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The Needs
of the
Colorado State Institutions
of
Higher Learning

ADAMS STATE COLLEGE
ALAMOSA, COLO.
DOCUMENTS

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Letter of Transmittal

*To His Excellency, Hon. Wm. H. Adams, Governor of the State of Colorado, and
To the Members of the Twenty-seventh General Assembly:*

Respectfully we hereby submit to you for your consideration in advance of the coming session of the General Assembly a report of the needs of the Colorado State Institutions of Higher Learning.

You will note that, while we briefly state the needs of these institutions as a whole, we are presenting for your consideration at this session of the Legislature the building needs only. This is due to the fact that the Twenty-sixth General Assembly increased our mill levies for maintenance, and we shall endeavor to carry on for the next biennial period without any increase of this revenue.

Two years ago these institutions presented to the Legislature statements of their needs both for maintenance and for buildings and requested that provision for both be made at that time. Bills for maintenance were passed, but the members of the Legislature did not deem it expedient to make further provisions for buildings. The building needs as stated in this report are substantially the same as those presented to the Legislature for this purpose two years ago. The request for a mill levy to meet these needs is exactly the same as that made at the last session.

During the two years that have elapsed since the session of the Twenty-sixth General Assembly we have, in our monthly conferences, devoted much time and thought to the building problems of these institutions. At the present time, after this long and careful deliberation, we are as firmly convinced as before that the mill levy for buildings should be renewed for another ten-year period. We find ourselves at the present time in a much more difficult position than two years ago. Our student bodies have grown as rapidly as was predicted two years ago, as you will see from the details of this report. We have, therefore, lost ground through being unable to go on with our building program.

In arriving at our decision we have endeavored carefully and thoughtfully to weigh all factors including the demands upon us and the ability of the State to provide, and we believe now, as we did two years ago, that you will find this time-limited levy the most efficient method yet used by our State to provide funds for buildings for our institutions of higher learning.

The recommendations we make herein are made by all of us and by all of our governing boards. We hope you will find this report helpful to you and that, after reading it, you will regard our request favorably.

Sincerely,

UNIVERSITY OF COLORADO,

George Norlin, President.

STATE SCHOOL OF MINES,

M. F. Coolbaugh, President.

STATE AGRICULTURAL COLLEGE,

(Including Fort Lewis School)

Charles A. Lory, President.

STATE TEACHERS COLLEGE,

George Willard Frasier, President.

WESTERN STATE COLLEGE,

Richard Aspinall, President.

ADAMS STATE NORMAL SCHOOL,

Ira Richardson, President.

December 18, 1928.

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The Needs of the Colorado State Institutions of Higher Learning

The needs of institutions of higher learning, either state-supported or endowed, come under two distinct heads, (1) maintenance, (2) buildings.

Maintenance includes salaries of faculty and other employees, fuel, light, materials and labor for repairs to buildings and equipment, materials for operation, as chemicals and other laboratory supplies, books, paper, printing, and other items.

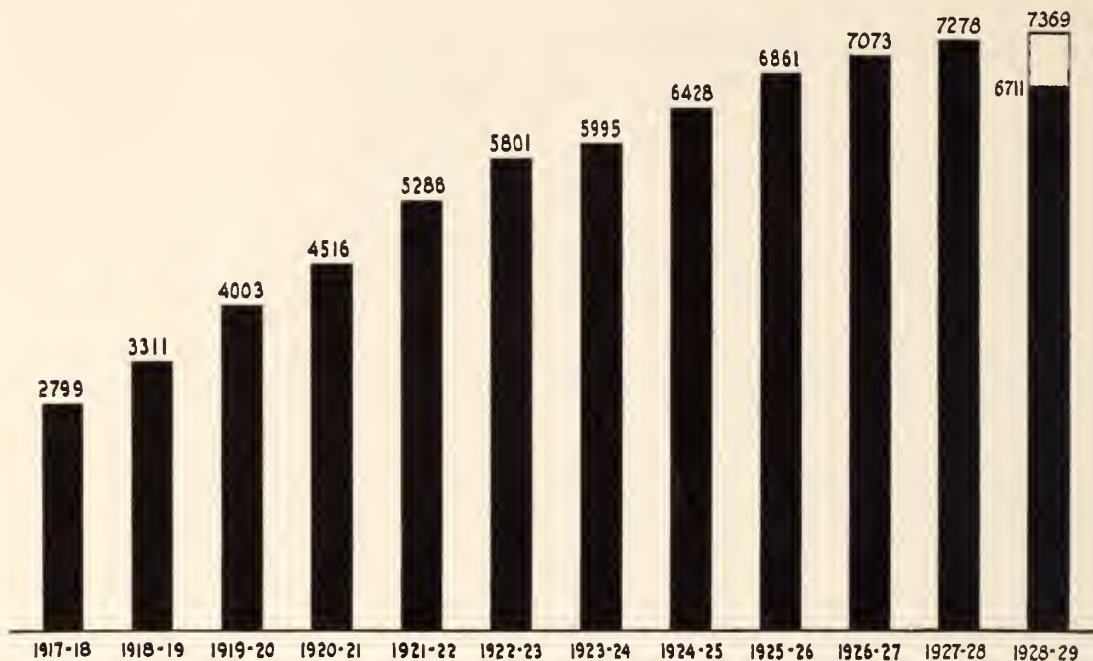
Needs for buildings are usually for additional floor space to accommodate growing student bodies, though this need also frequently includes replacement or remodeling of old buildings that have ceased to be fit for use.

Since the close of the World War, institutions of higher learning generally all over the United States have been confronted by greatly enlarged needs both for maintenance and buildings because of an influx of students to colleges and universities that has exceeded any previous record in the history of these institutions in the United States. This condition has existed in both endowed and state-supported institutions. Although this increase in interest in higher education was unquestionably one result of the world conflict, it is clear, at this time, that it was not a temporary condition, a "wave" of interest that would subside. Nearly ten years have passed since it began, and, instead of subsiding, the numbers demanding entrance to these institutions are still increasing.

This increased demand made the problem of administrators of these institutions in the younger states of the Union extremely difficult because, due to their short term of existence, they were not so well equipped to meet the situation as were some of the older colleges and universities that had been in existence for many years and that had acquired buildings and equipment more nearly adequate to conditions as they existed before the rapid growth of the past nine years. Many of these younger institutions, some of them less than fifty years old, had not been developed to the point where they were properly equipped to take care of the student bodies as they existed before the close of the war, much less the great increases that followed the conflict. This was the condition in the Colorado state institutions of higher learning.

Enrollment in Colorado Institutions Increased 119 Per Cent.—In Colorado the combined enrollments of the seven state institutions of higher learning increased 119 per cent. during the nine years 1918-19 to 1927-28. In 1918-19 the combined enrollments totaled 3,311; in 1927-28 they amounted to 7,278. In some of these institutions the growth was even greater than this, as is shown in the separate reports for the institutions presented later in this report. Conservative estimates for the current year indicate that these combined enrollments will increase at least 100 over 1927-28. The seven institutions referred to are: University of Colorado, State School of Mines, State Agricultural College, including the Fort Lewis School of Agriculture, State Teachers College, Western State College, Adams State Normal School. The Adams State Normal School has been a factor in this situation only since its opening in the summer of 1925. The growth in enrollment in the combined student bodies of these seven institutions during the past twelve years has been as follows:

**GROWTH IN ENROLLMENT OF THE COMBINED STUDENT BODIES OF THE SEVEN
COLORADO STATE INSTITUTIONS OF HIGHER LEARNING DURING
THE TWELVE YEARS 1917 TO 1929**



Note.—The total for 1928-29 is estimated, based upon the increase in the winter and spring quarters last year. The black part of the bar, 6,711, shows enrollment in the fall quarter.

This tremendous increase in demands for entrance, more than twice as heavy as formerly, was exactly like demanding double production from a factory already producing more than its normal capacity. Where were classrooms and laboratories to be found, how were the added teachers to be paid, how were materials and books to be bought with funds barely sufficient for half this demand? These were some of the maintenance and building questions that were created by this growth.

Maintenance Needs Were Met by the Legislature.—Additional funds for maintenance were provided by the Legislature from time to time to meet this rapid growth, the last provision being made by the Twenty-sixth General Assembly two years ago when it passed bills levying .338 of a mill for maintenance for the seven institutions mentioned, the yield to be divided among them according to a schedule agreed upon by them and submitted to the Legislature. These provisions have taken care of the maintenance problem for the present, at least for the next two years, so that these institutions will make no request of the Twenty-seventh General Assembly for funds for this purpose. Although no request for an increase in maintenance funds will be made at this session of the Legislature, it should be remembered that these institutions are compelled constantly to exercise great restraint in the administration of maintenance problems, especially in the matter of salaries, because their incomes for this purpose are insufficient to enable them to maintain a salary scale comparable with those of similar institutions in this country. Taking the University of Colorado as an example, we find the following condition: In a recent report of the General Education Board it is shown that the average salary of all teachers in the colleges of arts and sciences in all similar institutions in this country is \$3,003 per year. The average

in the College of Arts and Sciences of the University of Colorado is \$2,529, almost \$500 per year lower than the average for the other institutions of the country. The salaries in the colleges of arts and sciences are good examples for such comparisons because these colleges represent more nearly than do the professional schools average conditions in a university. They are the central colleges of each university system, their enrollments are larger than those of the other schools, and they must include in their faculties all kinds of teachers from the rank of instructor to the full professor in science, for instance, who must rank with the leaders in his field.

What is true of the University in this respect is substantially true of the other Colorado institutions of higher learning.

With these conditions as a handicap, it is extremely difficult for the Colorado institutions to maintain instruction upon the level of similar institutions in this country. Valuable members of their faculties are constantly being attracted away from them by the offer of larger salaries in institutions in other states.

While maintenance needs have been temporarily met, the building situation is still acute and must be given consideration immediately.

Building Conditions Were Acute Before Post-War Growth Occurred.—Before the unprecedented increase in enrollment that followed the World War, as early as 1917, building conditions at the Colorado institutions had become acute, due to the facts that adequate provisions had never been made since the establishment of the schools and that their student bodies had already increased beyond their capacities. Classrooms and laboratories were overcrowded and in many cases were located in unsanitary basements or attics or in sheds fit only for storage.

Prior to the year 1917, provisions for buildings were made by legislative appropriation from biennium to biennium, a method that was unsatisfactory for a number of reasons. Under this system no definite campus plan could be worked out, the several institutions were compelled to lobby for building appropriations—often in competition with each other—and appropriations, being in the third class, were sometimes not paid.

First Attempt to Make Adequate Provision for Buildings Made in 1917.—The first attempt to make adequate and permanent provisions for buildings for the Colorado state institutions of higher learning was made in 1917. Early in that year the presidents of these institutions, at the request of Governor Julius C. Gunter, entered upon a joint study of the building problems of all the institutions with a view to making a recommendation for adequate provisions to meet the situation.

Presidents Recommended a Levy of .5 of a Mill for Ten Years.—After carefully studying the situation at each institution, and basing their conclusions upon existing conditions and normal growth as shown by the past records, the presidents recommended a mill levy of .5 of a mill to continue for ten years, the yield to be apportioned among the various institutions. This recommendation was approved by Governor Gunter and introduced into the General Assembly, then in session, by Mr. Boone Best, speaker of the House of Representatives.

Levy Reduced to .3 of a Mill.—The Legislature reduced the amount of the levy from .5 of a mill to .3 of a mill and passed the measure.

Amount Levy Was Expected to Yield.—It was estimated that this levy would yield \$363,509 per year, since the valuation of state taxable property was \$1,211,697,270 in 1916, the year preceding the passage of the bill.

Amount Levy Actually Yielded.—The levy actually yielded, in purchasing power for labor and materials, only \$181,754 in 1917 instead of \$363,509. This was due to the fact that costs of labor and materials more than doubled immediately after the United States entered the World War, which it did within two weeks after the building levy bill was signed. This reduced purchasing power has continued in practically every item of cost down to the present.

HOW WAGES INCREASED



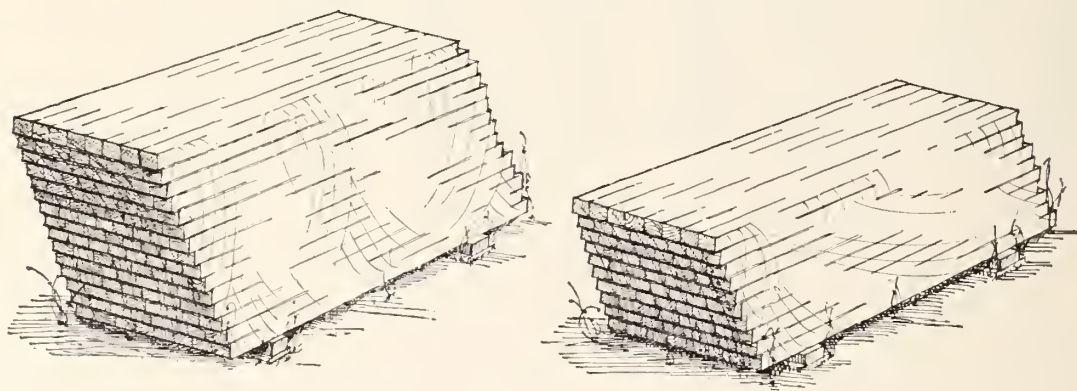
CARPENTERS

STONE MASONS

BRICKLAYERS

Left-hand bag in each case represents wages per day before 1917, right-hand bag wages per day during past twelve years.

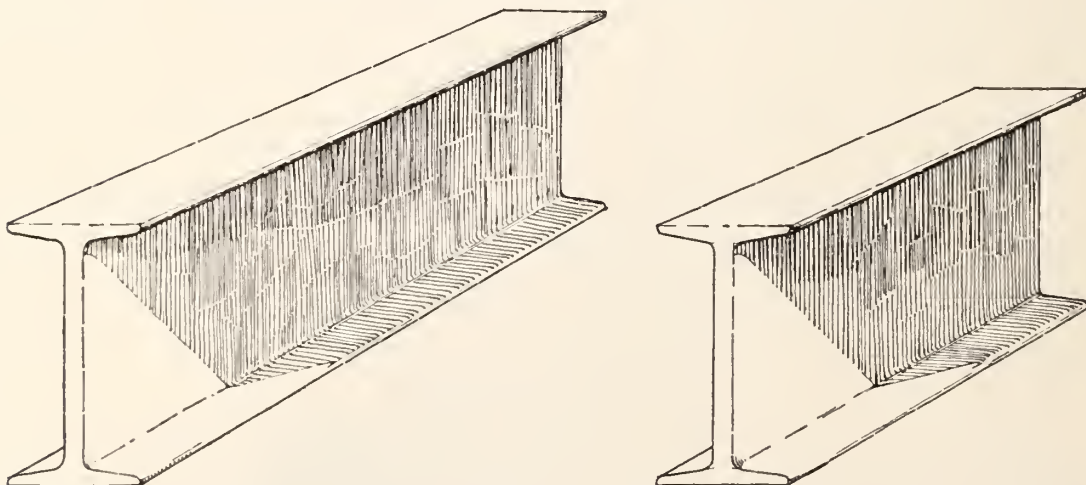
HOW COST OF LUMBER INCREASED



Pile of lumber that could have been purchased with a given sum of money before 1917.

Pile that the same sum would have bought during past twelve years.

HOW COST OF STRUCTURAL STEEL INCREASED



I-Beam that could have been bought with a given sum of money before 1917.

I-Beam the same sum would have bought during past twelve years.

