BIENNIAL REPORT

OF THE

REGENTS

OF THE

UNIVERSITY OF COLORADO

1908–1910

Seventeenth Biennial Report

OF THE

REGENTS

OF THE

UNIVERSITY OF COLORADO

BOULDER, COLORADO

October 1, 1910

CONTENTS.

UNIVERSITY OF COLORADO.

SEVENTEENTH BIENNIAL REPORT OF THE REGENTS, 1908-1910.

To the State Superintendent of Public Instruction, and the Eighteenth General Assembly:

The Seventeenth Biennial Report, from October 1, 1908, to October 1, 1910, is herewith presented by the Regents.

INTRODUCTORY STATEMENT.

This biennial period may be summed up as one of remarkable growth and development, and inadequate funds to meet the conditions though, some of the immediate needs for buildings have been generously met. Especial attention is called to the character and extent of the publications of the Faculty and to the experimental and research work undertaken or proposed. We append a list of references to some of the most important features of this Report.

COLLEGES AND SCHOOLS OF THE UNIVERSITY.

The Colleges and Schools of the UNIVERSITY OF COLORADO are the following:

I. COLLEGE OF LIBERAL ARTS.
   Courses leading to the degree B. A.

II. COLLEGE OF COMMERCE.
   Course leading to the degree B. A. and special certificate.

III. COLLEGE OF EDUCATION.
   Course leading to the degree B. A. and special certificate.

IV. GRADUATE SCHOOL.
   Leading to the degrees M. A. and Ph. D.; also M. S., C. E., E. E., M. E.

V. COLLEGE OF ENGINEERING.
   Civil Engineering, leading to the degree B. S. (C. E.).
   Electrical Engineering, leading to the degree B. S. (E. E.).
   Mechanical Engineering, leading to the degree B. S. (M. E.).
   Chemical Engineering, leading to the degree B. S. (Ch. E.).

VI. SCHOOL OF MEDICINE.
   Leading to the degree M. D.

VII. SCHOOL OF LAW.
   Leading to the degree LL. B.

VIII. SUMMER SCHOOL.

ATTENDANCE.

Years.	Univ. Students.	Summer School Students.
1891-2	66	...
1907-8	961	126
1908-9	1,041	129
1909-10	1,108	168
1910-11	1,300 (estimated)	188

DEGREES CONFERRED.

In 1909 and 1910 degrees were conferred as follows:

	1909	1910
College of Liberal Arts	72	82
Graduate School	15	14
College of Engineering	32	34
School of Medicine	11	8
School of Law	29	21
Honorary	2	1
	161	160

GRADUATES.*

The register of the graduates now shows the following figures:

College of Liberal Arts	712
Graduate School	134
College of Engineering	203
School of Medicine	192
School of Law	222
Honorary Degrees	21
	1,484

*Graduates of the Preparatory School, from the beginning until the School was discontinued, September, 1907, and not included in the above summary, 587.

GRADUATE SCHOOL.

The attendance at the Graduate School has more than doubled since the last biennial period; 37 were enrolled in 1907-1908, and 83 in 1909-1910.

Higher degrees have been conferred in course upon 29 candidates, as follows: Doctor of Philosophy, 1; Master of Arts, 20; Civil Engineer, 4; Mechanical Engineer, 1; Master of Science, 3. The theses presented for these degrees have been of a high order.

The honorary degree, Doctor of Laws, has been conferred upon three candidates: In 1909 upon Henry Moore Teller, and Charles Alfred Lory; in 1910 upon Lewis Frederick Pilcher.

The Graduate School was reorganized May 11, 1909, by the appointment of a Dean, a Secretary, and a Graduate Committee. The Dean, Secretary, and two other professors constitute the Graduate Committee. The officers for 1910-11 are: J. Raymond Brackett, Dean; S. Epsteen, Secretary; John B. Phillips, Francis Ramaley.

1. More and Better Teaching Needed.—The great increase in the number of students demands a readjustment of the teaching force; several departments should be divided and new professors appointed; more instructors are needed. If the energies of professors are entirely drained by committee work and undergraduate teaching, the Graduate School will suffer. The University has entered upon many phases of investigation of great moment to the State, as is shown in other pages. These investigations require the service of the best professors and instructors that can be obtained. Salaries should be sufficient to enable the University to keep able men.

2. More Books and Apparatus Needed.—It is a calamity to the Graduate School that this year there is no money for books or apparatus. An old and well-established university might live upon its accumulations; but a year of deprivation comes very near to the life of this School. The appropriation for the next two years should be ample for the growth of the institution.

3. Graduate Fellowships and Scholarships Needed.—The care of the State is asked, not only in providing additional instructors and equipment, but also in furnishing those advantages and inducements which will put the Graduate School of the University on some equality with other graduate schools. An up-to-date graduate school must have a body—it may be a small body—of first-class students to set a standard of work. Our departments of biology, zoology and geology are well co-ordinated for graduate work; they have one of the most attractive locations in the world, but it is hard to keep good graduate students even in these departments, much less in others less favored; able students are sooner or later drawn to other graduate schools by superior inducements, not of field or instruction, but of money

or of position. The continual cutting off at the top results in great loss of power and prestige. These students of ability are needed here; some can teach; all can help in original investigation. There should be established at least one fellowship and one scholarship of liberal income for each professor that offers graduate work; and this number should be increased from year to year.

The Graduate School is the training place for special investigation in science, in philosophy, in literature, in history, in sociology. The scholarship of the University is judged by the quality of work done in preparing students for higher degrees. It is a matter of importance to every citizen of Colorado that this work be of a high standard of excellence, and that ample means be provided. The time has come when the Legislature should look into the needs of the Graduate School and provide for its support.

COLLEGE OF LIBERAL ARTS.

The College of Liberal Arts has been moving forward almost too rapidly, the present year showing an increase of over twenty per cent. But the department is paying a heavy penalty for its success in that the number of students has outstripped the teaching force. The present situation is serious, and obviously we cannot reduce the number of students or further dilute the teaching. The people of the commonwealth strenuously and justly demand that their youth shall be given the best educational opportunities of the present day. We must have more and better teachers. No other desideratum is at all comparable to this absolute need. By its teaching alone a College of Liberal Arts must ultimately stand or fall, and we cannot afford to dally on the danger line of inadequacy. Obviously any real improvement implies better salaries for junior teachers as well as more teachers. But the money spent in this way will be applied directly on the most vital and immediate problem of the University.

