

**Bulletin of  
The University of Minnesota**

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**REPORT OF THE SURVEY  
COMMISSION**

**V**

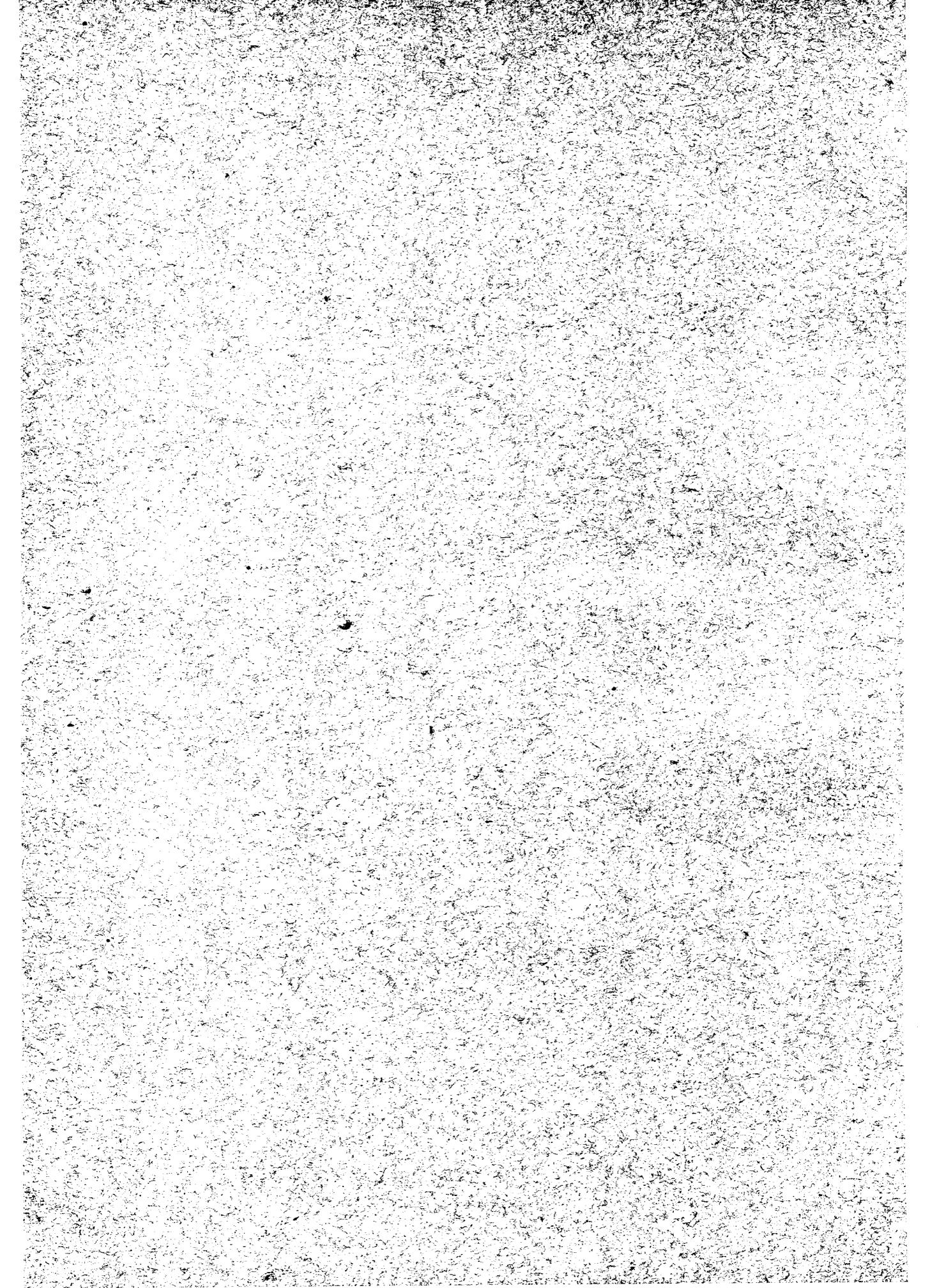
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- a. THE UNIVERSITY INCOME  
b. THE UNIVERSITY EXPENDITURES**

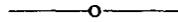


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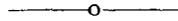


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**REPORT OF THE SURVEY  
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**V**



- a. THE UNIVERSITY INCOME
- b. THE UNIVERSITY EXPENDITURES

## PREFACE

Each house of the State Legislature of 1921 appointed a committee to investigate and report at the next session upon the educational situation in Minnesota. The committee appointed by the House of Representatives is composed of Speaker W. I. Nolan, Theodore Christianson, R. W. Hitchcock, Bert Walworth and W. I. Norton; and the Senate Committee of Lt. Gov. Louis L. Collins, J. A. Jackson, A. C. Gooding, Henry N. Benson and Ole Sageng.

On May 26th the Chairman of the committees addressed the following communication to the President of the University.

At a joint session of the House and Senate Interim Committees on Education held at the State Capitol, May 25th, I was requested to make the following request for information from the President of the State University:

FIRST, the several departments, the number of students in each, the teachers therein, the number of subjects taken by the students, the number of students in the several classes, the number of hours spent by the several teachers in actual teaching.

SECOND, the cost of the several departments and courses.

THIRD, the success of the various departments and desirability of continuing, discontinuing, modifying or enlarging same.

FOURTH, the amount of tuition charged and what part of the cost same represents.

FIFTH, the sources of income and distribution of same.

SIXTH, needs of the university and departments as to buildings, equipment.

The reason for this request is to get into the hands of the members of the committees as much available information as possible before we begin our investigations, so that if you have any other information that you think would be of value to the committees, other than that covered by the above requests, we would be glad to have you furnish us with such information. Anything that you could give us that would help to make a comparison between conditions in Minnesota I think would aid us in our work.

There are ten members of the two committees so that any reports or documents you can furnish us hope you will be able to furnish us with one copy for each member.

The headquarters of the committee will be in Room 266 of the State Capitol.

Yours truly,

W. I. NOLAN, Chairman.

Dr. J. B. Sears, Professor of Education at Stanford University, was engaged to prepare the answers to three of these questions. This bulletin is a part of his report. Neither Dr. Sears nor the university authorities are convinced that the system of accounting which Dr. Sears was compelled to use is without fault. On the contrary, they regard some of the figures, such for example as those pertaining to the cost of certain courses or the cost of educating a student per year, as purely tentative and subject to modification. It is impossible to obtain a uniform figure covering the cost of educating students per year. Costs vary with the colleges in which students are registered, the degrees they are working for, the courses they are in, and even with the subjects themselves. It costs more to educate a student in a laboratory science than it does to educate him in a lecture course. The costs which may be ascribed to any college or department one year may not apply to it another year for the reason that the number of students registered will vary from term to term and from year to year. Furthermore, the costs will vary with the policy which the institution pursues with reference to the development of a department. Figures showing the costs in one department or college are not and should not be the same as the cost figures of another department or college. All of these facts were clearly understood by Dr. Sears and yet both he and the university authorities were of the opinion that a beginning should be made with the study of this important problem. This report must therefore be regarded as an initial preliminary attempt to do this and it is submitted to the Interim Educational Commission with these limitations clearly in mind. The value of the report is not to be discounted because Dr. Sears found the problem complex. On the contrary, the simplicity of his treatment and the explanation of his tables, together with a knowledge of the difficulties encountered in such a study, will be of enormous value to Minnesota and to other institutions that may wish to make similar studies and it will lead to a refinement of technique that will be of great value.

L. D. COFFMAN.

# REPORT OF THE SURVEY COMMISSION

## A. THE UNIVERSITY INCOME

TO THE INTERIM EDUCATION COMMISSION OF THE LEGISLATURE:

The income of the University of Minnesota is derived from five main sources: from students, in the form of tuition fees, deposits, and receipts from student services; from the Federal government, in the form of appropriations and accumulated interest; from benefactions, gifts, and trust funds, together with the interest which these funds earn; from state appropriations; and from University earnings derived from farm products and from innumerable other services rendered by the University.

The total gross amounts received annually from each of these several sources, from 1914 to 1921 inclusive, are shown in light figures in Table I.

In examining this table it must be kept in mind that the classification of items under these heads for 1921 gives us figures which are not exactly the same in all cases as those presented in the Comptroller's report for the past year. As stated above, this is due to the fact that certain items are differently distributed in order that they may be comparable with figures for previous years. As an illustration, the total for tuition in this table does not include "breakage deposits." It does include refunds, however, and so represents the gross tuition receipts for the year. Again, the items included under deposits and student services and under university earnings do not represent the same distribution as in the Comptroller's report, for the same reason, namely, that if they were so distributed they would not be comparable with similar figures for previous years. The detail and full explanation of these differences can be given if desired but it is thought unnecessary to present them more fully.

The black figures of Table I show the total annual income for each of these years distributed by per cents. With these two sets of figures the reader is able to see at a glance, not only the gross income from each of the several sources, but the relative importance of each of these sources in making up the total for the year. Furthermore, it is possible here to examine the tendencies in these various sources from year to year. In 1919 it will be noticed that the income from tuition is but 7.5 per cent of the total income of the University. This percentage is affected quite largely, of course, by the addition to the total of the special income received from military work done during that year. Aside from this, the income from tuition and from deposits and student services, that is, the part of the load borne by the students, began to increase in 1916 and has been fairly constant since then. This increase in tuition fees is a fact which should be carefully examined in the light of our avowed theory of the function of the state in higher education.

From this table we see that in 1914 the state provided 76.2 per cent of the entire income of the University, while the students furnished 13.5 per cent through tuition, student services, and other fees, and that the University by its own activities earned 4.7 per cent. Similar combinations of these figures for the different years show roughly the relative importance of each main source of income.

TABLE I  
THE INCOME OF THE UNIVERSITY OF MINNESOTA  
1914 TO 1921

Years	From Students		From the Federal Government		From	From State Appropriations	University Earnings		Special Military Receipts	Totals
	Tuition Fees	Deposits and Student Services	Interest	Appropriations	Benefaction, Gifts, and Trust Funds		Farm Products	Other Services		
Table	II	III	IV		V		VI	VII		
1921 .....	\$ 711,690.15	\$ 598,157.75	\$114,719.79	\$ 221,942.24	\$ 63,961.26	\$ 3,656,498.09	\$103,037.23	\$ 461,402.36		\$ 5,931,408.87
	12.0	10.1	1.9	3.8	1.1	61.6	1.7	7.8		
1920 .....	501,420.27	568,215.04	109,882.61	224,305.98	73,922.82	2,790,358.83	156,854.74	419,255.83		4,844,216.12
	10.4	11.7	2.3	4.6	1.5	57.6	3.2	8.7		
1919* .....	279,247.06	256,811.71	91,565.46	103,264.40	31,969.07	1,829,158.38	100,849.19	364,671.51	\$665,629.14	3,723,165.92
	7.5	6.9	2.5	2.8	0.8	49.1	2.7	9.8	17.9	
1918 .....	313,163.53	389,911.16	94,835.65	122,148.41	27,058.16	1,889,712.76	106,201.82	189,964.87		3,132,996.35
	10.0	12.4	3.0	3.9	0.9	60.3	3.4	6.1		
1917 .....	364,798.47	277,629.09	87,197.14	106,157.41	34,990.59	1,498,023.64	94,808.19	170,403.79		2,634,008.32
	13.8	10.5	3.3	4.0	1.3	56.9	3.7	6.5		
1916 .....	299,266.84	255,581.68	80,638.78	116,056.39	18,159.73	1,684,527.25	73,226.60	166,608.89		2,694,066.16
	11.1	9.5	3.0	4.3	0.7	62.5	2.7	6.2		
1915 .....	248,663.45	229,518.87	87,743.80	90,000.00	15,391.02	1,645,767.11	105,483.28	112,240.52		2,534,808.05
	9.8	9.0	3.4	3.7	0.6	64.9	4.2	4.4		
1914 .....	234,178.94	170,635.61	86,158.03	80,000.00		2,285,106.03	66,874.40	75,540.60		2,998,493.61
	7.8	5.7	2.9	3.7		75.2	2.2	2.5		
Totals ..	\$2,952,428.71	\$2,746,460.91	\$752,741.26	\$1,063,874.83	\$265,452.65	\$17,279,152.09	\$807,335.45	\$1,960,088.37	\$665,629.14	\$28,493,163.41
	10.4	9.6	2.6	3.7	0.9	60.7	2.8	6.9	2.3	

TABLE I (Supplement)  
THE MAYO FOUNDATION

ENDOWMENT AND ACCUMULATIONS OF THE MAYO FOUNDATION TO DATE		FOUNDATION DISBURSEMENTS, INSTRUCTION, AND RESEARCH, ROCHESTER, MINNESOTA	
Original donation .....	\$1,638,000.00	Year ending July 31, 1918.....	\$126,064.76
Accrued to July 31, 1918 .....	72,000.00	Year ending June 30, 1919.....	148,961.16
Accrued to June 30, 1920.....	150,000.00	Year ending June 30, 1920.....	232,671.01
Accrued to June 30, 1921.....	91,500.00	Year ending June 30, 1921.....	277,742.21
Accrued to December 21, 1921.....	66,750.00		
	<hr/>		
	\$2,018,250.00		<hr/>
			\$785,439.14†

\* Eleven months.

† The disbursements for the Mayo Foundation, above stated, have not been made, up to the present time, from the Foundation Fund. The amounts of these annual budgets have been presented to the Foundation by the Doctors William J. and Charles H. Mayo.

From state appropriations during the eight years covered by this table the average proportion borne by the state has been 60.7 per cent. The figures in this column of the table show how the various years have differed from this general average. Relative to other sources the income from students increased somewhat in 1916; the total from the Federal government has remained fairly stable; that from gifts, aside from the Mayo Foundation, has remained fairly constant; while that from university earnings gradually rose in importance until the last three years during which time there has been a decline.

#### TUITION RECEIPTS

It is our purpose to examine each of these sources of income more fully and to show just where each comes from. The light figures in Table II show a complete analysis by colleges, schools, and other major divisions of the University of the income from tuition fees for each year from 1914 to 1921 inclusive. In examining these figures several points must be kept in mind: First, the growth of the student body, shown in another part of the report; second, the changes in tuition fees which have been made from year to year, also shown elsewhere in the report; third, the development of new schools or colleges; fourth, the changes in various schools due to the addition or elimination of departments.

The drop in attendance during the year 1918 and the sudden and continuous rise beginning in 1919 have produced corresponding changes in receipts from tuition.

The changes in tuition charges, which are fully discussed elsewhere in this report, have had a marked effect on receipts from this source in 1920 and 1921.

In 1920 the School of Business was organized and during that year the University received \$3,274 in tuition fees from students registered in that school. Previous to this the School of Business had been a part of the College of Science, Literature, and the Arts. Again, the figures for the College of Science, Literature, and the Arts have been adversely affected by the rapid growth in the enrolment in the College of Education, due to certain University rules affecting the granting of certificates.

Some of these changes have affected the total income from this source favorably, while others have affected it adversely. The actual receipts, however, will be seen in the light figures in Table II and the changes for each of the main departments of the University may be clearly traced here; while the black figures in Table II, showing the same figures in per cent form, suggest the relative importance in tuition receipts of each college for each year.

Of the 100 per cent received from tuition fees in 1914, 10.2 per cent consisted of fees which were refunded. Another 20.1 per cent of the total income from this source was received from students registered in the College of Science, Literature, and the Arts; 10 per cent, from students registered in the Medical School; 16 per cent, from students registered in the College of Dentistry; 6.2 per cent, from the Extension Division, and so forth.

TABLE II  
AN ANALYSIS OF TUITION RECEIPTS

College, School, etc.	1914	1915	1916	1917	1918	1919	1920	1921*
College of Science, Literature, and the Arts.....	\$ 47,072.65	\$ 53,497.54	\$ 71,787.78	\$ 99,527.28	\$ 92,176.96	\$ 77,886.12	\$136,091.44	\$216,518.55
	20.1	21.5	24.0	27.3	29.4	27.9	27.1	30.4
College of Engineering.....	18,955.93	21,406.17	23,306.83	28,417.23	23,142.35	20,097.34	45,897.88	79,146.99
	8.1	8.6	7.8	7.8	7.4	7.2	9.2	11.1
Department of Agriculture (College)				28,286.45	18,563.24	12,736.36	25,368.98	35,992.59
School of Agriculture.....				7.8	5.9	4.6	5.1	5.2
Agricultural short course.....	23,046.51	27,256.64	28,562.14	3,837.00	2,931.82	2,525.41	6,998.75	8,160.99
Agriculture—Music.....	10.1	11.0	9.4	1.1	0.9	0.9	1.4	1.1
Crookston Substation.....				1,585.00	3,095.50	4,327.73	1,321.00	1,500.86
Morris Substation.....				0.4	1.0	1.5	0.3	0.2
				96.00		365.00	1,614.00	2,032.22
				0.3		0.1	0.3	0.3
	3,538.65	3,634.79	4,579.64	2,129.75	2,265.50	2,039.50	3,305.25	2,113.00
	1.5	1.5	1.5	0.6	0.7	0.7	0.7	0.3
Medical School.....	23,972.29	29,367.41	35,277.50	35,446.14	35,843.39	28,510.66	32,700.37	57,340.22
	10.2	11.8	11.8	9.7	11.4	10.2	6.5	8.1
School of Nursing.....		475.00	591.60	665.28	776.00	1,000.00	2,372.50	1,645.99
School of Embalming.....		0.2	0.3	0.2	0.2	0.4	0.4	0.3
		2,340.00	2,427.00	1,709.50	663.10	795.00	1,305.00	135.00
		0.9	0.8	0.5	0.2	0.3	0.3	0.1
Law School.....	9,918.16	9,822.04	10,126.93	11,937.00	5,817.83	4,573.47	13,034.46	19,451.25
	4.2	3.9	3.4	3.3	1.9	1.6	2.6	2.7
School of Chemistry.....	3,625.55	2,600.00	3,197.51	4,775.35	4,350.58	4,031.44	6,662.80	11,356.28
	1.5	1.0	1.1	1.3	1.4	1.4	1.3	1.6



Following these figures through from year to year for any given school or college shows what it is reasonable to expect in the immediate future from these sources. In spite of the loss of departments and the development of other schools at the expense of the College of Science, Literature, and the Arts, this college has shown a steady increase from year to year. Tuition changes in this college have been no greater than in other colleges. The chief explanation of this growth is found in registration figures alone.