Amount Originally Requested Reduced by Two Factors.—The amount originally requested by the presidents after their careful study of the situation was reduced by two factors. First, the .5 of a mill was cut to .3 of a mill; second, the purchasing power of the money raised by the levy was cut in half by rising building costs. The dollar that was needed for buildings, therefore, was actually reduced to 30 cents.

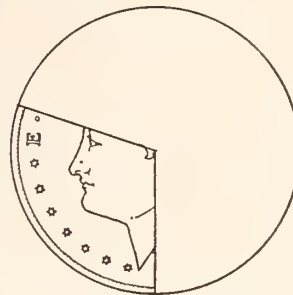
HOW THE BUILDING DOLLAR WAS REDUCED



Dollar requested by presidents.



As reduced by Legislature.



As reduced by increase in building costs.

Apportionment.—The bill authorizing this levy provided that it be apportioned among the various institutions as follows:

University of Colorado.....	8/20
Agricultural College.....	6/20
State Teachers' College.....	4/20
State Normal School at Gunnison.....	1/20
*Unassigned, to be used for School of Mines, Fort Lewis School, or other educational institutions.....	1/20

Buildings Provided Were Not Sufficient.—It is scarcely necessary to point out that these institutions, with funds reduced two-fifths by the Legislature and then cut in half by rising building costs, were not able to increase their building capacities to the extent anticipated at the time the problem was first considered. With these reduced funds they were, indeed, not able to increase their capacities to meet conditions as they existed at the time the bill was passed, and of course they could not make provision for more than twice as many students. Reference again to the graph on page 4 showing the growth in combined enrollments at these institutions and comparison of the facts revealed there with the fact that only 30 cents was available for buildings where \$1.00 was needed will reveal the situation which confronts these institutions today better than words can do. They are in almost as difficult a position as that which they occupied in 1917. The levy of 1917 expired two years ago. With these enlarged student bodies still growing, these institutions are today without any means whatsoever of meeting the situation.

Ten-Year Levy Should Be Renewed.—The facts as they exist at these institutions indicate an imperative necessity for the renewal of the building levy for another ten years. The presidents of these institutions have been meeting monthly for the past three years for the purpose of studying these and other problems pertaining to higher education in Colorado. Two years ago, after studying the building question for one year, they requested of the Twenty-sixth General Assembly that the ten-year build-

*The total amount derived from this 1/20 was distributed to Western State College, the Fort Lewis School, and the Adams State Normal School. The School of Mines received nothing from this levy.

ing levy be at that time renewed. The Assembly, however, considering the levy passed for maintenance at that time and taking into account other conditions that then existed, deemed it inexpedient to renew the levy. Two years have thus been lost. Since the last session of the Legislature, the presidents have continued to study the building problem and at this time find themselves as firmly convinced as two years ago that this levy should be renewed for another ten-year period. They will accordingly present a request to the Twenty-seventh General Assembly when it meets in January, 1929, asking that the original .3 of a mill be renewed for another ten-year period with the addition of .0473 of a mill, to help provide for the School of Mines, which received nothing under the old levy, the Fort Lewis School, and for the Adams State Normal School, established two years ago, and an increase for Western State College. This will make the total levy for buildings for all institutions .3473 of a mill. Passage of the levy for another ten years will give these institutions, over the twenty-year period, the amount of revenue that was in the minds of the presidents when, in 1917, they asked for .5 of a mill for ten years, and the extra tenth of a mill—the difference between .5 and .6 of a mill will partially, though by no means entirely, go to offset increased building costs. The proposal will be a joint request from all the institutions. They will join in urging its passage. It will be apportioned as follows, according to recommendations made by the presidents and approved by the governing boards of the institutions involved. It is substantially the same apportionment for the first three institutions as was made for them ten years ago:

Institution	Fraction	Estimated Yield Per Year
University of Colorado.....	16/45	\$190,280
Agricultural College	12/45	142,656
Teachers College	8/45	95,104
School of Mines.....	3/45	35,664
Western State College.....	3/45	35,664
Fort Lewis School.....	2/45	23,776
Adams State Normal.....	1/45	11,886

Levy Would Cost the Taxpayer Owning \$1,000 Worth of Property Only 35 Cents Per Year.—



Quarter

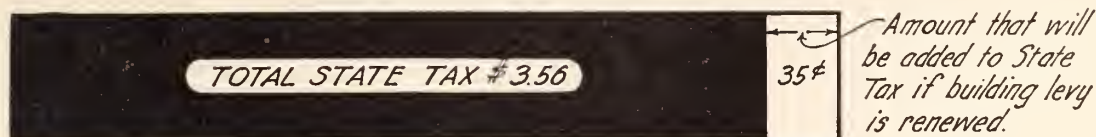


Dime

The sum of these small coins, 35 cents—the price of a quart of oil, of a ticket to the movie, of a malted milk and a cigar, of a shave and a shine—is all it will cost the owner of \$1,000 worth of property if the building levy is passed, and he will have to spend that sum only once a year!

With this as a basis, it is easy to compute the cost to individuals whose holdings are larger. He who possesses \$5,000 worth of property will have to spend \$1.75 each year, or the cost of eight gallons of gas, or one ticket to the theatre, or one dinner with tip. If an individual's holdings amount to \$10,000, this levy will cost him each year \$3.50, or the price of one new inner tube.

Added Amount to Present Cost Is Insignificant.—State taxes for all purposes in Colorado are now costing the owner of \$1,000 worth of property \$3.56 per year. The following graph illustrates the ratio of increase in this cost that will occur if the building levy is passed:



Total Burden Upon Taxpayer for Older Institutions Now Less Than Two Years Ago.—Considering the older institutions—the University at Boulder, the Agricultural College, the School of Mines, the Teachers College, and Western State College—which, up to a few years ago represented the normal burden upon the taxpayer for higher education, the burden is now 26 per cent. less than two years ago. This is true in spite of the fact that the levy for maintenance for these institutions was increased .222¹ of a mill by the Twenty-sixth General Assembly. At the same time that the maintenance levy was increased, the .3 of a mill levy for buildings expired. The building levy was for the benefit of the institutions mentioned. These institutions lost more in the expiration of the building levy than they gained in the increase in the maintenance levy, and the burden upon the taxpayer was actually decreased so far as these institutions are concerned .078 of a mill, the difference between .222 of a mill and .3 of a mill, or 26 per cent.

Mill Levy Most Economical Method of Raising Funds for Buildings.—The mill-levy method of raising funds for buildings at the State institutions of higher learning is the most economical plan that could be followed. The people of the State are at no expense for the selling of bonds or for interest, and every dollar thus raised actually goes into buildings. Compared with the bond-issue plan, used in some states to raise funds for buildings for educational institutions, the mill-levy plan is nearly 50 per cent. more economical. To have raised by a bond issue the amount yielded by the .3 of a mill levy during the ten years 1917 to 1927 would have increased the total cost nearly half of the amount raised.

The .3 of a mill levy during the period 1917 to 1927 yielded approximately \$4,500,000.² Had twenty-year bonds for this amount been issued in 1917 it would have cost the taxpayers of the State \$2,126,250 for interest alone, making the total cost \$6,626,250 instead of \$4,500,000.

Interest alone for one year during the first years of the issue would have cost as much as a good building. Assuming that the State would have had to pay for these bonds the same interest rate, 4½ per cent., as it is paying for the National Defense bonds issued in 1917, the interest cost for the first year would have been 4½ per cent. of \$4,500,000, or \$202,500. For the second year, assuming that the bonds would be retired at the rate of one-twentieth of the total sum per year, the interest cost would have been 4½ per cent. of \$4,275,000, or \$192,375. For succeeding years the interest

¹The balance of the .338 of a mill levy for maintenance passed two years ago, .11616 of a mill, was for the Medical School, the Mining Experiment Station, and the Adams State Normal School. The Medical School and the Adams State Normal School were new institutions at the time of the passage of the building levy and were not included in its provisions. The inclusion of the Mining Experiment Station was an entirely new item in the maintenance levy.

²Estimate based upon the evaluation of state taxable property made by the State Board of Equalization for each year in the ten-year period.

cost would have dropped only approximately \$10,000 per year, and not until the current year, 1929, would it have dropped below \$100,000.

It should be noted that in this estimate interest cost only is included and that no figure for the cost of selling the bonds has been used. This was done for the sake of conservatism and because it cost the State only a nominal sum, the cost of printing, to sell the National Defense bonds which are used as an example because they were issued in 1917, the year in which the .3 of a mill levy for buildings went into effect. It would certainly have cost something to have issued building bonds instead of passing the mill levy. Leading bankers and brokers have estimated that to have marketed the bonds through a brokerage house in 1917 would have cost approximately 2 per cent. If this is taken into account the total cost of the plan would be increased by \$90,000.

The use of the bond-issue plan to meet present needs would cost practically the same as the cost already given, except that there might be a small saving in the cost of selling and in the interest rate. It is estimated by leading brokers and bankers that the cost of selling might be only $1\frac{1}{2}$ per cent. instead of 2 per cent., as estimated for 1917, and that the interest rate might be only 4 per cent. or $4\frac{1}{4}$ per cent.

Building Needs of the Seven Institutions

In the following pages are presented detailed statements for each of the institutions enumerating the buildings that should be built and explaining why they are needed.

UNIVERSITY OF COLORADO

The number of students attending the University of Colorado during the regular term has nearly trebled within the past twelve years.

Enrollment in 1927-28.....	3,131
Enrollment in 1917-18.....	1,278
Increase.....	<u>1,853</u>

In percentage, this growth is:

$$\begin{array}{r}
 1278 \overline{) 185300} \quad (144\% \\
 \underline{1278} \\
 5750 \\
 \underline{5112} \\
 6380 \\
 \underline{5112} \\
 1268
 \end{array}$$

These figures are based upon the total enrollment for the regular year 1927-28 because the figures for that year are the latest that are complete. If the estimate for the current year, 3,209, as shown on the chart which follows, is realized, the growth during the twelve-year period will be 151%. The estimate for the current year is, it should be noted, very conservative and will undoubtedly be exceeded.

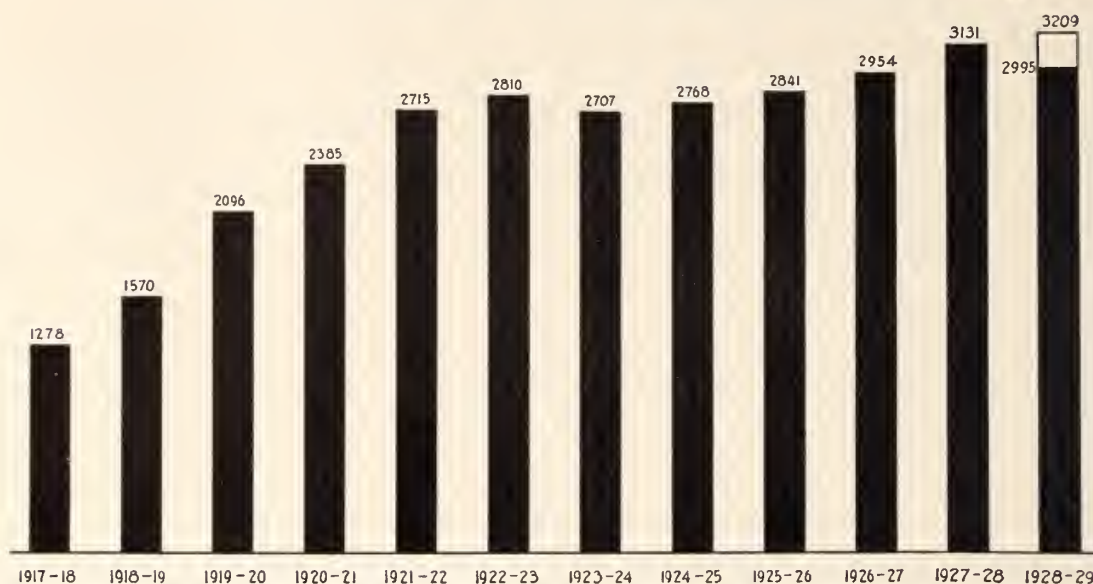
Since the last report, made to the Legislature two years ago, the student body has increased in numbers 255.

Enrollment in 1927-28.....	3,131	
Enrollment in 1926-27.....	<u>2,954</u>	
Gain in one year.....		177
Enrollment first quarter for the current year, 1928-29.....	2,995	
Enrollment first quarter, 1927-28.....	<u>2,917</u>	
Gain in one year.....		78
Increase in two-year period.....		<u>255</u>

This is a gain in two years of 8.6 per cent. since building operations ceased because of the lapse of the ten-year levy. It should be noted that these figures include only actual numbers up to the end of the fall quarter this year. If the same gain is made in the winter and spring quarters as last year, which is confidently expected, there will be added to these figures 136 more students, making the gain for the two years 391, or 13 per cent.

Growth by years during the twelve-year period, 1917 to 1929, has been as follows:

GROWTH IN ENROLLMENT IN THE REGULAR TERM AT THE UNIVERSITY OF COLORADO DURING THE TWELVE YEARS, 1917 TO 1929



Note.—The total for 1928-29 is estimated, based upon the increase in the winter and spring quarters last year. The black part of the bar, 2,995, shows enrollment in the fall quarter.

Note.—The twelve-year figures are slightly misleading because they begin with 1917-18 when attendance dropped due to the enlistment of students and the other effects of the entry of the United States into the war. Going back to 1916-17, however, the highest in attendance up to that time, we find the increase is 119 per cent. from 1,427 in 1916-17 to 3,131 last year.

Enrollment during the Summer Quarter has multiplied nearly five times within the past twelve years, from 771 in 1917 to 3,437 last summer. The University now ranks seventh in size among the summer schools of the country. This growth has created an even greater problem than that of the regular year, because it has brought nearly five hundred more students to the campus during the summer than during the winter. Many of these are Colorado students, who are taking the opportunity to shorten their time in college by attending during the summer, while many others take advantage of the summer session to make up work that has not been performed during the regular year. The summer session has thus become an integral part of the University year, being the fourth quarter and following the three fall, winter, and spring quarters of the so-called regular term. Besides those who attend to advance undergraduate careers, many school teachers and others who desire certain courses or who are pursuing graduate work come during the summer. This session is operated without cost to the State of Colorado, the expense being paid out of fees charged students, those from outside Colorado paying a higher fee than residents of the State.

GROWTH IN ENROLLMENT IN THE SUMMER QUARTER AT THE UNIVERSITY OF COLORADO DURING THE ELEVEN YEARS, 1917 TO 1928



Growth in Enrollment Has Greatly Exceeded Increase in Building Capacity.— This tremendous growth in enrollment, an increase of nearly three times in the regular term and of five times in the summer session, has been much greater than the increase in building capacity, even with the means for construction of new buildings provided twelve years ago. The reasons for this are explained in the opening paragraphs of this report.

To meet this condition, the University has resorted to the use of practically every basement and garret on the campus in its effort to provide classrooms and laboratories for the students and offices for those who teach them. Even this expediency is nearing its end, because, as one prominent University official recently phrased it, "We are commencing to run out of garrets."

Needs

The congestion resulting from this increase in growth has so manifested itself in certain colleges and departments of the University as to cause the building needs to stand forth clearly and to leave no doubt about the particular places in which relief is needed. These evidences are, indeed, the best examples that could be presented, because they are facts and not theories. They are discussed specifically in the following paragraphs.

On the Campus at Boulder

Addition to Arts Building.—One of the most acute situations on the campus is found in this building. Here, for instance, is supposed to be located the Department of Fine Arts, but, due to increased enrollment, this department has been compelled to scatter its work in six widely separated places upon the campus. Its headquarters are still in Arts Building, but, in addition to this building, classes are being taught in second floor rooms in both the towers of Macky Building, which are gained by narrow spiral stairways, in the basement of Macky Building, in a small brick building near the Women's Gymnasium which formerly was used as a detention home for contagious diseases when the University Hospital was in operation, and in the wing of the old Hospital Building still standing connected with the new wing of the Women's Gymnasium. No comment is necessary to emphasize the undesirability of such a condition.