Furthermore, the new group system, which represents the most important step toward better things we have taken for two decades, will demand a greater number of advanced courses

for the junior and senior classes. Failure to supply this demand would jeopardize this invaluable improvement and seriously hamper our general progress for the next twenty years.

There are many other needs of the College of Liberal Arts, but, pressing as they are, they are negligible in comparison with the imperative necessity outlined above.

The very nature of the preceding statement of needs must imply a confident belief that this division of the University can report a most gratifying biennium. If more and better teachers are required it is because there are more and better students; and there is every ground for encouragement.

The new Group System came into effect with the matriculants of the year nineteen hundred and nine. Under this plan provision is made for a combination of certain fundamental subjects and free electives with special work intended to be more scholarly and more finally valuable both for cultural attainments and scientific efficiency. In accordance with the latter idea the student is required to take a large part of his group (made up of a major and minors) in his Junior and Senior years when it is possible to do real University work. Moreover the plan adapts itself readily to the needs of students who are looking forward to further work in professional and technical schools. The first year of work under the new system confirms the expectation that it would meet a genuine educational need. Already the undesirable scattering of the once fashionable elective system has been checked, and we are laying a foundation for courses that shall lead to real power in some special field without neglecting other elements of a liberal education; and it is believed that the favorable results will not be limited to scholarship, but will extend to the general character and fiber of the students enjoying the advantages of the new plan.

The members of the Faculty have been more active than ever before in the matter of research and publication. And it may be seen by reference to the publications of articles and investigations here appended that their activities have covered a large field, including matters of utilitarian concern to the industrial world in general, and Colorado in particular, as well as subjects of purely literary and cultural interest. It is to be hoped that productivity of this sort will increase with a grow-

ing staff. Detailed reports of the Summer School, of the College of Commerce, of the College of Education and of the Geological Survey will be found following this report.

Faculty.

The following promotions have been made in the last two years: Junius Henderson, B. A., to be Professor of Natural History, June, 1909; Milo G. Derham, Ph. D., to be Professor of Latin, June, 1910; Miss Ellen C. Jackson, B. A., to be Instructor in Latin for the year 1909-10; Ferd J. Lockhart, to be Instrutor in Journalism, September, 1909; Easley S. Jones, M. A., to be Instructor in English, June, 1910.

The following appointments have been made: John S. McLucas, M. A., to be Professor of English, September, 1909; Miss Grace Fleming van Sweringen, Ph. D., to be Professor of German, September, 1909; Lawrence W. Cole, Ph. D., to be Professor of Psychology, September, 1910; Miss Mildred S. McArthur, M. A., to be Instructor in German, September, 1909; David J. MacDonald, M. A., to be Instructor in Education, September, 1909; Miss Elva Cooper, M. A., to be Instructor in Mathematics, September, 1910; Arnold J. Lien, M. A., to be Instructor in Economics and Sociology, September, 1910; F. M. Handy, B. A., to be Instructor in Geology for 1910-11; William V. Casey, to be Instructor in Education, September, 1910; Paul M. Dean, B. A., to be Instructor in Chemistry, September, 1910.

The following members of the Faculty have severed their connection with the University: Professor Mary Rippon, June, 1909; Professor George C. Taylor, Ph. D., June, 1909; Professor Vivian A. C. Henmon, Ph. D., June, 1910; Arthur L. Tatum, M. S., June, 1910; Samuel C. Black, M. A., D. D., June, 1910; Clyde L. King, M. A., August, 1910; Miss Ellen C. Jackson, B. A., June, 1910; Hampartsoon H. Der Harootunian, B. A., June, 1910; Henry A. Hartman, Ph. D., June, 1910.

By the resignation of Miss Rippon the University loses the senior member of the Faculty. Her activity has covered practically the whole period of growth of the College of Liberal Arts, and she has won countless friends among the Faculty, Alumni and students.

In each case the severance was due to the wish of the in-

structors or professors enumerated, and all of them are followed by the best wishes of the University.

The following members of the Faculty have been granted leave of absence: Dean Fred B. R. Hellems, Ph. D., for the year 1909-10; Professor John B. Ekeley, Ph. D., for the year 1909-10; Professor John B. Phillips, Ph. D., for the year 1908-9; Professor Charles C. Ayer, Ph. D., for the year 1910-11; Professor Milo G. Derham, Ph. D., for one-half year, February, 1909; Miss Martha G. McCaulley, M. A., for the year 1910-11; Assistant Professor Ralph D. Crawford, M. A., for the year 1910-11; Margaret S. Carhart, M. A., for the year 1910-11.

Temporary appointments: Professor Vivian A. C. Henmon, Ph. D., was Acting Dean for the year 1909-10; Walter Runge, Ph. D., was Acting Professor of Chemistry for the year 1909-10; Clyde L. King, M. A., was Acting Professor of Economics and Sociology for the year 1908-9; Milo G. Derham, Ph. D., was Acting Professor of Latin for the year 1909-10; Miss S. Antoinette Bigelow, M. A., is to be Acting Dean of Women and Instructor in English Literature for the year 1910-11; S. Griswold Morley, Ph. D., is to be Acting Professor of Romance Laguages for the year 1910-11; Margaret L. Wheeler, M. A., is to be Instructor in English for the year 1910-11; Albert N. Gilbertson, M. A., was Instructor in Psychology for the year 1909-10.

Publications.

The following table will indicate the publications of the Faculty of the College of Liberal Arts during the past two years:

Edith M. Allison, B. A., Assistant in Biology:

"Bibliography and History of Colorado Botany." University of Colorado Studies, Vol. VI., No. 1.

"The Scales of Some American Cyprinidae" (with Prof. T. D. A. Cockerell). Proc. Biological Society of Washington, 1909.

Charles C. Ayer, Ph. D., Professor of Romance Languages:

"Foreign Drama on the English and American Stage. I. French Drama." University of Colorado Studies, Vol. VI., No. 4. II. "German Drama." University of Colorado Studies, Vol. VII., No. 1.

George M. Chadwick, Professor of Music:

"Oregon Transcriptions." University of Colorado Studies, Vol. VI., No. 4.

T. D. A. Cockerell, Professor of Systematic Zoology:

About 160 papers published. The following are the most important:

"Descriptions and Records of Bees." Annals and Magazine of Natural History, 1908-10.

"Descriptions of Tertiary Plants." American Journal of Science, 1908-10.