The College of Education has grown both absolutely, as shown by the light figures, and relatively, as shown by the black figures of this table, partly because of rules governing certification and partly because of the growing importance of this field of knowledge so clearly shown by registration figures in all universities. Likewise, the Graduate School, the Extension Division, and the Summer Session have all become increasingly important sources of income so far as tuition fees are concerned. Tuition fees from the Medical School have increased in the absolute, but not so relatively, and the same is true of Mines, Law, Dentistry, and Pharmacy. Agriculture appears to have increased in the amounts received, but to have decreased relatively. This is true, but not to the extent suggested by the figures for the college alone. To these must be added, for the later years, several items, as the farm school, the short course, etc., which in the earlier years are included in the college figures. It must be kept in mind that the colleges of Mines, Dentistry, Medicine, and Pharmacy have been forced to limit their registration. These schools have waiting lists and could increase their tuition receipts if it were possible for them to care for more students.

#### DEPOSITS AND STUDENT SERVICES

The next main source of income from students consists of "Deposits and Student Services." The details of this income for each of the years, 1914 to 1921 inclusive, are shown with reference to each particular source in Table III.

These figures are of interest, not because they affect materially the actual cost to the taxpayer of instruction in the University, because as a matter of fact they do not directly affect it at all. These are revolving funds from which the University derives no profit. Their importance is no less, however, on this account. They simply mean that this amount of necessary service, (last year aggregating more than a half million dollars), was performed for the students by the University at actual cost. Saving to the students and so, indirectly, to the taxpayers of the state of customary profits on the amount of business represented by these figures is of real consequence.

This is not the sole excuse for these charges and for the disbursements to which they correspond. The real significance of these figures lies much more in the realm of social and moral control over the students than it does in the economic saving. For moral, social, and educational reasons alone it would be more than worth while for the state to carry on these activities. It is more than regrettable that the state can not see its way clear to build more dormitories and to provide more service such as this.

TABLE III  
DEPOSITS AND STUDENT SERVICES

Department	1914	1915	1916	1917	1918	1919	1920	1921
Deposits .....	\$ 28,313.86	\$ 52,280.64	\$ 65,622.49	\$ 60,059.80	\$ 78,548.52	\$ 41,211.58	\$ 72,407.53	\$ 85,263.19
Sanford Hall.....	20,047.50	21,400.74	22,019.16	22,162.72	22,947.53	25,885.02	31,245.47	35,962.27
Shevlin Hall.....	13,581.49	15,610.41	18,212.17	18,333.63	28,763.57	26,676.49	47,361.53	40,641.60
Minnesota Union.....		26,928.74	33,138.96	63,654.06	68,080.80	42,471.22	156,361.11	168,839.25
University Farm dining hall and dormitory .....	66,967.41	65,192.54	66,191.11	64,465.62	62,099.29	52,122.76	120,491.38	110,080.95
University Farm bookstore sales..	15,537.96	16,601.33	16,802.17	16,768.51	13,797.60	13,619.31	25,688.05	27,731.63
University Farm gymnasium.....		797.50	1,665.20	1,611.15			2,392.57	
University Farm hospital.....		1,461.63	1,426.03	1,524.13	1,245.98			
Crookston dining hall.....	14,277.23	15,729.37	16,981.94	15,841.57	16,246.88	14,333.37	24,917.05	26,661.22
Morris dining hall.....	11,910.16	13,515.97	13,522.45	13,207.90	15,495.92	16,994.45	26,745.11	26,547.95
Crookston bookstore.....					647.81	866.33	2,350.77	1,827.71
Morris bookstore.....					551.57	928.31	1,730.44	1,790.30
Special military training.....					81,485.69			
Health Service.....						21,395.67	38,790.25	46,793.62
Storehouse cash sales.....						307.20	13,313.78	12,385.63
University concert courses.....							4,420.00	13,632.43
Totals .....	\$170,635.61	\$229,518.87	\$255,581.68	\$277,629.09	\$389,911.16	\$256,811.71	\$568,215.04	\$598,157.75

## INCOME FROM THE FEDERAL GOVERNMENT

The next source of income, as shown in detail in Part 1 of Table IV, is the Federal government. Some of these Federal funds have existed from the beginning of the University. The figures for 1914 to 1921 inclusive are shown for each of the several sources provided by the United States government, viz., the Morrill Fund, the Nelson Fund, the Hatch Fund, the Adams Fund, the Smith-Hughes Fund, the Smith-Lever Fund, the Lever Extension Fund, and the United States Social Hygiene Fund. These funds have provided a regular and, in recent years, a growing source of income for the University. During the eight years for which this table accounts, these sources have provided an average of 6.3 per cent of the gross income of the University and during the years 1918 and 1919 they amounted to 7.3 per cent of this total. In other words, grants from the Federal government have constituted one of the very dependable sources of support.

How this money is distributed to the different colleges and schools is shown in Part 2 of the same table. It will be seen that the major portion of these funds has gone to the support of the Department of Agriculture for teaching, experimental and public service work. The value of these grants to this state would be hard to estimate, but that it has been great the University fully recognizes.

## GIFTS AND TRUST FUNDS

The next main source of income shown in Table I is from "benefactions and gifts." Until recently this has been relatively small and, while in this respect this University compares very unfavorably with such state universities as that of California, it is true that state universities have thus far not attracted a large number of gifts from philanthropists. Special attention, however, is called at this point to one really great gift which this University has received, viz., the Mayo Foundation. This is not included in the figures of Table I because as yet the earnings of this gift are accumulating and so are not available for use at the present time. In the near future, however, this fund will produce a large annual income for the University. Up to the present date the annual budgets for the support of the work of the Mayo Foundation have been provided by the Doctors William J. and Charles H. Mayo.

From the inception of the Mayo Foundation for Medical Education and Research, it has been the plan of its donors to permit the fund to gather interest toward its own increase until such time as its sum total should provide adequate income for the support of the budgets covering the educational and research activities of the Foundation. As the fund has grown by grace of this generous provision, the work of the Foundation has grown with it and its budget expenditures have more than doubled within the past four years. In their total sum they represent an additional gift of over three-quarters of a million dollars.

TABLE IV (Part 1)  
INCOME FROM THE FEDERAL GOVERNMENT

Fund	1914	1915	1916	1917	1918	1919	1920	1921
Morrill Fund.....	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 25,000.00		\$ 25,000.00	\$ 25,000.00
Nelson Fund.....	25,000.00	25,000.00	25,000.00	25,000.00	25,000.00		25,000.00	25,000.00
Adams Fund.....	15,000.00	15,000.00	11,250.00	18,750.00	11,167.78	\$ 15,000.00	15,000.00	15,000.00
Hatch Fund.....	15,000.00	15,000.00	11,250.00	18,750.00	11,250.00	15,000.00	15,000.00	15,000.00
Smith-Lever and Lever Extension Funds.....		10,000.00	43,556.39	18,657.41	49,730.63	62,146.45	{ 74,562.26 }	124,225.55
Smith-Hughes Fund.....						11,117.95	15,246.25	17,716.69
United States Social Hygiene Fund..							17,250.00	
Totals .....	\$ 80,000.00	\$ 90,000.00	\$116,056.39	\$106,157.41	\$122,148.41	\$103,264.40	\$224,305.98	\$221,942.24

TABLE IV (Part 2)  
DISTRIBUTION OF FEDERAL INCOME TO THE VARIOUS COLLEGES

Department	1914	1915	1916	1917	1918	1919*	1920	1921
Agriculture and Substations.....	\$ 61,000.00	\$ 71,000.00	\$ 97,056.39	\$ 87,157.41	\$103,148.41	\$ 92,146.45	\$172,809.73	\$185,225.55
Engineering .....	9,500.00	9,500.00	9,500.00	9,500.00	9,500.00		9,500.00	9,500.00
Medical School.....							17,250.00	
Science, Literature, and the Arts..	9,500.00	9,500.00	9,500.00	9,500.00	9,500.00		9,500.00	9,500.00
Education and Agriculture.....						11,117.95	15,246.25	17,716.69
Totals .....	\$ 80,000.00	\$ 90,000.00	\$116,056.39	\$106,157.41	\$122,148.41	\$103,264.40	\$224,305.98	\$221,942.24

\* August 1, 1919.

## STATE APPROPRIATIONS

The next source of income mentioned in Table I is that from State appropriations or, in other words, that which has been derived from taxes from the people of the state. This is shown in summary form in Table I, but in full detail in Table V which has brought together from the statute books each appropriation as it has been made during the past eight years.

During the short period of the history of state appropriations to the University a very marked tendency in the direction of general, as opposed to special appropriations, is shown. This presents a picture of the passing of the State of Minnesota through the stage of adolescence in legislating for higher education and it is doubtful if very many states have discarded their crude methods more quickly. This does not mean that the Legislature has had a less specific statement of the University's support. It does mean, tho, that the Legislature has left to the University a larger freedom in the use of its funds. The importance of this to higher education in this or any state can hardly be overestimated.

The general appropriation plan places upon the University the responsibility for making outlays which involve large future maintenance costs. This is exactly where such responsibility belongs so long as the final say in any appropriation rests with a lay Board of Regents representing the people of the state.

The actual amount that has been spent from year to year out of the taxes of the state has until the past two years remained almost stationary. During the past two years, as the figures show, the state has reacted not only to the growing demands of the University, but to the lessened value of money as well. When the latter is accounted for, it is plain that the state has given very little more to the University in sum total during the last two years than it had been giving previous to that time, and this in spite of the enormous increase in student load which the University has had to carry. An examination of the figures on faculty changes above reported throws light on what has been happening as a result, viz., an increase in young and inexperienced teachers and a relative decrease in the group of highly trained and experienced scholars, the real meaning of which is obviously a lower grade institution.

It will be noted that in Table V-A, all the state appropriations for the period between 1914 and 1921 are included, but that special appropriations, frequently made in the earlier years, for the Department of Agriculture and the substations are covered only in totals. In Tables V-B and C these are given in detail. As already suggested these special appropriations have almost disappeared in present legislative practice.

TABLE V-A  
INCOME FROM STATE APPROPRIATIONS

	GENERAL UNIVERSITY							
GENERAL APPROPRIATIONS	1914	1915	1916	1917	1918	1919	1920	1921
Maintenance .....	\$ 483,000.00	\$ 483,000.00	\$ 550,000.00	\$ 550,000.00	\$1,039,800.00	\$1,044,800.00	\$1,710,500.00	\$1,710,500.00
Mill tax.....	324,806.03	330,117.11	335,852.25	293,748.64	369,214.26	313,978.38	425,358.83	401,524.06
Fuel .....	60,000.00	60,000.00	90,000.00	90,000.00				
General repairs.....	25,000.00	25,000.00	30,000.00	30,000.00				
Special equipment.....			17,500.00	17,500.00	17,000.00	17,000.00		
Forty-acre athletic field.....							25,000.00	
Building program.....								719,795.03
<b>SPECIAL APPROPRIATIONS</b>								
Mines Building.....	45,000.00	100,000.00						
Reconstructing and fireproofing Old Mines Building.....	54,000.00							
Sprinkler system and wiring....	25,000.00							
Electrical engineering equipment and repairs.....	20,000.00							
Equipment for experimental lab- oratory in Engineering Building	7,000.00							
Equipment for machine and wood work shop.....	10,000.00							
Addition to botany greenhouse..	3,000.00							
Equipment for College of Den- tistry .....	2,500.00							
Equipment for School of Mines	6,000.00							
Equipment for Science, Litera- ture, and the Arts.....	10,000.00							
Biology Building.....	200,000.00							
Hospital Service Building.....	50,000.00							
Women's Gymnasium.....	125,000.00							
Remodeling chemical laboratory for Men's Building.....		17,500.00						
Remodeling Library Building...			10,000.00					
Enlarging heating plant.....			55,000.00					
School of Mines.....	9,500.00	9,500.00						

General Library.....	\$ 20,000.00	\$ 20,000.00	\$ 15,000.00	\$ 15,000.00				
Law library.....	5,000.00	5,000.00	5,000.00	5,000.00				
University Hospital support....	80,000.00	80,000.00	85,000.00	85,000.00	\$ 100,200.00	\$ 100,200.00		
Research and publications.....	10,000.00	10,000.00	10,000.00	10,000.00				
Scientific books and apparatus..	25,000.00	25,000.00	20,000.00	20,000.00				
Physical Education and Public Health .....			5,000.00	5,000.00				
Extension .....	40,000.00	40,000.00	25,000.00	25,000.00	25,000.00	25,000.00		
Mines Experiment Station.....	10,000.00	10,000.00	10,000.00	10,000.00				
Geological survey.....	6,500.00	6,500.00	8,250.00	8,250.00				
University High School.....			5,000.00	5,000.00				
Summer Session.....			3,500.00	3,500.00				
Special book purchases.....			15,000.00					
Paving and grading.....				8,000.00				
Extraordinary repairs.....					20,000.00			
Business Building.....						100,000.00	\$ 100,000.00	
Preparing general library plans							3,000.00	
Addition to Shevlin dining hall							35,000.00	
Addition to High School Building .....							50,000.00	
Army barracks.....						23,000.00		
Emergency appropriation.....								\$ 547,179.00
General University totals..	\$1,656,306.03	\$1,221,617.11	\$1,295,102.25	\$1,180,998.64	\$1,571,214.26	\$1,623,978.38	\$2,348,858.83	\$3,378,998.09
Special Appropriations								
Department of Agriculture totals .....	394,200.00	323,250.00	194,550.00	164,250.00	110,998.50	58,500.00	148,000.00	123,000.00
Substation totals.....	234,600.00	100,900.00	194,875.00	152,775.00	207,500.00	211,000.00	293,500.00	154,500.00
Grand totals.....	\$2,285,106.03	\$1,645,767.11	\$1,684,527.25	\$1,498,023.64	\$1,889,712.76	\$1,893,478.38	\$2,790,358.83	\$3,656,498.09
Deduction for July, 1919....						64,320.00		
						\$1,829,158.38		

TABLE V-B  
ANALYSIS OF SPECIAL STATE APPROPRIATIONS\*

UNIVERSITY FARM	DEPARTMENT OF AGRICULTURE							
	1914	1915	1916	1917	1918	1919	1920	1921
Livestock .....	\$ 4,000.00	\$ 4,000.00						
Repairs and alterations.....	17,500.00	17,500.00	\$ 17,500.00	\$ 17,500.00				
Campus maintenance.....	3,000.00	3,000.00	3,500.00	3,500.00				
Library .....	9,000.00	9,000.00	9,000.00	9,000.00				
Agricultural extension.....	65,000.00	65,000.00	30,000.00	25,000.00	\$ 25,000.00	\$ 25,000.00	\$ 30,000.00	\$ 30,000.00
Forestry support.....	15,500.00	15,500.00	15,500.00	15,500.00				
Seed testing and examination of samples.....	1,500.00	1,500.00	5,000.00	5,000.00				
General investigations.....	49,500.00	49,500.00	50,000.00	50,000.00				
Culture of tobacco.....	2,000.00	2,000.00						
Special improvement farm.....			8,750.00	8,750.00				
County agents.....					17,000.00	17,000.00	86,000.00	86,000.00
Addition to horse barn, equipment and R. R. Co.....	5,000.00							
Poultry house and equipment...	4,000.00							
Chemistry alterations and equipment .....	7,000.00							
Plant pathology field house and equipment .....	2,000.00							
Alterations in dining hall basement .....	1,500.00							
Storage cellar.....	500.00							
Renewal of boys' dormitory equipment .....	2,500.00							
Grading, new fences, and equipment .....	15,000.00							
Greenhouse and equipment.....	22,000.00							
Addition to Dairy Hall and equipment .....	2,000.00							

Home Economics Building.....	75,000.00							
Equipment for Gymnasium and Drill Hall.....		90,000.00						
Ice house and cold storage.....		20,000.00						
Additions and alterations veter- inary pathology plant.....		18,250.00						
Home Economics addition en- largement and equipment....			45,300.00					
Enlarging power house and equipment .....				\$ 30,000.00				
Extraordinary repairs.....					\$ 18,750.00			
Seed house.....					15,000.00			
Completion of veterinary barn..						\$ 25,000.00		
Addition to heating plant and equipment .....	26,000.00							
Inter-campus trolley.....	60,000.00							
Cloquet timber purchase.....	8,600.00							
Hog cholera serum.....		20,000.00	\$ 10,000.00					
Bee culture.....		3,000.00						
Seed analysis.....		5,000.00						
Army barracks.....					\$ 9,000.00			
Peat soil investigation.....					6,000.00	6,000.00	6,000.00	\$ 6,000.00
Sandy soils investigation.....						1,500.00	1,000.00	
Low lime soils investigation....								1,000.00
Fire loss.....					29,248.50			
Totals .....	\$ 394,200.00	\$ 323,250.00	\$ 194,550.00	\$ 164,250.00	\$ 110,998.50	\$ 58,500.00	\$ 148,000.00	\$ 123,000.00

\* Totals included in Table V A.

TABLE V-C  
ANALYSIS OF SPECIAL STATE APPROPRIATIONS\*

	SUBSTATIONS								
	1914	1915	1916	1917	1918	1919	1920	1921	
<b>CROOKSTON</b>									
General maintenance.....	\$ 39,900.00	\$ 39,900.00	\$ 45,400.00	\$ 45,400.00	\$ 56,000.00	\$ 56,000.00	\$ 61,000.00	\$ 61,000.00	
Repairs .....	10,000.00		7,500.00	7,500.00					
Special improvement.....			9,500.00						
Heating plant, water softener, and equipment.....	40,000.00								
Drainage, sewerage, and green- house .....	19,700.00								
Grain storage, cleaning plant, and equipment.....	6,000.00								
Machine shed, corn crib, and scales .....	2,000.00								
Boys' dormitory.....	40,000.00								
Dining hall.....							100,000.00		
Swine barn addition.....	1,000.00								
Paving from city.....							10,000.00		
Grading grounds.....	2,000.00								
Water works.....					5,000.00				
<b>MORRIS</b>									
General maintenance.....	25,000.00	25,000.00	34,500.00	34,500.00	50,000.00	50,000.00	56,000.00	56,000.00	
Alterations, repairs, and equip- ment .....	9,000.00	9,000.00	9,000.00	9,000.00					
Additional lands.....			2,500.00						
Improvements .....			16,500.00						
Purchase of cows.....		5,000.00							
Construction and equipment of Engineering Building.....			25,000.00						
Cottage .....				15,000.00					
New dormitory.....						75,000.00			
Dining hall and gymnasium....					60,000.00				
<b>GRAND RAPIDS</b>									
General maintenance.....	7,000.00	7,000.00	10,000.00	10,000.00	12,000.00	12,000.00	15,000.00	15,000.00	
Repairs and alterations.....			1,000.00	1,000.00					
Special improvements.....			6,000.00						
Repairs .....				6,000.00					

DULUTH	1914	1915	1916	1917	1918	1919	1920	1921
General maintenance.....	\$ 6,100.00	\$ 6,100.00	\$ 7,600.00	\$ 7,600.00	\$ 8,000.00	\$ 8,000.00	\$ 10,000.00	\$ 10,000.00
Clearing land.....	3,000.00		3,000.00					
Livestock .....	2,000.00							
Institute Hall.....				7,000.00				
Replacing burned building (Institute Hall).....							9,000.00	
Repairs .....					3,000.00			
WASECA								
General maintenance.....	3,900.00	3,900.00	4,400.00	4,400.00				
Livestock .....	2,000.00							
Seeds and seed plants.....	500.00							
Repairs .....			1,375.00	1,375.00				
Feeding shed yards.....	1,500.00							
Alterations and remodeling old buildings .....	3,500.00							
Drainage .....	1,000.00							
Water system.....	500.00							
Fencings .....	1,000.00							
Institute Hall.....	6,000.00							
Superintendent's house.....		3,000.00					6,000.00	
Remodeling .....					3,500.00			
ZUMBRA								
General maintenance.....	2,000.00	2,000.00	4,000.00	4,000.00	5,000.00	5,000.00	6,500.00	6,500.00
Repairs .....			7,600.00					
Additional land for fruit breeding .....							14,000.00	
Totals .....	\$ 234,600.00	\$ 100,900.00	\$ 194,875.00	\$ 152,775.00	\$ 207,500.00	\$ 211,000.00	\$ 293,500.00	\$ 154,500.00

\* Totals included in Table V-A.