Besides the Department of Fine Arts, many other departments have been forced to borrow space from departments in other buildings and to submit to crowding in offices. The Department of Education is badly cramped for office space. The Departments of English Literature and Mathematics have found it impossible to manage with office space allotted them and have been forced to borrow space in other buildings, English Literature going to Old Main and Mathematics to Woodbury Hall. Certain of the courses in History have to be taught outside the building because there is no classroom sufficiently large to accommodate them. Many of the departments are compelled to conduct examinations elsewhere for this reason.

In this building are located the Departments of Art, Classics, Education, English Literature, Germanic Languages, History, Mathematics, Philosophy and Psychology. Here also should be located Romance Languages, now housed in Old Main, and English Language, now in cramped quarters in Woodbury Hall.

To provide additional floor space to correct the conditions as here described, two new wings should be added to the Arts Building, nearly doubling the capacity. The necessity for adding these was taken into account when this building was constructed, and they can be attached to the building without in any way detracting from its appearance. They will be built at each end of the building, on the south side. One section of each wing will extend southward. A second section will be attached to the first and extend westward.

Buildings for the College of Engineering.—So limited have been the funds for new buildings in the past that it has never been possible to construct an administration building for the College of Engineering, nor to provide adequate laboratory space. The administrative offices have, therefore, been located in Engineering Building No. 1, occupying space needed for classrooms and laboratories, and some laboratory and classroom work has been carried on under very difficult conditions. Enrollment in the College of Engineering has, however, so increased that something must be done quickly, not only to make available for instructional purposes space now used for offices, but to provide adequate laboratory facilities for some of the very important departments within this college. The rate of growth in this college is revealed by the enrollment figures for the two most recent years, 1926-27 and 1927-28. In the former year there were 622 students enrolled; in the latter, 681, an increase in one year of 59 students.

The growth during recent years has entirely exceeded the capacity of the buildings, necessitating the borrowing of classrooms from other departments in other build-

ings, preventing the use of much laboratory machinery, and necessitating the conducting of classes in rooms not at all suitable for such uses: It has also demonstrated that Engineering Building No. 3 is too far from the center of this college. Briefly, some of the specific conditions in this college are stated as follows:

It has been necessary to borrow classrooms for this college in Main Building, Arts Building, and Geology Building. In the latter building, where space was loaned at the beginning of the fall quarter, congestion in geology classes became so great that it was necessary to ask for the return of the space and the engineering classes were compelled to move to rooms constructed on the mezzanine floor of one of the laboratories in which it is impossible to shut out the sound of the machinery operating upon the floor below.

The Electrical Laboratory has become so crowded that it is impossible to use much new machinery and equipment and extremely difficult to maintain efficiency in laboratory instruction. Besides the lack of capacity in this laboratory, progress in this important field is being seriously handicapped by lack of space. For some time the faculty in this department has been endeavoring to equip a high-tension laboratory for high-voltage testing for research, instructional, and service purposes. There is great need for such a laboratory since none now exists between the two seaboard, and the expectations of leading engineers have been directed toward Colorado to take the lead in this field. This development cannot be undertaken now because limited space makes the enterprise dangerous. Colorado can become the center for this important work in all the territory between the two coasts when space will permit.

Larger classes and the advance in methods, necessitating more machinery, have so crowded the Materials Testing Laboratory that a serious problem is here presented.

The Library is located in a room intended for use as a laboratory, not well lighted nor ventilated, near noisy laboratory rooms.

So inadequate is the space devoted to the Steam Laboratory that much of the equipment has never been set up.

The College of Engineering, though it offers a major course in Chemical Engineering, has no Chemical Engineering Laboratory. Only by imposing upon the Chemistry Department can the work be maintained at the proper standard and this expediency does not permit the use of many essential laboratory experiments. This deficiency is the only thing that stands in the way of the Department of Chemical Engineering being placed in the first class by the American Association of Chemical Engineers. This association has officially served notice that such designation will not be made until laboratory facilities are provided.

It has been necessary to locate some of the classrooms above the wood-working shops and in rooms adjacent to laboratories where it is difficult for the instructor to make himself heard above the noise of running machinery.

The following are needed to correct these conditions:

Administration Building.—This building will provide offices for the administrative officers and some members of the faculty, classrooms, drafting rooms, and space for the Library. It will release space in Engineering Building No. 1 that is needed for laboratories, will obviate the necessity of conducting classes under noisy conditions, will place the Library in proper quarters, will contribute greatly to the efficiency of the Department of Engineering Drawing by providing adequate rooms for classes in drafting that are now being taught in two or more rooms at the same time, and will release

for other purposes Engineering Building No. 3. This building will be constructed just north of Engineering Buildings Nos. 1 and 2, facing north, and having two wings extending backward from each end toward the south. It will be three stories in height.

An Addition to Engineering Building No. 1.—An addition to this building is badly needed to provide additional laboratory space for the Department of Electrical Engineering and for the Materials Testing Laboratory.

An Addition to Engineering Building No. 2.—An addition here will provide more space for the laboratory for Steam Engineering, a laboratory for use in the courses in the Heat Treatment of Steel, which are now being taught in a small, dark, inefficient room that cannot be graced by the term laboratory, and a laboratory for Chemical Engineering. The addition now contemplated will make provision for the Steam Engineering Laboratory for the present only. Additional space must be provided in the future.

Building for the Biological Sciences and the Museum.—The biological sciences, which include Biology with its important bearing upon public health and race progress, Botany with its cultural and scientific phases and its practical application to conservation, beautification, and to industry, Bacteriology with its scientific aspects and its important relationship to public health, and Zoology with its instruction and researches in animal, bird, and insect life, are all crowded into limited quarters on the second and third floors of Hale Building, with the exception of Bacteriology and one course in Biology which are taught in Denison Building. Besides being crowded, much of the space devoted to this important work is not suitable for such purposes. The third floor of this building, for instance, is really an attic. Into these floors of this building is also crowded the University Museum, in many respects the most extensive and most valuable collection of specimens in the West. Because of limited conditions, the greater part of this museum material is not available for use, but is stored away in drawers and boxes, thus seriously handicapping the work of the biological sciences and geology, which are very dependent upon museum material for their instruction and researches.

A new building for these sciences and for the Museum has for a long time been a very pressing need.

University Book Store.—The University operates a book store for the benefit of students, where they may obtain books at cost. Through this activity many thousands of dollars are saved to the citizens of the State each year through the reduction to their children in the cost of attending the University. This enterprise is now quartered in a basement room in Macky Building which is poorly lighted and ventilated, too small, and not readily accessible because it is not centrally located. Better provision for the Book Store is a definite phase of the building problem, though not calling for a separate building. Provision can be made for the Book Store in one of the new buildings planned for or in one of the older buildings after new buildings are constructed.

School of Business Administration.—Enrollment in this school, so vitally related to the business and commercial life of the State, has grown very rapidly, especially since its establishment as a separate school two years ago. There are now 79 students enrolled as majors in this school, an increase of 100 per cent. over two years ago, when enrollment was 39. This school is now housed in the basement of Guggenheim Law Building, in rooms not originally intended for classrooms and where it is difficult to maintain maximum efficiency. By sufferance only, it may be said, is this school allowed to exist even in these undesirable quarters. In presenting this building to

the University the donor, Senator Simon Guggenheim, stipulated that it was to be used exclusively for instruction in law. Only through the courtesy of Senator Guggenheim and his hesitancy to interfere, has the University been enabled to develop this important school.

A building for the School of Business Administration must be provided in the very near future.

***Women's Dormitory.**—A building need of which it is scarcely necessary to speak, so well is it known among the citizens of the State, especially among those who have, or have had, daughters attending the University, is that of a dormitory for freshmen girls. It is vitally essential that the daily lives of these young women be under the control and supervision of the proper University authorities during their first year in the University. Under present conditions, with these young women living in private homes off the campus, it is almost impossible to maintain this control and supervision, although the University authorities are doing their best to do so by carefully selecting the houses in which these young women may reside, by stipulating rules for the conduct of these houses, and by keeping as closely in touch with them as possible.

There are now nearly three hundred freshman girls in the University. A dormitory with accommodations for that number, including dining room and social rooms, is a need that has been pressing upon the administrative officers for the past ten years.

Service Building.—Under present conditions it is extremely difficult to maintain efficiency in the mechanical and other departments essential to the maintenance of the buildings and equipment of the University. The carpenter shops are in one place, the plumbing shops in another, the machine shops in another, the paint shops in another, all at opposite sides of the campus from Macky Building, where are located the offices of those who direct the work of these service agencies and where is located the stockroom from which all materials for construction and repairs must be drawn. Under this arrangement much valuable time is lost because of the necessity for going clear across the campus for orders, for verification of instructions, or for supplies. The stockroom is located in the basement of Macky Building where it is necessary to use artificial lighting and ventilation.

Of even more importance is the Construction Department through which all building operations are carried on, thereby saving many thousands of dollars to the taxpayers. In one building alone figures show that \$100,000 was saved for the taxpayers of the State through this department. The offices of this department are now in Macky Building, while the workmen in the various trades are scattered about the campus in the places referred to, making administration and supervision extremely difficult.

Centralization of all this work in one building would not only contribute greatly to the efficiency of the forms of service involved, but would result in a substantial saving of money. A building modest in style and inexpensive in construction, but adequate in capacity, to be located near the railroad, probably in the vicinity of the power plant, is contemplated for the housing of these services.

*The cost of constructing dormitories is so much greater than the cost of buildings for other purposes that the University cannot hope to acquire dormitories out of the income from the renewed levy. Some other means must be found to finance the construction of these buildings. They are included here, in spite of this fact, because they represent one of the most pressing building problems of the University and are, therefore, properly a part of any discussion of building needs.

Library.—The growth in enrollment has manifested itself very definitely in the Library, which may be called the heart of the University, because it is the source, the fountain head, of much of the information upon which is based the instruction in the various departments. Its sources must be readily accessible and facilities within its walls for the use of its information must be adequate. In 1923 a wing was added to the Library, which increased materially the efficiency of the place and which was adequate at that time. Since this wing was added, enrollment in the University has increased 424 students, from 2,707 in 1923-24 to 3,131 last year. This meant but one thing. Nearly five hundred more students were on the campus to call for books at the Library and to use its reading rooms. This increased demand has exceeded the capacity of the Library. The reading rooms are crowded during rush periods, especially during the summer. Shelf capacity, too, is no longer adequate. Something must be done to relieve this situation very soon.

Administration Building.—With the growth in the size of the University the problems of administration have, of course, greatly increased, necessitating not only increases in the existing staffs, but the creation of new administrative branches. The administrative branches of the University, including the offices of the President, the Comptroller, in whose branch are included the Purchasing Agent and staff, and the Bursar and bookkeeping staff; the Registrar, including the office for the evaluation of credits and the office for the keeping of the records of grades of all students, the Dean of Men, the Associated Alumni, and the Office of Publications, are now in quarters in opposite wings of Macky Auditorium Building, the Registrar's offices being in one wing and the others in the opposite wing, separated by the width of Macky Building, 135 feet. There is necessity for frequent contact between many of these offices, and this is especially true at registration time, five times each year, when there is frequent need for communication between the Registrar's office and the Bursar's office. Besides the inefficiency of this arrangement, the space available for these purposes in Macky Auditorium Building is no longer adequate, which condition has been accentuated by the necessity of locating here, too, the offices of the Construction Department. In the office of the Comptroller, for instance, the secretary, the record clerk, the inventory clerk, and the assistant to the Purchasing Agent are all crowded into one room that is really large enough for not more than two. The offices of the Associated Alumni, the Director of Publications, and the Department of Journalism are crowded into two rooms. In one of these the head of these three departments shares space with the assistant professor of Journalism who is also in charge of publicity, making private conferences or other work demanding close concentration virtually impossible. Into the other room are crowded the secretary, the alumni record clerk and all alumni files, and the assistant secretary of the alumni, who is also editor of the Colorado Alumnus and instructor in Journalism. With the growth in functions and personnel due to the increase in enrollment, has come, naturally, an increase in the need for space for filing and especially for the safe-keeping of records.

Not the least of the advantages to come from the relief of these conditions by the construction of an Administration Building will be the increase in the efficiency of the registration machinery which will make the whole task of registering much simpler and much less troublesome for the thousands of students who must go through this formality five times each year. Under present conditions, registration is conducted in the Men's Gymnasium because this building provides the only floor space of sufficient size for this work. Here the students not only select their courses of study but here they have their schedules checked and receive their statements showing the amounts of fees they must pay. Information in the Registrar's office is often needed during the course of registration, and fees are paid at the Bursar's

office. The Registrar's office and the Bursar's office are, as has been stated, in Macky Auditorium Building, nearly a quarter of a mile from the Gymnasium. Much time and energy are wasted by this wide separation of these offices. Tentative plans for the new Administration Building call for the location of the Bursar's office and the Registrar's offices on opposite sides of a large room, with rows of windows along either side, through which students may transact the business necessary to the completion of their registration.

The conditions as explained here clearly demonstrate that in the very near future construction must be begun upon the new Administration Building.

Chemistry.—The growth in enrollment has been sharply felt in the Chemistry Department. Although the capacity of this department was materially increased a few years ago by the addition of two wings to the old building, the classrooms and laboratories are again crowded and more room must be provided in the near future.

Journalism.—Better provision for the Department of Journalism must soon be made. This department, established six years ago, has had a steady growth and now represents to the administrative officers a very definite problem in the future building plans of the University. During the current year there are 87 students enrolled for the technical courses offered by the Department of Journalism and 35 freshmen who are preparing to major in this field. The offices of this department are located in Macky Auditorium Building, the laboratory in the basement of Old Main, and the classrooms in Old Main and New Arts Buildings. Particularly pressing is the need for more and better laboratory space. In the Colorado Sun room, the city room of the department newspaper, for instance, a room 34x26 feet, are crowded the desks for twenty-three typewriters, a copy desk with a capacity for eight students, desks for the Managing Editor, the City Editor, and the Telegraph Editor, while the Financial Editor, Sports Editor, and Society Editor are compelled to do their work on one of the crowded typewriter desks or work in an adjoining room. Besides more space for this work, this department needs a type laboratory, through which the laboratory work of the advanced classes can be made more practical. This improvement cannot be made until more space is available. Another pressing necessity in this department is a room that could be used as a reading room and seminar room. The work in many of the courses calls for much research, and in nearly all courses students are required carefully and regularly to read certain newspapers. One course calls for conferences between instructors and the class as a whole over material and plans which cannot satisfactorily be held in a classroom. With these should be provided as soon as possible means for centralizing offices, classrooms, and laboratories in one building.

At the Medical School and General Hospital in Denver

Growth in enrollment and increased demands made by society upon its various branches have caused urgent needs for more buildings to be manifested at the Colorado School of Medicine, General Hospital, and Psychopathic Hospital in Denver, while progress in the development of the institution has accentuated the need for certain facilities not provided at the time of establishment.

Addition to Nurses' Home.—The most urgent need is for an addition to the Nurses' Home, which now has a capacity for only eighty nurses. At the opening of the fall quarter there were, including student nurses, 137 nurses in the institution. Since only eighty of these could be housed in the Nurses' Home, it was necessary to require practically all general duty nurses to live outside the institution and to add

to their salaries \$15 per month each for outside room expense. Through the year the average number of nurses for whom outside room allowance must be made is thirty, causing, at \$15 per month each, an annual expense of \$5,400.