"Fossil Insects from Florissant, Colorado." Bull. American Museum of Natural History, 1909.

"Descriptions of Tertiary Insects." American Journal of Science, 1909.

"Descriptions of Some Bees in the U. S. National Museum." Proc. U. S. National Museum, 1909.

"Descriptions of Hymenoptera from Baltic Amber." Mitt. Geol. Pal. Inst. u. Bernsteinsammlung der Univ. Konigsberg (Prussia).

"The Darwin Celebration at Cambridge." Popular Science Monthly, 1910.

"The Miocene Trees of the Rocky Mountains." American Naturalist, 1910.

"Scales of the African Characinid Fishes." Smithsonian Miscellaneous Collections, 1910.

"The Future of the Human Race." Popular Science Monthly, 1910.

"New and Little-known Bees." Trans. American Entomological Society, 1910.

About 385 new species have been described. Articles not cited have appeared in Canadian Entomologist, Nature, Entomologist, Science, Nautilus, Entomological News, Jour. of Economic Entomology, Dial, Flora og Fauna (Denmark), Annals Entomological Society of America, Torreya, Zoologischer Anzeiger (Germany), U. of Colo. Studies, Proc. Entomological Society of Washington, Entomological Record, Muhlenbergia, Jour. of the New

York Entomological Society, Trans. Kansas Academy of Science, Psyche, etc.

Lawrence W. Cole, Professor of Psychology and Education:

"Visual Discrimination in Raccoons" (with F. M. Long). Journal of Comparative Neurology and Psychology, Vol. XIX., No. 6, December, 1909.

Ralph D. Crawford, M. A., Assistant Professor of Geology:

"Geology and Petrography of Sugarloaf District, Boulder County, Colorado." University of Colorado Studies, Vol. VI., No. 2.

"Notes on the Intrusive Rocks of the Main Tungsten Areas of Boulder County, Colorado." First Report Colorado Geol. Survey, 1908.

"The Hahns Peak Report, Routt County, Colorado" (with R. D. George). First Report Colorado Geol. Survey, 1908.

"A Preliminary Report on the Geology of the Monarch Mining District, Chaffee County, Colorado." Bull. 1, Colorado Geol. Survey, 1910.

Harry A. Curtis, B. S., M. A., Instructor in Chemistry:

"Application of Rapid Electrolytic Methods to the Analysis of Western Ores." University of Colorado Journal of Engineering, No. 6, 1909-10.

Milo G. Derham, Ph. D., Professor of Latin:

"Borrowings and Adaptations from the 'Iliad' and 'Odyssey' in Matthew Arnold's 'Sohrab and Rustum.'" University of Colorado Studies, Vol. VII., No. 1.

Gideon S. Dodds, M. A., Instructor in Biology:

"Distribution of Conifers on the Mesas" (with W. W. Robbins). University of Colorado Studies, Vol. VI., No. 1.

Charles B. Dyke, M. A., Instructor in Education:

"Essential Features in the Education of the Child Races." Rept. of N. E. A., Denver, Colorado, 1909.

John B. Ekeley, Ph. D., Professor of Chemistry:

"The Composition of Some Colorado Tungsten Ores." Western Chemist and Metallurgist, Vol. IV., No. 12.

"The Electrochemistry of the Solution of Gold in Potassium Cyanide" (with Arthur L. Tatum). Western Chemist and Metallurgist, Vol. V., No. 1.

"Some Organic Tungstates." Journal of the American Chemical Society, Vol. XXXI., No. 6.

Saul Epsteen, Ph. D., Secretary of the Graduate School; Professor of Mathematics:

"Rationality Groups in Prescribed Domains." Annals of Mathematics (Harvard). In press.

"The Moment of Inertia of a Regular Polygon" (with E. H. Ellis). University of Colorado Journal of Engineering, No. 5, 1908-9.

"Graphical Illusions of Convergence of Series" (with F. W. Doolittle). University of Colorado Journal of Engineering, No. 4, 1907-8.

Russell D. George, M. A.,, Professor of Geology:

"Polished Pebbles." Science, new ser., Vol. XXV., April, 1907.

"Outline Notes on the Important Rock-making Minerals." Published 1909.

"The Main Tungsten Area of Boulder County, Colorado." First Rept. of Colorado Geol. Survey, 1908.

"The Hahns Peak Report, Routt County, Colorado" (with R. D. Crawford). First Rept. Colorado Geol. Survey, 1908.

F. B. R. Hellems, Ph. D., Dean, Professor of Latin:

"The Character of the Flavian Literature, 69-117 A. D." University of Colorado Studies, Vol. VI., No. 6.

"Stephen Phillips as a Writer of Tragedy." Atlantic Monthly, Vol. CXX., No. 6.

"Some Recent Poetry and the Emotionalizing of Evolution." Poet Lore, Vol. XXII., No. 11.

"Music and Comedy in Eighteenth Century Italy." The Dial, Vol. XLV., No. 539.

"Social and Business Life of Ancient Rome." The Dial, Vol. XLVII., No. 553.

"The Quest of the Ideal Democracy." The Dial, Vol. XLVI., No. 541.

Various minor reviews in Classical Philology and The Dial.

Vivian A. C. Henmon, Ph. D., Professor of Psychology and Education:

"Sex Differences and Variability in Color Perception." University of Colorado Studies, Vol. VII., No. 4.

"Mental Selection." Colo. School Journal, Vol. XXIV., No. 5.

Junius Henderson, B. A., Professor of Natural History and Curator of the Museum:

"An Annotated List of the Birds of Boulder County, Colorado." University of Colorado Studies, Vol. VI., No. 3.

"Scientific Expeditions in Northwestern Colorado in 1909. I. Itinerary, Topography and Geology." University of Colorado Studies, Vol. VII., No. 2.

"Mollusca Collected in Northwestern Colorado in 1909." University of Colorado Studies, Vol. VII., No. 2.

"Fossil Invertebrates from Northwestern Colorado." University of Colorado Studies, Vol. VII., No. 2.

"The Red Beds of Northern Colorado." Journal of Geology, Vol. XVI., pp. 491-492, Sept.-Oct., 1908.

"Result of a Hailstorm." The Wilson Bull., Vol. XX., pp. 231-214, Dec., 1908.

"The Early Western Surveys." The Condor, Vol. XI., pp. 67-68, March, 1909.

"The Foothills Formation of North Central Colorado." First Report of Geol. Survey, pp. 149-185.

