of college enrollments for the immediate future are influenced by present conditions such as present enrollment, economic conditions, governmental aid (e.g., for veterans). Estimates of trends over a longer period must depend more upon the availability of students, the trend in the popularity of "going to college" and anticipated pressure of industry and the professions for more college preparation. Variations from the trend are, of course, to be expected as a result of local and temporary conditions.

In explanation of Table II, the term College Age Population, already defined, becomes important. Montana college enrollment covers only the six units in the Montana System of Higher Education. It is assumed that about five sixths of the college population in the state are in the six units, the other sixth being in the three independent four-year colleges (Carroll College, Great Falls College of Education, and Rocky Mountain Institute), since that is the division observed for the last few years.



TABLE II

Estimates on six different bases of the enrollment in the Montana System of Higher Education from 1956 to 1970.

<u>Year</u>	<u>A</u>	<u>B</u>	<u>C</u>	<u>D</u>	<u>E</u>	<u>F</u>
1956-57	11235	8880	11233	9556	8237	8441
1957-58	11800	9820	11800	9986	9177	9534
1958-59	12462	10760	12462	10479	10117	10369
1959-60	13181	11700	13181	11129	11057	11500
1960-61	13848	12640	13848	12055	11997	12765
1961-62	14360	13580	14360	13197	12937	13686
1962-63	14525	14520	14170	14078	13877	14234
1963-64	14574	15460	13880	14756	14817	14697
1964-65	15296	16400	14228	15702	15757	15477
1965-66	16909	17340	15371	17116	16697	16687
1966-67	18727	18280	16646	18539	17637	17966
1967-68	20843	19220	18124	20126	18577	19378
1968-69	22217	20160	18909	20950	19517	20351
1969-70	22886	21100	19072	21321	20457	20967
1970-71	23820	22040	19446	22229	21397	21786

- A. Assuming up to 50% of College Age Population in College
- B. Montana Trend with proportion similar to 20-year experience
- C. Assuming up to 40% of College Age Population in College
- D. Assuming Montana enrollment is in proportion of population
- E. As in B above, but an extra year lag
- F. Adjusted to local estimates until 1960, thereafter to averages of all other estimates.



### Enrollment Forecast Based on National Figures

Column A in the table on the opposite page has been computed with reference to the college age population. The ratio of college population to college age population in the United States has been growing at a fairly steady rate of one percentage point per year, and for 1954-55 is at the 33 per cent mark. This rate of increase may be expected to continue, or even increase, during the next few years. It may, of course, taper off at 50 per cent, even possibly at 40 per cent, or at some point between. It may be expected that Montana will do its share at about the average for the whole country, even though it is somewhat below the average now.

In compiling the figures for column A, use was made of a forecast of total college enrollment in the United States on the assumption that per cent of College Age Population will continue to increase at the current rate, from 34 in 1955-56 to 49 in 1970-71. These figures for the whole country were then multiplied by the ratio which Montana College Age Population bears to country-wide College Age Population. On such basis, the figures in Column A are the estimates of enrollment in the six units for the period.

The figures in Column B were obtained by a comparison of trends in actual attendance in the combined six units in Montana and the trends in birth rates and resulting College Age Population in Montana, hence are largely independent of those in Column A. For approximately half of this century, Montana's college population has been increasing on the average 140 students per year. In particular this trend has continued, in spite of cyclical variations during the period 1939 to 1952. The College Age Population during that 14-year period has decreased on an average 730 per year, from 44,544 to 35,063.