Two hospitals in Denver have asked for the privilege of affiliating with the School of Nursing for the third year of training for their students. If the capacity of the Nurses' Home is enlarged, this arrangement can be made, making it possible to replace ten to fifteen general duty salaried nurses with non-salaried third-year student nurses, thereby effecting a salary saving of at least \$10,000 each year. Added to the saving of \$5,400 now being expended for room allowances, this would mean an annual saving of \$15,400, which, it is estimated, would repay the cost of an addition to the Nurses' Home in eleven years.

The addition to the Nurses' Home should provide sixty more rooms.

Auditorium and Clinical Research Building.—The Medical School and Hospitals do not have a room in which more than one hundred persons can be brought together at one time. The seriousness of this handicap is realized when it is known that there are 181 students in the Medical School and 137 nurses in the Training School and hospital staffs. Neither of these separate groups can be assembled together and it is, of course, entirely out of the question to have students, nurses, and faculty assembled together at one time, desirable and essential though this is. Institutional efficiency will not only be promoted by the provision of an adequate auditorium, but great benefit will accrue to the institution and to the people it serves when it becomes possible for the students, faculty, and nurses to hear addresses from noted physicians and scientists who often visit Denver, and when it is possible to bring national and state scientific meetings to this center.

An auditorium will be, also, of practical and direct value to society at large because it will enable the Medical School to become more active in promoting public health by arranging for frequent series of popular addresses upon the various phases of disease prevention and other problems.

Auditorium.—Provision should be made for an auditorium with a seating capacity of at least 600.

Clinical Research Laboratories.—It was impossible, at the time the Medical School and Hospitals were constructed, to provide facilities for offices and research laboratories for the clinical departments. This condition has been met by crowding this important work into the laboratories of the pre-clinical departments until every available space has been utilized. This expedient, however, cannot be followed much longer, for the pre-clinical departments now greatly need the space thus used by the clinical staff. Since it is as much the duty of the Medical School to advance knowledge as it is to impart it, provision for this important work should be made without delay. An auditorium, and offices and laboratories for the clinical staff can be provided in one building.

Additional Wing to the General Hospital.—During the greater portion of the past year, the General Hospital, with a capacity of 150 beds, has been filled to capacity and frequently it has been overcrowded, particularly in Obstetrics and Gynecology, Men's Surgery, and Men's Medicine, which have been almost constantly filled to capacity, and most often overcrowded. This experience over a period of a whole year has demonstrated that another wing to the the carpenter shop, the paint shop, and to enable those in charge to give proper care to the patients who come to them and to provide for the growing demand that is manifesting itself all over the State for the services of this institution.

Addition to the Psychopathic Hospital.—Almost constantly during the past year the Psychopathic Hospital has been filled to its capacity of seventy beds, and frequently it has been over-crowded. Additional wards for children and space for the rapidly growing Out-Patient Department in Psychiatry and Mental Hygiene are greatly needed. More facilities should be provided, also, for research work in Psychiatry.

Service Building.—A building to house the carpenter shop, the paint shop, and the plumbing shop, with a section providing a fireproof garage for the ambulance and institutional cars is an urgent need. The shops are now located in needed space in the basement of the Medical School, where they are not only a fire hazard of considerable seriousness, but a nuisance because of the noise that emanates from the carpenter shop. The ambulance and institutional cars are now housed in an old frame building which is a fire and theft hazard and which is not weather-proof.

Total Estimated Cost of Needed Buildings.—Careful and conservative estimates of the cost of constructing the needed buildings on the campus at Boulder and in Denver reveal that the total cost of these added facilities will be \$3,500,000. The University will receive from the renewed levy if it is passed, 16/45 of the .3473 of a mill, or approximately \$190,280 each year for ten years. This will provide a total fund of only \$1,902,800. This will, it will be seen, provide for only about half of the building needs as they exist at the present time. Even though all of the needs cannot be met from the funds available under this request they have been given here thus completely and in detail because it is believed that the members of the Legislature and the citizens of the State should know the facts regarding the situation.

The income from the renewed levy will not be sufficient to provide the new buildings and additions needed at the Medical School. It will not, indeed, entirely meet the demands upon the campus at Boulder. Funds for the additional facilities at the Medical School must, therefore, come from other sources.

To Provide for the Future

Some estimate of the future needs of the University, based upon the experience of the past and upon other factors, will be useful to any person attempting to weigh the merits of the request of the institutions for a continuance of the levy for buildings. Attendance at the University is affected by two factors, (1) population of the State, and (2) the number of high-school graduates.

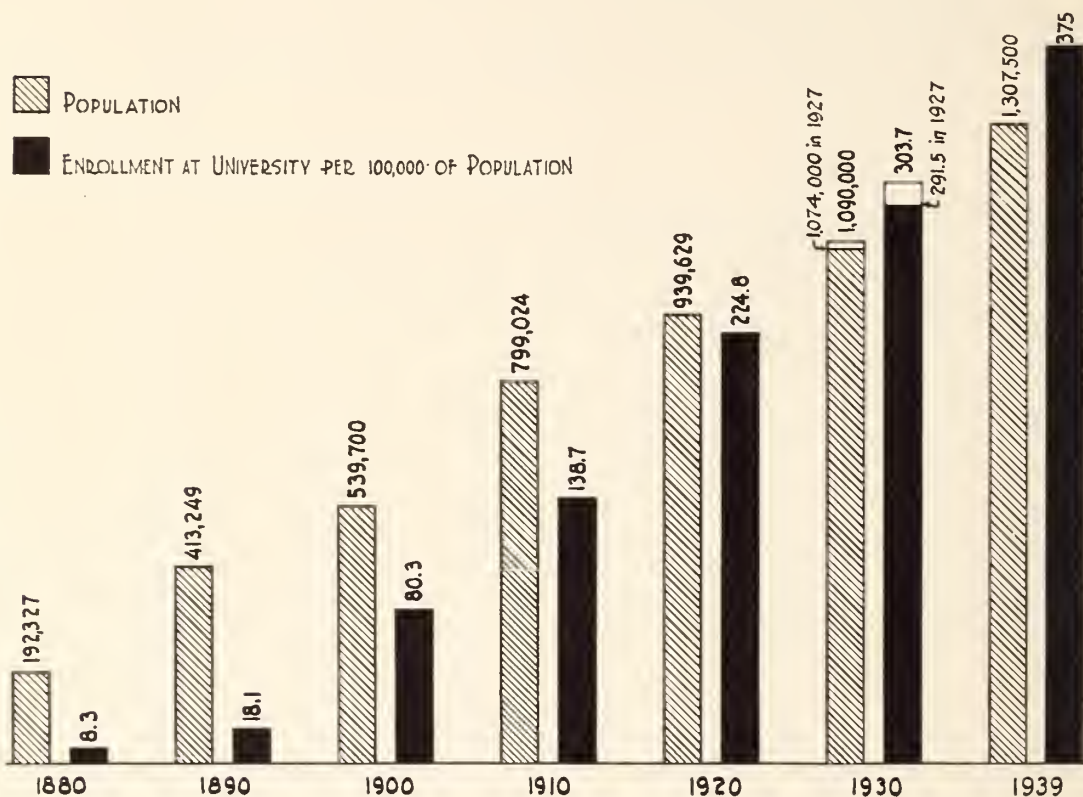
Ratio of Enrollment to Population of State.—According to the figures of the U. S. Census Bureau, the population of Colorado has grown steadily during the 47-year period, 1880 to 1927. Assuming that this growth will continue at the same rate during the coming ten years—an assumption that is justified by the experience of the past—Colorado will have in 1939 a population of 1,307,500.

The ratio of attendance in the regular term at the University to the population of the State has increased more rapidly than has the population. This, of course, has been a natural result. In 1927 this ratio had increased to 291.5 per 100,000 of population.

Basing an estimate upon this experience of the past, both in growth in population and in enrollment, it is reasonable to expect that by 1939 enrollment at the University will be 4,903 students during the regular nine-months term.

The growth in State population, the increase in the ratio of regular students in the University to population in periods of ten years since 1880, and the expectancy in each of these during the coming ten years are shown as follows:

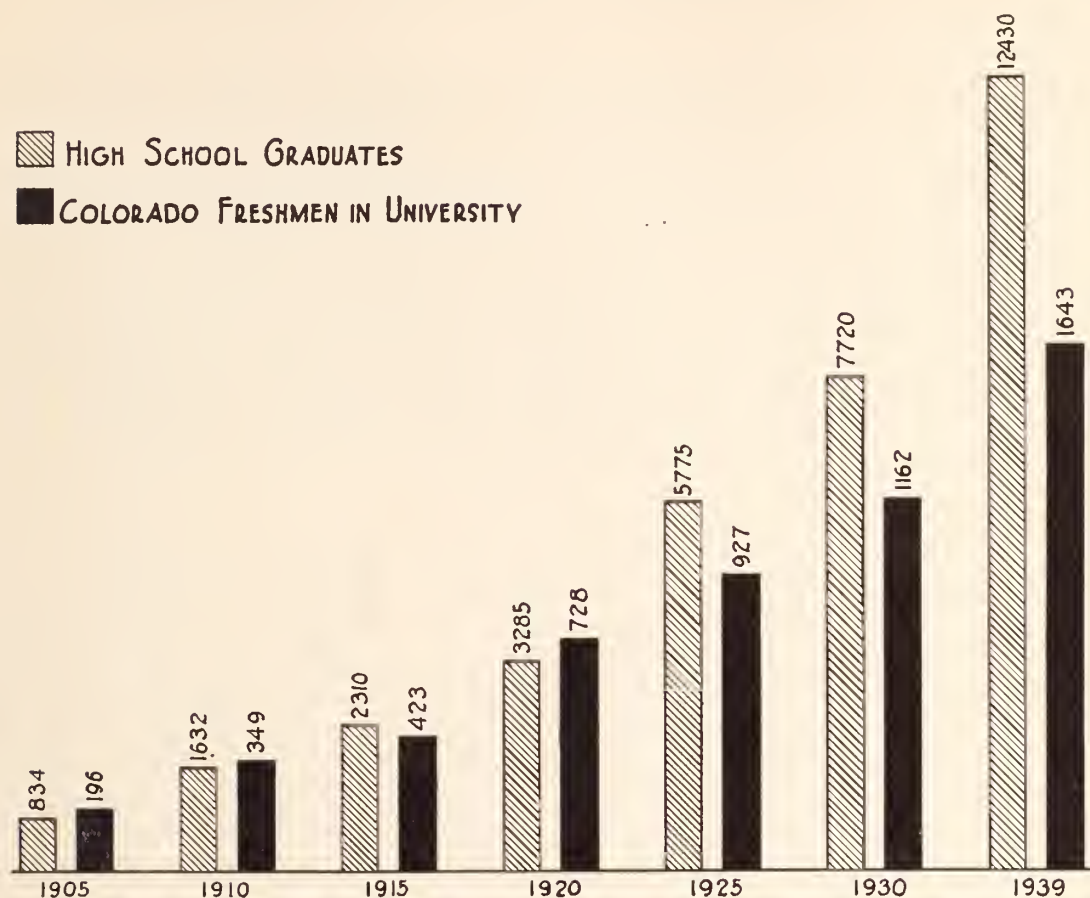
**GROWTH IN STATE POPULATION AND NUMBER OF STUDENTS IN UNIVERSITY
PER 100,000 OF POPULATION**



In 1927, it will be noted, the ratio of enrollment to population was 291.5 students to 100,000 of population. Extending this ratio to 1939, there will be 375 students for each 100,000 of population. With the anticipated growth of population reaching 1,307,500 in 1939, at this ratio the University will have 4,903 students in the regular term.

Ratio of Enrollment to Number of High-School Graduates.—The ratio of Colorado freshmen in the University to the total number of high-school graduates provides a sound basis for a prediction as to what the enrollment will be ten years hence. In the following graph is shown the number of high-school graduates and the number of Colorado freshmen in the University down to the year 1925 and a prediction of what the numbers in these two groups will be in 1930 and ten years from the present date, 1939. The predictions in each column are based upon a curve carried forward in the trend as shown during the twenty years, 1905 to 1925. The rate of increase in the number of high-school graduates seems clearly to support and justify the predicted rate of increase in Colorado freshmen in the University.

INCREASE IN HIGH-SCHOOL GRADUATES AND IN COLORADO FRESHMEN AT THE UNIVERSITY



Freshmen constitute about 30 per cent. of all students in the University. With 1,643 freshmen in 1939, therefore, the estimate based on this graph is that the University will have a total student enrollment in 1939 of 4,929.

Expectancy Curve of Enrollment.—An expectancy curve of University enrollment, extended in the trend shown by growth during the past 47 years, from 1880 to 1927, shows that in 1939 the University will have a student body of 4,800.

Three Tests Indicate Future Enrollment.—Three tests, then, indicate that in 1939 the University will have an enrollment of approximately 5,000—expected growth in population, expected growth in number of high-school graduates, and the experience of the past in the actual growth in enrollment.

Floor Area Needed by 1939.—With an expectancy of 5,000 students in 1939, and figuring on the basis of 154* square feet of floor area per student, the University will

*Prof. W. C. Huntington, in a study recently made, discovered that 154 square feet per student is the minimum area essential for efficiency at the University. His study was based upon an analysis of the ratio of students to floor area over a period of 45 years. He found that whenever the University had less floor area per student than 154 square feet conditions were crowded and inefficient.

need, in 1939, 770,000 square feet. Deducting the 427,000 square feet now available, there remain 343,000 square feet to be provided during the intervening ten years.

Note.—The data on future needs ^{are} taken from a study made by Prof. W. C. Huntington, Professor of Civil Engineering.

New Buildings and Improvements Acquired During the Ten-Year Period 1917 to 1927

New buildings, made possible by the ten-year building levy, were constructed by the University during the ten years 1917 to 1927 as follows: Engineering Building No. 1, Arts Building, Men's Gymnasium, two new wings to the Chemistry Building, greenhouse, wing of Women's Gymnasium. Improvements and repairs to existing buildings were made as follows: The interior of the auditorium in Macky Building, a gift from Mr. Andrew J. Macky, of Boulder, was finished; the Women's Building, Music Building, Woodbury Hall, the President's House, and Old Main Building were remodeled; additional units were installed in the power plant to heat new buildings; heating and electrical tunnels, and distributing lines to buildings were installed.

COLORADO SCHOOL OF MINES

No new buildings for instructional purposes have been provided for at the Colorado School of Mines for the past twenty-one years. In recent years, advances in the sciences related to the mineral industries have made necessary the addition of new courses so that now there is not sufficient classroom and laboratory space. The new courses introduced during this period are Petroleum Engineering, Fuel Engineering, Ceramic Engineering, and Geophysics. It is scarcely necessary to point out the importance of instruction and research in these fields in Colorado, where deposits of coal are greater than those of any other state in the Union, where oil shale deposits are enormous, where oil reserves, though only partially tapped, are undoubtedly large; where clay deposits are extensive, and where wealth in common and rare metallic minerals and non-metallic minerals is well known. The introduction of these courses into the curriculum caused a very crowded condition which should be relieved by the construction of additional buildings as soon as possible in order that the work of these new fields may be maintained at the highest efficiency and that the other departments, whose quarters were invaded to provide room for the new work, may be relieved.