Clyde L. King, M. A., Instructor in Economics and Sociology:

"The Fenian Movement." University of Colorado Studies, Vol. VI., No. 3.

"The Kansas School System—Its History and Tendencies." Kansas Historical Collections, Vol. XI., 1910.

Oliver C. Lester, Ph. D., Professor of Physics:

"Notes on the Heating Effects in Metals Produced by Bombardment with Kathode Rays." University of Colorado Studies, Vol. VI., No. 4.

"Some Recent Advances in the Science of Physics." Proceedings Colorado Scientific Society, Vol. IX., Aug., 1909.

Melanchthon F. Libby, Ph. D., Professor of Philosophy:

"Pre-Thalesian Philosophy." University of Colorado Studies, Vol. VII., No. 4.

David J. MacDonald, M. A., Instructor in Education:

"Experience and Training." Colorado School Journal, Vol. XXV., No. 6.

Mildred S. McArthur, M. A., Instructor in German:

"Schleswig-Holstein in Modern German Literature." Colorado Monthly, March, 1910.

S. Griswold Morley, Ph. D., Acting Professor of Romance Languages:

"Modern Spanish Lyrics." Holt & Co., New York (in press). Book in collaboration with Prof. Hills of Colorado College.

"A Spanish Town." McClure's Magazine, January, 1909.

"Abandoned Roads." New England Magazine, October, 1909.

John B. Phillips, Ph. D., Secretary of College of Commerce; Professor of Economics and Sociology:

"Freight Rates and Manufactures in Colorado. A Chapter in Economic History." University of Colorado Studies, Vol. VII., No. 1.

"The Declining Birthrate." University of Colorado Studies, Vol. VII., No. 3.

"Review of Sumner's Equal Suffrage." Economic Bull., Vol. IV., No. 3, September, 1910.

Francis Ramaley, Ph. D., Professor of Biology:

"The Botanical Opportunity in Colorado." University of Colorado Studies, Vol. VI., No. 1.

"Climatology of the Mesas Near Boulder." University of Colorado Studies, Vol. VI., No. 1.

"Studies in Lake and Streamside Vegetation." I. Redrock Lake, near Ward, Colorado (with W. W. Robbins). University of Colorado Studies, Vol. VI., No. 2.

"The Silva of Colorado. IV. Forest Formations and Forest Trees." University of Colorado Studies, Vol. VII., No. 1.

"Remarks on Some Northern Colorado Plant Communities, with Special Reference to Boulder Park (Tolland, Colo.)." University of Colorado Studies, Vol. VII., No. 4.

"Wild Flowers and Trees of Colorado." 8vo. book, 78 pages, Boulder, Colo., 1909.

"European Plants Growing Without Cultivation in Colorado." Annales du Jardin Botanique de Buitenzorg, 2e Serie Suppl. III., pp. 493-504, 1909.

"Two Imperfectly Known Species of Crataegus." Bull. Torr. Bot. Club, Vol. XXXV., pp. 581-583, 1908.

"New Colorado Species of Crataegus." Bot. Gaz., Vol. XLVI., pp. 381-384, 1908.

"The Educational Significance of Minot's Theory of Age and Growth." Educational Review, October, 1909.

Wilfred W. Robbins, M. A., Instructor in Biology:

"Distribution of Conifers on the Mesas" (with G. S. Dodds). University of Colorado Studies, Vol. VI., No. 1.

"Distribution of Deciduous Trees and Shrubs on the Mesas." University of Colorado Studies, Vol. VI., No. 1.

"Studies in Lake and Streamside Vegetation. I. Redrock Lake, near Ward, Colo." (with Professor Francis Ramaley). University of Colorado Studies, Vol. VI., No. 2.

"Remarks on the Climatology of Northwestern Colorado." University of Colorado Studies, Vol. VII., No. 2.

"An Introduction to the Study of Rocky Mountain Bees" (with Professor T. D. A. Cockerell). University of Colorado Studies, Vol. VII., No. 3.

"Introduction to the Study of the Ants of Northern Colorado." University of Colorado Studies, Vol. VII., No. 4.

"A Botanical Trip in Northwestern Colorado." University of Colorado Studies, Vol. VII., No. 2.

"Climatology and Vegetation in Colorado." Bot. Gaz., Vol. XLIX., pp. 256-280, 1910.

Walter Runge, Ph. D., Instructor in Chemistry:

"Synthetische Versuche mit Hexa-hydroanilin and Hexahydro-m-toluidin." Inaugural Dissertation zur Erlangung der Doktorwürde Gottingen, 1909.

Arthur L. Tatum, M. S., Instructor in Chemistry:

"Electrochemistry of the Solution of Gold in Potassium Cyanide" (with Professor J. B. Ekeley). Western Chemist and Metallurgist, Vol. V., No. 1.

"The Balancing of Chemical Equations." Western Chemist and Metallurgist, Vol. V., No. 5.

"A Rotating Electrode Apparatus." Western Chemist and Metallurgist, Vol. V., No. 5.

"The Refractometer in Quantitative Analysis." Western Chemist and Metallurgist, Vol. VI., No. 4.

Frank E. Thompson, B. A., Professor of Education:

"The Teacher's License." Colorado School Journal, Vol. XXIV., No. 4.

"College and High School Relations." Colorado School Journal, Vol. XXV., No. 4.

"'Child Study and Race Improvement." Colorado School Journal, Vol. XXV., No. 8.

"Higher and Professional Education." Colorado School Journal, Vol. XXV., No. 1.

"The Authority of Childhood." Colorado School Journal, Vol. XXV., No. 3.

"Cause and Effect in Education." Colorado School Journal, Vol. XXVI., No. 1.

Grace Fleming von Sweringen, Ph. D., Professor of German:

"Women in the Germanic Hero-Sagas." Journal of English and Germanic Philology, October, 1909.

Research Work in the College of Liberal Arts.

In the last report may be found indications of the various lines in which it was felt research work by the respective departments could be of more direct service to the commonwealth of

Colorado. But it is quite obvious that genuine scholarly research of any sort is worthy of encouragement by any State University, quite apart from immediate practical return; and it is pleasing to record that in practically every department we have evidence of the desire to conduct original investigations. At the same time it is true that in practically every instance, increased productivity, and the results already attained should be only an earnest of what may be accomplished in the near future.

The following bare list will indicate the directions in which the respective departments are at present turning their investigating energies.