TABLE VI  
UNIVERSITY EARNINGS  
RECEIPTS FROM FARM PRODUCTS

Department	1914	1915	1916	1917	1918	1919	1920	1921
University Farm—Products, live- stock, etc.....		\$ 45,209.02	\$ 31,322.71	\$ 47,081.32	\$ 38,872.82	\$ 30,407.08	\$ 69,077.40	\$ 42,568.39
University Farm—Hog cholera serum .....		33,040.00	15,427.01	10,703.86	14,470.04	19,361.13	32,686.19	7,829.92
Crookston Farm—Products, live- stock, etc.....		9,940.24	9,749.74	11,725.89	15,957.95	17,658.03	16,570.01	15,619.63
Grand Rapids Farm—Products, livestock, etc.....		9,195.59	6,847.00	10,921.30	12,138.37	14,349.81	13,235.71	9,832.92
Morris Farm—Products, livestock, etc. ....		3,860.12	4,545.39	6,761.11	14,454.38	6,433.18	8,899.65	11,092.06
Duluth Farm—Products, livestock, etc. ....		1,104.61	2,173.59	3,294.83	4,249.00	4,116.00	6,092.30	4,421.00
Waseca Farm—Products, livestock, etc. ....		3,073.04	1,664.67	3,756.13	5,115.02	6,769.63	7,933.38	7,895.70
Zumbra Farm—Products, livestock, etc. ....			1,496.49	563.75	944.24	1,754.33	1,760.10	3,777.61
Totals .....	\$ 66,874.40	\$105,483.28	\$ 73,226.60	\$ 94,808.19	\$106,201.82	\$100,849.19	\$156,854.74	\$103,037.21

The source of income presented in Tables VI and VII lies in University earnings. During the life of the University many lines of work have been developed which have proved to be remunerative because of their actual market value. The items enumerated in Tables VI and VII show in some detail the sources from which this money has been derived. This income it must be remembered is merely incident to the carrying on of instruction and research in the University and is useful not only in adding to the income of the University, but also in providing in many instances the very best of facilities for carrying on research and instructional work.

TABLE VII  
UNIVERSITY EARNINGS  
RECEIPTS FROM MISCELLANEOUS SERVICES AND OTHER SOURCES

Department	1914	1915	1916	1917	1918	1919	1920	1921
Rent of campus houses.....	\$ 10,199.38	\$ 8,659.07	\$ 9,458.00	\$ 8,868.62	\$ 9,608.69	\$ 8,813.51	\$ 11,367.27	\$ 5,363.15
Dental Infirmary.....	21,303.47	20,860.59	24,272.96	29,474.62	34,480.44	23,934.37	37,921.30	52,041.67
Hospital and Free Dispensary....		4,749.23	8,395.95	12,769.60	14,184.16	14,191.52	18,753.20	33,273.91
Lyceum and University weeks....		35,811.57	34,359.45	36,324.21	39,703.70	34,768.46	51,042.44	45,627.65
Trolley system.....		9,089.11	11,542.97	10,413.73	10,278.73	8,507.37	6,893.37	7,539.03
Printing Department.....		1,714.00	9,687.14	26,369.13	37,861.35	48,860.42	78,250.78	93,915.61
Stock testing, etc., University Farm Extension.....		2,164.03	4,121.65	9,195.96	12,356.09	15,775.67	27,993.86	36,870.46
Fire loss.....		295.57	1,621.24	165.92	112.46	9,000.00	179.38	
Canceled state treasury checks....	678.43	78.40	1,280.40	1,043.23	4,014.33		12.72	2,366.72
University Farm photo laboratory		2,183.97	1,920.06	1,801.35	2,656.61	4,845.30	3,899.60	4,371.53
Sale of books, publications, etc....		997.91	3,099.61	183.87				
Repairs, reimbursements.....		3,407.05	2,803.80	1,577.95				
Reimbursements.....			1,150.00	4.26				
Sale of seed cases.....			2,961.29	879.80	1,354.50	726.96	910.05	482.74
Storehouse purchases from depart- ments .....			10,878.76					
Refund railway passenger fare....		1,102.41						
Sale of student publications.....			6,679.95	8,463.50				
Engineering testing fees.....		478.75			816.35			
Interest on bank deposits.....					1,169.40	1,221.26	743.76	1,426.56
Research and geological survey....					410.38	565.75	1,064.23	519.82
Peat soil investigation receipts....					500.00			
Cold storage re-sales.....			10,933.58	2,160.98		86,289.61	93,708.22	85,729.04
Feed purchase re-sales.....						19,864.81	38,487.08	30,261.60
Analytical service.....						171.75		
County agents, undisbursed ap- propriation .....						9,015.49		
Agriculture hospital.....						1,267.14		
Discounts .....						2,795.45		
Commonwealth research gift.....								2,500.00
Sundry items.....	43,359.32	20,649.06	21,442.08	20,707.06	20,457.68	74,056.67	48,028.57	59,112.84
Totals .....	\$ 75,540.60	\$112,240.52	\$166,608.89	\$170,403.79	\$189,964.87	\$364,671.51	\$419,255.83	\$461,402.36

## B. THE UNIVERSITY EXPENDITURES

The expenditures of the University may be studied from three different angles: First, by a classification of disbursements based upon the general administrative organization of the University; second, by a classification based upon the essential functions for which the University exists; and third, by a study of disbursements for instruction from the standpoint of unit costs.

The first of these classifications is given for a series of years. The second and third of these studies are not so extensive, covering only the figures for the fiscal year 1920-21. It must be said at the outset, too, that these two last sets of figures do not represent an exhaustive cost study, but are believed to show, with reasonable clarity, not only what share of the total disbursements has gone into instruction, as compared with the other main activities of the University, but also what certain measurable units or blocks of differing kinds of instruction have cost.

### AN ADMINISTRATIVE CLASSIFICATION OF COSTS

Our first step in this study will have to do with what may be regarded as a logical or an administrative analysis of University expenditures—an analysis such as is common in all business, educational, municipal, and other types of public financial reporting. In this study we shall present comparable figures through a series of years which will show the costs of each of the several administrative units of the University and, in some slight detail, the items of cost within these groups.

In Table I is presented, in light and black type, a general analysis of the total expenditures of the University through a series of five years. The light type of the table shows these figures in whole numbers, and the black type shows them in per cent form. By means of the former the exact gross costs, by grand division, may be ascertained; and by the latter a ready means of comparison of divisions, as well as of expenditures, is provided.

The total expenditures of the University are shown in this table under five heads. Administration, which, as seen in subsequent tables, has reference to general University overhead, includes the cost of the Registrar's office, the business office, the President's office, etc. The second main item, General Services, includes the cost of the library, the cost of military instruction, of the editorial department, of physical education, the museum, and similar items. Under these two, administration and general services, therefore, are included all those costs which have reference to the University as a single project.

The third main item in our table is colleges and schools. This item covers expenditures involved in the maintenance of the individual colleges. However vague the line between the two first items and the third item may seem, it may be said that in the bookkeeping and accounting of the University this line is well defined and rests upon clear cut principles of accounting, by means of which every charge is placed with reference to these items.

The item of student services covers those activities which are carried on, at students' cost, by means of revolving funds. The expenditures that are included under this item are without doubt of vital significance in the life of the University, in that they save to various colleges and departments and to the student body and so, indirectly, to the people of the State, a very considerable amount of money, and in addition provide a large opportunity for the moral and social supervision of the students who attend the University.

When we are considering costs from a functional standpoint, that is, costs of instruction, or of research, public service and experimentation, or of extension, these figures, of course, will not be included, since they represent no actual outlay on the part of the University. We must not overlook the fact, however, that if these enterprises were not carried on—if we maintained no dormitories, no dining halls, no print shop, etc.—the University would be compelled to purchase in an open market many items which it now has at bare costs of production and the cost of living to the student would be substantially higher than it now is. The importance of these services lies in their economic saving to the University and to the student; and in the supervision over the social and moral life of the students which many of these activities make possible.

The fifth item in this table comes under the head of special military instruction and has reference to the single year, 1919, at which time a special provision was made for military work in the University.

The black figures in the table show at a glance that in its relation to the total expenditures the cost of administration in the University has remained almost constant during the past five years. In the group of accounts included under General Services the cost has tended to decline very slightly. In 1917 the cost of colleges and schools amounted to 74.3 per cent of all disbursements. For 1918 this figure went up to 79.3 per cent, 9.3 per cent of which was for physical plant. If the 14 per cent under general services in 1917 could be relieved of physical plant cost, the figures would then show general services about 7 per cent and colleges and schools about 81 per cent for the year 1917.

When we say, therefore, that the relative cost of the collection of items under General Services has declined, and that the cost of colleges and schools has increased, and then examine the figures in parentheses, which show physical plant cost, we have a clear explanation of where the real change lies.

There are variations here, at least one of which, that for 1919, is obviously caused by the military item of 15.6 per cent. Other than this the slight decline in General Services is fully affected by the increase in physical plant and student services. In view of the great increase in numbers of students it is regrettable that this increase is not more fully shared by colleges and schools; or, in other words, that expenditures for actual instruction do not keep pace with expenditures for these more material things.

TABLE I  
THE GENERAL DISBURSEMENTS OF THE UNIVERSITY  
1917-1921

	1917	1918	1919	1920	1921
Administration .....	\$ 62,748.50	\$ 85,999.28	\$ 106,387.48	\$ 125,247.26	\$ 135,504.32
	2.3	2.8	2.7	2.7	2.3
General University services.....	390,342.30	246,589.61	214,511.35	262,064.80	297,111.21
	14.4	8.2	5.4	5.7	5.1
Colleges and schools.....	2,011,620.98	2,394,570.33	2,519,841.64	3,472,908.39	4,543,335.11
	74.3	79.3	63.5	74.3	78.3
Student services and loan funds.....	250,921.64	291,685.55	503,784.82	315,501.99	825,929.95
	9.0	9.7	12.8	17.3	14.3
Special military instruction.....			619,069.12		
			15.6		
Grand totals.....	\$2,715,633.82	\$3,018,844.77	\$3,963,594.41	\$4,675,722.44	\$5,801,880.59
	100.00	100.0	100.0	100.0	100.0
Refunds .....	116,396.03	142,684.39	82,157.38	88,041.86	64,595.98
Net total disbursements.....	\$2,599,237.79	\$2,876,160.38	\$3,881,437.03	\$4,587,680.58	\$5,737,374.61

TABLE II  
ANALYSIS OF GENERAL DISBURSEMENTS OF THE UNIVERSITY OF MINNESOTA  
1917-1921

	1917	1918	1919	1920	1921
Salaries and wages.....	\$1,600,385.36	\$1,763,855.36	\$1,948,447.04	\$2,713,504.87	\$3,125,638.25
	58.9	58.4	49.2	58.0	53.9
Supplies.....	903,461.74	945,254.38	1,170,622.00	1,590,970.61	1,622,724.75
	33.3	31.3	29.5	34.0	28.0
Capital outlay.....	211,786.72	309,735.03	225,456.25	371,246.96	1,053,517.59
	7.8	10.3	5.7	8.0	18.1
Military instruction.....			619,069.12		
			15.6		
Totals.....	\$2,715,633.82	\$3,018,844.77	\$3,963,594.41	\$4,675,722.44	\$5,801,880.59
	100.0	100.0	100.0	100.0	100.0
Refunds.....	116,396.03	142,684.39	82,157.38	88,041.86	64,595.98
	\$2,599,237.79	\$2,876,160.38	\$3,881,437.03	\$4,587,680.58	\$5,737,374.61

## ANALYSIS OF GENERAL DISBURSEMENTS

In Table II is presented an entirely different analysis of the total expenditures of the University. These figures include total gross disbursements exactly as in Table I. They are comparable from year to year. Here the cost of service, that is, of salaries and wages, is shown under the first head; the cost of supplies, by which is meant expendable supplies, under the second head; the cost of capital outlay, which includes buildings, land, and permanent equipment, under the third head; and, under the fourth head, the special military item.

These figures show in simple form the parts of the total expenditures of the University that go for service for consumable supplies, and for capital outlay. It should be remembered, of course, that these figures include the supplies used in dining halls, dormitories, etc., as well as in classrooms and janitor service. The figures for capital outlay, through this period of years, reflects the slump in building activities during the war period. The cost of service has increased greatly in the absolute, but not very greatly relative to total expenditures. The largest increase is shown in the supplies or the materials that are necessary to maintain the institution. Here a real increase has come about, and not only an absolute increase, but a relative one as well.

As already suggested, one might fairly raise the question as to whether the increase in service costs should not have fully kept pace with the increase in the cost of consumable supplies. In this University apparently it has not quite done so. Reference to the figures for the University staff will show that the increase in staff has been rather slow. The figures on teaching load show a somewhat heavier teaching load than has existed previously in the University. The figures on student registration show an enormous increase. Instead of permitting cost of instruction to go up, as has been unavoidably true of supplies, the load of work seems to have been increased for those who have carried this work.

## DISTRIBUTION OF DISBURSEMENTS

In Table III, in light figures, the items of administration, general services, colleges and schools, student services, and special military instruction are again set forth; here, however, showing an analysis by colleges of those expenditures which are directly devoted to the management of the several large administrative units of the University.

The black figures presented are in per cent form, so that the relative size of these several administrative units may be examined, from year to year, and the changes that have taken place in these relations may be seen clearly. It may be explained that for the year 1917 the part that is devoted to administration and general services amounted to 16.7 per cent of the total expenditures for that year; 74.3 per cent to the maintenance of the colleges and schools, and the remaining 9 per cent to student services.

TABLE III  
DISTRIBUTION OF DISBURSEMENTS OF THE UNIVERSITY OF MINNESOTA  
1917-1921

	BY SCHOOLS AND BY COLLEGES				
	1917	1918	1919	1920	1921
Administration .....	\$ 62,748.90	\$ 85,999.28	\$ 106,387.48	\$ 125,247.26	\$ 135,504.32
	13.9	25.9	33.2	32.0	31.0
General University services.....	390,342.30	246,589.61	214,511.35	262,064.80	297,111.21
	86.1	74.1	66.8	68.0	69.0
Sub-total .....	\$ 453,091.20	\$ 332,588.89	\$ 320,898.83	\$ 387,312.06	\$ 432,615.53
	16.7	11.0	8.1	8.4	7.4
Colleges:					
Science, Literature, and the Arts.....	\$ 352,436.92	\$ 354,262.54	\$ 389,504.23	\$ 507,480.44	\$ 565,342.32
	17.5	15.0	15.5	14.6	12.4
Engineering .....	123,872.38	121,710.97	145,532.74	199,389.90	243,143.95
	6.2	5.0	5.8	5.7	5.3
Department of Agriculture.....	569,227.91	527,202.31	580,839.28	711,273.10	767,922.12
	28.3	22.0	23.0	20.5	16.9
Medical School and Elliot Hospital.....	273,733.41	292,434.61	313,174.11	388,396.10	423,002.91
	13.6	12.2	12.4	11.1	9.3
Chemistry .....	68,670.12	60,575.10	78,699.53	109,603.24	126,073.20
	3.4	2.5	3.1	3.1	2.8
Mines .....	59,163.92	69,250.49	73,987.16	81,226.47	86,703.25
	3.0	3.0	3.0	2.3	2.0
Dentistry .....	99,506.95	112,771.91	97,830.99	125,277.18	138,030.63
	5.0	5.0	4.8	3.6	3.0
Law .....	44,577.90	41,484.86	32,148.40	47,135.08	54,846.07
	2.2	1.7	1.2	1.4	1.2
Pharmacy .....	19,986.67	24,573.69	24,473.77	29,054.84	30,163.67
	0.9	1.0	1.0	0.8	0.7
Education .....	44,675.74	49,839.30	74,796.06	114,428.14	123,138.26
	2.2	2.1	2.0	3.4	2.7
Graduate .....	11,584.02	12,029.21	14,008.96	16,672.13	22,039.70
	0.6	0.5	0.6	0.5	0.5
Summer Session.....	22,375.12	21,684.44	19,019.46	43,839.59	53,614.00
	1.1	0.9	0.7	1.3	1.1
School of Business.....				67,193.02	81,714.41
				2.0	1.9
Agricultural Extension.....	57,104.83	79,030.37	100,261.80	227,154.57	235,103.57
	2.9	3.3	4.0	6.5	5.2
University Extension.....	86,329.29	85,677.51	83,353.65	132,825.31	156,034.42
	4.3	3.6	3.3	4.0	3.4
Physical plant.....	*	281,627.58	250,731.89	427,010.93	951,168.78
		11.3	10.0	12.2	20.9
Crookston .....	66,867.90	75,980.50	83,482.20	94,555.85	181,988.99
	3.3	3.2	3.3	2.7	4.0
Morris .....	60,566.04	121,860.59	89,872.93	78,492.91	205,868.96
	3.0	5.1	3.6	2.2	4.5
Grand Rapids.....	19,045.73	29,726.03	25,973.17	31,436.70	32,777.91
	0.9	1.2	1.0	1.0	0.7
Duluth .....	16,651.11	13,619.32	23,469.12	16,332.40	16,253.74
	0.8	0.6	1.0	0.5	0.4
Waseca .....	7,272.64	11,943.53	10,856.25	15,343.21	18,133.60
	0.4	0.5	0.4	0.4	0.4
Zumbra .....	7,972.38	7,285.47	7,825.94	8,787.28	30,270.67
	0.4	0.3	0.3	0.2	0.7
College sub-total.....	\$2,011,620.98	\$2,394,570.33	\$2,519,841.64	\$3,472,908.39	\$4,543,335.11
	74.3	79.3	63.5	74.3	78.3
Service enterprises.....	250,921.64	291,685.55	503,784.82	815,501.99	825,929.95
	9.0	9.7	12.8	17.3	14.3
Special military.....			619,069.12		
			15.6		
Grand total.....	\$2,715,633.82	\$3,018,844.77	\$3,963,594.41	\$4,675,722.44	\$5,801,880.59
	100.0	100.0	100.0	100.0	100.0

\* Included in General University services in 1917.