Provision Needed for Repair of Old Buildings as Well as Funds for New Buildings.—Besides the imperative need for new buildings caused by the growth in functions at the School of Mines, there is dire need of funds with which to repair the old buildings, some of which are in a truly deplorable condition. So pressing has been this need that, when the Legislature found it inexpedient two years ago to provide a building fund, the administrative officers were compelled to turn to private sources to obtain means with which to repair Guggenheim Hall, the administration building, which was in serious danger of being permanently damaged because of insecure foundations. In this matter they were graciously assisted by former Senator Simon Guggenheim, who gave the building to the School. These repairs, just completed, have cost approximately \$32,000.

Needs

Petroleum Engineering and Geology Building.—Since the establishment of the course in Petroleum Engineering previously referred to in this report, there has been a marked increase in the demand for instruction in this field. The course is attracting attention all over the country, and it is essential, from the standpoint of the development of the resources of Colorado as well as from that of the wisdom of maintaining high efficiency in instruction in this important field, that adequate facilities for this work should be provided. Under existing conditions it has been necessary to scatter the work in Petroleum Engineering in various widely separated buildings. The offices of the department are in Stratton Hall, the drafting phases of the subject are taught in a portion of the rooms belonging to the Department of Mechanical Engineering, classrooms are in various buildings, and the laboratories are in the Experimental Plant nearly three-quarters of a mile from the campus. Besides being at a distance from the offices and classrooms, the laboratories are necessarily temporary and entirely inadequate. The demand for this work, which is bound to increase as the years pass, makes it imperative that a suitable building with up-to-date equipment, laboratories, and classrooms be provided.

In this building can also be located the Department of Geology. This very vital department in a school of mining is at present housed in the basement of Guggenheim Hall where conditions are entirely inadequate. For example, much of the material of this department, the work of which is dependent upon a museum collection of specimens, cannot be used because there is no room in which to display it or work with it. It is stored in a sub-basement until the time when adequate quarters can be provided. When it became necessary to establish the Department of Geophysics, no other space could be found for it except in the Geology Department. This has further increased the confusion and the crowded condition.

The space vacated by the Geology Department will be used for new work in Geophysics. The building will provide for present demands and for normal growth.

Chemistry and Physics Building.—Conditions in this building are nothing short of disgraceful. It is the oldest building on the campus, the classrooms and laboratories are poorly arranged and wretchedly lighted, the corridors are narrow and dark, and the structure is a veritable fire trap, yet here are taught two of the most important subjects in the school—Chemistry and Physics. The conditions in the Chemistry laboratory alone would convince any citizen that improvement should be made, and that quickly. This room has windows on only one side, making it necessary for nearly all students to work under artificial light. Ventilation, which is more essential here than in any other place on the campus, is poor. The hood above the laboratory tables, in the center of the room, installed to carry off the fumes, is a clumsy, inefficient thing, made of wood, and it rises to a wooden ceiling. No better device could be planned with which to fire the whole building.

The roof is in very bad condition, and due to this the walls have become stained and unsightly and in some places more seriously damaged.

Entire remodeling plans include corrections of the conditions that have been mentioned, replacement of the obsolete plumbing and equipment, and the construction of fire walls to make the building safer. These plans will not only correct the conditions referred to, but will materially increase the space available for classrooms and laboratories.

Heating Plant and Distributing System.—The heating plant, installed twenty-six years ago, is obsolete and should be remodeled. One of the boilers is in such condition that it must be replaced within a few years.

The tunnels carrying the heating pipes and the power lines are in very bad condition, not having been repaired since they were first built. In many places they are caving in and water from irrigation and storms collects in them. Between two of the buildings and the heating plant there are no tunnels, the pipes being laid in the ground. The installation in these cases has become very defective and much loss of heat is resulting. A complete remodeling of the tunnel system would soon pay for itself in fuel saved.

Stratton Hall.—This building which houses the courses in Metallurgy is badly in need of repairs. The walls are settling and a new roof must soon be put on. Two years ago instruction in drafting, carried on on the top floor, was seriously interfered with during stormy weather, by leaks in the roof. This condition has been temporarily relieved, but permanent repairs are imperative.

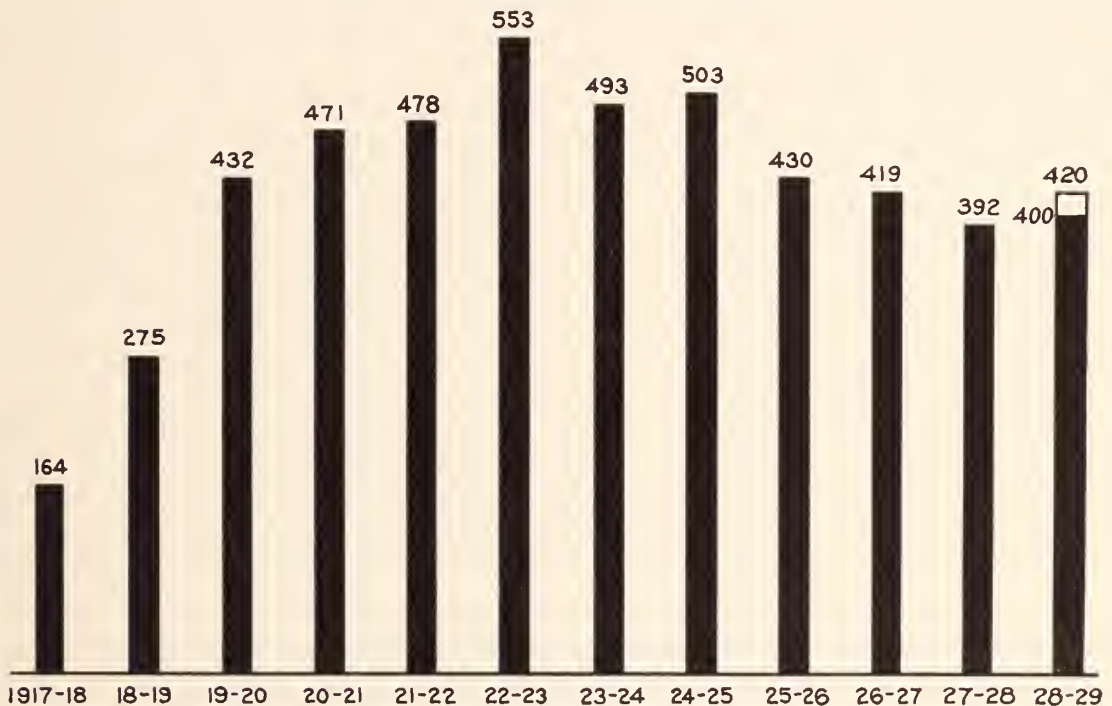
Engineering Hall.—Valuable space in the basement of this building, which might be used for laboratories, is now not available because moisture penetrates the foundation walls. These walls should be treated to prevent this condition. Repairs to the brick work in the walls are also imperative.

Mining Laboratory.—The School of Mines is in need of a mining laboratory, generally considered one of the requirements of a mining course. In such a laboratory would be taught the practical fundamentals underlying drilling, blasting, timbering, hoisting, tramping, shoveling, and loading, together with a study of the ever-changing and developing equipment relating to the above operations. Such a laboratory could be installed in one end of the Power Plant Building.

Additional Land.—The entire campus until a year ago consisted of nine and one-half acres or four and one-half city blocks. At that time an option was secured upon a block of land immediately adjoining the present campus. Part of this has been purchased outright, and an option to purchase secured upon the remainder.

Total Estimated Cost of Needed Buildings and Repairs.—Careful estimates of the cost of constructing the needed buildings and of repairing existing buildings at the School of Mines show that the total cost will be approximately \$388,500. The School of Mines will receive from the renewed levy if it is passed $\frac{3}{45}$ of the .3473 of a mill, or approximately \$35,664 each year for ten years. In the ten-year period this will amount to about \$356,640, which will be more than \$30,000 less than the actual needs.

GROWTH IN ENROLLMENT AT THE COLORADO SCHOOL OF MINES DURING THE TWELVE YEARS 1917 TO 1927



Note.—The total for 1928-29 is estimated, based upon the increase in the second semester last year. The black part of the bar, 400, shows the enrollment in the first semester.

Note.—The decrease in enrollment in the period 1925-26 to 1927-28 was caused by more stringent rules regarding failure to maintain a scholastic standing and by the introduction of additional requirements for admission. It should be observed that enrollment for the first semester of the current year, 400, was larger than for both semesters last year, 392. This indicates that there is a growing demand for the work on the basis of the higher standards as now established.

Summer Session.—The School of Mines has a summer session each year which is operated without cost to the State. Enrollment last summer was 135, the largest in the history of the School.

The building for the Experimental Plant at the School of Mines was constructed in 1909 for research purposes and not for instructional use. The last building erected by the State as a part of the instructional equipment was the Gymnasium, erected in 1907.

Uses Made of Building Fund During the Period 1917 to 1927

The School of Mines has received nothing from the building levy passed twelve years ago, and therefore has nothing to report under this head.

Undoubtedly it was the intention of the framers of this bill that the School of Mines should benefit by this fund as shown by the following from the Act itself:

“The remaining one-twentieth of said fund shall be expended for needed buildings at the Colorado School of Mines, Fort Lewis, or such other state institutions of higher education as a Board.....may direct.”

The Board having authority over this one-twentieth of the amount to be used for building and improvement purposes did not assign any of this to the Colorado School of Mines.

STATE AGRICULTURAL COLLEGE

Ten per cent. of the floor space at the State Agricultural College and all the apparatus and furniture of three departments were destroyed by the fire which occurred in January, 1927, thus seriously complicating a situation which already had become very difficult. Four departments, Animal Husbandry, Veterinary Medicine, Veterinary Pathology, and Military Training, were deprived of offices, classrooms, and laboratories.

The loss of such a percentage of its floor space was a very serious blow to the Agricultural College, a blow which was accentuated by the fact that the fire swept away the buildings in which were located three of the technical departments which did not have adequate quarters even before the fire. These were Animal Husbandry, Veterinary Medicine, and Veterinary Pathology. In the report to the Twenty-sixth General Assembly two years ago, attention was called to the fact that the most pressing needs for buildings existed in the Divisions of Agriculture and Veterinary Medicine, much of the work of which was being carried on in the war training buildings which were in serious danger of being destroyed by fire.

This loss of ten per cent. of the total floor space has, of course, made the building problem at the Agricultural College much more serious and acute than it would have been had fire not visited the campus. It was possible, of course, to make some provision, through the fire insurance that was finally paid by the State, for the departments that were burned out, but these provisions do not provide as great an area of floor space as was destroyed and they make no provision whatever for certain departmental activities which were formerly housed in the burned buildings.

With insurance funds paid by the State, partial provision for the Department of Military Science has been made and a one-story brick Dairy and Meats Laboratory Building has been erected. For the Department of Military Science, two steel buildings 36x192 feet have been erected to serve as gun-sheds, classrooms, quartermaster's supply department, and a repair shop. In front of these is now being built the first story of a brick building 48x132 feet to be used for classrooms for this department. Funds are available for the outer walls of the first story only. The second story and the interior finishing will have to await the availability of more funds. The Dairy and Meats Laboratory Building, now nearing completion, will be a finished building. It has been carefully planned with a view to providing conditions that will make the laboratory work most efficient, including suitable refrigerators for storage, and a room for the retail sale of products produced during the laboratory processes. This building will fill the needs in these two laboratory courses for several years to come.

While these new buildings provide fairly adequate accommodations for the Department of Military Science, it must be remembered that they provide for only one small branch of the work in Animal Husbandry and for none of the work of the Division of Veterinary Medicine which was located in the buildings which were burned.

Provision for these other activities had to await the further progress of the building program and this only partially relieved the situation. When the new Library was constructed, relief was found in two ways, i. e., by borrowing some of the space in the new Library and by making further use of the old Library building. Into the new Library were moved the offices of the Department of Animal Husbandry, where they are now occupying valuable space greatly needed for library purposes. This

left the Departments of Veterinary Pathology, Veterinary Medicine, and Bacteriology without homes. Again the College authorities turned to the old Library building to see if it could be remodeled and made further to serve the needs of the College. This old building was constructed in the eighties for a dairy barn. When it was no longer needed for that purpose it became the Chemistry Laboratory and then the College Library. To it was added, in 1913, a reading room. Many times have the College authorities looked forward to the day when this old building could be torn down but in their desperate straits following the fire, they resolved again to make it serve. It was remodeled and is now being used for the Departments of Veterinary Pathology, Veterinary Medicine and Pharmacy, Bacteriology, and for classes in Animal Husbandry. In its new phase of usefulness it will doubtless now stand for many years, an unattractive unit of the campus on its exterior but efficient and useful in its interior.

Thus far has the Agricultural College been able to re-establish those branches of its important work that were literally thrown out-of-doors by the fire. Only partial, it should be observed, has the restoration been, and the Agricultural College stands in a more serious condition today than two years ago because of this. Two years ago, it will be remembered, attention was called to the fact that while adequate provision had been made during the ten-year building period for the basic sciences, English, mathematics, physical education, and administration, conditions in the technical departments were congested and worse than ten years previous. This condition exists today, with the added complication caused by the lack of floor space lost in the fire.

Needs

Animal Husbandry.—This department, about which it was reported two years ago that it had had no home it could call its own for many years, has now, because of the fire, been thrown even more upon the sufferance of the other departments of the College. Formerly located with Agronomy in Agricultural Hall, it was crowded out into one of the war-training buildings which was burned over its head two years ago, so that now it is attempting to function efficiently with offices in the new Library, classes in the old Library and Agricultural Hall, and its laboratories in still another quarter of the campus. A building for offices, classrooms, and laboratories is badly needed.

Agronomy.—This vitally essential department, charged with perhaps the most important work of the College—instruction and research in soils, field crops, and farm mechanics—is sorely in need of more room and more equipment. Quartered in Agricultural Hall, built 53 years ago, it is extremely difficult to keep the classroom and laboratory instruction in this department up to maximum efficiency. No new building facilities have been provided for this department since 1914, when the Soils Building was erected.

Buildings for Farm Mechanics and Farm Machinery, a greenhouse, and either an addition to the Soils Building, or a new building for the work in soils, are badly needed by this department. The instruction in Farm Mechanics and Farm Machinery is now being carried on in one of the Mechanical Engineering Shops, located in a building remote from headquarters. This is some improvement over old conditions under which these courses were taught in sheds originally constructed for storage of farm machinery, but it is still unsatisfactory and should be corrected. This department is constantly engaged in researches that deal with problems of crop production and that vitally affect the farmers of the State. With a greenhouse, it will be possible to carry on much of this work through the winter as well as during the summer period, thus saving much valuable time and bringing results quicker. The Soils Building has long

ago proved to be too small. Here the problem is simply one of providing sufficient room.

Entomology.—When the true importance of this department as it is organized at the Agricultural College is considered, it is nothing short of disgraceful that this work should be carried on under such inadequate and inefficient conditions. In its instructional activity this department teaches not only Entomology, the study of insects and their relationship to man, but also Zoology, the science of animal life, and Physiology. Its courses are, therefore, not only in demand for the students majoring in its field, but are basic subjects for students in Veterinary Medicine, Home Economics, and Agriculture. Its classes are, consequently, among the largest in the College. Besides its instructional work, this department is the headquarters for the State Entomologist, charged with the control of insects and rodents injurious to crops, and of the Entomological Division of the Experiment Station. The greater part of this work is crowded into the second floor and a remodeled garret of a stone building 40x80 feet located near the railroad tracks and built originally for a heating plant. By attempting to visualize the result of trying to organize offices, classrooms, and laboratories in such a limited space, a faint idea of conditions may be obtained. So pressing was the need for space in this department two years ago, for instance, that, when the use of the general lavatory, a brick structure across from the railroad station, was discontinued, it was remodeled and is now being used as an entomology laboratory. Since that time, demands have become so pressing that the department has been compelled to resort to the use of a wooden building located clear across the campus, originally constructed as a barn. A new building for this important department must be provided soon.