Botany and Zoology.

Fauna of Colorado.

Insects and Fishes, particularly classification and description thereof.

Fossil Animals and Plants.

Economic Botany.

Climatology.

Study of Alpine and Sub-Alpine Plants at the Mountain Laboratory at Tolland, Colo. [This important work is described in the 1910 Summer Session Bulletin.]

Physics.

Radio-activity.

Electricity.

Chemistry.

Electro-chemistry.

Tungsten and its Compounds.

Synthetic Organic Chemistry.

Geology.

See Reports of State Geologist.

History, Economics and Sociology.

Local History.

Taxation.

Municipal Government.
Industrial Problems.
Sociology.
Transportation.

Philosophy, Psychology and Education.

Relations of Philosophy to Literature and Life.
Animal Psychology.
Psychognosis in Great Writers.
Relations of the University to the High Schools.
Economy in Training.
Continuity in Education.

Latin and Greek.

Greek Philosophy, especially Pre-Socratic.
Classical Influence on English Poetry.
Relation of Ancient and Modern Scientific Thought.
Roman History from 69-117 A. D.

Modern Languages.

Spanish Lyrics.
Relation of the French and German Stage to the English and American Stage.
Problems in Comparative Literature.
Types of Character in some great German Writers.

American Archaeology.

Since the last report, October 1, 1908, the best of the material from the Cannonball ruins in Southwestern Colorado has been installed in three cases in the Museum. During the academic year 1909-1910, a course in Archaeology was given by Dr. Edgar L. Hewett and Mr. J. P. Harrington, and arrangements have been perfected for a similar course during the present academic year. In the summer of 1910 Professor Junius Henderson and Mr. W. W. Robbins (Instructor in Biology) spent several weeks in the field at the Rito de los Frijoles, New Mexico, in co-operation with the School of American Archaeology, studying the geology, botany,

zoology and climatology of the region with special reference to the ancient culture. Valuable collections were obtained and even more valuable notes, which are now being worked up for publication.

COLLEGE OF COMMERCE.

The College of Commerce was established in the summer of 1906. It is designed to afford a higher university education combined with a preparation for practical business life.

This department was reorganized in March, 1909. There are now four lines of study leading to the degree of B. A.: Banking, Manufactures, Journalism and Trade, Transportation and Consular Service. Certain common basic studies are required in each course, among which are: Commercial Law (Sales, Contracts, Agency, Bills and Notes, Corporations, Etc.); Accounting; French, German or Spanish; Science; and English.

During the past year new courses in Railroad Transportation, Corporation Finance, and Journalism have been conducted. The following lectures were delivered before the class in Journalism:

Editorial Writing, Mr. Hugh O'Neil.

Newspaper English, Mr. Charles Lee Bryson.

Newspaper Humor, Mr. Bide Dudley.

News Values in Reporting, Mr. J. R. Nolan.

Addresses before the class in Transportation were delivered by Mr. W. J. Martin, General Manager of the Rock Island Lines in the West, and by Traveling Passenger Agent, Mr. T. A. McKinnon.

There is a substantial growth of this department of the University as appears from the number of students now enrolled. As this is the second year since the reorganization of the course into four groups, and as the studies of the freshman and part of the sophomore years are identical in each group, it is impossible to give the number of students in each differentiated course, as manufactures, banking, etc. Few students have as yet selected the line of study in which they wish to take their degree.

The following additional courses should be provided for students in this department:

I. A general course in Commercial Law. No such course is now given in the Law School.

II. Advertising and Salesmanship.

III. Business Organization.

IV. Resources of the United States and Foreign Trade. The Department of Economics is unable to give these additional courses with the present equipment. Classes in this department range as high as 85, and efficient teaching is well-nigh impossible. Another instructor is urgently needed if the course in Commerce is to be valuable.

THE COLLEGE OF EDUCATION.

The College of Education was authorized by the Board of Regents in January, 1908, and organized for work in the spring of that year. It was and is essentially a reorganization of the Department of Education which had been a department of the College of Liberal Arts for many years. This action though a little delayed was directly in line with recent university tendencies toward practical specialization. The College of Education is simply a scheme of organization which utilizes and directs a part of the faculty and equipment of the College of Liberal Arts in a much more efficient way than heretofore in the study of education and the training of teachers. Those who elect and complete its course of study receive the regular B. A. degree and in addition a Bachelor's Diploma in Education. This latter is a document which it is intended shall be held by those only who are experts in the science and art of teaching. Similar documents are now being issued and recognized throughout the country as the distinguishing certificate of the better prepared and more efficient teacher. The Legislature of 1909 upon the unanimous recommendation of the Council of Education of the Colorado Teachers' Association passed House Bill No. 423, which gives a state-wide license to teach to certain college graduates who have studied education. This, in a way, has stamped with approval the training of educators in college and has greatly encouraged college students to take up this line of work. During the past two years attendance in classes in Education has much more than doubled. At present (first month, 1910-11) there are enrolled in such classes 241 persons, of whom 170 have signified intention of completing requirements for the Bachelor's Diploma and State

License. The remaining 71, presumably, are aiming at the State License. The Diploma has been granted thus far to 55 persons, the License to these and 62 others. Practically all have joined the already large company of teachers who have been trained at the University of Colorado and are in responsible teaching and supervisoral positions.

Of course the colleges have always trained high school teachers as well as many superintendents and principals, but such training was often incidental. Lately we have been thinking and doing the work more conscientiously. The experiences of the past few years have demonstrated the need of a more serious study of Education in the college and of the more systematic training of teachers by such institutions. In line with a growing conviction that the work deserves it, all the higher schools of the country including the state universities and a great many of the independent colleges, have definitely organized this work through institutions variously known as colleges of education, schools or departments of education, or teachers' colleges. In almost all instances the essentials are the same as those incorporated in our College of Education, that is, the student is required to take a more systematic course in the subjects he expects to teach and to make a more particular study of pedagogical things. Likewise, in practically every state the same action has been taken as to the license to teach. The movement the country over has differentiated, or practically created, a *profession* as distinguished from a *trade* of teaching.

Practice teaching has offered in the most of these schools something of a problem but, so far, has presented little difficulty here. A scheme of co-operation with the Boulder public schools has provided sufficient opportunity for observation and practice and has been mutually profitable for college and city. The college has the advantage, for its apprentices, of real conditions—typical schoolhouses, actual courses of study, commonly used text-books—all these and superintendence at practically no expense. The city has added to its list of teachers as assistants all the senior students of the College of Education, persons of training and frequently of experience. By acting as assistants to regular teachers and by taking charge especially of the slower divisions of the larger classes they supplement the work of regular teachers and

save many pupils for promotion who otherwise would become laggards in the system.