The distribution of the 74.3 per cent which went to schools and colleges is shown to be 17.5 per cent for the College of Science, Literature, and the Arts, 6.2 per cent for the College of Engineering, 28.3 per cent for the Department of Agriculture, 13.6 per cent for the Medical School and Elliot Hospital, etc. An examination of the figures for the different years will show the general trend of the relative importance of each one of these major projects. The item for the School of Business does not appear until 1920, when that school was first organized. In physical plant is included new buildings and equipment.

In 1920, the School of Business, which shows a cost of 2 per cent, was organized as an independent school and so separated from the College of Science, Literature, and the Arts. This had a direct effect upon the figures for the College of Science, Literature, and the Arts, which would otherwise have been approximately 16.6 per cent for 1920 and 14.3 per cent for 1921. Other than this the figures are entirely self-explanatory.

#### ANALYSIS OF CLASSIFIED DISBURSEMENTS

Table IV presents a full analysis, in terms of the three items of Table II, salaries and wages, supplies, and capital outlay, of the total disbursements for the item of University administration, which appeared as the first item in Table I and Table III. The figures in Table IV show what salaries and wages are charged to administration, as well as the cost of that service. In the second and third sections of this table similar analysis and distribution of costs for supplies and for capital outlay are shown.

With the cost of University administration broken up under these three main divisions and then itemized for each of four separate years we are able to trace the changes in costs in considerable detail.

The cost of the Registrar's office has increased during these years. When one takes account, however, of the enormous growth of the student body and of the additional amount of work consequent upon the introduction of the quarter system, this increase is readily understood. There are no startling changes here, tho certain University changes are quite clearly reflected even in the item of administrative cost.

In Table V a similar analysis in terms of salaries, supplies, and capital outlay, under general services, is set forth. These figures also cover a period of four years. From this display a clear understanding of the term General Services may be had. The figures in parenthesis in this table have reference to amounts refunded. The figure from which the refund is taken is the figure above the one in parenthesis. For instance, the figure in supplies, under physical education for men, shows a cost of \$2,790.71, \$2,043.45 of which was refunded. These refund amounts may be seen clearly through the table and readily deducted from the gross amounts which are shown.

TABLE IV  
AN ANALYSIS OF DISBURSEMENTS FOR SALARIES AND WAGES, SUPPLIES,  
AND CAPITAL OUTLAY

ADMINISTRATION					
1918-1921					
SALARIES AND WAGES	1917	1918	1919	1920	1921
President's office.....		\$13,857.95	\$ 14,017.78	\$ 19,324.00	\$ 21,097.16
Dean of student affairs.....		5,564.02	5,760.65	7,891.93	7,463.33
Dean of women.....		4,375.00	5,394.56	4,327.32	4,320.46
Registrar's office.....		12,399.24	18,638.86	25,696.56	30,681.44
Comptroller's office.....		34,098.85	43,764.03	48,440.71	49,347.68
University survey.....				462.20	110.00
Housing Bureau.....					1,509.75
Totals .....	\$51,660.72	\$70,295.06	\$ 87,575.88	\$106,142.72	\$114,529.82
 SUPPLIES					
President's office.....		\$ 1,245.21	\$ 693.29	\$ 621.01	\$ 1,283.29
Dean of student affairs.....		239.50	373.31	351.81	471.18
Dean of women.....		106.16	186.12	436.70	181.04
Refunds.....			(1.15)		
General .....		498.45			915.10
Registrar's office.....		5,325.69	8,088.20	8,858.75	12,656.08
Comptroller's office.....		6,220.24	6,990.91	6,715.65	3,612.76
University survey.....				364.36	668.93
Housing Bureau.....					45.67
Totals .....	\$10,477.45	\$13,635.25	\$ 16,331.83	\$ 17,348.28	\$ 19,834.05
 CAPITAL OUTLAY					
President's office.....		\$ 483.53	\$ 466.70	\$ 250.73	\$ 107.07
Dean of student affairs.....		63.36	204.05	74.80	95.60
Dean of women.....		11.77	74.19	27.59	8.00
Registrar's office.....		217.10	685.42	618.11	253.36
Comptroller's office.....		1,293.21	1,049.41	783.98	667.77
University survey.....				1.05	
Housing Bureau.....					8.65
Totals .....	\$ 610.73	\$ 2,068.97	\$ 2,479.77	\$ 1,756.26	\$ 1,140.45
Total administration.....	\$62,748.90	\$85,999.28	\$106,387.48	\$125,247.26	\$135,504.32

TABLE V  
AN ANALYSIS OF DISBURSEMENTS FOR SALARIES AND WAGES, SUPPLIES,  
AND CAPITAL OUTLAY

GENERAL UNIVERSITY SERVICES

1918-1921

SALARIES AND WAGES	1917	1918	1919	1920	1921
Library .....		\$ 25,524.10	\$ 27,715.70	\$ 38,715.03	\$ 45,850.97
Physical Education for Men		8,209.29	7,419.42	11,351.19	11,375.00
Physical Education for Women		8,567.96	10,173.54	12,741.06	16,334.44
Military Department.....		3,887.71	1,102.30	4,404.16	5,699.44
Editorial Department.....		2,284.36	2,300.67	3,049.32	3,361.68
Retired president's office...		480.00	480.00	720.00	720.00
General service.....		5,479.95	6,580.04	9,125.64	10,462.91
Auto Service Department..				4,483.89	
General Storehouse.....		11,991.65	22,837.67	20,495.92	23,670.88
Zoological Museum.....				5,487.00	6,198.62
Alumni Association.....			1,091.03	1,200.00	7,537.00
Postage and freight.....		2,839.02	1,286.67	938.40	940.96
Statistical Bureau.....		541.50			
Public Health.....		88.02			
Totals .....	\$ 61,959.53	\$ 69,893.56	\$ 80,987.04	\$ 112,711.61	\$ 132,151.90
<b>SUPPLIES</b>					
Library .....		\$ 7,676.62	\$ 7,556.02	\$ 7,874.08	\$ 7,060.70
Physical Education, Men..		2,790.71	500.16	1,314.41	3,025.68
Refunds .....		(2,043.45)	(3.14)		
Physical Education, Women		7,347.22	5,424.96	8,843.98	12,578.88
Refunds.....		(1,827.85)	(151.20)	(33.00)	(902.85)
Military Department.....		49,140.68	30,595.54	1,497.29	1,494.50
Refunds.....		(48,451.62)	(29,659.84)	(17.50)	(48.25)
Editorial Department.....		7,961.90	11,223.79	19,812.92	22,267.39
Retired Presidents' office..		6.19	5.13	4.54	3.72
General service.....		268.96	359.14	314.98	323.85
Auto Service Department.				3,722.05	
General Storehouse.....		1,073.98	1,789.98	432.12	652.33
Zoological Museum.....				1,016.16	1,573.46
Alumni Association.....			382.66	988.83	1,152.06
Postage and freight.....		79,239.12	48,403.89	72,384.88	72,230.82)
Refunds.....		(69,211.72)	(32,875.20)	(57,195.00)	(43,720.44)
Public Health.....		80.82			
Totals .....	\$ 146,939.02	\$ 155,586.20	\$ 106,151.27	\$ 118,206.24	\$ 122,363.39
Refunds .....	(100,791.28)	(121,534.64)	(62,680.38)	(57,245.90)	(44,671.54)
<b>CAPITAL OUTLAY</b>					
Library .....		\$ 18,003.21	\$ 23,715.50	\$ 28,400.03	\$ 30,363.91
Physical Education for Men		89.47	90.04	31.00	115.01
Physical Education for Women.		1,425.00	834.59	133.50	429.50
Military Department.....		100.20	171.43	483.75	1.66
Editorial Department.....		91.90		26.47	94.35
General service.....		18.38	45.65	729.31	121.00
General Storehouse.....		1,069.16	2,393.36	10.76	111.94
Zoological Museum.....				1,061.57	917.73
Alumni Association.....			83.03	105.00	188.40
Miscellaneous .....		312.53	39.44	165.56	10,252.42
Totals .....	\$ 72,621.18	\$ 21,109.85	\$ 27,373.04	\$ 31,146.95	\$ 42,595.92

The figures in Table VI show, through a period of five years, an analysis of the expenditures of each college, showing the amount spent for service, for supplies, and for capital outlay for each of these years. This table is an analysis of item 3 in Table I. In the College of Science, Literature, and the Arts it will be seen that service cost \$320,568.98, in 1917, that supplies for the college cost \$24,962.29, \$134.50 of which was refunded, and that capital outlay cost \$6,905.65. Similar figures for each of these years and for each of the colleges and schools are presented.

TABLE VI  
AN ANALYSIS OF DISBURSEMENTS FOR SALARIES AND WAGES, SUPPLIES,  
AND CAPITAL OUTLAY

IN COLLEGES AND SCHOOLS

1917-1921

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

	1917	1918	1919	1920	1921
Salaries and wages.....	\$320,568.98	\$317,193.81	\$350,151.67	\$448,794.70	\$512,873.04
Supplies .....	24,962.29	27,089.32	30,935.79	46,158.06	40,844.66
Refunds.....	(134.50)	(32.00)			
Capital outlay.....	6,905.65	9,979.41	8,416.77	12,527.68	11,624.62
Totals .....	\$352,436.92	\$354,262.54	\$389,504.23	\$507,480.44	\$565,342.32
Refunds.....	(134.50)	(32.00)			

COLLEGE OF ENGINEERING AND ARCHITECTURE

Salaries and wages.....	\$ 99,231.32	\$ 97,225.91	\$113,331.70	\$162,228.70	\$204,948.03
Supplies .....	20,468.38	17,801.65	20,082.04	27,096.53	26,580.48
Capital outlay.....	4,182.68	6,683.41	12,119.00	10,064.67	11,615.42
Totals .....	\$123,872.38	\$121,710.97	\$145,532.74	\$199,389.90	\$243,143.93

COLLEGE OF AGRICULTURE

Salaries and wages.....	\$372,047.29	\$343,214.97	\$347,417.63	\$450,311.71	\$530,704.05
Supplies .....	138,846.29	150,144.34	186,357.70	217,301.95	190,357.82
Refunds.....	(8,829.37)	(12,620.58)	(9,279.36)	(9,941.14)	(10,954.74)
Capital outlay.....	58,334.33	33,843.00	47,063.95	43,659.44	46,860.25
Totals .....	\$560,227.91	\$527,202.31	\$580,839.28	\$711,273.10	\$767,922.12

MEDICAL SCHOOL AND ELLIOT HOSPITAL

Salaries and wages.....	\$173,164.94	\$172,925.04	\$178,722.67	\$244,315.10	\$273,519.08
Supplies .....	85,823.09	107,256.59	123,195.40	135,600.18	138,922.37
Refunds.....	(75.50)	(5.00)			
Capital outlay.....	14,745.38	12,252.98	11,256.04	8,480.82	10,561.46
Totals .....	\$273,733.41	\$292,434.61	\$313,174.11	\$388,396.10	\$423,002.91

TABLE VI—(Continued)

SCHOOL OF CHEMISTRY					
Salaries and wages.....	\$ 42,903.18	\$ 41,190.63	\$ 49,671.17	\$ 60,487.40	\$ 88,554.38
Supplies .....	15,562.42	16,288.35	22,255.17	33,672.30	33,378.45
Refunds.....				(4,348.63)	(5,490.31)
Capital outlay.....	10,204.52	3,096.12	6,773.19	15,443.54	4,140.37
Totals .....	\$ 68,670.12	\$ 60,575.10	\$ 78,699.53	\$ 109,603.24	\$ 126,073.20
SCHOOL OF MINES					
Salaries and wages.....	\$ 39,998.80	\$ 45,107.47	\$ 47,503.54	\$ 58,362.15	\$ 63,020.23
Supplies .....	11,282.73	15,865.09	19,588.58	18,636.56	19,141.97
Capital outlay.....	7,882.39	8,277.93	6,895.04	4,227.70	4,541.05
Totals .....	\$ 59,163.92	\$ 69,250.49	\$ 73,987.16	\$ 81,226.47	\$ 86,703.25
COLLEGE OF DENTISTRY					
	1917	1918	1919	1920	1921
Salaries and wages.....	\$ 66,585.13	\$ 72,945.71	\$ 69,848.83	\$ 83,448.02	\$ 91,110.41
Supplies .....	29,535.24	31,717.61	26,816.56	38,631.43	45,091.56
Refunds.....	(5.00)				
Capital outlay.....	3,386.58	8,108.59	1,165.60	3,197.73	1,828.66
Totals .....	\$ 99,506.95	\$ 112,771.91	\$ 97,830.99	\$ 125,277.18	\$ 138,030.63
LAW SCHOOL					
Salaries and wages.....	\$ 37,869.55	\$ 35,944.98	\$ 26,878.04	\$ 40,609.72	\$ 43,782.99
Supplies .....	1,894.29	1,893.92	1,953.52	2,526.92	3,145.60
Capital outlay.....	4,814.06	3,645.96	3,316.84	3,998.44	7,917.48
Totals .....	\$ 44,577.90	\$ 41,484.86	\$ 32,148.40	\$ 47,135.08	\$ 54,846.07
COLLEGE OF PHARMACY					
Salaries and wages.....	\$ 15,495.55	\$ 18,134.98	\$ 17,343.63	\$ 21,305.82	\$ 23,447.57
Supplies .....	3,982.81	6,172.89	6,730.10	7,275.80	6,286.84
Capital outlay.....	508.31	265.82	400.04	473.22	429.26
Totals .....	\$ 19,986.67	\$ 24,573.69	\$ 24,473.77	\$ 29,054.84	\$ 30,163.67
COLLEGE OF EDUCATION					
	1917	1918	1919	1920	1921
Salaries and wages.....	\$ 39,113.41	\$ 43,452.88	\$ 64,289.64	\$ 98,348.14	\$ 108,757.70
Supplies .....	3,782.27	4,932.39	8,693.68	12,184.58	12,956.26
Refunds.....	(6.50)				(8.00)
Capital outlay.....	1,780.06	1,454.03	1,812.74	3,895.42	1,424.21
Totals .....	\$ 44,675.74	\$ 49,839.30	\$ 74,796.06	\$ 114,428.14	\$ 123,138.26
GRADUATE SCHOOL					
Salaries and wages.....	\$ 7,944.11	\$ 6,594.69	\$ 8,234.45	\$ 10,126.62	\$ 9,092.64
Supplies .....	2,373.68	4,950.83	5,207.93	5,749.41	11,646.55
Capital outlay.....	1,266.23	483.69	566.58	796.10	1,300.51
Totals .....	\$ 11,584.02	\$ 12,029.21	\$ 14,008.96	\$ 16,672.13	\$ 22,039.70

TABLE VI--(Continued)

SUMMER SESSION					
Salaries and wages.....	\$ 21,250.87	\$ 19,599.12	\$ 18,218.67	\$ 37,000.74	\$ 46,682.39
Supplies .....	1,119.83	2,083.61	799.08	6,838.85	6,910.65
Refunds.....	(254.75)	(808.01)	(228.42)	(1,561.82)	(395.33)
Capital outlay.....	4.42	1.71	1.71		20.96
Totals .....	\$ 22,375.12	\$ 21,684.44	\$ 19,019.46	\$ 43,839.59	\$ 53,614.00
SCHOOL OF BUSINESS					
Salaries and wages.....				\$ 63,825.47	\$ 77,485.92
Supplies .....				1,383.06	2,381.71
Capital outlay.....				1,984.49	1,846.78
Totals .....				\$ 67,193.02	\$ 81,714.41
AGRICULTURAL EXTENSION					
Salaries and wages.....	\$ 37,361.56	\$ 53,319.94	\$ 72,137.02	\$191,297.73	\$200,459.28
Supplies .....	18,997.87	24,818.48	26,710.13	35,396.62	34,395.96
Capital outlay.....	745.40	891.95	1,414.65	460.22	248.33
Totals .....	\$ 57,104.83	\$ 79,030.37	\$100,261.80	\$227,154.57	\$235,103.57
UNIVERSITY EXTENSION					
	1917	1918	1919	1920	1921
Salaries and wages.....	\$ 46,622.59	\$74 843.46	\$ 72,747.87	\$112,510.68	\$134,050.38
Supplies .....	39,238.78	10,589.50	10,417.28	19,259.35	21,252.49
Refunds.....	(257.06)	(266.00)	(255.50)	(562.51)	(730.56)
Capital outlay.....	467.92	244.55	188.50	1,055.28	731.55
Totals .....	\$ 86,329.29	\$ 85,677.51	\$ 83,353.65	\$132,825.31	\$156,034.42
PHYSICAL PLANT					
Salaries and wages.....		\$113,847.20	\$131,038.88	\$135,917.55	\$146,669.39
Supplies .....		78,804.64	100,292.42	150,880.24	173,705.42
Refunds.....		(47.00)	(37.50)	(25.75)	(34.50)
Capital outlay.....		88,975.74	19,400.59	140,213.14	630,794.06
Totals .....		\$281,627.58	\$250,731.89	\$427,010.93	\$951,168.78
CROOKSTON					
Salaries and wages.....	\$ 37,173.31	\$ 41,267.32	\$ 44,128.26	\$ 50,827.60	\$ 58,880.66
Supplies .....	24,798.58	27,617.94	29,549.47	29,253.85	37,154.21
Refunds.....	(990.00)	(965.00)	(810.00)	(1,390.00)	(990.00)
Capital outlay.....	4,896.01	7,095.24	9,804.47	14,474.40	85,954.12
Totals .....	\$ 66,867.90	\$ 75,980.50	\$ 83,482.20	\$ 94,555.85	\$181,988.99

TABLE VI—(Continued)

MORRIS					
Salaries and wages.....	\$ 29,929.09	\$ 30,234.94	\$ 39,578.83	\$ 43,285.66	\$ 49,133.30
Supplies .....	21,927.92	24,033.07	24,165.22	27,374.73	32,795.28
Refunds.....	(905.00)	(1,392.74)	(1,548.49)	(1,539.50)	(1,231.00)
Capital outlay.....	8,709.03	67,592.58	26,128.88	7,832.52	123,940.32
Totals .....	\$ 60,566.04	\$ 121,860.50	\$ 80,872.93	\$ 78,492.91	\$ 205,868.96
GRAND RAPIDS					
Salaries and wages.....	\$ 9,628.22	\$ 11,492.71	\$ 11,850.71	\$ 14,004.38	\$ 16,246.64
Supplies .....	8,863.86	11,097.17	12,805.44	12,362.87	13,402.62
Refunds.....			(47.50)	(8.00)	
Capital outlay.....	553.65	7,136.15	1,317.02	5,069.45	3,128.65
Totals .....	\$ 19,045.73	\$ 29,726.03	\$ 25,973.17	\$ 31,436.70	\$ 32,777.91
DULUTH					
Salaries and wages.....	\$ 6,102.02	\$ 7,592.90	\$ 10,426.83	\$ 9,500.14	\$ 10,815.14
Supplies .....	2,877.26	4,942.25	5,891.04	5,103.17	4,872.30
Capital outlay.....	7,671.83	1,084.17	7,151.25	1,729.09	566.30
Totals .....	\$ 16,651.11	\$ 13,619.32	\$ 23,469.12	\$ 16,332.40	\$ 16,253.74
WASECA					
	1917	1918	1919	1920	1921
Salaries and wages.....	\$ 3,624.63	\$ 4,843.83	\$ 5,527.03	\$ 7,423.48	\$ 9,225.86
Supplies .....	2,482.83	3,160.53	3,668.62	4,067.53	6,950.38
Capital outlay.....	1,165.18	3,939.17	1,660.60	2,952.20	1,957.36
Totals .....	\$ 7,272.64	\$ 11,943.53	\$ 10,856.25	\$ 15,343.21	\$ 18,133.60
ZUMBRA HEIGHTS					
Salaries and wages.....	\$ 5,476.86	\$ 5,703.90	\$ 5,230.14	\$ 6,595.82	\$ 10,944.68
Supplies .....	2,164.34	1,241.87	2,464.23	1,513.61	3,122.01
Capital outlay.....	331.18	339.70	131.57	677.85	16,203.98
Totals .....	\$ 7,972.38	\$ 7,285.47	\$ 7,825.94	\$ 8,787.28	\$ 30,270.67

In Table VII is shown an analysis, under salaries and wages, supplies, and capital outlay, of the disbursements referred to in Table I under the head of student services.