Museum.—For forty years, the Agricultural College has been collecting birds, insects, and mammals, with the result that the institution now owns one of the most valuable collections of this character in this part of the country. This collection is now located in the lower floor of the Entomology Building where space is too small, light is not good, and conditions are otherwise undesirable. A fireproof building to house this collection should be provided soon.

Mechanical Engineering Shops.—Instruction in Mechanical Engineering as related to the problems of power on the farm and in industry was specifically stipulated as a part of the work to be done by land grant colleges in the enabling act which created them and under which the Agricultural College was established. In the earlier days of these colleges this work was, in fact, regarded as of greater importance than agriculture. The Agricultural College has faithfully lived up to its obligations in respect to this work but now is endeavoring to maintain it at a proper standard under facilities provided thirty-four years ago. The buildings are inadequate both in size and facilities. New shops are badly needed.

Military Science.—The work of this department, under the plan evolved since the war, has become one of the most popular and most important activities at the College, having within its classes every man in the College during his freshman and sophomore years and attracting many men for elective courses during their upper-class years. At present the offices for this department are in the Administration Building, its classes are taught in this building and in the Civil and Irrigation Engineering Building, while its gun sheds, quartermaster's supply department, repair shop, and stables are at great distances from headquarters. Funds must be provided for the completion of the classroom building now under construction by the addition of a second story and by the finishing of the interior.

Forestry.—This department, now located on the top floor of the Administration

Building, is handicapped by lack of room, and provision must be made for additional classrooms.

Botany.—The Botany Department, which for the past two years has been located in the basement and the second and third floors of the old Chemistry Building, rebuilt after the fire in 1922, has become so overcrowded that it has been necessary to find additional classrooms in Old Main Building. An addition to the Chemistry Building will relieve this condition and should be provided in the very near future.

Practice House for Department of Home Economics.—Certain phases of Home Management can best be taught by actual practice and this method has been followed by the Department of Home Economics for several years. Under it, a group of girls go to live in a house and there they work out, under instruction and observation, the theories they have been taught in the classroom. The College is now renting a house for this purpose, an arrangement that is not economical nor efficient. A ten-room cottage for this work should be provided.

Dormitories for Freshmen Men and Women.—The need for dormitories for freshmen men and women has become a very pressing one at the Agricultural College, so much so that these provisions have come to be regarded as imperative necessities. An increasing need is manifesting itself for supervision and control over students during their first year at the College. To provide for all the freshmen, dormitories with capacities for 400 men and 200 women would be needed. College authorities point out that these provisions cannot possibly be made with the share of the renewed levy that will come to the College, but they are convinced that a beginning should be made.

Auditorium.—The College Auditorium in old Main Building has a capacity of but 1,000 while this year there were 1,231 students enrolled during the first semester. It is, therefore, impossible to have all students together at one time. To meet this difficulty, the freshmen are assembled separately in the old gymnasium in the basement of Old Main beneath the auditorium. This room is not suitable for such uses, but is the only available room on the campus that will accommodate the freshmen, who number nearly six hundred. Besides the disadvantage of having the freshmen meet in a basement room not suitable for such purposes, much is lost through inability to have all students assembled together at regular periods. The Auditorium, besides being too small, is extremely poor in acoustics. About four hundred seats are in a long narrow extension running straight back from the main Auditorium floor. Here is provided room for people to sit and see, but few sitting in this space can hear well what is being said upon the stage. A suitable Auditorium is a pressing need which must be met.

Additions to Heating Plant.—With the addition of new buildings, it will be necessary, of course, to provide additional capacity in the central heating plant, and additional distributing lines.

More Irrigation Water Needed for College Farms.—The College operates farms for experimental purposes, for demonstration, and for the use of the students in studying practical agriculture. In the foothills, adjacent to Fort Collins, there is a 1,300-acre pasture where grazing experiments are conducted and where the college herds are grazed during the summer.

There is sufficient water to properly irrigate the farms in normal years, but in an unusually dry year the crops suffer.

It is desirable also to have a part of the pasture land under irrigation, in order to conduct experiments in the value of irrigated pastures.

Further improvement can be provided through the enlargement of the reservoir

now owned by the institution and the construction of a ditch and conduit from this to the farm and campus. By means of this, sufficient water for a run extending over a week or more can be stored and the water used as needed. The development contemplates also the extension of a canal which will place approximately 500 acres of the foothill pasture now above canal under irrigation.

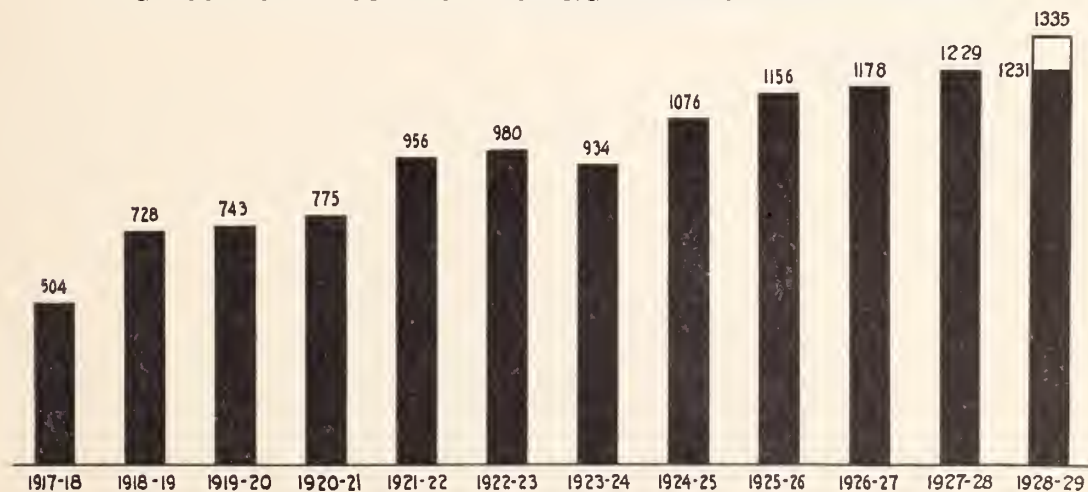
Total Cost of Needed Buildings.—It is estimated that the total cost of new buildings and improvements as listed in this report will be approximately \$1,493,000. If the request for renewal of the ten-year levy is granted, the Agricultural College will receive, during the next ten years, 12/45 of the .3473 of a mill, or approximately \$1,426,560. This, it will be seen, will not be sufficient entirely to meet the needs.

Enrollment

In the Regular Term.—Enrollment at the Agricultural College has steadily increased during the past twelve years in spite of the fact that during this period the School of Agriculture, the six-months secondary session which at one time had an enrollment of 416, has been discontinued. In spite of the loss of the numbers enrolled in the School of Agriculture, which was discontinued because of the introduction of courses in agriculture and home economics in the high schools of the State under the federal Smith-Hughes Act, enrollment at the College has so increased that now it is larger than at any previous period, even including both the students enrolled in regular college courses and those enrolled in the School of Agriculture. The largest enrollment in the School of Agriculture was in 1919-20 when 416 students were in attendance. During that year there were 743 students registered in the College proper. The sum of these two figures is 1,159 and represents the total number of students enrolled at the College during 1919-20, the year of largest attendance when the School of Agriculture was being operated. During the first semester of the current year there were 1,231 enrolled, a gain of 72 over the highest previous enrollment when there were two schools in operation at the College.

The best index of growth at the Agricultural College is given by the enrollment figures for the regular college courses, excluding those for the School of Agriculture which was discontinued a year ago. This growth has been as follows:

GROWTH IN ATTENDANCE OF REGULAR COLLEGE STUDENTS AT THE AGRICULTURAL COLLEGE DURING THE PAST TWELVE YEARS



Note.—The total for 1928-29 is estimated, based upon the increase in the second semester last year. The black part of the bar, 1,231, shows enrollment in the first semester.

Summer Session.—The Summer Session at the Agricultural College, established in 1914, has had a rapid growth during the past twelve years, increasing from 36 in 1917 to 752 last summer. All students pay fees which partially defray the cost of their instruction. Following is shown the growth by years in the Summer Session during the past twelve years:

**GROWTH IN SUMMER SESSION AT THE AGRICULTURAL COLLEGE DURING
PAST ELEVEN YEARS**



To Provide for the Future

Estimate of Attendance in 1939.—The statement of needs given herein is based upon conditions as they exist today. The buildings listed are needed to accommodate the student body of the present. In determining the merits of the request for a renewal of the ten-year levy for buildings, the prospective size of the student body in the years of the immediate future, at least at the end of the next ten-year period, is

a factor that must be considered. An expectancy curve of Agricultural College enrollment, extended in the trend shown by growth during the past forty-seven years, from 1880 to 1927, indicates that in 1939 the Agricultural College will have an enrollment of 2,000. While no estimate has been made of the floor area per student essential for efficiency at the Agricultural College it is clear that if this growth takes place—an increase of 64 per cent. over present enrollment—much floor area must be added during the next ten years.

New Buildings and Improvements to Old Buildings Acquired During the Ten-Year Period, 1917-1927

During the ten-period, 1917-1927, the Agricultural College constructed new buildings as follows: North Barracks and South Barracks, erected during war period and destroyed by fire two years ago; Automobile Shops and Blacksmith Shop; Dining Hall; all war-training buildings; Physics Building; Veterinary Hospital; Ammons Hall; Research Chemistry and Botany Building, reconstructed following fire of 1922; Chemistry Building; Administration Building; Men's Gymnasium; Library.

Improvements to plant and repairs to old buildings were made as follows: Additions to heating plant and distribution tunnels, partial cost of construction of grandstand, steer barns and corrals, repairs to Old Main, and additions to Electrical Building.

FORT LEWIS SCHOOL

of the

STATE AGRICULTURAL COLLEGE

Building needs at the Fort Lewis School are somewhat different from those of the other institutions because of the peculiar problems of the school. This institution, formerly a government Indian school, was deeded to the State of Colorado in 1910, and was placed under the State Board of Agriculture, the governing board of the State Agricultural College. There were numerous old buildings, but at first it looked like a dubious enterprise to attempt to establish a modern school there. There was, however, a clear and definite need and demand for high-school instruction in agriculture, the mechanic and household arts, and for teacher training in the San Juan basin where the school is located, and to meet this need and demand the State Board of Agriculture has, during the intervening time, been endeavoring to build a modest but efficient campus.

Because of the location of the school it is necessary for the entire personnel, including the faculty, students, grounds attendants, and farm hands, to live at the school. Its usefulness is, therefore, limited as much to its ability to house its personnel as to its capacity in classrooms and laboratories.

Building needs at this school are, therefore, needs for further development to bring the instructional facilities up to a respectable standard, and needs for additional housing facilities to accommodate more students and others of the personnel. These needs in detail are as follows:

Addition to Main Building.—A wing should be added to the main building to provide more classrooms and laboratories, and an extension to the Auditorium.

Library.—The library is at present located in the old Boys' Dormitory, now called Science Hall. It is inadequate, and an addition should be made to this building to provide proper library facilities.

Greenhouse.—Another greenhouse is badly needed to facilitate the work of instruction and research in horticulture.

Cottages.—More cottages are greatly needed for the faculty and others of the personnel. Ten of these would add greatly to the efficiency of the school.

Dormitories and Dining Hall.—Since the usefulness of this school is limited by its facilities for housing students, more dormitories are a vital need. It is planned to enlarge the dining room facilities also when these are built.

Addition to Shops.—The shops now are small and barely large enough to take care of the present demands upon them. More room will be needed as the school grows.

Addition to Cold Storage.—Since the entire personnel of the school is maintained throughout the term right on the campus, the problem of food storage is an important one. Additions to the present cold storage facilities should be provided.

Farm Improvements.—The farm at Fort Lewis is used not only as a laboratory for classes and for the research work carried on at the school, but it provides a large

portion of the food consumed by the personnel. Among the needs here are a silo, machinery shed, barn equipment, hay sheds, and repairs to the granary.

Addition to Heating Plant.—With the addition of other buildings during the coming ten years, one more boiler will be needed in the heating plant.

Campus Improvements and Athletic Field.—Because of lack of funds it has been possible to do very little to improve the campus at Fort Lewis. Much of it is still virgin prairie covered with stone and growing to wild vegetation. The areas immediately surrounding the buildings should be cleared of stones, leveled, and seeded. The school at present has no athletic field, although it is the focus of athletic interest in the entire San Juan basin. Games are played in the open fields near the buildings, where spectators are compelled to stand.

General Repairs.—Repairs needed in present buildings, especially to some of the older ones, must be provided for.

Total Cost of Needed Buildings and Improvements.—Estimates indicate that the new buildings and improvements listed here will cost approximately \$277,000. The Fort Lewis School will receive $\frac{2}{45}$ of the .3473 of a mill if the ten-year levy is renewed, or approximately \$237,760 during the next ten years, which will not quite provide what is needed.

New Buildings and Improvements to Old Buildings Acquired During the Ten-Year Period, 1917-1927

During the ten-year period from 1917 to 1927, the Fort Lewis School constructed new buildings, repaired old buildings, and improved its plant as follows: New dairy barn, new dormitory for boys, a central heating plant and power station, an addition to the office, two faculty cottages, partial construction of new dormitory for girls, a gymnasium, extensive repairs to the water system, improvement of road, repairs to old buildings. About one-third of the cost of this was defrayed from the ten-year building levy, the Fort Lewis School receiving the unassigned $\frac{1}{20}$ for a period of three and one-half years. This yielded \$74,601 and was supplemented by \$100,000 in special appropriations. Small amounts from maintenance funds were also used.

STATE TEACHERS COLLEGE

Adequate buildings for certain major departments have never been provided at the State Teachers College although the college has grown steadily since its establishment. Considerable progress was made during the period 1917 to 1927, but certain building needs were not met and still confront the College authorities and the citizens of the State as problems which must be solved before it can be said that the College is adequately equipped.

Science Building.—The most pressing need at Teachers College is for a building in which the sciences—Chemistry, Physics, Biology, Botany, Zoology, Nature Study, Geography, and the Museum—can be quartered. These subjects, chosen as majors by many students and many of them basic subjects for students majoring in other fields, are now being taught in scattered places all over the campus, in attics and basements, most of which were never intended for classrooms or laboratories. The Chemistry Laboratory, for instance, is in the basement of the Administration Building. Classrooms and laboratories for Botany, Zoology, and Biology, and the Biological Museum are on the top floor of the Administration Building in rooms poorly adapted to such uses. Geography takes space on the main floor that is needed for offices. The Physics Laboratory is located in the laundry room of the Home Economics Building, and Nature Study is in the basement of the Library. Valuable museum material is scattered all over the campus in places where it cannot be used.

This condition is intolerable and should be relieved at the earliest possible moment. That these important subjects, among the very foundation stones of a teacher's education, should be so scattered over the campus and quartered in such unsuitable rooms is a fact which is so obvious and striking in itself as to call for no argument to prove that it should be corrected.

Library.—The Library at Teachers College was built in 1906 when the enrollment was only 423. Last year there were 1,952 students enrolled, or nearly five times as many as when the Library was constructed. These figures just about represent the facts regarding the library situation at Teachers College. The Library as completed twenty-two years ago was fairly adequate for the student body then in attendance. It is, of course, by no means adequate for five times as many students. During the past twenty-two years, as this growth has advanced, all the stacks have been moved to the basement, leaving the entire main floor as a reading room. This arrangement has been inefficient in that none of the books have been quickly available, as they should be, but it has been the best provision that could be made under the circumstances.