FIGURE 3

10.  
\$900

\$800

\$700

\$600

\$500

\$400

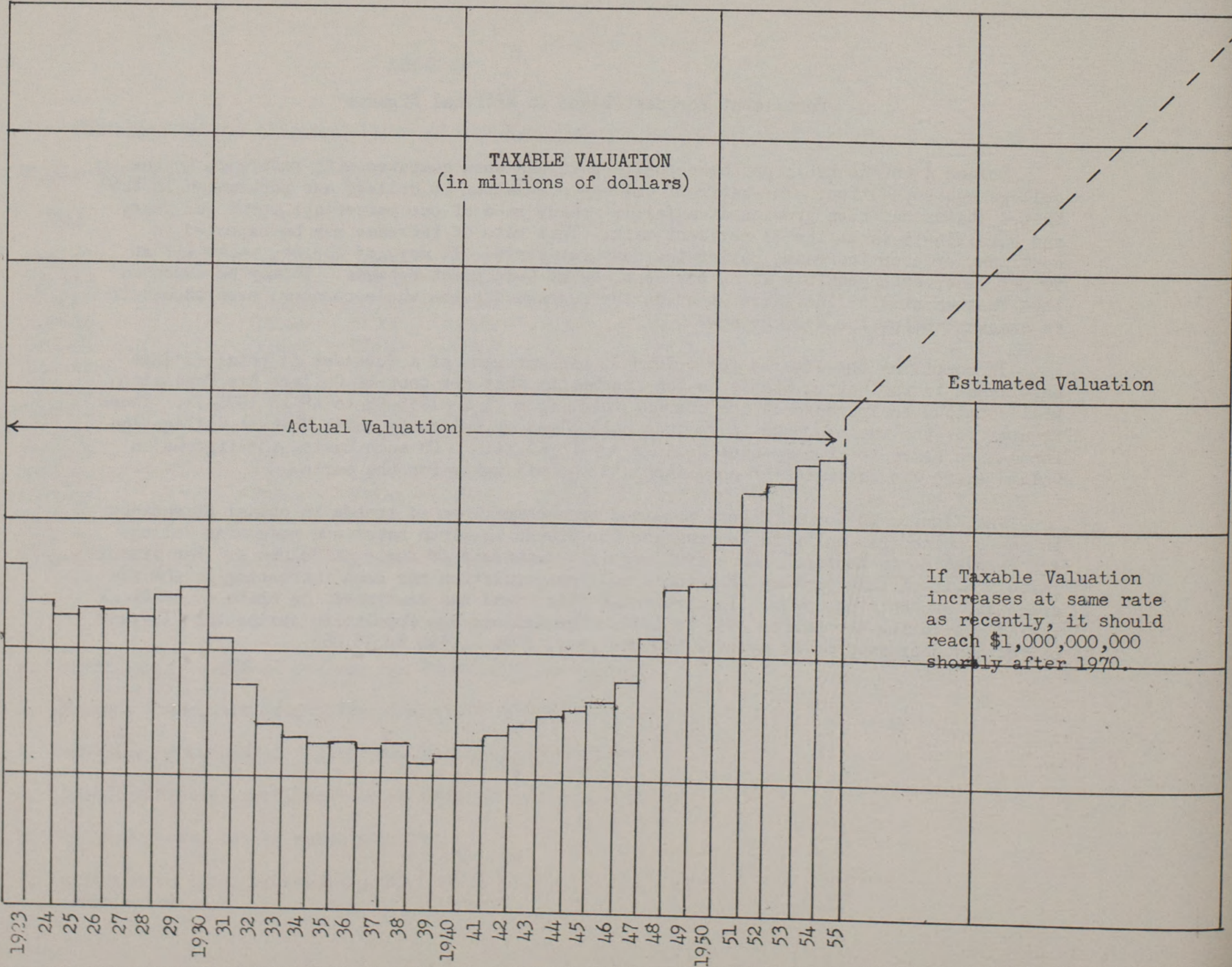
\$300

TAXABLE VALUATION  
(in millions of dollars)

Actual Valuation

Estimated Valuation

If Taxable Valuation  
increases at same rate  
as recently, it should  
reach \$1,000,000,000  
shortly after 1970.





### Estimates From State Experience

Projecting forward, the College Age Population figure will increase from 35,063 to 58,333 in 1970. This increase of 1300 per year gives a differential of over 2000 per year in the population from whom the students are largely drawn. If even 40 per cent of these, on the average, go to college, the straight line of enrollment would show an upward trend of 940 per year from 1952 to 1970, in place of that of 140 in the years 1939 to 1952. The reasonableness of this approach is well shown by the graph of Figure 2. The resulting trend line values are those shown in Column B. They show a remarkable similarity to those obtained from forecasts made for the country as a whole.

There is, of course, no guarantee that the figures in either of these columns are highly accurate. Other assumptions can bring other results. Accordingly, other computations have been made and recorded in columns C, D, and E. Briefly, the explanations are as follows:

Column C follows the method of column A, but assumes that the number going to college will level off at the 40 per cent (of College Age Population) mark instead of the 50 per cent mark in Column A.

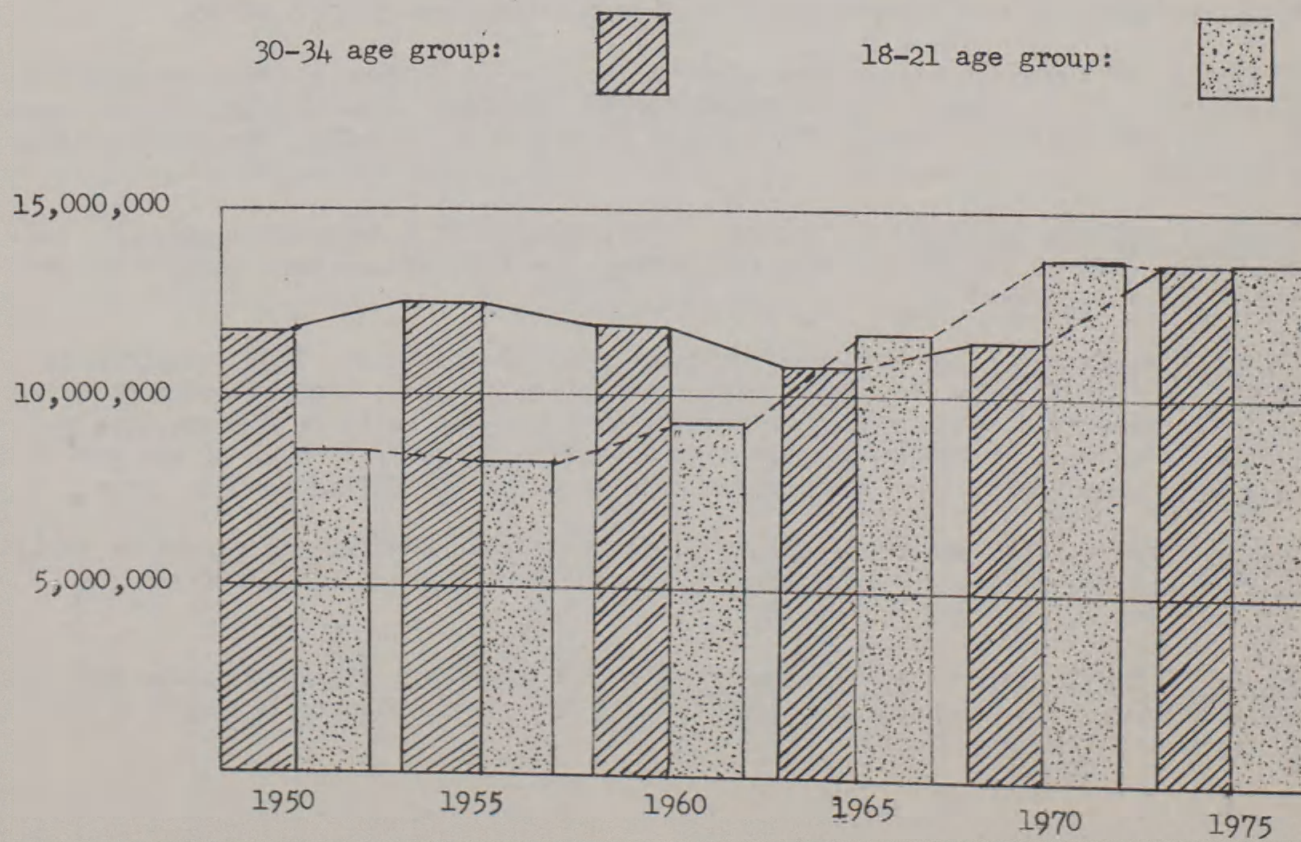
Column D begins with the national forecast used for column A. The assumption is made the State of Montana will provide higher education in proportion to its population instead of in proportion to its college age population. The ratio of Montana population to the population of the country as a whole varies slightly from .4 of one per cent. In this computation, that factor has been used for the entire period.