TABLE VII  
AN ANALYSIS OF DISBURSEMENTS FOR SALARIES AND WAGES, SUPPLIES,  
AND CAPITAL OUTLAY

STUDENT SERVICES					
1917-1921					
	1917	1918	1919	1920	1921
Salaries and wages.....	\$ 55,414.11	\$ 66,990.35	\$ 95,606.91	\$ 144,123.21	\$ 168,552.71
Supplies .....	179,104.45	203,530.89	379,559.50	616,248.49	615,231.72
Refunds.....	(4,147.13)	(5,013.42)	(7,260.08)	(11,418.61)	(6,296.09)
Capital outlay.....	16,403.08	21,164.31	28,618.41	55,130.29	42,145.52
Totals .....	\$ 250,921.64	\$ 291,685.55	\$ 503,784.82	\$ 815,501.99	\$ 825,929.95

In Table VIII is shown an analysis of the maintenance charges which are included in the item of administration in Table I above, and in the first two items, viz., salaries and wages, and supplies, of Table IV.

TABLE VIII  
AN ANALYSIS OF SALARIES, WAGES, AND SUPPLIES COSTS

	UNIVERSITY ADMINISTRATION				
	1917-1921				
	1917	1918	1919	1920	1921
Deans .....		\$ 7,000.00	\$ 6,856.57	\$ 7,145.84	\$ 7,400.00
Professors .....		1,300.00		75.00	
Executive heads.....		21,500.00	22,554.31	33,679.15	38,066.70
Clerks, stenographers, and tele- phone operators.....		38,637.23	56,242.05	60,336.77	65,956.26
Extension workers.....			1,375.00	180.00	1,500.00
Salaries and wages.....	\$ 51,660.72				
Lectures and entertainments..	245.00	50.00	461.50	1,062.50	1,460.00
Farm and miscellaneous labor		1,807.83	86.45	3,663.46	146.00
Postage .....	2,463.75	5,150.67	4,550.50	3,986.58	736.68
Traveling expenses.....	155.93	244.37	155.42	68.68	259.57
Equipment repairs.....	2.33	99.74	239.53	515.84	152.78
Miscellaneous .....	480.90	971.43	1,008.24	695.32	1,016.08
Departmental maintenance....			16.54	339.57	294.12
Feed and provisions.....					358.80
Water and ice.....	40.39	26.00		73.75	70.40
Gas and electricity.....	24.00	65.00		160.00	240.00
Janitorial supplies.....				.53	
Fuel .....	257.50	351.45		670.35	549.70
Laundry .....	24.00	56.00		55.00	55.00
Stationery, printing, and office supplies .....	6,783.65	6,670.59	10,360.45	10,782.66	16,100.92
Totals .....	\$ 62,138.17	\$ 83,930.31	\$103,906.56	\$123,491.00	\$134,363.01

In Table IX is shown, in a similar manner, a distribution of the items for maintenance included in the item under general services in Table I and in the first two items, viz., salaries and wages, and supplies of Table V. These figures are given through a period of four years, from which the character of these costs may be examined in detail and from which tendencies from year to year may be clearly seen.

TABLE IX  
AN ANALYSIS OF MAINTENANCE COSTS OF GENERAL UNIVERSITY SERVICES

	1917-1921				
	1917	1918	1919	1920	1921
Professors .....			\$ 2,030.55	\$ 2,878.36	\$ 2,999.92
Associate professors.....			2,750.00	3,000.00	4,800.00
Assistant professors.....			3,100.00	3,786.65	
Instructors .....		\$ 5,073.28	4,400.00	10,400.00	9,358.31
Fellows, scholars, and student assistants .....		381.66	1,585.50		
Instruction service.....				4,395.15	4,000.00
Executive heads.....		4,050.00	3,868.37	3,725.00	3,800.00
Clerks, stenographers, and telephone operators.....		16,197.73	29,107.59	23,375.66	29,426.35
Extension workers and directors .....		6,750.00		4,642.00	15,050.00
Foremen, mechanics, engineers, and firemen.....		655.40	811.58	4,483.89	2,334.35
Matrons, nurses, and maids..		550.00	715.00	820.00	1,000.00
Editors and assistants.....		1,944.96	2,124.96	2,610.00	5,434.99
Librarians and assistants.....		24,471.63	26,913.25	37,635.03	44,770.97
Lectures and entertainments..		1,275.00	250.00	655.75	265.00
Farm and miscellaneous labor		8,543.90	3,330.24	10,394.12	8,912.61
Sub-totals, salaries and wages.....	\$ 74,683.70	\$ 69,893.56	\$ 80,987.04	\$ 112,711.61	\$ 132,147.90
Postage .....	993.60	835.06	1,105.07	1,283.73	2,962.29
Stationery, printing, and office supplies .....	3,801.62	4,331.86	5,481.49	4,300.13	9,125.56
Freight, express, and drayage	2,410.29	2,171.79	3,883.85	4,625.25	5,721.96
Telephone and telegraph.....	7.50	191.64	8.50	33.06	40.80
Traveling expenses.....	2,176.70	1,891.11	1,928.81	2,263.37	3,573.75
Equipment repairs.....		165.44	616.58	208.61	307.61
Miscellaneous .....	2,862.79	9,283.58	15,467.17	23,959.41	8,659.67
Departmental maintenance, chemical and laboratory supplies .....		124.78	14.42	5,601.23	5,238.13
Feed and provisions.....		28.14		33.22	209.28
Book binding.....	3,369.35	3,435.65	3,505.82	3,366.00	1,907.37
Advertising, publications, and bulletins .....	7,616.54	44.14			22,279.82
Repairs .....	1,441.42	261.99	269.45	372.20	
Water and ice.....	1,151.25	1,114.00	1,300.34	1,340.30	1,192.76
Gas and electricity.....	1,088.48	1,143.37	1,584.95	1,544.32	2,201.31
Janitorial supplies.....	.84	7.09	43.02	45.73	6.28
Fuel .....	6,208.64	7,507.78	6,506.56	7,795.33	7,756.14
Laundry .....	1,009.85	1,114.14	1,745.86	4,228.36	6,509.12
Totals .....	\$108,822.57	\$103,945.12	\$124,448.93	\$173,671.95	\$209,843.75
Physical plant (1917).....	108,107.27				
					\$216,929.84

In Table X is an analysis of another important item, viz., that of physical plant, which is shown as being charged against colleges and schools in Table III. In Table III, this item was not included for the year 1917. For that year it was charged to general services, but subsequent to that year the item of physical plant is charged to schools and colleges and appears as a separate item in Table III. Table X gives a detailed distribution of the items for which physical plant in Table III stands, but here it includes only maintenance charges and not capital outlay.

TABLE X  
ANALYSIS OF SALARIES, WAGES, AND SUPPLIES COSTS OF  
PHYSICAL PLANT

	1918-1921			
	1918	1919	1920	1921
Executive heads.....	\$ 8,150.00	\$ 8,885.05	\$ 8,574.18	\$ 8,023.23
Service men.....	1,091.64	225.00	225.00	330.00
Clerks, stenographers, and telephone operators .....	9,350.25	9,840.17	9,520.88	15,524.78
Foremen, mechanics, engineers, and firemen .....	17,477.72	20,666.74	25,368.20	33,608.81
Janitors and watchmen.....	53,872.76	55,046.15	72,161.92	78,210.97
Farm and miscellaneous labor.....	23,904.83	36,375.77	20,067.37	10,971.51
Postage .....	41.50	30.95	19.75	32.25
Stationery, printing, office supplies, and bulletins .....	536.99	482.66	720.14	815.39
Freight and express.....	294.19	95.60	390.53	105.36
Telephone and telegraph.....	5,299.79	6,510.05	7,457.42	10,066.77
Traveling expenses.....	2.75	5.85	1.75	39.53
Equipment repairs.....	2,437.15	2,558.79	5,236.99	3,294.03
Miscellaneous .....		131.67	1,599.97	2,813.56
Maintenance repairs.....	54,810.36	64,397.97	106,525.44	136,169.89
Water and ice.....	1,079.67	1,310.56	891.85	909.68
Gas and electricity.....	2,719.52	1,470.21	1,134.90	1,082.13
Janitorial supplies.....	4,295.21	5,110.50	5,287.38	5,704.16
Fuel .....	6,765.56	16,105.31	9,904.52	12,220.36
Laundry .....	99.96	126.45	111.95	99.15
Miscellaneous .....	374.99	1,918.35	11,571.90	
Feed .....				262.31
Seeds and plants.....				56.35
Refunds and business enterprises.....	47.00	37.50	25.75	34.50
Totals .....	\$192,651.84	\$231,331.30	\$286,797.79	\$320,374.72

1917—Total, \$108,107.27.

Table XI shows a distribution, by departments, of all the expenditures which were chargeable directly to the College of Science, Literature, and the Arts. In section I of this table the total amount spent for salaries and wages, as shown in Table VI, is distributed by departments within this college. The items of expenditures for supplies and for capital outlay, totals of which are also shown in Table VI, are distributed by departments in sections 2 and 3 of Table XI. From these figures the cost of college administration is isolated, part being charged to salaries, part to supplies, and part to capital outlay. The total expenditures for salaries of instructors and for wages are shown in the first section of this table in detail.

In the figures of this table we have a financial or a costs picture of departments within the College of Science, Literature, and the Arts which corresponds to similar pictures presented from other viewpoints in the Survey of the Instructional Service of the University. There we had faculty distributions, class registration distributions, student credit distributions, and course distributions, which, together with these tables of figures should furnish a fairly complete notion of the meaning of a department within the College of Science, Literature, and the Arts, a meaning that will apply also to other tables which follow.

TABLE XI  
DISTRIBUTION BY DEPARTMENTS OF THE EXPENDITURES OF THE  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS  
1918-1921

I. SALARIES AND WAGES					
	1917	1918	1919	1920	1921
Administration .....		\$ 7,332.75	\$ 8,090.71	\$ 11,410.31	\$ 21,988.43
Adviser for women.....		1,700.00	2,950.03	2,023.94	†
Animal Biology.....		26,566.80	28,273.09	30,726.51	35,440.98
Astronomy .....		4,516.75	5,000.00	5,500.00	5,500.00
Botany .....		18,103.26	20,226.78	26,527.13	29,967.29
Comparative Philology.....		3,362.00	3,475.00	3,725.00	3,725.00
Economics .....		23,790.32	27,169.61	*	*
English .....		18,481.87	18,793.59	18,408.49	15,387.93
Geology and Mineralogy.....		19,280.52	20,912.62	25,254.85	24,971.25
German .....		17,485.19	11,841.08	18,101.03	19,500.00
Greek .....		2,300.00	2,600.00	2,800.00	3,400.00
History .....		21,787.00	24,112.93	33,805.60	38,759.98
Latin .....		4,960.99	5,262.02	6,766.64	5,550.00
Mathematics .....		14,712.22	13,649.51	23,649.82	25,481.05
Music .....		12,239.66	14,480.81	20,096.00	25,169.00
Philosophy .....		8,075.00	8,363.88	9,475.00	6,081.45
Physics .....		15,075.21	20,301.01	29,113.96	37,129.62
Political Science.....		7,718.74	15,536.52	21,410.26	25,786.02
Psychology .....		10,600.07	6,117.87	21,894.05	24,775.00
Rhetoric .....		36,125.28	34,756.88	59,945.35	70,800.12
Romance Languages.....		26,912.90	35,814.13	48,066.60	58,029.10
Scandinavian .....		4,311.51	4,794.01	5,209.50	5,310.00
Social and Civic Training....		3,355.71	4,391.11	12,430.56	16,820.32
Sociology and Anthropology..		8,400.06	13,238.48	10,349.44	10,565.00
Journalism .....				2,104.66	2,734.90
Totals .....	\$320,568.98	\$317,193.81	\$350,151.67	\$448,794.70	\$512,873.04

\* Incorporated in School of Business.

† Incorporated with Dean of Women.

TABLE XI—(Continued)

2. SUPPLIES				
Administration .....	\$ 18,718.59	\$ 17,378.73	\$ 24,399.09	\$ 24,290.11
Adviser for women.....	307.22	251.33	244.50	29.36
Animal Biology.....	1,715.18	1,868.54	2,272.21	2,264.25
Astronomy .....	16.65	32.89	45.51	34.83
Botany .....	742.96	1,443.27	1,638.88	1,407.26
Comparative Philology.....	3.97	8.64	11.02	25.00
Economics .....	344.81	588.97		
English .....	126.85	62.28	103.79	97.99
Geology and Mineralogy.....	2,530.81	5,904.09	8,648.75	4,324.09
German .....	56.56	25.15	93.31	155.63
Greek .....	6.55	10.46	9.98	22.67
History .....	137.51	197.39	284.66	375.21
Latin .....	16.45	8.74	13.34	46.36
Mathematics .....	72.26	106.73	99.73	191.21
Music .....	259.12	346.76	921.24	398.16
Refunds.....	(32.00)			
Philosophy .....	23.67	36.11	17.63	28.23
Physics .....	386.72	1,133.88	2,446.44	2,400.37
Political Science.....	101.15	151.11	343.69	414.37
Psychology .....	443.95	191.19	1,881.48	1,797.41
Rhetoric .....	569.24	402.59	1,386.93	1,188.21
Romance Languages.....	116.89	150.48	385.00	244.24
Scandinavian .....	64.37	76.83	67.85	104.41
Social and Civic Training....	289.00	184.77	377.82	471.15
Sociology and Anthropology..	38.84	374.86	359.86	433.48
Journalism .....			105.35	100.66
Totals .....	\$ 24,962.29	\$ 27,089.32	\$ 30,935.79	\$ 46,158.06
	(134.50)	(32.00)		

3. CAPITAL OUTLAY					
	1917	1918	1919	1920	1921
Administration .....		\$ 329.26	\$ 190.91	\$ 512.87	\$ 734.14
Adviser for women.....		253.96	84.09	62.85	
Animal Biology.....		1,822.37	521.00	2,755.45	541.12
Astronomy .....		124.25	10.20		
Botany .....		813.96	728.51	3,295.59	950.77
Comparative Philology.....		31.88			
Economics .....		52.89	184.80		
English .....		34.10	10.83		3.50
Geology and Mineralogy.....		2,175.56	1,734.94	1,244.50	1,294.27
German .....		15.51		89.30	
History .....		11.45	140.00	154.01	14.58
Latin .....		.80	3.00		
Mathematics .....		16.12	8.49		
Music .....		1,681.85	3,941.87	341.09	1,439.22
Philosophy .....			12.50		
Physics .....		2,038.09	574.60	757.81	3,688.48
Political Science.....				222.12	471.15
Psychology .....		277.10	118.78	2,635.00	1,933.46
Rhetoric .....		120.57	110.65	115.78	23.50
Romance Languages.....		85.00	19.60	121.50	9.60
Scandinavian .....		.67	1.45	96.11	6.75
Social and Civic Training....		94.02	5.20	26.25	
Sociology and Anthropology..			15.35		159.17
Journalism .....				97.45	354.91
Totals .....	\$ 6,905.65	\$ 9,979.41	\$ 8,416.77	\$ 12,527.68	\$ 11,624.62
Grand totals.....	\$352,436.92	\$354,262.54	\$389,504.23	\$507,480.44	\$565,342.32

In Table XII we have a similar analysis of items of cost within the College of Engineering and Architecture. In this table we have the cost of salaries and wages, of supplies, and of capital outlay presented in all cases by departments. Here the cost of administration charged to salaries is 7.4 per cent as compared with 2.3 per cent in the College of Science, Literature, and the Arts for the year 1918. The same item charged to supplies and capital outlay, however, shows a corresponding difference in the opposite direction between the two colleges. Such differences are, of course, inevitable in view of the differences in the organization and character of the work of the two colleges. Here again, it is possible to examine the tendencies in any of these items through a period of four years.