Besides larger reading-room capacity and the need for bringing part of the stacks onto the same floor with the main reading room, provision should be made for a reserve reading room where special books needed for class assignments may be made available and used. Seminar rooms and special rooms for other purposes also should be provided.

Heating Plant.—The heating plant at Teachers College is probably the most obsolete of all the plants at the State institutions of higher learning. Installed thirty years ago, before modern improvements in heating systems, it is inefficient in its general plan and is especially poorly adapted to consume the cheaper grades of coal. Its four boilers are now loaded to the utmost of their capacity and it is, therefore, utterly

inadequate to meet the increase in heating requirements that will come with new buildings. Besides its obsolescence and inadequate capacity, the plant is located almost in the center of the campus where it is not only an eyesore but where it represents a certain menace to the safety of students since it is necessary to have trucks passing through the campus almost continuously bringing in the coal supply. This method of feeding the plant not only represents a danger to students but represents a considerable expense since it costs on the average 50 cents per ton to have the coal hauled to the plant. For these reasons it is obvious that the present plant should not be enlarged. It should be abandoned and an entirely new, modern heating plant installed in its place. This is the plan of the administrative officers if the ten-year levy is renewed. The College already owns land near the railroad tracks which can be used for this purpose, thereby making it possible to remove an unsightly building from the heart of the campus and at the same time to save much money in the cost of its operation. The plan now in the minds of the administrative officers will provide a heating plant of capacity sufficient to meet the needs of the College for years to come.

Auditorium.—Teachers College has no auditorium. The nearest approach to an auditorium is the Little Theater, which has a seating capacity of only 500 and hence is entirely inadequate to accommodate a student body of more than 1,900 as was in attendance last year. Such a room will not hold the freshman class. Since the completion of Gunter Hall, the main gymnasium floor has been used for assemblies of students, but this is by no means satisfactory nor available as a permanent substitute for an auditorium. The floor is, of course, level, the acoustics are extremely poor, and the use of the floor necessitates the moving in and moving out of 2,000 chairs every time assembly is held. In the new Auditorium Building it is planned to locate the Conservatory of Music now quartered in the president's house, relinquished by President Frasier four years ago in order to provide quarters for the Conservatory.

Classrooms.—In addition to these specific needs, provisions should be made for additions to certain existing buildings to provide more classrooms and thereby obviate the necessity of using basement and attic rooms for such purposes. Classes are now being taught, for instance, in the basement of the Library and of the Administration Building and in attics in some of the other buildings.

Payment for Land.—To provide land for improvements in the immediate future and to protect the College from being so surrounded by improved property that it could not acquire needed ground except at exorbitant prices, the College has acquired title to fifteen acres of land, subject to mortgage. To clear title to this land, and to acquire another small tract which when added to the fifteen acres already obtained will make the new tract a square one, will cost approximately \$15,000.

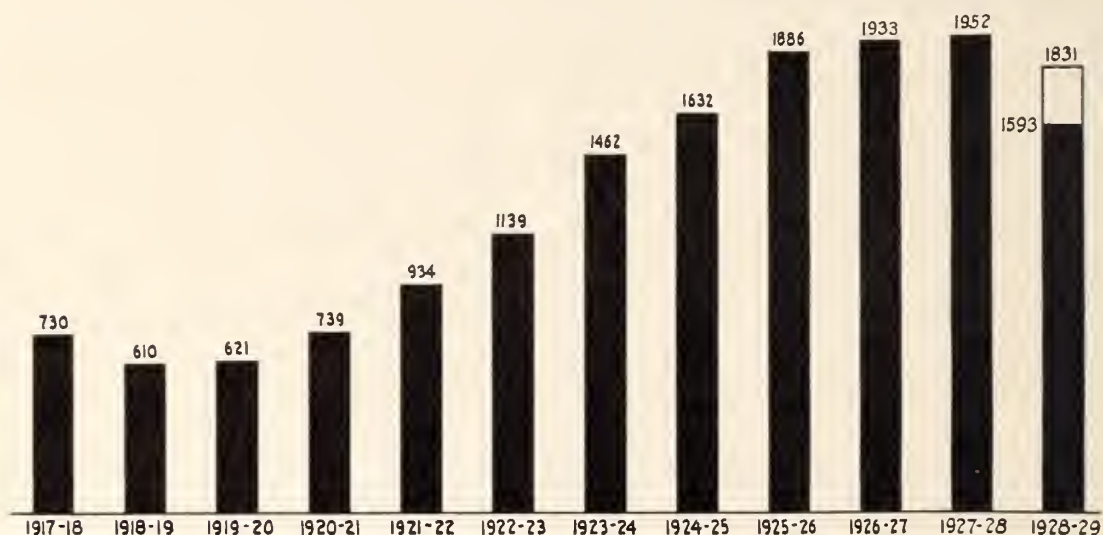
Total Cost of New Buildings and Improvements.—The new buildings listed here and the improvements mentioned will cost approximately \$1,115,000. From the ten-year levy, if it is passed, the Teachers College will receive $\frac{8}{45}$ of the .3473 of a mill, or approximately \$951,040 in the ten-year period, which will not quite provide for the needs listed herein.

Enrollment

The student body at Teachers College has almost trebled in size during the past twelve years, increasing from 730 in 1917 to 1,952 last year. Without the new buildings made possible during the period 1917 to 1927 it would have been utterly impos-

sible to have taken care of so many more students, and even with the addition of the new buildings the capacity of the College has not been increased as rapidly as the student body has grown. This growth is, of course, the basic reason why the buildings previously referred to are needed. Growth in enrollment by years during the past twelve years is given in the following graph:

GROWTH IN ENROLLMENT OF REGULAR COLLEGE STUDENTS AT THE STATE
TEACHERS COLLEGE DURING THE TWELVE YEARS 1917 TO 1929



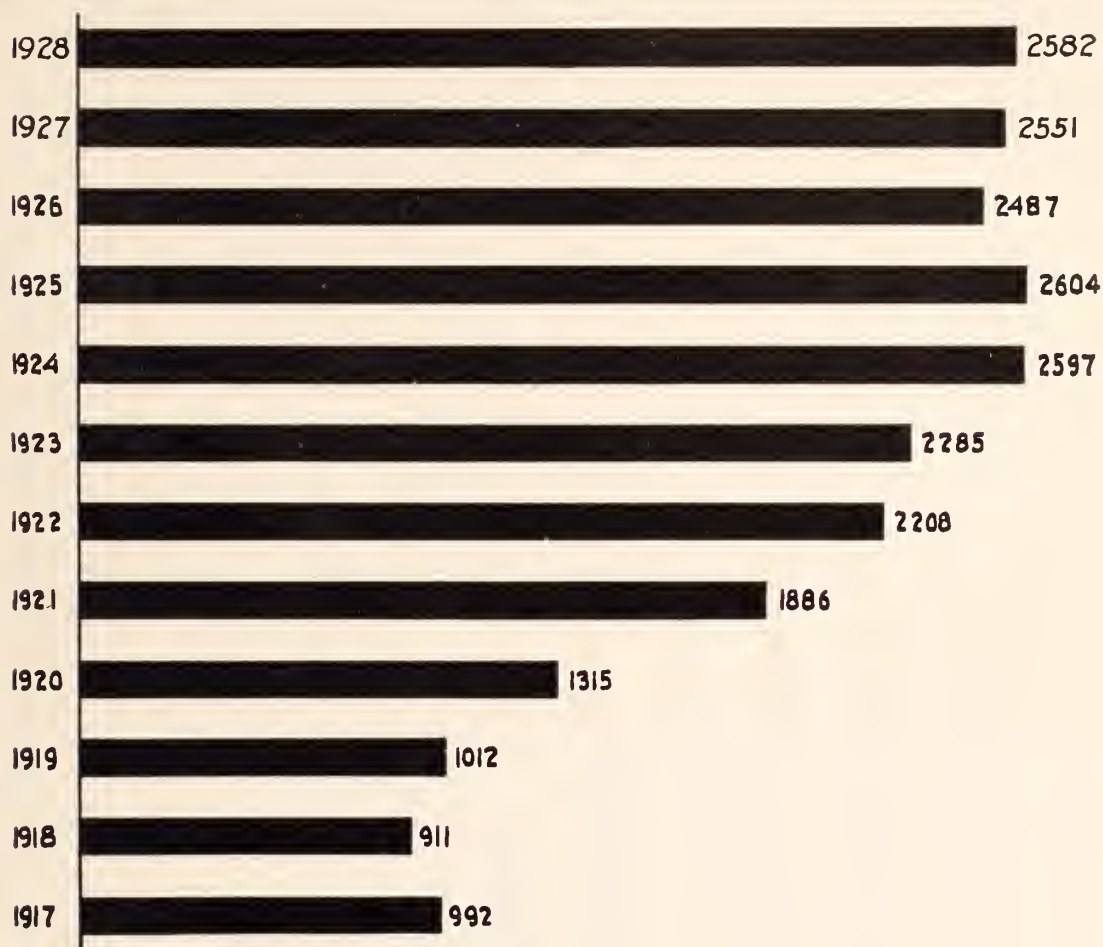
Note.—The total for 1928-29 is estimated, based upon the increase in the winter and spring quarters last year. The black part of the bar, 1,593, shows enrollment in the fall quarter. The drop in attendance this year is due to the new regulation which raises the requirement for the life certificate, and to stricter entrance requirements.

Note.—These figures do not give an accurate idea of the real teaching load because they include only regular college students and do not include pupils in the grades and the high school, all in the Training School, which is an essential part of the College since it supplies opportunity for practice teaching. Regular college students are used here because they give the best basis for analyzing growth. To determine the actual capacity needs, the numbers in the training school should be added. There were 530 pupils in the training school last year, 277 in the high school, and 253 in the graded school.

Growth in the number of students in the Summer Quarter during the past twelve years has been even greater than during the regular term, the number increasing from 992 in 1917 to 2,582 last summer. Like the University, the College is operated the year around, the fourth quarter being given in the summer. The Summer Quarter is practically self-supporting. Costs of instruction are met entirely from fees paid by students, those from outside the State paying a higher fee than residents of Colorado.

Following is given the enrollment figures by years:

**GROWTH IN ENROLLMENT IN THE SUMMER QUARTER AT THE STATE
TEACHERS COLLEGE DURING THE ELEVEN YEARS 1917 TO 1928**



Note.—As in the case of the figures for the regular term, to these figures should be added the numbers in the Training School, which, last summer, were 493.

To Provide for the Future

It is not probable that the increase in attendance at Teachers College will continue during the coming ten years at the same rate as during the past twelve years. The state law requiring teachers to have college training has been largely responsible for the increase that has occurred during the past ten years. When these conditions cease to be factors in attendance, enrollment will doubtless settle down to a somewhat permanent level. This level will probably be between 2,000 and 2,500 per year. The future size of the student body at Teachers College is not a vital factor in determining the merits of the request for a renewal of the building levy since that request is fully justified in the needs of the present as set forth in the preceding pages and since attendance is certain to remain at a level high enough to make present needs permanent.

New Buildings and Improvements Acquired During the Period 1917 to 1927

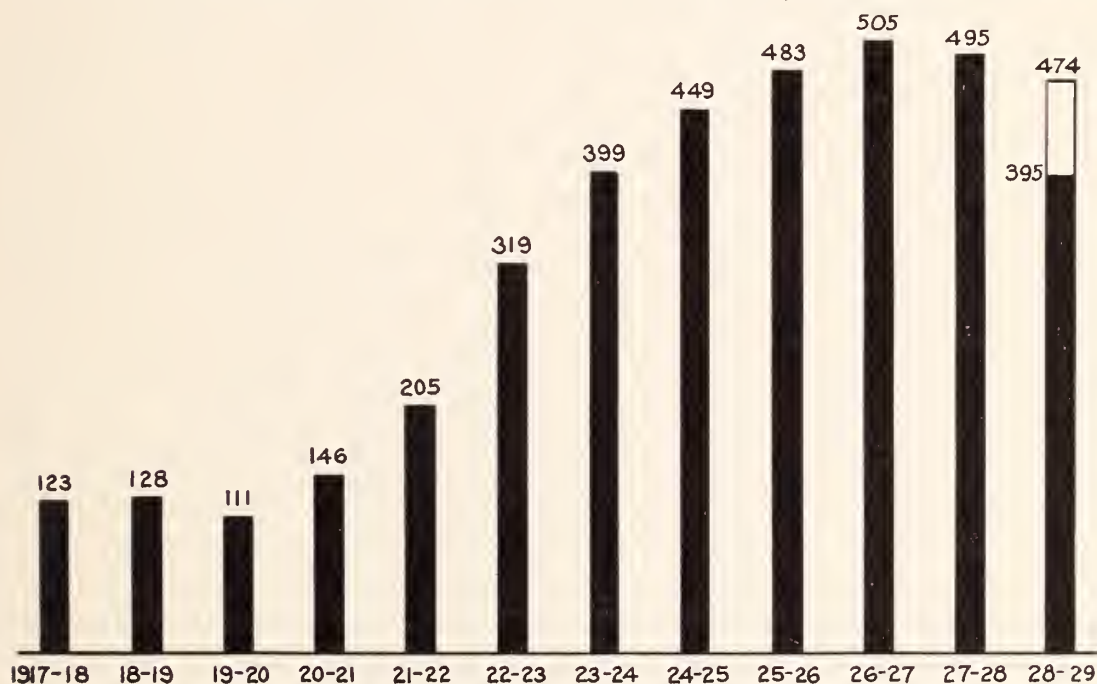
During the period 1917 to 1927, when it enjoyed a share of the ten-year building levy, the Teachers College constructed new buildings and made improvements to existing buildings as follows: Home Economics Building, Temporary Auditorium-Gymnasium, Gunter Hall of Health, three girls dormitories, two new wings to the Training School Building, additions and repairs to the heating plant and to other buildings.

WESTERN STATE COLLEGE

Adequate buildings have never been provided at Western State College since its establishment seventeen years ago. Progress in this respect has, indeed, been extremely slow. Proper provision has never been made to place the work of the school on a thoroughly efficient basis by giving it buildings which would provide sufficient floor space to permit the effective organization of the work. Classroom space is insufficient, laboratories, very poorly equipped, are quartered in rooms not adapted for the purpose and the library is extremely inadequate. Some of the provisions that have been made have been entirely insufficient in size and the efficiency of the school has been seriously hampered by long delays between the beginning and completion of some of the buildings. The Administration and Auditorium Building, for instance, was begun nine years ago and is still unfinished. Besides the need for additional buildings to make the work of the school more efficient, more floor space is needed for the very practical reason that the increase in floor area has not kept pace with the growth in enrollment.

Growth in Enrollment.—During the twelve-year period under consideration in this report, enrollment in the regular term at Western State College has multiplied itself more than four times from 123 in 1917-18 to 495 last year. Growth in enrollment over the twelve-year period has been as follows:

GROWTH IN ENROLLMENT OF REGULAR COLLEGE STUDENTS AT WESTERN STATE COLLEGE DURING THE TWELVE YEARS, 1917 TO 1929



Note.—The total for 1928-29 is estimated, based upon the increase in the winter and spring quarters last year. The black part of the bar shows enrollment in the fall quarter.

Note.—These figures do not give an accurate idea of the real load at Western State College because they do not include the grade and high-school pupils enrolled in the Training School, a very essential part of the College since its primary function is to train teachers. Regular college students are used in the illustration given here because they give the best basis for analyzing growth. To determine the actual capacity needs, the numbers in the Training School should be added. There were 443 of these last year.