Column E follows the method of column B. In this case the figures result if it is assumed that the trend line at the steeper slope does not "take hold" until 1953, in place of the 1952 date used in column B.

Column F The figures in this column from 1961 to 1970 are averages of the five preceeding columns. The figures from 1956 to 1960 have been adjusted in light of estimates furnished by the six units.



FIGURE 4  
TEACHER SUPPLY AND STUDENT DEMAND





### Enrollment Estimates for 1956 to 1959

Estimates of enrollment for the next few years can be made with greater accuracy by basing them upon present known enrollment and current short term trends. Two such trends should be pointed out.

(a) Increases in enrollment within the state for the last three years have been much greater than in the nation as a whole. The figures below are per cent increases as reported in the Walter's (School and Society) reports.

<u>Year</u>	<u>Montana, Six Units</u>	<u>Total U. S.</u>
1953	5.8%	1.3%
1954	14.6%	7.6%
1955	19.1%	8.3%

The Office of Education reports an increase in the entire country for 1955 of 8.8%. This probably reflects a wider basis of estimate than that used in the Walter's report.

(b) Veterans who entered the service not later than January, 1955, will be eligible for benefits under P.L. 550 when discharged (many of them will be discharged about January 1, 1957), must begin such training within three years of date of discharge, and have eight years to complete. The crest of the "550 bulge" may be expected in the year 1956-57, or possibly in 1957-58. The bulge will then taper off slowly over the eight year period.

The estimates used in column F of Table II for 1957 to 1959 have accordingly been adapted to the estimates made at the various units and not from a statistical study of trends for the system as a whole. For the period from 1960 to 1970 the figures originate from the strictly statistical procedure.

### Teacher Supply

On the page opposite appears a graph showing the relative change for the immediate future in the ratio of potential teacher supply and College Age Population. The ratio of the former to the latter will decrease nearly 50 per cent in the course of a decade.



### Teaching Salaries Then and Now

The statement below appears on page 31 in a bulletin published in 1955 by the Fund for the Advancement of Education. The title of the bulletin is that given above, and the authors are Beardsley Ruml and Sidney G. Tichton.

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#### I--Analysis for the 50 Year Period 1904-1953 as a Whole

Conclusion: Wages and salaries rose in all parts of the American economy during the 50 year period 1904-1953. Relatively, salaries in the field of education\* rose less than salaries in other occupations and industries, with the result that the economic position of people in education has deteriorated over the years, after allowing for income and social security taxes and changes in the cost of living.

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\* THE FIGURES IN THIS REPORT ARE FOR STATE UNIVERSITIES, LAND GRANT COLLEGES AND PUBLIC SCHOOLS ONLY, EXCEPT ON PAGES 45-46, WHERE DATA FOR THE UNIVERSITY OF CHICAGO HAVE BEEN ADDED.



## Cost Per Student

In studying costs of an institution as a whole, the unit recommended\* is the full-time-equivalent student. A comparison of numerous reports on per-student costs indicates three main factors which cause variation in this measure.

(a) VARIATION IN VALUE OF THE DOLLAR. This factor naturally has its effect on all values expressed in dollars. Over a long period an upward trend seems to result inevitably. In the present study no attempt has been made to incorporate any possible effects of inflation. Cost per student is expressed in dollars of 1956. In case of marked inflationary (or deflationary) effect, adjustment would be necessary.

(b) A SUDDEN UNEXPECTED VARIATION IN ENROLLMENT. In such a case, the adjustment to the new circumstances cannot be made immediately, as many overhead costs tend to remain fixed. With a sudden decrease in enrollment, an increase in the per-student cost results; and vice versa.

(c) A CHANGE IN INSTRUCTIONAL COSTS DUE TO THE MARKET. Approximately three fourths of the cost for higher education goes for salaries and wages, and about four fifths of salaries and wages are for instruction. Any marked change in such salaries results in a corresponding change in per-student costs.

(d) SPECIALIZED INSTRUCTION. The most common illustration of specialized instruction is that in Schools of Medicine. There is no immediate prospect of establishing such a school in Montana. However, the two larger units are now authorized to give the doctor's degree in certain fields. Teaching at this level costs appreciably more than teaching at the undergraduate level.

If we now look to the future, perhaps the most startling information comes directly from the Bureau of the Census.\*\* In the year 1965 the number of persons in the 30 to 34 year age groups will be  $4\frac{2}{3}$  per cent less than in those groups in 1955. The college age population in 1965 will be 44.4 per cent greater than in 1955. From the former group our beginning college teachers must be drawn; from the latter group come those whom they will teach.

\*SEE COMPUTATION OF UNIT COSTS. AMERICAN COUNCIL ON EDUCATION, 1955.

\*\*ILLUSTRATIVE PROJECTIONS OF THE POPULATION OF THE UNITED STATES, BY AGE AND SEX: 1955 TO 1975, CURRENT POPULATION REPORTS, SERIES P25, No. 78, AUGUST 21, 1953, BUREAU OF THE CENSUS.