Much of the economy of this scheme is obvious but it may be seen clearly that the greatest gain consists in this: the device turns into the teaching profession, with practically no additional expense to the State, a large number of picked and cultured persons who otherwise would not teach at all. It all operates to bring to the State's most important service many of its very best citizens. This point will perhaps be better appreciated when it is borne in mind that at least half of the teachers of the State have had no training beyond that afforded by the high schools and that a goodly share of these have not had even so much as the high school education.

The College of Education work in this, as in other states, will consist for the most part in the training of teachers for the high schools, and of principals and superintendents. That the high school teacher shall have training practically equivalent to that presented by the Bachelor's Diploma in Education is now a fixed principle in American education. This was stated in the report of the Committee of Fifteen in 1895, it is prominent in the standards for accrediting of the North Central and other Associations of Colleges and Secondary Schools, and it is most emphatically brought out in the joint recommendations of the Committee of Seventeen on the Professional Preparation of High School Teachers. We are nearing the ideal announced long ago for American education: the teacher shall always be in scholarship and professional training at least four years ahead of his most advanced pupil. The college is peculiarly and obviously the institution in which to develop teachers and leaders of a kind the State needs. The equipment and faculty are adequate to give the academic training—and teachers, especially high school teachers, can never know too much. In the better colleges and universities there is an atmosphere of work, research and leadership which does much to develop scientific power and professional confidence. It would seem that there can be no question that a real profession of teaching is needed and that for such a profession training must be practically as serious and comprehensive as for law or medicine. We cannot safely entrust the training of our future citizens to little girls. The College of Education is, then, calculated and its course of study is designed to prepare

and inspire a large number of the students of the College of Liberal Arts to enter the service of the State in Education. The work proceeds upon the assumption that only those will accomplish much as teachers, at least as leaders, who have in general as a minimum of preparation that liberal acquaintance with knowledge and culture for which the better colleges stand. The prospective teacher must study the things he expects to teach, and related things, long enough and fully enough to be something of an authority. And then, obviously, the teacher must know, thoroughly, the nature, aims and tendencies of society, the nature, possibilities and rights of the individual and "the how" of helping him to learn his personal and social opportunities and responsibilities.

The minimum requirement for the B. A. degree and the Bachelor's Diploma in Education is 120 units, that is four years, of work which must include the following:

English Language (may include 4 units of Literature) 10 units
Classics and Mathematics, Mathematics and Science or Science and Classics .....15 units
History or Economics ..... 6 units
Psychology (General and Educational)..... 6 units
History of Education ..... 6 units
Science and Principles of Education..... 3 units
Elementary Schools or Secondary Schools..... 3 units
Method in Education ..... 2 units
Practice Teaching ..... 4 units
Philosophy or Sociology or additional Education or Psychology ..... 6 units
Group Electives, major and minor (subjects the student expects to teach) .....50 units

WORK OF STATE GEOLOGIST.

The Sixteenth General Assembly created a State Geological Survey and appropriated $5,000 a year for the biennial period. The head of the Department of Geology of the State University was made State Geologist and the office of the Survey was located at the University.

The Seventeenth General Assembly increased the appropria-

tion to $10,000 per year. The University has given the Survey free use of office room, instruments, laboratories, library and other facilities.

The Survey has published two Reports. The first (September, 1909) contains the following papers:

"The Main Tungsten Area of Boulder County, Colorado," by R. D. George, with notes on the Intrusive Rocks by R. D. Crawford.

"The Montezuma Mining District of Summit County, Colorado," by H. B. Patton.

"The Foothills Formations of North Central Colorado," by Junius Henderson.

"The Hahns Peak Region of Routt County, Colorado," by R. D. George and R. D. Crawford.

The second (August, 1910) contains two bulletins:

"A Preliminary Report on the Geology of the Monarch Mining District, Chaffee County, Colorado," by R. D. Crawford.

"The Geology of the Grayback Mining District, Costilla County, Colorado," by H. B. Patton and others.

During the field season of 1910 the work begun in the Monarch-Garfield area was completed under R. D. Crawford. A total of 117 square miles has been covered and the final results of the investigation will appear in a forthcoming bulletin.

A second party in the field in 1910 in charge of H. B. Patton, assisted by C. E. Smith and A. J. Hoskin, and eight advanced students from the School of Mines, made a detailed study of the territory from Alma west to the crest of the Mosquito Range, a distance of some seven or eight miles, and about five miles in width from north to south. This area has been mapped in part, but another season will be required to complete the work. A map of the mining district of Alma has been completed.

The work on the clay investigation has been carried on under the direction of Prof. G. M. Butler of the School of Mines. Considerable work was done during the summer of 1909 by Professor Butler. During the summer of 1910 three parties were in the field, two under Professor Butler's personal supervision and one under Prof. F. F. Grout of the University of Minnesota. The investigation was carried on more extensively on the eastern

slope, but work was also done in the vicinity of the larger towns elsewhere through the State. More than 600 specimens have been collected, with full data as to their location, accessibility, etc. Much of the work of testing and classifying these samples has been done, and it is planned that a monograph of the Survey shall be published soon giving the results of the investigation.

During the summer of 1910 a party of two under Mr. Roy M. Butters of the University of Colorado made a detailed study of the stratigraphy of the foothills portion of the Front Range. The Lykins formation was followed from a few miles north of the Wyoming line south to Canon City. Considerable time was also spent on the Morrison, Lyons and Fountain formations. The Tertiary Bluffs on the north line of the State also received some study.

Map of Colorado.—The Survey has been at work on a general, a topographic and a geologic map of the State. The general map is now practically ready for the engraver. The topographic map, on a scale of eight miles to the inch, is ready for final revision. The drafting of the geologic map is about three-fourths done, and an explanatory text to accompany the map is well under way. The work of these maps has been greatly delayed owing to the lack of funds, and must be still further delayed unless larger appropriations are made for the Survey.

High School Collections.—During the field seasons of 1909 and 1910 the Survey has been making collections of typical rocks and minerals of the State. The collections of rocks will consist of about 200 specimens. It is the purpose of the Survey to place one of these collections in each High School in the State. A descriptive text to accompany the collections is under way. The rock specimens are now being numbered and classified, and will soon be ready for distribution. The mineral collections will not be completed until after the field season of 1911.