Summer Quarter.—The growth in the Summer Quarter at Western State College has been even more rapid than the growth in the regular term, increasing from 92 in 1912, when the College was established, to 556 last summer, an increase of 600 per cent. It should be noted here that, beginning last summer, the summer work at Western State was placed upon the full quarter basis consisting of two terms, as is the practice at the University and the Teachers College. This was done in order to raise the standard of the summer work and to make it more effective. Formerly the summer session varied in length from year to year, no regular plan being followed. Sometimes the session was for six weeks, sometimes for eight, and once or twice for ten. The change to the full quarter plan naturally affected enrollment, serving to eliminate those who sought only a brief, somewhat superficial, course during the summer. The figures used here may, therefore, be assumed to be somewhat stable and to represent the number who will in the future be interested in a full quarter's work. The Summer Quarter is practically self-supporting, costs being met principally from fees paid by students, those from outside Colorado paying a higher fee than residents of the State.

Needs

Dormitory for Girls.—Western State College needs, more urgently than anything else, an adequate, fireproof dormitory for girls. Because of local conditions which make it impracticable to house the women students under proper supervision in the town, a dormitory system is imperative. At present the young women are quartered in a frame building that in its crudeness and lack of the most ordinary of comforts is a disgrace to the State. During the war the need for a dormitory for women at Western State became acute. Confronted by rising building costs, lack of sufficient funds, and a state policy against construction of new buildings during that period, the administrative officers met the situation by building as cheaply as possible a dormitory that could be made to serve until the international crisis was over. The dormitory constructed is merely a two-story frame shell constructed in the cheapest way. Inside, the partitions are of composition board and the floors are of rubber composition roofing paper laid over rough boards nailed to the floor joists. A recent addition, made necessary by the growth in enrollment, is not only thus cheaply constructed, but has no windows, only openings in the side walls, protected by canvas curtains. It was never intended that this should be a permanent dormitory but lack of funds has prevented better provision being made. In this place 110 young women are living this winter while pursuing their education. This so-called dormitory not only imposes discomforts and hardships upon the young women attending Western State College, but it is, because of its highly inflammable nature, extremely unsafe and, therefore, a constant liability to the people of the State. Although the building is not high, bringing the second story comparatively near to the ground, and although it is argued that in the event of a fire the young women could jump from their windows to the ground, this is a dubious sort of consolation for those who may be inclined to favor postponement of a new building. Should a fire occur in this wooden shack—which is all it can be called—at a time when all the young women were in the building, it would be by only the rarest of good fortune if all could escape. If the fire should occur at night when all were asleep, it is almost certain that some could not be rescued. This wooden box, with its inflammable roofing paper floors and composition board walls, will burn like a cardboard doll house. Only minutes will be required for its consumption by the flames. The burning of the buildings at the Agricultural College two years ago furnishes a striking example of what will eventually happen in this dormitory, except that this building will burn even faster because it is more flimsily constructed.

A fireproof dormitory furnishing accommodations for 250 young women is needed.

Completion of the Administration and Auditorium Building.—This building was begun in 1918. In 1919, with the walls only partly finished and with only the first floor laid, construction was suspended because of lack of funds and now, nine years later, the structure is still uncompleted. For seven years only the basement was available for use, the flooring of the first floor serving as a roof. Two years ago, construction was resumed and the front part of the building was completed in June, 1927, providing space for the administrative and other offices and a reading room for the library, but leaving the rear, containing the auditorium, unfinished. The auditorium lacks interior finishing, heat and light, and equipment. Obviously this building, the central unit of the college and the center of college life, should be completed immediately.

Science Building.—A new building is greatly needed to provide quarters for the sciences. The classrooms and laboratories for these important courses are now crowded into the same building with the Department of Music and the Library. The Department of Music should, of course, be in a building separated from the others so that the sounds would not interfere with the work in progress in classrooms and laboratories or with the reading and studying in progress in the Library. Not only are the present facilities for the sciences inadequate, but removal of the chemical laboratories from the main building will greatly lessen the fire hazard on the entire plant.

Library Building.—It is imperative that Western State College be provided with a library building. The fact that the Library is now located in the same building with the Department of Music makes the need so obvious that further argument is superfluous. But besides that condition, the space and arrangement of the Library is entirely inadequate for the students of the regular term, numbering more than four hundred, and for the summer quarter, when they number nearly six hundred.

Physical Education Building.—The present Physical Education Building is inadequate and poorly arranged to accommodate the enlarged student body. The training floor is not large enough to accommodate some of the classes, there are lockers for only 30 of the 395 students enrolled and only eight may take shower baths at one time, so limited are the facilities. There is only one entrance that can be used, this leading through a passage near the main training floor, and used by both young women and young men. Though separate hours are set aside for use of the building by the opposite sexes, classes cannot always be conducted undisturbed by the casual passage of persons through this entrance. No adequate space is provided for offices. At the time the present building was constructed the administrative officers of Western State College were confronted by the problem of an imperative need for such a building with only limited funds to meet that need. No facilities whatever existed for physical education. The present plant was accordingly constructed as a beginning only, and to partially meet the needs of the student body which then was much smaller than it now is. The building is so constructed that it can conveniently and economically be enlarged. This building should be enlarged to provide a training and playing floor of standard size, a smaller floor for the instruction of classes of girls, a swimming pool, more showers, more locker space, and separate entrances for women and men. Adequate quarters should also be provided for a medical adviser who should have constant supervision over the health of the students.

Repairs to North Hall.—Extensive repairs to North Hall, erected in 1911, are needed. These include new floors, re-wiring, re-plastering with metal lath to reduce fire hazard, and general overhauling.

Total Cost for Ten-Year Period.—For the ten-year period, 1929 to 1939, these needs aggregate in cost approximately \$470,000. Western State College will receive, under the proposed distribution of the renewed levy, approximately \$356,640 during the ten years from 1929 to 1939, an amount considerably less than the estimated cost of needs.

To Provide for the Future

The future growth in number of students at Western State College cannot be predicted as accurately as for some of the other institutions because it is only seventeen years old, a very short period in the life of an educational institution. If the advance that has been made during the past quarter of a century on the Western Slope is continued, however, it seems quite safe to predict that the growth of Western State will be affected by the same factors—increase in population and in the number of high-school graduates—as the older colleges, but there is nothing tangible or definite at the present time upon which to base an estimate.

Some idea of what the growth will be may be obtained from an arbitrary percentage figure based upon the growth already attained. During the ten-year period from 1917-18 to 1927-28 the average annual increase in enrollment was 16 per cent. This included a sharp decrease of 45 per cent. in 1917-18, another of 13 per cent. in 1919-20 due to the war, another of 2 per cent. in 1927-28, and abnormal increases in 1922-23 and 1923-24 of 40 per cent. and 55 per cent. respectively. This average, then, seems to be fairly accurate except that it was made during the formative period of the College, which may mean that it is not a true criterion of what the future will bring. Assuming that this does not represent the future rate of growth, that it is too high, let us arbitrarily divide this annual percentage of increase, taking only 8 per cent. instead of 16. Taking this as a basis, starting with last year's enrollment, 495, and figuring percentages of increase by years for the next ten years, we obtain an estimated enrollment in 1938-39 of 1,060.

With the present building facilities inadequate, it is clear that with this growth in prospect—a growth amounting to more than double the present student body—provisions contemplated by the proposed renewed levy are not only not excessive but will probably not make adequate provision for the College ten years hence.

New Buildings Acquired During the Period 1917 to 1927

During the ten-year period from 1917 to 1927, Western State College constructed with its share of the building levy new buildings as follows: Administration and Auditorium Building, Women's Dormitory and Cafeteria, Heating Plant, forty-two cottages at Highland Village (half of the cost defrayed from the building fund and half by citizens of Gunnison), Physical Education Building. Considerable furniture and equipment were also acquired.

THE ADAMS STATE NORMAL SCHOOL

The outstanding aspect of the needs of the Adams State Normal School is that its building is utterly inadequate for the proper conduct of a teachers college. It is too limited in its facilities, indeed, to make it possible properly to give instruction in the two-year course for teachers.

During the three years since the establishment of this School in 1925, its administrators have spent much time and effort in developing a program commensurate with the functions as outlined by the Legislative Act establishing the School, in preparing courses of study, and in organizing a faculty. The results of this work are revealed in the catalogue for the current year in which "the Normal School accepts the training of teachers for the public schools of the state as its central function," and in which are offered courses leading to the A.B. degree with the Life Diploma, to the A.B. degree without the Life Diploma, and a two-year course leading to the Limited Teacher's Certificate. The courses of study are carefully and intelligently planned and include the essential background subjects required for the A.B. degree.

This labor of preparing the Adams State Normal School adequately to perform its functions had to be done largely upon faith, faith that the people of the State would make the necessary provisions to enable the School to carry on the work. Faith was necessary because work of this character, work of college grade, certainly cannot be carried on in a place that has no laboratories whatever, no library, no facilities for physical education, no auditorium, no dormitories (especially needed at this School), no adequate heating plant.

It is clear to the administrative officers of the Normal School that unless provisions can be made to supply the deficiencies mentioned, explained in detail later, the program will have to be modified or dropped entirely. How can the faculty teach Education, Psychology, English and Literature, Foreign Languages, History, Library Science, without an adequate library? How can it teach Physics, Chemistry, and Biology without laboratories? How can it train its teachers in the problems of physical welfare and directed recreation without a gymnasium and suitable playing fields?

Besides the deficiencies mentioned, the Adams State Normal School has no building for use as a training school in which its students may acquire skill and develop their technique in teaching, an adjunct recognized as an essential part of the equipment of a teachers' college. To meet this, an arrangement has been made with the city schools of Alamosa which permits the Normal School to use the city schools as laboratories, thus saving the State many thousands of dollars. This arrangement will be continued indefinitely, but should be kept in mind as an example of economical administration when the needs of the Normal School are being considered.

Enrollment.—The Adams State Normal School has been in operation since the summer of 1925. Beginning at that time and continuing ever since, the School has offered the instruction for which it was created to the best of its ability under its limited facilities. How it has adapted itself to its conditions is explained in the discussion of the needs of the School. It is significant that, in spite of the limitations under which it has labored, enrollment has grown from 65 in the opening regular term—fall, winter, and spring of 1925-26—to an estimated enrollment of 100 for the current year. There were 97 students enrolled during the fall quarter this year as compared with

67 for the corresponding period last year. These figures, it should be noted, are for the regular year. In the summer the Normal School attracts even more students, having an enrollment last summer of 121, in 1927, 108; in 1926, 125; in 1925, 108.

Needs

To enable it properly to perform its functions, the Adams State Normal School needs the following:

Laboratories.—Laboratory instruction in Physics, Chemistry, Biology, and Public Health is now being given in one room, and in this room is given, also, class instruction in these subjects. Under these conditions it is almost impossible properly to do the work. Space for laboratories for these subjects should be provided soon.

Library.—The largest and best classroom in the building is now being used for the Library but provides space entirely insufficient. Frequently the area saved for reading and study purposes is so overcrowded as to make it extremely difficult for students to do their work. The School now has only about 3,000 volumes. This, it goes without saying, is entirely inadequate for the work being done because the Library is the one fundamental essential for every department. This collection must be increased as rapidly as possible. More books mean that more space will be needed for book stacks. The need for a library is almost as pressing as the need for laboratories.

Auditorium.—The Adams State Normal School has no auditorium. As a result of this lack, the work of the School is seriously handicapped almost daily because of the inability to assemble all students and faculty together. The limited space of a classroom is being used in lieu of an auditorium, but it is inadequate even as a makeshift. An auditorium should be provided as soon as possible.

Physical Education.—No teacher-training institution in these modern times is adequately equipped if it is not prepared to offer courses in organized games and sports, recreational leadership, and in the principles and practice of coaching athletics and sports. These activities have become a permanent part of the curriculum in high schools and in many high schools there is a member of the faculty who devotes his entire time to instruction in these subjects and to the direction of these activities. Where the school curriculum is not organized to provide a separate position for this work, these subjects and responsibilities are combined with one or more subjects in the regular curriculum and the combined responsibilities given to one or more members of the faculty. Many young men and women, therefore, in preparing for teaching careers, desire to train for specialization in these subjects or to complement their academic training with specialization in these fields. A teacher-training institution, therefore, that is not properly equipped to give these subjects cannot satisfactorily meet the demands upon it.

At the Adams State Normal School there are no indoor facilities for training in physical education, and the outdoor facilities are limited to two tennis courts. There is no baseball diamond nor football field.

Besides the importance of this work as a part of the curriculum, it is vitally important to all students in the School regardless of whether they seek to specialize in the field of physical education. The general health of the student body and the mental efficiency of the students cannot be maintained at the highest standard without opportunity for them to take proper exercise and keep their bodies built up under the direction of a competent instructor.

A gymnasium and outdoor playing fields should be provided for this School.

Dormitories.—The living problem of students attending the Adams State Normal School is peculiarly difficult. To achieve success while attending school it is essential that a student have comfortable quarters and wholesome food. Both of these are difficult for students conveniently to obtain in Alamosa. The number of rooms available is extremely limited and insufficient to provide proper accommodations for all the students attending the School. Practically the only opportunity to obtain board is in the downtown restaurants which are remote from the campus. Adequate dormitories, and a dining hall are imperative necessities at the Normal School and must be provided before the School can go forward much further than its present position.

Heating Plant.—With the addition of the improvements mentioned, the present heating plant will be entirely inadequate. The present uncompleted building is heated by one small boiler located in the building which is now being operated to its full capacity. The heating plant should be located in a separate building and should include facilities for the storage of coal in carload lots which cannot now be done at the School. By this provision a considerable saving can be achieved. The administrative officers plan to make the building for the heating plant of sufficient size to provide room also for a shop for instructional purposes and a shop for the use of construction forces and for repair work.

Improvements, Except Dormitories, Can Be Added to Present Building.—It is not the intention of the administrative officers of the Adams State Normal School to construct additional buildings to provide the needed improvements for its instructional activities. The laboratories, library, auditorium, and gymnasium can be provided by adding to the present building. The heating plant will, of course, be a separate building, as will the dormitories and dining hall.

Total Cost of Needed Improvements.—The needed improvements as listed in this report will cost approximately \$390,000. This does not include a dining hall, but does include the greater part of the cost of additional equipment and furniture. A plan is under way to provide a dining hall without the use of State funds.

Share of Income from Levy Will Not Meet Needs.—The building problem of the Adams State Normal School is entirely different from that of any other State institution of higher learning because it is a new institution, established only three years ago, and at that time given funds sufficient only to make a start. Its building problem is immediate and upon the way in which it is met depends the whole future of the School, whereas the other institutions are established and have as their problems the expansion of their facilities to meet growing needs. The Normal School problem must be met immediately; the problems of the other institutions, pressing though they are, can be met gradually over a period of years, as planned and explained in this report.

Because of these facts, only a modest share of the renewed levy has been assigned to the Adams State Normal School— $1/45$ of the .3473 of a mill, which will yield approximately \$11,886 per year, or \$118,860 during the next ten years.

Needs Must Be Met By Special Appropriation.—Since the needs of this School call for immediate attention in their entirety, and since this cannot readily be done under the general plan providing for all the established institutions, the needs of this School must be met by special appropriation. The administrative officers will, there-

fore, ask the members of the Twenty-seventh General Assembly to pass a special appropriation bill for the more urgent needs.

Improvements Acquired During the Ten Years 1917 to 1927

During the ten-year period, 1917 to 1927, the Adams State Normal School received the unassigned $\frac{1}{20}$ of the .3 of a mill in 1924 and one-half of this amount in 1925 and 1926. With the income from this share it constructed a portion of the South Wing of the building, carrying the walls up to the second story and putting on a temporary roof to permit use of the area thus acquired; acquired considerable general equipment; made some alterations and additions to the building.

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