TABLE III

Average 12-month Teaching Salaries, by ranks, in 21 Western State Universities and State Colleges, 1955-56, arranged in order of size.

University of Idaho Study. Montana averages boxed.

Deans	Professors	Associate Professors	Assistant Professors	Instructors
\$12,154	\$11,000	\$7,720	\$6,900	\$5,400
11,200	9,523	7,394	6,857	5,244
11,150	9,133	7,333	6,053	5,242
10,520	8,851	7,167	5,939	5,021
10,200	8,621	6,971	5,925	4,984
10,092	8,242	6,872	5,923	4,879
10,081	8,181	6,735	5,823	4,733
10,020	8,027	6,601	5,218	4,700
10,017	7,940	6,426	5,635	4,691
10,000	7,900	6,405	5,615	4,600
9,911	7,711	6,317	5,437	4,533
9,850	7,650	6,207	5,407	4,511
9,442	7,297	6,153	5,210	4,310
9,429	7,149	5,942	5,169	4,306
9,000	7,061	5,863	5,104	
8,940	7,053	5,672	4,995	
8,907	6,660			
8,578				
8,510				
8,447				



## Upward Trend in Teaching Salaries

We cannot long deny the law of supply and demand. Salaries in the field of education will inevitably rise. Every college administrator is aware that a modest increase has already taken place -- not yet for the profession as a whole, but in the ranks of those most recently appointed. Competition\* is being felt not only in other educational institutions but also in government and industry where salaries tend to rise more rapidly.

From this factor the cost of education is sure to rise. The increase will be most rapid within the next few years because salary adjustments must now be made to cover all salary ranges. It will continue, possibly at a slower rate, until the time comes when the college age population in the country begins to show a decrease.

## Montana Salaries

If salaries in the field of Education have failed to keep up with those in other fields, then Montana's System of Higher Education has been particularly remiss, for its salaries have failed to keep up with those in comparable institutions. A striking illustration is afforded by the accompanying table. (See Table III)

For some years the University of Idaho has carried on a study of salaries in about 20 State Colleges and State Universities in and near the Rocky Mountain region. In Table III the averages from the different institutions are listed in order of size. In the Idaho Study, both Montana State University and Montana State College appear. In Table III the figures for these two have been replaced by one figure: the weighted arithmetic average of the figures as reported for them in the study. To emphasize the relative position of Montana, these figures have been boxed.

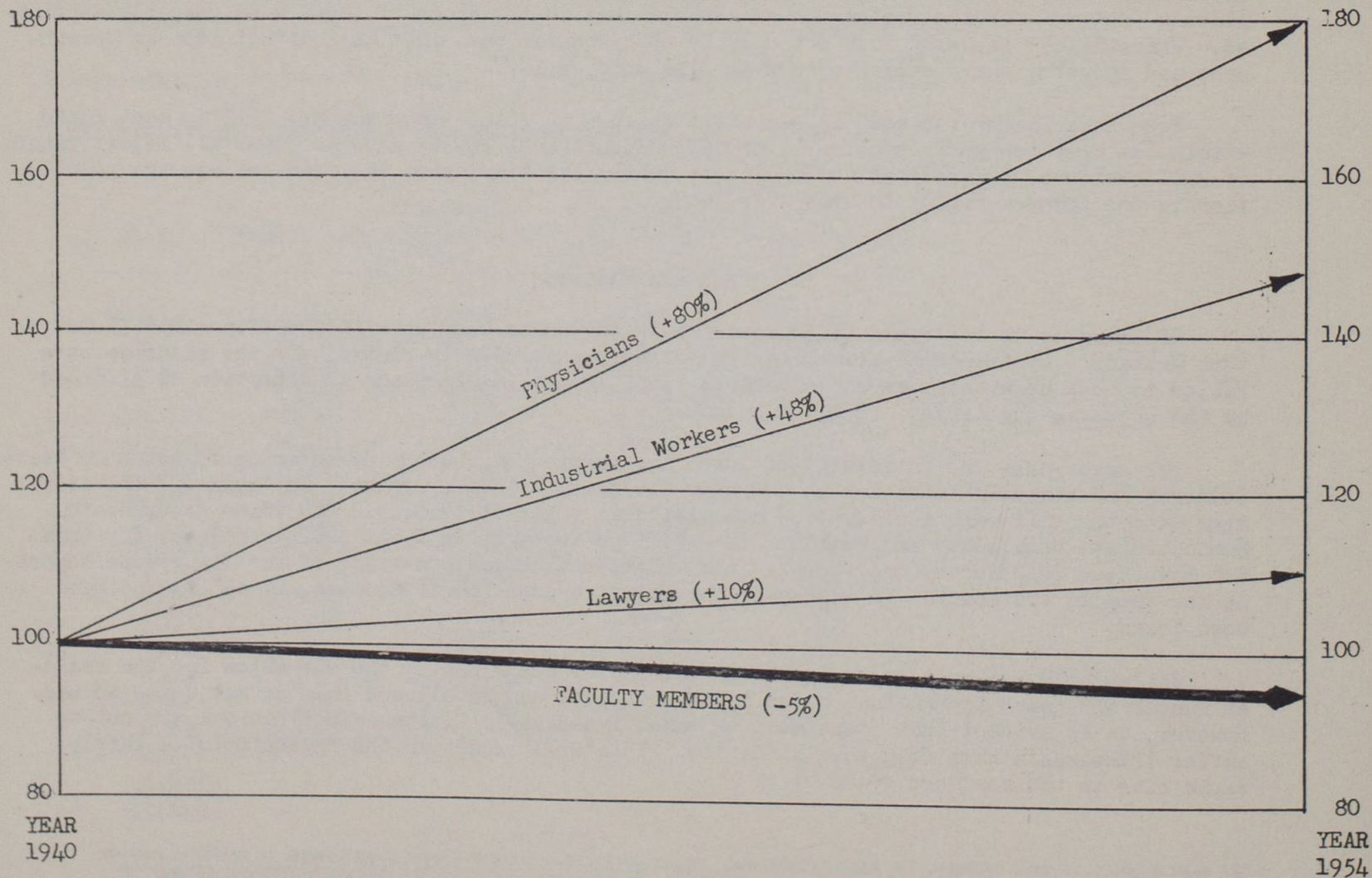
While Table III contains salaries on the twelve month basis, the situation for the smaller number who teach in Montana on ten month contracts can be classed only as not quite so bad. However, it is evident that steps must be taken immediately if these institutions are not to suffer irreparable harm from this situation. This will result in the necessity of a fairly rapid rise in the cost per student.