Bibliography of Geological Literature of Colorado.—This work is well under way and will be ready for the printer in a few months. It will contain detailed and classified title and topic references to all the geological literature bearing on the State.

SUMMER SESSION.

The Summer Session has had a steady, though moderate

growth from year to year. There were enrolled 129 in 1908, 171 in 1909, 188 in 1910.

Considering that a very small fund has been allowed for the summer work (the Summer Session cost the State last year only about two dollars per student in attendance) and that it has been impossible to expand the advantages of the Summer Session to keep pace with the expansion of the University in general, this growth in attendance is all and more than we could expect.

Situation and climate seem to have conspired to make this one of the greatest centers in the country for summer study. All that is needed is enough funds to put the advantages of the Summer Session on a par with the advantages of the regular academic year.

The Summer Session should be recognized as one of the most important phases of the work of the University. It has abundantly justified itself up to the present time in spite of the necessary handicap of extreme economy. The courses offered have been well conducted by specialists of excellent training and standing from our regular Faculty and from those of other universities, and have been highly appreciated by students from Colorado and other states who have taken advantage of them.

But the scope of the Summer School should be much enlarged. It should offer still greater advantages to the teachers of Colorado, encouraging them to continue here their studies under the most competent guidance. It should be made to attract still larger numbers from other States, thus diffusing a knowledge of the University throughout the country.

For the next Session it is planned to try especially to meet the particular needs of the teachers of this State. A larger number of courses will be offered for their benefit. The School of Education will give courses of unusual strength and value.

COLLEGE OF ENGINEERING.

The College of Engineering has made substantial progress during the past two years. The number of students has increased from 271 in 1907-08 to 292 in 1909-10. One instructor has been advanced to the rank of Assistant Professor and one Assistant Professor has been advanced to the rank of Professor. Several

additional Assistants have been provided and the equipment has been increased. The new Power Plant with its battery of boilers and lighting plant has materially increased the laboratory facilities.

Buildings.

The new Heating, Lighting and Power Plant has been completed and the old Power Plant equipment has been removed from the Engineering Building; this has given some much needed room to the Electrical and Mechanical Departments and has materially increased the laboratory facilities. The installation of the new Engineering Experiment Station will require additional space; this space can be obtained by adding to the present Engineering Shops or may be provided for in an Engineering Building.

Instructional Force.

The following promotions have been made during the past two years: Saul Epsteen, Ph. D. (Zurich), Assistant Professor of Engineering Mathematics, made Professor of Engineering Mathematics September 1, 1910; Clement C. Williams, C. E. (Colorado), Instructor in Civil Engineering, made Assistant Professor of Civil Engineering September 1, 1910.

The following appointments have been made during the past two years: Frederick W. Doolittle, B. A. (Princeton), B. S. (C. E.) (Colorado), Instructor in Civil Engineering, September 1, 1909; George I. Gay, B. S. (C. E.) (Colorado), Instructor in Civil Engineering, September 1, 1909; Edward C. Stocker, B. S. (C. E.) (Wisconsin), Instructor in Civil Engineering, September 1, 1909; Guy W. Smith, M. S. (Colorado), Instructor in Engineering Mathematics, September 1, 1909; James S. Mikesh, A. B. (Minnesota), Instructor in Engineering Mathematics, September 1, 1908; Harland C. Woods, B. S. (C. E.) (Nebraska), Instructor in Engineering Drawing, September 1, 1909; Ollison Craig, B. S. (M. E.) (Illinois), Instructor in Mechanical Engineering, September 1, 1909; Siebelt L. Simmering, B. S. (M. E.) (Colorado), Instructor in Mechanical Engineering, September 1, 1910; Joseph B. Morrill, B. S. (E. E.) (Colorado), Instructor in Electrical Engineering, September 1, 1910.

The following members of the Faculty have resigned during

the past two years: Alfred P. Poorman, C. E. (Colorado), Instructor in Civil Engineering, resigned June, 1909, and was appointed Assistant Professor of Mechanics in Purdue University; Frederick W. Doolittle, B. S. (C. E.), (Colorado), Instructor in Civil Engineering, resigned June, 1910, and was appointed Assistant Professor of Mechanics in University of Wisconsin; William Black, Jr., B. S. (M. E.), (Illinois), Instructor in Mechanical Engineering, resigned June, 1909, and was appointed Instructor in Mechanical Engineering in the University of Wisconsin; James S. Mikesh, A. B. (Minnesota), Instructor in Engineering Mathematics, resigned June, 1909, and was appointed Instructor in Mathematics in the University of Minnesota; Axel E. Berggren, B. S. (M. E.), (Iowa State College), Instructor in Mechanical Engineering, resigned June, 1910, and was appointed Instructor in Mechanical Engineering in the University of Wisconsin; George I. Gay, B. S. (C. E.), (Colorado), Instructor in Civil Engineering, resigned June, 1910, and was appointed Instructor in Civil Engineering in the University of Illinois; Jacob H. Wallace, M. E. (Missouri), Assistant Professor of Engineering Drawing, resigned to enter practical engineering work.

Dean Milo S. Ketchum was granted a year's leave of absence, 1909-1910. Prof. Herbert S. Evans was Acting Dean during the year. Assistant Professor Clement C. Williams was Acting Professor of Civil Engineering.

Civil Engineering Department.

The instruction in this department has been materially strengthened by the appointment of an additional instructor, and by the increase in the equipment. The efficiency of instruction has been increased by some minor changes in the course. Considerable commercial testing has been done, and increased facilities should be provided. The new Road Materials Testing Laboratory will materially add to the laboratory facilities.

Electrical Engineering Department.

The instruction in the Electrical Engineering Department has been made more efficient by the appointment of an addi-

tional instructor. Several important additions have been made to the equipment, resulting in added efficiency of instruction. The Department has been doing some work in commercial testing, and should be provided with additional apparatus for making commercial testing and for standardizing electrical instruments.

Mechanical Engineering Department.

The completion of the new Power House has materially increased the laboratory facilities, and will result in a decided increase in the efficiency of instruction. This department has made very marked improvement during the last two years.

Chemical Engineering Department.