TABLE XII  
AN ANALYSIS BY DEPARTMENTS OF THE EXPENDITURES OF THE  
COLLEGE OF ENGINEERING

	1918-1921				
SALARIES AND WAGES	1917	1918	1919	1920	1921
Administration .....		\$ 7,219.90	\$ 7,106.03	\$ 9,941.24	\$ 7,548.70
Power house.....		2,538.00	2,575.57	3,104.50	4,282.26
Architecture .....		10,838.97	11,579.04	16,799.32	21,993.34
Civil .....		13,921.08	25,399.04	21,963.57	26,903.99
Mechanical .....		15,359.20	16,513.81	27,680.98	36,436.73
Electrical .....		13,382.05	13,384.20	17,378.35	25,341.84
Drawing and Descriptive					
Geometry .....		9,339.30	9,131.57	22,306.16	31,265.73
Experimental .....		11,607.34	6,562.43	12,092.09	13,023.67
Mathematics and Mechanics		13,020.07	21,080.01	39,962.49	38,151.77
Totals .....	\$ 99,231.92	\$ 97,225.91	\$113,331.70	\$162,228.70	\$204,948.03
SUPPLIES					
Administration .....		\$ 11,743.13	\$ 12,753.54	\$ 15,502.32	\$ 14,894.48
Power house.....		873.78	811.29	800.72	661.49
Architecture .....		649.93	792.42	1,117.97	524.67
Civil .....		294.18	562.92	587.11	766.29
Mechanical .....		2,659.62	2,152.06	5,479.38	4,518.18
Electrical .....		540.41	1,094.29	1,217.67	1,825.97
Drawing and Descriptive					
Geometry .....		60.26	175.85	312.67	210.65
Experimental .....		945.39	1,713.89	2,003.39	3,052.66
Mathematics and Mechanics		43.95	25.78	75.30	126.09
Totals .....	\$ 20,468.38	\$ 17,801.65	\$ 20,082.04	\$ 27,096.53	\$ 26,580.48
CAPITAL OUTLAY					
Administration .....		\$ 1,662.18	\$ 2,152.34	\$ 1,096.29	\$ 389.03
Chemical .....					725.00
Power house.....		720.07	912.36	23.26	141.88
Architecture .....		472.37	425.65	279.96	982.38
Civil .....		88.59	6,122.60	1,097.50	1,026.73
Mechanical .....		857.46	846.72	949.70	2,721.84
Electrical .....		1,450.99	1,107.46	1,452.82	1,703.65
Drawing and Descriptive					
Geometry .....		293.63	1.59	2,889.88	
Experimental .....		1,138.12	550.28	2,190.21	3,803.24
Mathematics and Mechanics				85.05	121.67
Totals .....	\$ 4,182.68	\$ 6,683.41	\$ 12,119.00	\$ 10,064.67	\$ 11,615.42
Totals, Engineering.....	\$123,872.38	\$121,710.97	\$145,532.74	\$199,389.90	\$243,143.93

In Table XIII similar distribution and analysis of the cost figures in the Department of Agriculture are presented and comparisons similar to those discussed above may be read. In this table there are some refunds noted in parentheses. These will be understood to apply to the figures in the line immediately above them. In view of the large expenditures for supplies in this department a supplement showing a further analysis of these costs is appended to this table.

TABLE XIII  
AN ANALYSIS BY DEPARTMENTS OF THE EXPENDITURES OF THE  
DEPARTMENT OF AGRICULTURE

1918-1921					
SALARIES AND WAGES	1917	1918	1919	1920	1921
Administration, Business Office		\$ 11,000.90	\$ 11,966.15	\$ 13,382.91	\$ 21,492.88
Registrar and Library.....		12,264.73	12,448.27	16,584.65	9,299.93
Physical Training.....		4,482.86	4,827.70	5,195.43	5,558.58
Farm Maintenance.....		7,109.70	8,012.70	9,053.96	10,681.98
General Service.....		2,437.37	3,004.99	3,024.78	3,437.80
Publications and Mailing..		3,915.93	3,904.79	5,087.80	5,808.80
College of Agriculture, For- estry, and Home Economics		9,922.84	6,693.54	6,952.60	4,732.00
School of Agriculture.....		10,376.50	13,598.93	20,405.41	27,368.47
Experiment Station and Short Courses.....		3,861.71	6,548.74	4,753.55	4,478.34
Economics .....		2,882.46	3,761.11	9,159.43	12,834.77
Biochemistry .....		14,624.34	15,903.82	24,241.06	30,101.74
Engineering .....		18,757.99	18,599.40	27,394.81	34,105.41
Agronomy and Farm Man- agement .....		34,108.46	32,511.08	36,962.96	44,794.86
Animal Industry.....		77,559.80	75,624.95	107,520.05	123,126.04
Bee-keeping .....		5,624.87	5,194.77	6,849.05	7,740.60
Entomology and Economic Zoology .....		11,411.43	16,224.42	20,248.99	23,923.86
Forestry .....		16,120.21	15,147.77	19,966.14	24,287.62
Home Economics.....		27,773.89	26,346.66	32,642.64	36,625.15
Horticulture .....		21,459.20	21,131.34	24,395.48	30,985.32
Botany .....		24,234.08	20,072.29	23,381.56	32,062.93
Rhetoric .....		7,765.07	7,491.80	10,444.66	11,616.84
Soils .....		15,520.63	18,402.41	20,921.05	21,928.79
Photographic laboratory....				1,742.74	3,711.94
Totals .....	\$372,047.29	\$343,214.97	\$347,417.63	\$450,311.71	\$530,704.05
SUPPLIES					
Administration, Business Office		\$ 1,842.02	\$ 1,938.23	\$ 1,064.84	\$ 14,457.10
Registrar and Library.....		2,137.18	2,074.31	2,212.11	} 64,726.19
Physical Training.....		705.61	728.14	1,888.03	
Farm Maintenance.....		1,835.02	2,042.26	3,086.71	
General Service.....		60,074.27	86,308.11	68,057.20	
Refunds.....		(11,826.91)	(9,200.59)	(9,744.19)	
Publications and Mailing..		4,077.71	5,929.83	6,291.89	6,957.08
College of Agriculture, For- estry, and Home Economics		488.52	65.52	104.40	97.50
School of Agriculture.....		528.02	1,090.27	1,424.18	3,726.84
Experiment Station and Short Courses.....		4,721.12	3,256.15	5,081.30	2,792.92
Refunds.....		(336.17)	(78.77)	(71.95)	

TABLE XIII—(Continued)

SUPPLIES—(Continued)	1917	1918	1919	1920	1921
Biochemistry .....		1,920.48	1,567.66	2,471.41	3,207.48
Economics .....		1,009.22	717.07	1,347.09	1,314.71
Engineering .....		2,601.12	1,917.14	2,714.18	4,590.93
Agronomy and Farm Management .....		5,962.05	5,016.75	7,235.42	7,613.52
Refunds .....		(7.50)			
Animal Industry.....		47,121.21	54,117.86	91,571.24	57,585.55
Refunds.....		(450.00)		(125.00)	
Bee-keeping .....		685.68	535.33	586.67	829.90
Entomology and Economic Zoology .....		574.15	1,015.75	1,727.66	1,752.32
Forestry .....		2,978.14	3,458.63	5,097.58	5,111.39
Home Economics.....		2,290.49	2,115.17	4,101.94	3,283.98
Horticulture .....		2,136.32	2,496.56	2,919.55	3,694.52
Botany .....		2,781.22	2,948.28	3,635.93	3,199.34
Rhetoric .....		32.97	105.09	125.17	157.00
Soils .....		3,341.82	6,913.59	4,557.45	5,260.45
Totals .....	\$138,846.29	\$150,144.34	\$186,357.70	\$217,301.95	\$190,357.82
Refunds.....	(8,829.37)	(12,620.58)	(9,279.36)	(9,941.14)	
CAPITAL OUTLAY					
Administration, Business Office Registrar and Library.....	\$ 2,358.26	\$ 2,880.67	\$ 500.18	\$ 89.10	
Physical Training.....	3,723.20	3,888.98	3,582.92	5,165.14	
Farm Maintenance.....	503.40	755.80	122.98	25	
General Service.....	523.75	859.45	195.71	431.44	
Publications and Mailing...	260.96	408.45	352.64	142.71	
College of Agriculture, Forestry, and Home Economics	245.58	404.64	97.83	81.60	
School of Agriculture.....	163.23	12.72			
Experiment Station and Short Courses.....	307.60	223.67	496.15	1,110.92	
Biochemistry .....	296.40	34.80	112.50		
Economics .....	515.20	1,596.41	1,012.14	1,614.90	
Engineering .....	31.00		329.30	118.94	
Agronomy and Farm Management .....	1,941.20	3,045.68	2,193.62	2,779.72	
Animal Industry.....	1,500.25	2,656.36	942.53	241.22	
Bee-keeping .....	16,488.55	24,108.06	25,113.98	25,179.01	
Entomology and Economic Zoology .....	324.32	843.16	398.67	566.85	
Forestry .....	439.10	534.85	1,486.53	651.90	
Home Economics.....	801.59	979.46	1,229.04	982.95	
Horticulture .....	571.18	523.33	2,410.31	5,054.41	
Botany .....	477.62	643.11	1,168.16	685.52	
Rhetoric .....	1,101.36	1,413.24	1,229.60	1,126.41	
Soils .....	8.83	27.12	174.60		
Totals .....	1,170.42	1,123.99	510.05	828.17	
Totals .....	\$ 58,334.33	\$ 33,843.00	\$ 47,063.95	\$ 43,659.44	\$ 46,860.25
Totals, Agriculture.....	\$569,227.91	\$527,202.31	\$580,839.28	\$711,273.10	\$767,922.12
Refunds.....	(8,829.37)	(12,620.58)	(9,279.36)	(9,941.14)	

SUPPLEMENT TO TABLE XIII

DEPARTMENT OF AGRICULTURE

SUPPLIES FOR 1921

Equipment repairs.....	\$ 4,487.28
Building repairs and maintenance.....	1,546.94
Supplies for instruction.....	1,408.17
Chemicals and laboratory supplies.....	5,601.66
Laboratory glassware.....	1,617.53
Advertising publications and bulletins.....	6,056.93
Water and ice.....	2,598.07
Gas and electricity.....	886.21
Telephone and telegraph.....	3,817.94
Freight, express, and drayage.....	2,371.10
Janitorial supplies.....	290.23
Laundry.....	1,701.35
Feed.....	36,835.31
Postage.....	3,248.10
Provisions.....	3,086.91
Seeds and plants.....	1,559.57
Fuel.....	50,557.04
Stationery, printing, and office supplies.....	11,863.33
Refunds.....	10,954.74
Bookbinding.....	204.33
Supplies and materials not otherwise classified.....	19,706.77
Traveling expenses.....	19,862.74
Kitchen utensils.....	95.52
Total.....	<u>\$190,357.82</u>

In Table XIV a similar study of the disbursements for the Medical School, and for the Elliot Hospital, are presented as in the other colleges.

In presenting these figures it has been necessary to duplicate many figures that may be found in almost the same form in the current reports of the Comptroller of the University. The classifications are different in some cases, and in such cases the figures do not correspond with those presented in the printed report. The purpose here has been to show the figures for a number of years side by side in order that some understanding of the tendencies within the University may be studied from the standpoint of cost.

TABLE XIV  
AN ANALYSIS BY DEPARTMENTS OF THE EXPENDITURES OF THE  
MEDICAL SCHOOL AND OF ELLIOT HOSPITAL

	1918-1921				
SALARIES AND WAGES	1917	1918	1919	1920	1921
Administration .....		\$ 9,992.74	\$ 9,375.06	\$ 13,015.04	\$ 7,019.75
Work and Art Shop.....		2,201.83	2,656.19	4,190.10	5,217.52
Social Service.....		3,390.04	4,823.52	10,575.84	
Physiology .....		12,299.56	12,487.76	15,977.91	27,030.12
Anatomy .....		25,572.47	26,684.87	29,611.77	36,015.34
Obstetrics .....		7,174.40	7,777.03	10,300.00	11,147.66
Pharmacology .....		8,867.87	7,234.57	12,104.94	14,666.66
Surgery .....		13,887.06	14,769.69	16,182.48	19,505.58
Ophthalmology and Oto- Laryngology .....		1,555.11	395.03	6,066.65	5,362.50
Medicine .....		18,346.82	17,329.73	23,171.32	22,866.02
Pediatrics .....		5,766.48	8,838.04	10,246.15	10,879.77
Pathology, Bacteriology, and Public Health.....		18,560.03	20,914.11	31,038.63	37,037.04
Embalming .....		415.00	430.00	556.50	452.50
Totals .....	\$123,890.09	\$128,029.41	\$133,715.60	\$183,037.33	\$197,200.46
Elliot Hospital.....	44,274.85	44,895.63	45,007.07	61,277.77	76,318.62
Totals .....	\$173,164.94	\$172,925.04	\$178,722.67	\$244,315.10	\$273,519.08
SUPPLIES					
Administration .....		\$ 18,423.48	\$ 20,846.72	\$ 24,803.69	\$ 24,499.69
Work and Art Shop.....		233.50	231.48	472.97	421.26
Social Service.....		234.08	160.96	555.65	
Physiology .....		1,047.83	2,154.16	2,435.69	2,144.76
Anatomy .....		3,125.10	3,852.00	4,293.13	4,314.18
Obstetrics .....		267.41	400.38	497.33	310.26
Pharmacology .....		830.60	1,343.07	2,255.30	2,360.45
Surgery .....		334.67	620.20	1,317.31	1,287.31

TABLE XIV—(Continued)

SUPPLIES (Continued)	1917	1918	1919	1920	1921
Ophthalmology and Oto-					
Laryngology .....		72.30	53.64	17.19	116.86
Medicine .....		1,389.25	1,233.26	2,114.04	1,161.63
Pediatrics .....		340.14	821.06	982.31	1,147.93
Pathology, Bacteriology, and Public Health.....		2,608.34	3,262.38	4,028.95	4,364.95
Embalming .....		67.85	70.03	54.51	113.45
Refunds.....		(5.00)			
Totals .....	\$ 39,397.02	\$ 29,274.55	\$ 35,049.34	\$ 43,828.07	\$ 42,241.84
Elliot Hospital.....	46,426.07	77,982.04	88,146.06	91,772.11	96,680.53
Totals .....	\$ 85,823.09	\$107,256.59	\$123,195.40	\$135,600.18	\$138,922.37
CAPITAL OUTLAY					
Administration .....		\$ 413.06	\$ 989.09	\$ 9.15	\$ 189.44
Work and Art Shop.....		.84			
Physiology .....		146.11	219.51	441.61	197.21
Anatomy .....		186.56	114.46	523.55	333.70
Obstetrics .....		205.35	78.50	3.00	22.50
Pharmacology .....		55.58	26.72	32.80	35.11
Surgery .....		6.03	14.41	115.25	50.80
Ophthalmology and Oto-					
Laryngology .....		174.55		26.00	206.93
Medicine .....		763.53	138.02	265.61	202.25
Pediatrics .....		87.57	80.39	259.61	19.61
Pathology, Bacteriology, and Public Health.....		321.86	218.28	1,403.33	5,387.18
Embalming .....		25.00		20.00	
Totals .....	\$ 6,513.63	\$ 2,386.04	\$ 1,879.38	\$ 3,099.91	\$ 6,644.73
Elliot Hospital.....	8,231.75	9,866.94	9,376.66	5,380.91	3,916.75
Totals .....	\$ 14,745.38	\$ 12,252.98	\$ 11,256.04	\$ 8,480.82	\$ 10,561.46
Totals, Medical.....	\$273,733.41	\$202,434.61	\$313,174.11	\$388,396.10	\$423,002.91

## THE FUNCTIONAL CLASSIFICATION OF COST

At the beginning of this Bulletin it was stated that the figures on cost might be examined from three points of view. First, from the point of view of administrative classification; second, from the standpoint of functional classification of costs; and, third, from the standpoint of the unit cost of instruction. The first presentation is complete and we may now discuss certain general figures covering costs governed by the purposes for which the University exists.

It has been shown that the entire University project is concerned with four main activities: first, collegiate instruction; second, experiment and research; third, public service; and fourth, extension teaching.

While it will be possible to show the cost of extension instruction as well as the cost of collegiate instruction, no attempt will be made to present a unit cost study for the portions of the total expenditures which are devoted to the maintenance of experimental and public service work. This would obviously call for an exhaustive classification of types of experimental and research work and of public service projects impossible to present in a brief report.

The total gross expenditures of the University in the years 1921, amounted to \$5,801,880.59. Of this sum \$825,929.95 was spent upon student services which are recouped by charges paid by the student body. This sum represents, therefore, no actual net outlay upon the part of the University. It operates merely as a revolving fund for the social and, indirectly, the educational benefit of the students. It probably saves the University, and certainly it saves the student a very considerable sum by virtue of its operation upon a cost basis.

Subtracting this sum for student services, a balance of expenditures in the sum of \$4,975,950.64 is left. From this certain further deductions, in the form of refunds, in the total sum of \$64,505.98, should be made. The amount of \$4,911,444.66 remains, representing net expenditures for the year. Of this sum, \$836,463.62 was spent as capital outlay for buildings and lands and \$174,908.45 as capital outlay for permanent equipment. To the cost of salaries, wages, supplies and expense, under the general head of maintenance, the balance of \$3,900,072.59\* is charged.

## THE UNIT COST OF INSTRUCTION

The third set of figures presented offers an analysis of instructional costs in terms of certain units of instruction. It may be said at the outset that any one of several units of cost might be used in such a study. In this report the student "unit of credit" will be used as the standard. This seems advisable in view of the fact that this standard of measure has been used in explaining the quality of instruction given in the University and in its several colleges and departments in another part of this report.

\* To this total is to be added the sum of certain deficits in the operation of the Trolley System and in the maintenance of the dormitories of the Department of Agriculture, amounting to \$15,759.93, which brings the disbursement total to \$3,915,832.52. From this is to be deducted the sum of certain items of repairs, included in the costs of the Physical Plant, for which the University has been reimbursed from non-University funds in the amount of \$6,941.62, leaving a net total for disbursements of \$3,908,890.90.

Anyone who has read that portion of the Survey dealing with the Instructional Service of the University, will have seen how wide is the variety of instruction given in the University, how widely varied are the means by which that instruction is carried on, and how widely varied are the conditions under which the instruction is conducted in the various colleges and departments of the University.

It is clear that the cost of any given unit of instruction, such as the amount necessary to obtain one unit of credit toward a degree, will vary with the size of classes; with the degree of advancement of the instruction; with the rank of the staff member under whom the instruction is carried on; with the type of instruction; and, with the equipment essential to instruction.

In the figures that follow, these variations will appear in sharp outline, as between colleges, departments, and even courses. In studying these differences, therefore, the reasons for them are in part anticipated by these suggestions and in part by data, which will be presented in Table XVI, in which a distribution of the instructional work necessary for each of a number of different degrees in the University is shown with reference to the conditions under which the work is carried on.