\*OF MANY STUDIES OF THIS PROBLEM, THE MOST SIGNIFICANT ONE IS ENTITLED: "TEACHER SUPPLY AND DEMAND IN DEGREE-GRANTING INSTITUTIONS, 1954-55." IT IS PUBLISHED AS VOL. XXXIII, NO. 4, DECEMBER, 1955, BY THE RESEARCH DIVISION OF THE NATIONAL EDUCATION ASSOCIATION OF THE UNITED STATES.



FIGURE 5

What's Happened to College Faculty Salaries\*  
 INDEX (1940=100)



\*Real Income before Taxes.

Source: Council for Financial Aid to Education; U. S. Dep't. of Commerce; U. S. Dep't. of Labor.



## Tax Money Per Student

Tax Money per Student as used in this study is the quotient of the amount of tax money appropriated for general operation (hence not including "fees and other income") divided by the number of full-time-equivalent students registered in the autumn quarter. Since such appropriation must cover summer session students, and since income from fees is also available, the figure is not to be interpreted as an accurate cost-per-student. It is, however, of the same nature, is a fairly close approximation, and if used consistently is most useful in arriving at the estimates of direct value.

For the current year, 1955-56, the tax money appropriation included "special" appropriations amounting to \$301,700.00. This money was allocated to certain specific uses of a nature sometimes referred to as "non-repeat". While it is true that such expenditures are not repeated annually, they are typical of continuing expenditures which accumulate when the general operating budget supplied is not sufficient to care for repairs, remodeling and smaller capital costs which are encountered currently. Accordingly this part of the appropriation may well be considered as part of the current operational budget. Since the above amount was designed to cover the biennium, one half was allocated to the year 1955-56.

The total appropriation then is the sum of \$6,432,997 and \$150,850, which is \$6,583,847. The full-time-equivalent registration in the six units was 7251. By dividing we arrive at the figure \$908 per student.

INCREASE INDICATED FOR FOLLOWING YEARS. The source of support for the system of higher education is practically limited to state tax money and fees collected from students. Nearly ninety per cent comes from the former. Any increase in fees could change the total income but little. If increase in income is to come, it must largely come from tax sources.

From the discussion above it seems inevitable that such increase must come, with a rather large increase due immediately. Experience has already demonstrated that the appropriation for 1955-56 is not sufficient to carry on just an average education for the students now enrolled. A university cannot long continue to run with insufficient supplies and equipment, and with inadequate repairs to its physical plant. Salaries for instructional staff are on the way up. Further increases are necessary if we are to retain the present staff and attract properly qualified additions to it.

Just how much increase will be demanded is a matter of estimate. The market is such that salaries for new staff are already up ten to fifteen per cent above those of a year and a half ago. Other staff members must be raised to keep their salaries in line, and newer appointments will probably come only at higher rates. A small portion of this greater cost will probably be off-set by the economies of a large institution: by lecturing to larger classes, by overloading (and thereby losing) teaching staff, and by generally offering an inferior grade of instruction. This indeed may happen, but surely should not be the aim in preparing to educate the young men and women of the state.



## A Comparison of Tax Money Per Student and Cost Per Student

As has been mentioned previously, Tax Money per Student as used in this study is the quotient of the number of dollars of tax money appropriated for the general operation of the University system divided by the number of full-time equivalent students registered in the autumn quarter. It is therefore a measuring stick used to simplify the process of estimating.

While Tax Money per Student is somewhat similar in nature to Cost-per-Student, there are important differences between the two. The appropriation for the state system covers not only the six teaching units, but also:

The Agricultural Experiment Station and Sub-Stations  
The Agricultural Extension Service  
The Forest Conservation Experiment Station  
The Engineering Experiment Station  
The Bureau of Mines and Geology

The total appropriated for these for 1955-56 was more than one and one quarter million dollars (\$1,258,471). There is, of course, no method of relating this directly to per-student costs.

On the other side of the ledger are other sources of income. These consist of fees paid by students, federal grants and smaller miscellaneous items. It is estimated that these will amount to about \$850,000 for the six teaching units in 1955-56.

A third difference arises in the enrollment figures used. The Cost per Student must include summer session students, properly prorated. This results in a figure some 13 per cent greater than the autumn figure. Thus the results are related in a rather complicated manner.

For the year 1955-56, the Tax Money per Student, as defined above, is computed to be \$908. In this computation, the total tax money includes such moneys as were appropriated from tax sources for the operation of the six teaching units and the five non-teaching divisions, as well as one half of the so-called "special appropriations" for the biennium. In spite of the fact that the special appropriations are often designated as for "non-recurring" items, experience has shown that other similar "non-recurring" items have the habit of occurring every biennium. It follows that by whatever name they are called, they are necessary in the normal operation of the system.