To read this table one would say that to earn the degree in metallurgical engineering a man must study for four years. During his freshman year he would do 103 hours of actual classroom work. Of these, 41 hours would be done in lecture work and 62 in laboratory work, or, 39.8 per cent in lecture rooms, and 60.2 per cent in laboratory rooms.

For his sophomore year he would have to do 105 hours of work, 39 hours of which would be spent in lectures or recitations and 66 hours in the laboratory, or, 37.1 per cent under lecture conditions, and 62.9 per cent under laboratory conditions. During the four years he would have done at least 415 hours of work in the classroom, 146 of which would be done in lecture and recitation work, while 260 would have been done under laboratory conditions. From 9 to 22 hours might have been in either laboratory or lecture. Putting this in percentages, he would have spent at least 34.1 per cent of his time in a lecture room and might have spent as much as 62.6 per cent of his time in laboratory.

These same figures are set forth for the training necessary to earn the degree of engineer of mines in geology, the degree of engineer of mines, the degree of bachelor of science in electrical engineering, the degree of bachelor of science in civil engineering, the degree of bachelor of science in mechanical engineering, the degree of mechanical engineer, the degree of bachelor of science in architecture, the degree of bachelor of science in chemical engineering, the degree of master of science in chemical engineering, the degree of pharmaceutical chemist, the degree of doctor of dental surgery, the degree of bachelor of medicine, the degree of bachelor of science in agriculture, the degree of bachelor of science in forestry, and the degree of bachelor of science in home economics.

In all these courses, which together represent a very considerable part of the total training that is given in the University, it will be seen that a very large percentage of this instruction is carried on under laboratory conditions. This means

several things. First, in a lecture room one man may lecture to 40 or even 100 students and carry on his work with a fair degree of efficiency. In a laboratory, on the other hand, such a course would call for the services, not only of one high-class instructor, but in addition, of several assistants. In the former, the space necessary to conduct the class would call for perhaps 15 square feet per student at the outside; in the laboratory the space necessary for a single student is very much larger, in some cases considerably over 100 square feet. In lecture work the equipment necessary would be a chair for each student, possibly a blackboard, a map, or some such material. In the laboratory, on the other hand, expensive machinery, instruments and machines, and other forms of equipment are constantly in use.

When we figure the cost of the instruction necessary to earn a student unit of credit in the University we must remember that we have a sort of general average cost, which in all probability does not fully represent any given case, but rather is a composite of many conditions and forms of instruction. Such a figure is of value in this sense that while it does not show exactly what the instruction of a certain class, with a certain professor, in a certain subject, has actually cost, it does show what has been the cost on the average of all the instruction that has been given in the college or department in question. In the tables which follow, such figures will be given. In addition to these, however, certain other figures, which more nearly approach the actual cost of certain courses of instruction, will be presented.

In Table XV we have brought together for each college and other main instructional divisions, first, the total maintenance cost of that college or division; second, the total number of student credits of instruction that were given in that college or division; third, the cost per student credit in that college; fourth, the number of credits commonly carried during a year in the college.

The table should be read as follows: in the College of Science, Literature, and the Arts, the total cost of instruction, including administrative overhead, was \$724,036.07 for the year 1920-21. During that year this college gave 148,957 student credits of instruction. Dividing the cost by the number of student credits, we see that, on an average in that college, the instruction necessary to a single student credit cost \$4.87. During a year in that college a student would ordinarily carry 45 such credits. This would mean a total cost of \$219.15 for a year of instruction.

The figures for other colleges are to be read in the same way. It may be argued that the distribution of General Administration expenses to the several colleges is not an absolutely fair distribution. This form of overhead was prorated to the various colleges and divisions on the basis of their direct maintenance costs.

In the College of Education, for instance, the Appointment Bureau cost \$3,120. This item has been charged to instruction in that college and obviously raises the cost of instruction slightly. It would be reasonably fair to call this public service, but in view of the function of this particular college in the University, there is also some slight justification for including this as an instruction charge.

The Elliot Hospital is another illustration. It was established as a laboratory for the Medical School and represents a very considerable cost in the education of medical students, as may be seen from this table. On the other hand this hospital performs a very large public service, and it might be argued that a certain portion of

its costs should be charged to public service and not to instruction. And, there would be some justification in this. The hospital was built for instructional purposes and not primarily to render public service, and so it has been charged to instruction.

The errors in these figures, therefore, are in all cases unfavorable rather than favorable to the cost of instruction in the University. In other words, the error, whatever it may be, is in the direction of high cost rather than low cost of instruction. Other illustrations could be given of items which are charged here to instruction but which might for some reasons be charged to experimental or public service work.

It may be argued that "cost per student credit" is not a fair basis for the comparison of cost between the colleges. The reply is that no unit yet figured out is absolutely a just basis of comparison. The answer to the objection in this case then, is, that "unit of credit" or, "student credit" is, for average costs, a comparable basis, providing the unit of credit is of equal length in all colleges.

It may be said, too, that "cost per student per year" as used in Table XV is misleading because, for instance, a medical student does not take all his training in the Medical School, or a student of chemistry does not take all his training in the School of Chemistry. The answer to this objection is that this figure does not refer to the "cost of a medical course" or of a "chemical course," but to the cost of a given amount of teaching in the college in question. It means, for instance, that, when a unit of instruction has been given in the Medical School; whether the student be a student of medicine, or agriculture, or dentistry is quite immaterial; the University has spent \$10.25, or, including hospital, \$16.92, on the average. It is not assumed here that a credit in physiology costs the same as a credit in hospital practice, nor that as many hospital as physiology credits are taught in a year.

The final column in Table XV, then, means exactly what it says. When 45 units of instruction have been given in the College of Science, Literature, and the Arts, the University has spent \$219.15. Some of those 45 units were taken by one man and some by another, some by science, literature and the arts students, some by education students, some by medical students, etc. When the year 1920-21 ended the College of Science, Literature, and the Arts had taught 148.957 credits, and it cost as much to deliver a credit of instruction to a student of agriculture or mining as to one of its own students.

In brief, then, if the "cost per student credit" is not quite fair because credits are of different lengths in different colleges, the "cost per student per year" as used in Table XV is fair, because the multiplier for each college is determined by the particular kind of credits used in that college.

As has been said, there is no reason for expecting that instruction in one college would cost exactly the same as another. The College of Science, Literature, and the Arts conducts a great number of large elementary classes. It has many lecture classes as compared with laboratory classes, and as compared with the total amount of instruction it gives, and a relatively small proportion of the work of the college is of an advanced character.

In the colleges of Mines, Dentistry, Medicine, Agriculture, and Pharmacy, instruction is carried on much more largely by laboratory methods, requiring expensive supplies and equipment. Much of the elementary teaching essential to graduation from these colleges, instruction which is so largely of the lecture and recitation type, is carried on in the Arts College instead of being carried on in the colleges just mentioned. This is precisely as it should be. The University is saving money when it coordinates its work so carefully that there are no more duplications of courses than are actually necessary.

In the College of Agriculture, for instance, the cost appears to be high. It could not possibly be otherwise when one realizes the cost of the stock and materials used in practically all the teaching in that college. Obviously, if the elementary work in English and mathematics were provided for in the College of Agriculture that would make the cost of instruction in that college appear to be less. On the other hand, by such duplication of the work going on in the College of Science, Literature, and the Arts, the total cost to the University would inevitably be larger rather than smaller.

Again, the cost of instruction in the College of Education is high, due to a number of things. Practically all of the less expensive kinds of instruction, which are essential in the training of teachers, is carried on in other colleges. A large percentage of the work done in the College of Education has to do with strictly advanced professional training. Here the classes are necessarily small. Other similar illustrations of this sort could be given. The question of differences in the cost of staff has already been mentioned. Supply and demand, in other words, market conditions, have a direct bearing upon the cost of instruction when we consider salaries as they do when we consider cost of supplies.

Reference to this point has already been made. Higher salaries in one college than in another can not possibly be avoided, regardless of what anyone's wishes may be. The number of teaching hours which will be carried by different faculties is tied up with salary cost. So, when all these factors are taken into consideration there is no possible reason for expecting that cost of instruction in one college will be the same as in another.

Innumerable detailed explanations of these differences in cost could be offered if space permitted. It is intended merely to suggest points of view from which the figures should be studied and it is not intended to afford a full explanation of the differences represented in the table.

Just what the relationship in these costs should be is a question which one single study of University costs can not possibly determine. We may set forth here merely what it costs in this University, and not what it costs on the average throughout the country. Further, we can only set forth figures for one year and not for a series of years as would be desirable if an exhaustive study were to be made.

Having in mind, then, that the above figures represent rough average costs, and that the differences in evidence are in all probability fundamental differences which are reasonably constant from year to year, we will attempt to set forth certain other cost figures which throw light upon the situation from a slightly different angle.

TABLE XV  
ANALYSIS OF DISBURSEMENTS AND COST OF INSTRUCTION  
1920-1921

Schedule	Salaries, Supplies, and Expense	Direct Physical Plant A	General University Services, etc.** B	Total Direct Cost	Trolley† and Dormitories*
Science, Literature, and the Arts...	\$ 529,906.50	\$ 57,529.55	\$ 76,683.71	\$ 664,119.76	\$ 962.41†
Engineering .....	217,743.88	31,201.30	16,678.42	265,623.60	
Medical School.....	215,498.02	41,174.98	14,879.43	271,552.43	
Hospital .....	151,180.24	31,169.88		182,350.12	
Chemistry .....	107,897.83	23,560.99	10,255.88	141,714.70	
Mines—Education .....	73,151.66	14,150.80	4,220.04	91,522.59	
Mines—Tax Commission.....					
Mines—Experiment Station.....					
Dentistry .....	127,354.57	25,458.67	8,087.01	160,900.25	
Law .....	44,948.49	5,750.28	4,825.30	55,524.07	
Pharmacy .....	26,255.95	6,513.94	3,228.07	35,997.96	
Education .....	87,190.12	7,656.68	4,102.35	98,949.15	962.41†
High School.....	29,063.37	2,552.22		31,615.59	
Summer Session.....	52,383.16	5,009.18	10,676.20	68,068.54	
Business .....	78,880.77	1,859.04	14,492.74	95,233.45	
Extension Division.....	108,764.12	1,030.22	3,667.44	113,461.78	
Lyceum .....	45,627.65			45,627.65	
Graduate School.....	20,694.24	157.27	1,500.00	22,351.51	
Agriculture					
Central College .....	} 882,591.81	} 131,572.98	27.3%	219,475.41	5,774.44†
Central Experiment Station....			36.4%	292,633.88	} 6,777.47* } 1,283.20†
Central School.....			17.9%	143,905.13	
Central Extension.....			18.4%	147,924.82	
Central County Agents.....				210,225.55	
Substations—School .....	} 207,502.36	} 43,819.78		105,445.51	
Substations—Experiment .....				145,876.63	
Totals.....	\$3,006,634.74	\$430,168.75	\$173,296.59	\$3,610,100.08	\$15,759.93

RECONCILIATION WITH COMPTROLLER'S REPORT

<b>Comptroller's Report</b> , June 30, 1921 (Page 7).....	\$4,074,981.04
<b>Deduct</b> Capital Outlay.....	\$174,908.45
Reimbursements .....	6,941.62
	181,850.07
<b>Add</b> Trolley and Dormitory Maintenance Deficits.....	\$3,893,130.97
	15,759.93
	\$3,908,890.90
<b>Interim Report</b> Total Maintenance Cost.....	\$3,908,890.90

† Trolley Maintenance Cost.

\* Dormitory Maintenance Cost.

\*\* Distribution in ratio of direct total disbursements of Colleges, etc.

TABLE XV  
ANALYSIS OF DISBURSEMENTS AND COST OF INSTRUCTION‡

Indirect Physical Plant* C	1920-1921			Total Number of Student Credits Taught	Cost per Student Credit	Number of Student Credits Taken per Year	Average Cost per Student per Year of Instruction
	Total	General Administration** D	Total Maintenance Cost				
\$20,747.26	\$ 685,829.43	\$ 39,206.64	\$ 724,036.07	148,957	\$ 4.87	45	\$219.15
8,286.12	273,909.72	15,658.59	289,568.31	32,385	8.94	52	464.88
8,471.07	280,023.50	16,007.99	296,031.49	28,883	10.25	45	461.25
	182,350.12	10,424.43	192,774.55	28,883	6.67	45	300.15
4,420.79	146,135.49	8,354.07	154,489.56	19,929	7.75	53.25	412.69
2,855.05	94,377.64	5,395.35	58,067.88	7,253	8.00	63	504.00
			8,081.61				
			33,623.50				
5,019.28	165,919.53	9,485.05	175,404.58	15,714	11.16	50.75	566.37
1,732.08	57,256.15	3,273.24	60,529.39	9,392	6.44	40	257.60
1,122.96	37,120.92	2,122.07	39,242.99	6,303	6.23	67.66	421.56
3,116.74	103,028.30	5,889.87	108,918.17	7,975	13.66	45	614.70
986.25	32,601.84	1,863.83	34,465.67				
2,123.39	70,191.93	4,012.73	74,204.66	20,718	3.58	§	§
2,970.81	98,204.26	5,613.00	103,817.26	28,145	3.69	45	166.05
3,539.44	117,001.22	6,688.66	123,689.88	23,017	5.37	§	§
	45,627.65		45,627.65				
697.26	23,048.77	1,317.62	24,366.39				
5,297.08	230,546.93	13,310.28	243,857.21	21,057	11.58	51	590.58
7,062.78	299,696.66	17,462.84	317,159.50				
3,473.18	155,438.98	8,425.22	163,864.20	22,365½	7.33	36	263.88
3,570.19	151,495.01	8,660.45	160,155.46				
	210,225.55		210,225.55				
	105,445.51	6,027.96	111,473.47	19,100½	5.84	36	210.24
	145,876.63	8,339.27	154,215.90				
<b>\$85,491.73</b>	<b>\$3,711,351.74</b>	<b>\$197,539.16</b>	<b>\$3,908,890.90</b>				

‡ The figures of the last column are based on the assumption that the student takes all his work in the one college and that he takes during the year one fourth the amount necessary to cover the work of a four-year course. The cost per student credit in the Graduate School could not be figured separately owing first to the fact that the credits are difficult to separate from undergraduate credits and second to the complications involved in charging overhead in a proper proportion to graduate study. The amount of graduate study is relatively small and the figures would be more or less insignificant in comparison with undergraduate costs in the University.

|| Includes Appointment Committee item \$3,120.

§ Varies with colleges.

¶ These costs will vary considerably from year to year because of increases or decreases in registration. For example, the registration in the College of Education is over fifty per cent greater this year than it was in 1920-21; this means a large reduction in the average cost per student per year.

TABLE XV  
SCHEDULE A  
DISTRIBUTION OF PHYSICAL PLANT MAINTENANCE  
1920-1921

College or Section	Physical Plant Costs Distributed to Departments*				
	Repairs	Water and Ice	Gas and Electricity	Telephone	Custodial
Science, Literature, and the Arts.....	\$ 1,046.64	\$ 792.33	\$ 1,923.79		\$ 11.42
Engineering .....	792.45	386.71	1,228.36		2.50
Medical School.....	450.74	846.12	3,790.83		107.36
Elliot Hospital.....	2,720.26	1,646.37	3,680.07	615.75	3,224.27
Chemistry .....	533.36	437.79	2,214.54		5.70
Mines .....	3,254.21	252.18	1,693.61		97.65
Dentistry .....	660.33	402.25	881.55		326.65
Law .....	33.96	15.00	273.19		
Pharmacy .....	144.20	47.80	458.70		12.99
Education .....	143.45	27.28	341.83		1.29
Summer Session.....	49.59	133.00			2.09
Business .....	32.52	5.00	72.99		.10
Extension .....	7.15			\$ 171.83	1.56
Graduate School.....					3.00
Agriculture.....	1,546.94	2,598.07	886.01	4,790.67	290.28
Substations .....	9,815.72	1,110.24	2,054.83	992.76	691.12
Totals .....	\$21,231.52	\$8,700.15	\$19,500.30	\$6,571.01	\$4,777.98

\* See Tables 1 and following.

TABLE XV  
SCHEDULE A  
DISTRIBUTION OF PHYSICAL PLANT MAINTENANCE  
1920-1921

Direct Physical Plant Costs							Total
Laundry	Fuel	Total	Custodial	University Electricity	Repairs	Plant	
\$ 1,372.17	\$ 18,664.85	\$ 23,811.20	\$14,992.23	\$1,490.58	\$11,013.92	\$ 6,221.62	\$ 57,529.55
858.35	10,516.26	13,784.63	7,052.71	2,060.00	4,798.54	3,595.42	31,201.30
1,622.07	17,127.16	23,944.28	6,833.72	65.50	4,622.43	5,709.05	41,174.98
879.85	9,052.34	21,818.91			6,333.53	3,017.44	31,169.88
347.75	5,005.55	8,544.69	3,644.16		9,703.62	1,668.52	23,560.99
126.49	3,586.40	9,010.54	2,266.56		1,678.32	1,195.47	14,150.89
4,718.27	1,858.35	8,847.40	4,673.14	605.00	10,713.68	619.45	25,458.67
103.10	1,554.85	1,980.10	1,372.39		1,879.51	518.28	5,750.28
154.42	2,660.35	3,478.46	1,388.59	1.18	758.93	886.78	6,513.94
152.96	4,785.75	5,452.56	1,985.99	146.30	1,028.80	1,595.25	10,208.90
396.97	232.90	814.55	4,117.00			77.63	5,009.18
15.00	861.25	986.86	500.00	86.00		287.08	1,859.94
		180.54	800.00			49.68	1,030.22
5.00	36.95	44.95	100.00			12.32	157.27
1,701.35	50,557.04	62,370.36	19,826.55		22,729.21	26,646.86	131,572.98
	29,155.11	43,819.78					43,819.78
\$12,453.75	\$155,655.11	\$228,887.81	\$69,553.04	\$4,454.56	\$75,260.49	\$52,010.85	\$430,168.75

TABLE XV  
SCHEDULE B

GENERAL UNIVERSITY SERVICES—MAINTENANCE

Dean of Student Affairs.....	\$ 7,934.51
Dean of Women.....	4,501.50
Housing Bureau.....	1,555.42
Registrar's Office.....	39,850.22
Library .....	56,578.63
Physical Education—Men.....	19,598.16
Physical Education—Women.....	32,509.28
Military Department.....	7,145.69
Miscellaneous .....	2,080.20
Total .....	<u>\$173,296.59</u>

This amount appears on Table XV distributed on basis of student credit hours.