The figure for the same year, 1955-56, for the "Cost per Student", is \$743. This is obtained by dividing the sum of the operational budgets of the six teaching units (and excluding those of the five non-teaching divisions) by the full-time equivalent student load. This figure may be compared to the norms which are established by national studies.



## A Comparison of Tax Money Per Student and Cost Per Student - continued

For a direct comparison of the Tax Money Per Student, and the Cost Per Student in the Montana system, it may be noted that the former figure is greater than the latter by about 22 per cent, which reflects the use of a portion for the non-teaching divisions.

National norms for the Cost per Student have been established for State Colleges and State Universities. Such norms for the entire state system are not available, but would not, in the case of Montana, differ much from those of State Colleges and Universities. Schools of mines would show higher costs; colleges of education probably somewhat lower costs. Recent (1952-53) figures for State Colleges and State Universities stand at \$911 per student. For the state system, a figure of \$900 would seem fair. The change since 1952-53 has undoubtedly been relatively small, although increases may be expected from now on.

An increase from the Montana figure of \$743 to the national average, \$900, in one year may be too much to expect. The attempt to close that gap in perhaps a five or six year period would seem to be a sufficiently modest aim. This would require an increase of somewhat more than \$25 per year, and this could be effected by that increase in Tax Money per Student.

On this basis, a figure rounded to \$1000 per student for 1959-60 seems justifiable, but should be considered as a minimum since the national average will probably increase by that time under the pressure of increased teaching salaries.

The computations above have been made on the basis of income for 1955-56. By virtue of action of the State Board of Education April 16, 1956, a change in student fees will become effective for 1956-57. The budgets for the five units for 1956-57 show a total increase in estimated receipts from that source of about \$560,000. On the basis of expected registration of 8,441 students, this is an increase of some \$65.00 per student. With no experience regarding the effect of this increase upon enrollment, the chances are that this figure will prove to have been too large. However, no more reliable estimate can be made at this time, and this amount was subtracted from the \$1000 taxation-per-student figure for 1959-60, and in the proper column of Table I, the figure \$935 was used.

The larger figure used for 1957-58 is realistic because of the exceedingly low budgets approved for 1956-57, and the heavy demands which will be made upon the 1957-58 budget for equipment, repairs and salaries which might normally have been covered by the 1956-57 budgets. The remaining figures show a modest continued increase which may be expected as the pressure for qualified staff gradually becomes greater.



## Building Needs

The discussion so far has been limited to the problem of financing current operations. The cost of new building must receive attention, whatever the method by which it is financed.

An over-all estimate of amount of new building for the entire system can be made by a simple rule of thumb process. Studies on a national basis place the norm at (or possibly somewhat above) 150 square feet of floor space per student. Construction costs at the present (1956) are close to \$15.00 per square foot. Therefore additional building costing \$2,250.00 is necessary for each increase of one student. At the current rate of increase in registration of about 1,000 students per year, a cost of \$2,500,000 per year may be anticipated for the system. The allocation and source of such building funds requires detailed study, but the over-all total cannot vary much from this figure.

It is inevitable that from time to time there should be an accumulation of building needs so that an extra large appropriation for capital may be necessary for a short period. On the other hand, it is possible that the completion of a large building project may leave some institution in a position such that capital expenditures may be held at a minimum for a few years. The above figure remains as a guide, and in view of a distribution over six different physical plants it may be expected to remain fairly constant.

**FINANCING FUTURE CONSTRUCTION.** Much of the construction of our university buildings has been by means of bond issues financed by tax moneys. More recently such bond issues have in some cases been financed by pledging income from student collections (Building Fees) and Interest and Income Funds. By the former process, the cost is spread more generally among the taxpayers of the state. The latter process results in placing a greater burden upon students and their parents. This may be considered as fully justified by the fact that these are the very persons who benefit most from the education which the state is furnishing.

It is probably not necessary to dwell upon the fact that much building is done at the University units without drawing upon tax moneys. This is especially true of dormitories, housing for married students, faculty housing, student unions and field houses.



## Montana Taxation

The facts, figures and estimates presented so far have been largely on only one side of the ledger. They may therefore give the impression that higher education in Montana may become burdensome. What can be presented on the other side? Will the state show a healthy increase in population? Is there a good prospect of economic development, of industrial expansion? Is the state able to pay the taxes to support the services which are demanded by its citizens?

POPULATION. The United States Census Bureau reports the population of Montana as follows:

1940	559,456
1945 (est.)	477,000
1950	591,024
1955 (est.)	660,000

Obviously - and officially - the increase for the decade 1940 to 1950 was 5.6 per cent. During that period the population of the entire country increased 11.6 per cent. The 1945 estimate indicates that this decade deviated so much from normal that it should not be used as a basis for estimates for the future.

The phenomenal increase\* of 38.3 per cent for the decade from 1945 to 1955 may be overoptimistic, since it includes a period during which former residents of the state returned. The five year period, 1950 to 1955, can be considered as one of normal growth, and during this period the population has increased nearly 12 per cent. Thus there seems to be no question but that Montana's population is now increasing at a rate probably twice that of the country as a whole.

A rather different figure is arrived at by a study of Population Trends published\*\* in August 1955. As a basis for forecasting, this study relies upon the increase from 1950 to 1953, which seems reasonable, and the increase from 1940 to 1950, which seems unfortunate. Their result is an estimate of a population increase for Montana of 22.5% for the period 1955-75. At the present this forecast appears to be too small. Attention may at the same time be called to a second, much more startling and probably more reliable forecast in the same publication. This is that in Montana the 20-24 age group (note that is somewhat above the college age group) will increase during the 1955-75 period, from 37,584 to 75,325, an increase of just over 100 per cent. This corroborates estimates given earlier of the pressure to be felt in the meantime in our institutions of higher education.

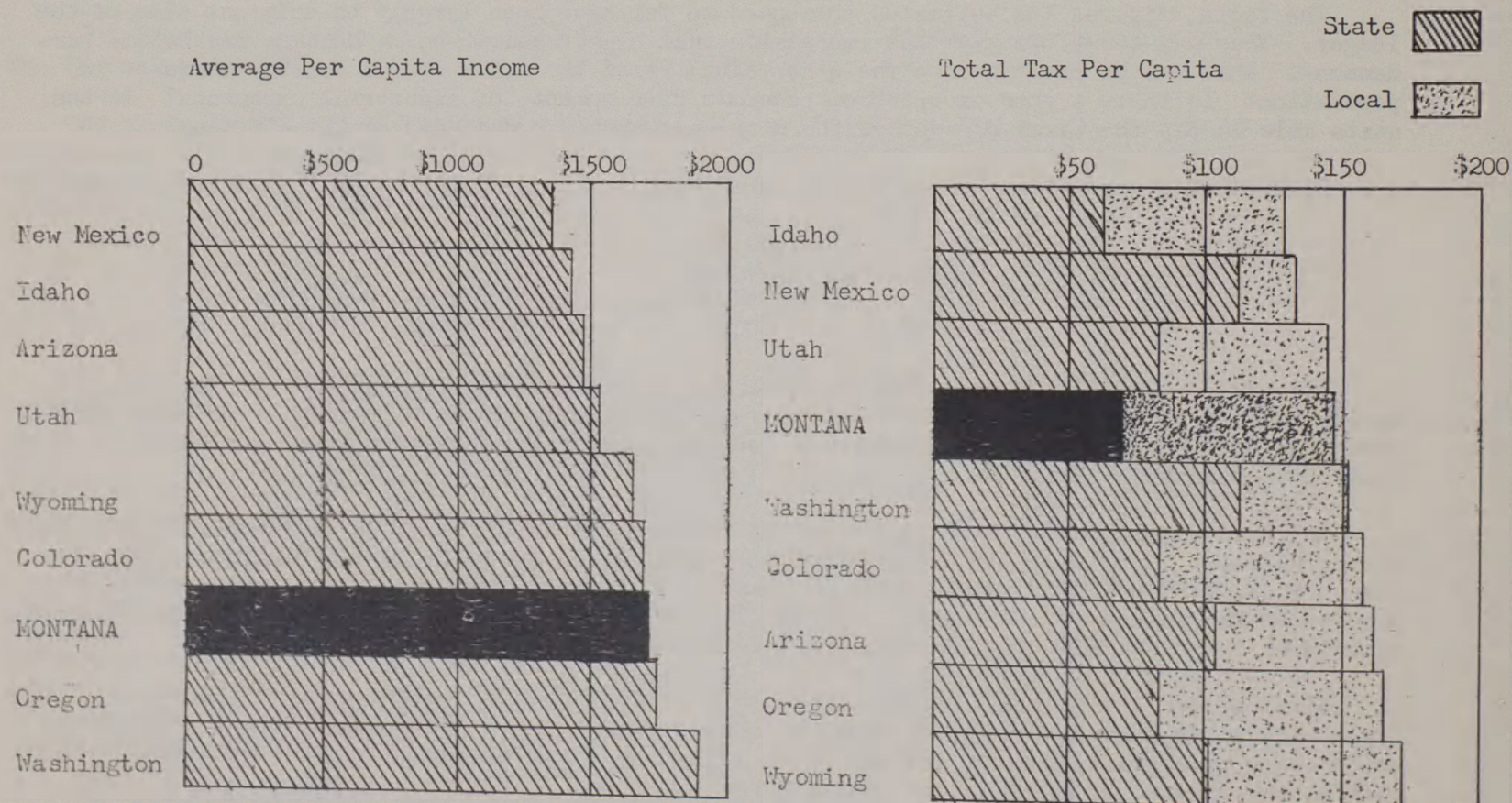
\*ACCORDING TO A PRESS REPORT BY ASSOCIATED PRESS MARCH 31, 1956, THE MONTANA POWER COMPANY ESTIMATED A FORTY PER CENT INCREASE FOR THE PERIOD.

\*\*PUBLISHED BY THE STANFORD RESEARCH INSTITUTE, MENLO PARK, CALIFORNIA; (HOWARD C. NIELSON, RESEARCH ECONOMIST.)



FIGURE 6

## PER CAPITA INCOME, AND STATE AND LOCAL TAXES



Average per capita income in Montana is higher than that in six of these Northwest States while the total of State and Local taxes is less in only three states of the group.



## Taxation - continued

**ECONOMIC DEVELOPMENT.** Montana, with its wide open spaces, has plenty of room for industrial development. To some extent, industries are choosing to locate in undeveloped regions, and a few of them are already here. Development in the recently opened oil fields seems to be on a fairly stable basis. Developments in wood technology are resulting in high activity in lumbering. Because of technical improvements, mining continues at a moderate pace. Tourism is an expanding business. The depression in agriculture has been alleviated somewhat by better than average yields in 1955 and, while its seriousness cannot be denied, improvement can be expected within a few years at the most.

Officials of the State Planning Board are now expressing more optimism than at any time since the Board came into existence. A concerted effort is being made to attract new industries into the state. This may be the effort which has been lacking heretofore. The results to be expected are an increase in the amount of income from present tax sources and the development of new sources.

**MONTANA'S LEVEL OF TAXATION.** One of the fundamental bases for taxation is the ability to pay. In per capita personal income, the Montana citizen ranks close to the average. In 1954, Montana ranked slightly above the middle of the list, being twentieth among the states, but slightly below the average for the United States. The actual figures are: For the country as a whole, \$1,770; for Montana, \$1,729. A comparison of Montana taxes with an average is therefore not out of place.