TABLE XV  
SCHEDULE C

INDIRECT COSTS OF PHYSICAL PLANT

	Main Campus	Farm
Administration Salaries.....	\$12,956.15	\$ 4,208.41
Administration Supplies and Postage.....	468.67	218.49
General Repairs.....	6,073.83	
General Supplies.....	160.79	580.90
Laundry .....	99.15	
Campus Maintenance.....	10,765.81	9,296.40
Telephones .....	14,515.30	1,745.61*
Watchmen .....	5,045.00	2,220.00
Gas and Electricity.....	841.57	
Water and Ice.....	909.68	
Furniture Repairs.....	1,402.23	
Bible College Rental.....	2,100.00	
Locker Maintenance.....	1,150.37	
Electric Lamps.....	2,017.76	1,133.42
Barn Supplies.....	348.11	
Garage Service.....	7,234.08	
Totals .....	<u>\$66,088.50</u>	<u>\$19,403.23</u> <u>66,088.50</u>
		<u>\$85,491.73†</u>

\* This must be considered with Schedule A—Telephone.

† Distributed in ratio of direct total disbursements of Colleges, etc.

TABLE XV  
SCHEDULE D

ADMINISTRATIVE OFFICES AND GENERAL SERVICES—MAINTENANCE

President's Office.....	\$ 22,380.45
University Survey.....	778.93
Address Books.....	3,487.30
Comptroller's Office.....	52,960.44
Administration Building Maintenance.....	2,235.10
Editor's Office and Bulletins.....	18,363.97
President's Report.....	1,775.50
Daily Bulletins.....	5,489.60
Retired President's Office.....	723.72
General Service.....	10,786.76
General Storehouse.....	24,563.75
Zoological Museum.....	7,772.08
Alumni Association.....	8,689.06
Freight .....	5,717.71
Postage .....	2,016.14
Travel .....	3,519.78
University Code.....	2,940.65
University Functions, Bulletins, etc.....	16,582.30
President's Residence.....	5,042.13
Garage .....	1,586.20
Barn .....	21.15
Shops .....	106.44
Total .....	<u>\$197,539.16</u>

In Table XVI is presented a detailed analysis of costs of instruction in the College of Science, Literature, and the Arts. Here the costs are presented by departments. The explanation of the table is the same as that given for Table XV. In this college the same kind of differences between departments will be found as have been found between colleges. The explanation of these differences is exactly the same and could easily be given in considerable detail if space would permit.

TABLE XVI  
SHOWING BY DEPARTMENTS, THE TOTAL EXPENDITURES OF THE  
COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS; THE  
TOTAL NUMBER OF STUDENT CREDITS OF INSTRUCTION  
GIVEN IN THE DEPARTMENT; THE EXPENDITURE PER  
STUDENT CREDIT IN THE DEPARTMENT; AND  
THE AVERAGE COST OF INSTRUCTION  
PER STUDENT PER YEAR\*  
1920-1921

Department	Total Expenditures for Year	Total Number of Student Credits Taught	Cost per Student Credit	Average Cost per Student per	
				Quarter	Year
Animal Biology.....	\$ 53,932.33	9,726	\$ 5.55	\$ 83.25	\$ 249.75
Anthropology .....	15,715.69	3,969	3.96	59.40	178.20
Astronomy .....	7,923.65	1,178	6.15	92.25	276.75
Botany .....	44,763.26	3,756	12.21	183.15	549.45
Comparative Philology.....	5,368.49	126	42.60	639.00	1,917.00
English .....	22,151.33	4,681	4.73	70.95	212.85
Geology and Mineralogy.....	41,838.88	4,114	10.17	152.55	457.65
German .....	28,134.11	6,040	4.65	69.75	209.25
Greek .....	4,899.88	853	5.74	86.10	258.30
History .....	56,025.87	15,775	3.55	53.25	159.75
Journalism .....	4,052.08	396	10.23	153.45	460.35
Latin .....	8,011.73	1,311	6.11	91.65	274.95
Mathematics .....	36,744.43	7,377	4.98	74.70	224.10
Music .....	36,581.14	2,273	16.09	241.35	724.05
Philosophy .....	8,746.60	2,907	3.00	45.00	135.00
Physics .....	56,497.81	7,609	7.42	111.30	333.90
Political Science.....	37,501.13	10,934	3.43	51.45	154.35
Psychology .....	37,428.95	5,656	6.62	99.30	297.90
Rhetoric .....	102,806.69	26,604	3.87	58.05	174.15
Romance Languages.....	83,406.33	21,608	3.86	57.90	173.70
Scandinavian .....	7,751.26	1,228	6.31	94.65	283.95
Sociology .....	24,754.43	10,836	2.28	34.20	102.60
Totals and averages for college.....	\$724,036.07	148,957	\$ 4.87	\$ 73.05	\$ 219.15

\* The figures in the last column are based on the assumption that the student takes all his work in the one department and that a year's work consists of forty-five student credits or one fourth of the number of credits necessary to graduate.

Table XVII gives similar figures for the departments of the College of Engineering and Architecture, and Table XVIII for those in the Medical School. These are sample studies from which something of the nature of costs in various departments, as well as in various colleges, may be ascertained. It will be remembered that all figures are for the year 1920-21.

It should be understood that the explanation of the differences between costs in the different colleges and different departments suggested above, is not intended to preclude the supposition that it is possible for courses to be carried on more efficiently or more economically in one college than in another. It is intended merely to set forth the legitimate reasons for expecting differences, and it is not intended to suggest that questions of efficiency and economy do not enter.

TABLE XVII  
SHOWING BY DEPARTMENTS, THE TOTAL EXPENDITURES OF THE COLLEGE OF ENGINEERING AND ARCHITECTURE; THE TOTAL NUMBER OF STUDENT CREDITS OF INSTRUCTION GIVEN IN THE DEPARTMENT; THE EXPENDITURES PER STUDENT CREDIT IN THE DEPARTMENT; AND THE AVERAGE COST OF INSTRUCTION PER STUDENT PER YEAR\*  
1920-1921

Department	Total Expenditures for Year	Total Number of Student Credits Taught	Cost per Student Credit	Average Cost per Student per Year of Instruction
Architecture .....	\$ 34,687.72	2,684	\$12.92	\$671.84
Civil .....	42,736.89	2,865	14.92	775.84
Drawing .....	48,666.40	4,878	9.98	518.96
Electrical .....	41,626.83	3,346	12.44	646.88
Mechanical .....	62,667.94	6,109	10.26	533.52
Mathematics and Mechanics.	59,182.44	12,503	4.73	245.96
Totals and averages for colleges.....	\$289,568.31	32,385	\$ 8.94	\$464.88

\* The figures in the last column are based on the assumption that the student takes all his work in the one department and that a year's work consists of fifty-two student credits or one fourth of the number of credits necessary to graduate.

TABLE XVIII

SHOWING BY DEPARTMENTS, THE TOTAL EXPENDITURES OF THE MEDICAL SCHOOL; THE TOTAL NUMBER OF STUDENT CREDITS OF INSTRUCTION GIVEN IN THE DEPARTMENT; THE EXPENDITURES PER STUDENT CREDIT IN THE DEPARTMENT; AND THE AVERAGE COST OF INSTRUCTION PER STUDENT PER YEAR\*

1920-1921

Department	Total Expenditures for Year	Total Number of Student Credits Taught	Cost per Student Credit	Average Cost per Student per Year of Instruction
Anatomy .....	\$ 59,131.13	7,148	\$ 8.27	\$372.15
Physiology .....	42,796.12	3,718	11.51	517.95
Pharmacology .....	25,038.75	2,299	10.89	490.05
Bacteriology .....	26,571.67	2,485	10.69	481.05
Pathology .....	34,033.10	2,280	14.93	671.85
Medicine .....	35,351.40	4,423	7.99	359.55
Surgery .....	30,486.85	3,484	8.75	393.75
Obstetrics .....	16,859.92	1,165	14.47	651.15
Pediatrics .....	17,699.39	1,225	14.45	650.25
Ophthalmology and Otolaryngology .....	8,063.16	656	12.29	553.05
Totals and averages for colleges.....	\$296,031.49	28,883	\$ 10.25	\$461.25

\* The figures in the last column are based on the assumption that the student takes all his work in the one department and that a year's work consists of forty-five student credits or one fourth of the number of credits necessary to graduate.

In Table XIX a somewhat different collection of figures will be found. Here we have used the cost figures for 1920-21 as a basis for estimating the cost of obtaining a given degree in the University. For instance, to obtain the degree of doctor of dental surgery, which is granted by the College of Dentistry, requires 203 student credits. Of these 203 credits, 16 are taken in the School of Chemistry. Taking the average cost of instruction in the School of Chemistry as a basis these 16 units would cost \$124.00. A second 58 units would cost \$594.50. Another 127 of the units are taken in the College of Dentistry itself, the total cost for which would be \$1,417.32. The remaining 2 units are taken in the School of Mines. At the average cost per unit in that college this would represent a total of \$16. Totaling up the cost of the 203 units it will be seen that the degree of doctor of dental surgery would be obtained at a total cost to the University of \$2,151.82.

Cost for the instruction necessary in obtaining each of several other degrees in the University is shown in this table, from which we may see approximately what the University spends for the student who spends four years in college and takes his degree.

TABLE XIX

SHOWING FOR A NUMBER OF DIFFERENT DEGREES GRANTED BY THIS UNIVERSITY; THE COLLEGE FROM WHICH THEY ARE GRANTED; THE TOTAL NUMBER OF STUDENT CREDITS REQUIRED; THE DISTRIBUTION OF THOSE CREDITS THROUGH THE VARIOUS COLLEGES FROM WHICH THEY MUST BE EARNED, TOGETHER WITH THE COST IN EACH CASE

Name of Degree	College from Which Degree Is Granted	Total Student Credits Required	Distribution of Required Credits and their Cost											Total Cost Based on 1920-21 Cost Figures	
			Science, Literature, and the Arts	Chemistry	Engineering and Architecture	Medicine	Dentistry	Mines	Pharmacy	Electives*	Education	Agriculture	Business		
Doctor of Dental Surgery	Dentistry	Credits		16		58		127		2					
		Cost		\$124.00		\$594.50		\$1,417.32		\$16.00					
Bachelor of Science	Engineering and Architecture (Mechanical Engineering)	Credits	53	15	137					6					
		Cost	\$258.11	\$116.25	\$1,224.78					\$48.00					
Bachelor of Science	Engineering and Architecture (in Architecture)	Credits	27		177										
		Cost	\$131.49		\$1,582.38										
Bachelor of Science	Engineering and Architecture (Civil Engineering)	Credits	21	12	175										
		Cost	\$102.27	\$93.00	\$1,564.50										
Phar. Chemist (three-year course)	Pharmacy	Credits	2	32		11					158				
		Cost	\$9.74	\$248.00		\$112.75					\$984.34				
Bachelor of Science	Agriculture, Forestry, and Home Economics	Credits	21	12		5					29		137		
		Cost	\$102.27	\$93.00		\$51.25					\$141.23		\$1,586.46		
Bachelor of Science	Agriculture, Forestry, and Home Economics	Credits	28	12							100		64	6	
		Cost	\$136.36	\$93.00							\$487.00		\$741.12	\$22.14	
Bachelor of Science	Agriculture, Forestry, and Home Economics	Credits	18	12		10					12	22	115		
		Cost	\$87.66	\$93.00		\$102.50					\$58.44	\$300.52	\$1,331.70		
Bachelor of Science	Chemistry	Credits	54	126	33										
		Cost	\$262.98	\$976.50	\$295.02										

\* The costs assigned to units under "electives" on this table have been charged for at the rate of the average cost per unit of instruction in the College of Science, Literature, and the Arts. This is done because the details for each of the electives would make the table unduly complicated and add but little to the accuracy of the total figure, in view of the fact that a fairly large percentage of the electives from within the colleges here represented are taken in the College of Science, Literature, and the Arts.

In Table XX is presented somewhat similar data showing the cost to the University in carrying on the necessary instruction for obtaining the Bachelor's degree in the College of Science, Literature, and the Arts. Six actual student cases are shown in this table. The first student took his major in French, and his minor in history. During his four years in college he earned 17 credits in English, 5 in German, 32 in history, 9 in mathematics, 5 in political science, 9 in psychology, 9 in rhetoric, 90 in romance languages, and 10 in chemistry. The cost of instruction in these several departments is given in the table, the total sum of which is \$732.54. It may be explained that the 10 units in chemistry are charged for in this table at the rate of the average cost per student credit of instruction in the School of Chemistry.

The second student whose record is shown in this table took his major in mathematics, and his minor in Latin. The distribution of his credits and of the figures showing the cost in each case is shown in the second line of the table, the total of which is \$912.87. Similar figures for each of the six cases may be read in a similar way.

From these figures it is clear that the cost is widely different in virtually every case, because the courses taken for the degree will have been taken in different colleges and in different departments of the University. Again, these figures are based upon the cost of instruction in the University for the year 1920-21, as shown in Table XV and following.

When a student has completed college, therefore, it may be said offhand that it has cost the University a given sum of money; an average, let us say, based upon the average cost per credit in the entire University. This average has a value, in that there is relationship between this average cost and the amount of work going on in the University as a whole, even tho such a figure may not apply to the actual cost in any given case.

There is another side to this study which must not be entirely overlooked, and that is the relationship between receipts and expenditures in the University. There must be a close relationship between the total receipts and total expenditures in the University. When we consider the wide variation in cost of instruction in different colleges and different departments, we naturally raise the question as to whether the student who takes instruction in an expensive course is paying the same proportion of the cost of his education as is the student who is taking instruction in the less expensive course. For instance, is a student of the University of Minnesota paying a given fee and taking training where he wishes, or has the University attempted to establish a relationship between the actual cost of instruction on the one hand and the amount of tuition charged on the other? The answer to this question seems to be that no very exact relationship of this kind has been established.

A few figures will be offered to illustrate the character of the problem involved. Let us suppose that the cost of instruction in the College of Dentistry is relatively high as compared with other colleges. Is the charge which the University makes against the dentistry student relatively larger than it would be in certain other colleges in which instruction is less expensive?

TABLE XX

COST OF A COURSE LEADING TO THE BACHELOR OF ARTS DEGREE IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Number of Credits in Science, Literature, and the Arts Departments or in Other Colleges and their Cost

Major Department		Soci-ology	Animal Bi-ology	An-thro-pology	As-tronomy	Bot-any	Eng-lish	Ger-man	Greek	His-tory	Latin	Mathe-matics	Philos-ophy	Phys-ics	Polit-ical Science	Psy-chology	Rhet-oric	Romance Lan-guages	Other Colleges*	Totals	
French	Credits						17	5		32		9			5	9	9	90	10		
(History)	Cost						\$80.41	\$23.25		\$113.60		\$44.82			\$17.15	\$59.58	\$28.83	\$287.40	\$77.50	\$732.54	
Mathematics	Credits	13	9	10					2	19	18	55			10	9	9	15	11		
(Latin)	Cost	\$29.64	\$49.95	\$39.60					\$11.48	\$67.45	\$109.98	\$273.90			\$34.30	\$59.58	\$28.83	\$57.90	\$150.26	\$912.87	
Sociology	Credits	48	9				34			9			10			9	33	27			
(English)	Cost	\$109.44	\$49.95				\$160.82			\$31.95			\$30.00			\$59.58	\$127.71	\$104.22		\$673.67	
Physics	Credits	8	9		3	6	11			10		35	2	37		3	9	10	45	3	
(Chemistry)	Cost	\$18.24	\$49.95		\$36.63	\$28.38	\$51.15			\$35.50		\$174.30	\$6.00	\$274.54		\$19.86	\$28.83	\$38.60	\$348.75	\$30.75	\$1,141.48
English	Credits	11	9		5		54			6	9				5	9	28	46	6		
(Spanish)	Cost	\$25.08	\$49.95		\$30.75		\$255.42			\$34.44	\$31.95				\$17.15	\$59.58	\$108.36	\$177.56	\$81.96	\$872.20	
History	Credits	11	10					22		71					15	6	19	10	15	2	
(Political Science)	Cost	\$25.08	\$55.50					\$102.30		\$252.05					\$51.45	\$19.86	\$67.53	\$38.60	\$55.35	\$12.88	\$680.60

NOTE: The words in the lefthand column of this table refer to the department in which the student majors in taking his degree. The word in parenthesis being the department in which he takes his minor.

\* The figures in this column of the table are charged at the rate of the average cost per unit of instruction in the college irrespective of the particular department in which the courses were taken. This is done in order not to extend the table unduly. The actual differences in the totals would be, on the average, slight.

The facts are about as follows: It costs \$11.16 per student credit for instruction in the College of Dentistry. The student takes, on an average, approximately 32 credits of instruction per year in this college. This would represent \$357.12 outlay. He takes, on the average, approximately 4 units in chemistry, at the rate of \$7.75 per unit, which represents \$31.00. He takes approximately 14½ credits per year, on the average, in the Medical School at the rate of \$10.25 per credit. This represents a cost of \$148.63. He takes, further, on the average ½ unit per year in the School of Mines at the rate of \$8 per unit which adds \$4.00 more. Summing up these items we find the total cost for this student to be approximately \$540.75 for a year's instruction.

The College of Dentistry charges a tuition of \$180 per year. Each year this college earns a very considerable sum of money through its Dental Infirmary. During the fiscal year 1920-21 the earnings from this source amounted to \$52,264.73. The number of students involved in earning that sum was 399. Taking the average amount earned by a student we have \$130.99. Adding these earnings to the amount paid in the form of tuition we have \$310.99.

Further, during the year in this college, net receipts amounting to \$2,000 were derived from various sources, including extension teaching by members of the staff of this college. Prorating this amount among 399 students we have a further net earnings by this college of \$5.01 per student. Adding this sum to the total of \$310.99, the actual net cost per student for maintaining the College of Dentistry last year was net \$566.37, as indicated by Table XV above, but rather \$250.37.

Similar figures might be assembled for each of the several colleges or for each of the several departments, or even courses, and arranged somewhat as in Tables XIX and XX. If this were done, we would see that the relationship between the actual cost of instruction to the University, on the one hand, and the actual receipts which are incident to the same instruction and its gross costs on the other hand, is by no means close. Aside from tuition fees some of the colleges earn nothing; while others, such as Dentistry, Medicine, Pharmacy, and Agriculture, earn very considerable sums.

In the Arts College the cost is low, but the receipts incident to those costs are also small, making the net cost per student as much or more than that in other colleges which on the face of things appear more expensive.

Just what should be the relationship between costs on the one hand and credits in the form of tuition fees and earnings on the other is an important question. The above figures are intended to bring the problem to light by describing the actual practice as it exists in this University.