In the table on page 26 are selected portions of a tax comparison study made by the Montana State Board of Equalization for the year 1953. The states included are Arizona, Colorado, Idaho, Montana, New Mexico, Oregon, Utah, Washington and Wyoming. Among other things, the report shows: A, Income per Capita, 1953; B, State Property Tax per Capita; C, Local Property Tax per Capita; D, Total Tax per Capita; E, Total State Tax per Capita; F, State Tax as Per Cent of Average Income; G, All Tax as Per Cent of Average Income.

In this table these numbers have been rearranged in order of size. The Montana figure in each column has been underlined, and followed by M. All other numbers remain unidentified. Averages are shown in the bottom row.



TABLE IV

## Taxation in Eleven Northwestern States

A	B	C	D	E	F	G
1953 Income Per Capita	State Property Tax Per Capita	Local Property Tax Per Capita	Total Tax Per Capita	All State Tax Per Capita	State Tax as Per cent of Income	All Tax as per cent of Income
\$1882	\$16.77	<u>\$81.78M</u>	\$172.44	\$112.36	8.26	10.98
1724	14.64	80.94	164.18	111.25	7.06	10.45
<u>1689M</u>	<u>7.17M</u>	74.38	161.69	103.95	6.23	10.16
1675	6.57	69.70	159.69	102.74	5.97	9.64
1650	6.34	67.26	152.62	83.31	5.45	9.53
1510	5.90	63.23	<u>148.36M</u>	83.24	5.09	9.52
1473	5.60	57.74	145.55	82.32	4.83	9.29
1411	3.93	40.26	136.86	<u>66.58M</u>	4.53	<u>8.78M</u>
1347	.01	25.61	131.12	63.86	<u>3.94M</u>	8.11
1596	7.44	62.32	153.62	90.18	5.71	9.61

As revealed by the table,

1. Montana taxes for state purposes are at the lowest rate per cent of personal income.
2. For local purposes, the average individual Montanan pays the largest amount in the region as property tax.
3. Total taxation in Montana is low; only one state of this group shows a lower rate per cent of personal income. This supports the idea that the state is well able to pay for such services as it is called upon to render for its citizens.



### The Ability to Pay

Undoubtedly a study such as the above for the current year would show some changes, but probably no marked difference in the relative position of Montana. It would be enlightening to consider the effect of a change in the millage tax rate for state purposes.

To be specific, suppose that in 1953 the state millage rate of six mills for higher education had been at 12 mills. What would have been Montana's position in Table IV?

The additional amount of tax resulting would have been six per cent of \$538,724,971, the taxable valuation of that year. This is \$3,232,350. Using a rounded figure of 500,000 as the population of the state, the average cost would have been \$6.40. Adding this to the Montana figures in columns D and E, we find that in total tax per capita Montana would rank fifth instead of sixth. Its position in column E would remain unchanged, with only one state ranking lower.

Expressed as a percentage of income, the Montana state tax figure in column F becomes 4.28 per cent, and Montana remains at the bottom of the list. The figure in column G, for total tax for the average citizen of the state, becomes 9.16 per cent. This again leaves the Montana rank unchanged, with only one state ranking lower.

There is ample evidence in the study quoted above that the Montanan can afford to pay higher taxes. It is likewise made evident during each legislative session that the citizens of the state are demanding more services from the state. There is very general agreement that the tax structure of the state should be studied thoroughly and probably reorganized. The support of higher education is a comparatively small, though very important, part of the whole taxation problem. The services of various specialists in the University system are available to assist in this work. Some reports which they have already made may be considered as supplementary to the present study.



The committee making the present study has not overlooked the question of major changes in the administrative set-up of the University System as a means of tempering the impact of the anticipated increase in student load. We have arrived at the conclusion no reorganization seems to be called for within the period considered. For a later period it might be well to encourage more junior or community colleges, but not immediately. The number of separate units now in operation seems sufficient for many years to come. Less drastic changes to assure continued efficient use of the taxpayer's dollar are under continued study.

The administrative officers of the various units are fully aware of the need for introducing into the existing University System every economy which is compatible with the maintenance of academic standards. They are faced with certain limitations over which they have no control. The committee, in making the present study, has become aware of some of these conditions. In the interest of completeness it seems wise to mention some of them and some measures which are being put to use in the interest of efficiency.

One fact to be faced is that the system is located in six different centers. The manifest advantage of this arrangement is that many students are enabled to carry on their education close to home. Some of the disadvantages are fully as obvious. For education at the stage of the College Freshman year, a certain common "core curriculum" is demanded in which there is sure to be overlapping of instruction. As the number of students increases, the extra cost of such duplication decreases. However, until a certain stage is reached, it should be recognized that costs must be higher. Since this situation has to be met in this state, careful thought should be given to providing support at a higher level than that contemplated by the estimates in Table I.

Many Montana students earn a portion of their way through college. It is only human to make adjustments where possible to accommodate such students. However, when classroom-use approaches the point of saturation, measures must be taken to schedule classes efficiently even at the cost of convenience to the student. Such steps are already being taken. Classes are being held at the noon hour and late in the day. The lecture system is being used - probably more than it should be. Every attempt is being made to assign classes to rooms of proportionate size. It must be recognized, however, that such measures cannot be instituted on a purely mechanical basis.

These are only a few typical steps now being taken. They have been suggestive to the committee of restrictions which will probably be found necessary in the future development of the system. It will be in the interest of efficiency if the various units be encouraged to develop in the fields in which they are strong rather than to expand into fields for which they do not have resources now. Since properly prepared staff members are at a premium, expansion in the graduate field should be undertaken with extreme caution. Graduate work, if worthy of the name, can be done only at higher per-student costs. In general, developments which spread our efforts over a wide field without proper depth should be undertaken only after serious impersonal study of the balance between resources and results.