The increase in the number of students in the Chemical Engineering Department has shown that there is a demand for men that are equipped to go into the industries in which a knowledge of chemistry is of prime importance. In addition to the course in Chemical Engineering there should be offered a course in Industrial Chemistry in which students take a course in general Engineering in addition to a large amount of Chemistry and allied sciences.

General Engineering Drawing.

The work in this department has been very satisfactory. The Freshman Drawing Room in the Engineering Shops is one of the best in the country, the lighting from the north windows and the skylight giving almost perfect illumination. The instruction given in Mechanical Drawing and Descriptive Geometry is excellent.

Engineering Mathematics.

The results obtained in the Department of Engineering Mathematics have shown in a very decided manner that the instruction in Mathematics to Engineering students should be given by a separate department in charge of men that are entirely familiar with the needs of the Engineer.

Engineering Language.

The change from ten semester hours of Foreign Language in the Freshman year to six semester hours of Foreign Language and four semester hours of Rhetoric has given most excellent results. By giving the course in Rhetoric and Foreign Language with a definite idea in the mind of the instructor it has been possible to give courses much more effective than it was formerly possible to give in classes containing both Engineering and Art students.

Publications.

The following books, papers and reports have been written by members of the Faculty of the College of Engineering during the past two years:

Dean Milo S. Ketchum:

"The Design of Highway Bridges" (book). Engineering News Publishing Co., 1908.

"Adhesion of Cement Mortar to Brick." University of Colorado Journal of Engineering, No. 5, 1909.

"Bond Stress in Reinforced Concrete." University of Colorado Journal of Engineering, No. 5, 1909.

"Report on Building Ordinance for Denver, Colorado."

"Specifications for Albion Dam, Boulder, Colorado."

Reports and Specifications for Numerous Engineering Works.

Professor Herbert S. Evans:

"The Power Plant of the University of Colorado." University of Colorado Journal of Engineering, No. 5, 1909.

Professor Saul Epsteen:

"Rationality Groups in Prescribed Domains." Annals of Mathematics (in press).

"The Moment of Inertia of a Regular Polygon." University of Colorado Journal of Engineering, No. 5, 1909.

Professor Oliver C. Lester:

"Note on the Heating Effects Produced in Metals by Bombardment with Kathode Rays." University of Colorado Studies, Vol. VI, June, 1909.

"Some Recent Advances in the Science of Physics." Proceedings of the Colorado Scientific Society, August, 1909.

Assistant Professor C. C. Williams:

"Sewage Disposal at Boulder." University of Colorado Journal of Engineering, No. 5, 1909.

"Notes on the Flow of Water in Irrigation Ditches." University of Colorado Studies, June, 1910.

Mr. Guy W. Smith:

"The Oscillograph." University of Colorado Journal of Engineering, No. 5, 1909.

Mr. George L. Sullivan:

"Wage Systems in Shops." University of Colorado Journal of Engineering, No. 5, 1909.

Mr. Harland C. Woods:

"Survey of Lake Tamiahua." University of Colorado Journal of Engineering, No. 5, 1909.

Graduates of the College of Engineering Appointed to University Positions.

The following graduates of the College of Engineering have been appointed to, and are now holding positions as follows:

Charles C. Cochran, B. S. (M. E.) 1906, Assistant Professor of Machine Drawing, University of Kansas. . . . . 1906 to date

John C. Fitterer, B. S. (C. E.) 1904, Professor of Civil Engineering, University of Wyoming..... 1908 to date

Howard C. Ford, B. S. (C. E.) 1904, C. E. 1907, Instructor in Civil Engineering, University of Colo-

rado, 1904 to 1907; Assistant Professor of Irrigation Engineering and Surveying, Iowa State College .....1907 to date

Frederick W. Doolittle, B. S. (C. E.) 1907, Instructor in Theoretical and Applied Mechanics, University of Illinois, 1908-1909; Instructor in Civil Engineering, University of Colorado, 1909-1910; Assistant Professor of Mechanics, University of Wisconsin.....1910

Harry C. Gardner, B. S. (C. E.) 1906, C. E. 1909, Instructor in Civil Engineering, University of Pennsylvania. . . ..1909 to date

George I. Gay, B. S. (C. E.) 1909, Instructor in Civil Engineering, University of Colorado, 1909-1910; Instructor in Civil Engineering, University of Illinois 1910

Whitney C. Huntington, B. S. (C. E.), Assistant in Civil Engineering, University of Colorado.....1910

Joseph B. Morrill, B. S. (E. E.) 1910, Instructor in Electrical Engineering, University of Colorado.....1910

David R. Jenkins, B. S. (E. E.) 1904, E. E. 1907, Instructor in Electrical Engineering, University of Colorado, 1905 to 1908, and Assistant Professor of Electrical Engineering, University of Colorado....1908 to date

Harry J. Kesner, B. S. (C. E.) 1907, Instructor in Bridge Engineering, University of Minnesota, 1907 to 1909; Instructor in Civil Engineering, University of California .....1909 to date

Fred H. Kroger, B. S. (E. E.) 1904, Instructor in Electrical Engineering, Cornell University.....1906 to date

Harvey E. Murdock, B. S. (M. E.) 1906, M. E. 1908, Instructor in Theoretical and Applied Mechanics, University of Illinois.....1906 to date

Guy W. Smith, B. S. (E. E.) 1908, M. S. 1910, Instructor in Engineering Mathematics, University of Colorado .....1909 to date

Siebelt L. Simmering, B. S. (M. E.) 1910, Instructor in Mechanical Engineering, University of Colorado 1910

Howard E. Phelps, B. S. (C. E.) 1907, Instructor in Civil Engineering, University of Pennsylvania.....1908-1909

Floyd H. Millard, B. S. (C. E.) 1910, Research Assistant in Engineering, University of Illinois.....1910

Clement C. Williams, (C. E.) 1909, Acting Professor of Civil Engineering, University of Colorado, 1909-1910, and Assistant Professor.....1910

Alfred P. Poorman, C. E. 1909, Assistant Professor of Mechanics, Purdue University.....1909 to date

George L. Sullivan (M. E.) 1910, Instructor in Mechanical Engineering, University of Colorado.....1908 to date

Gerald H. Venneman, B. S. (M. E.), Instructor in Mechanical Engineering, University of Colorado.....1907-1908

Graduates of the University of Colorado in Commercial Positions.

Most of the graduates of the Electrical Engineering Department secure immediately, upon graduation, positions with the General Electric Company, Schenectady, N. Y., the Westinghouse Manufacturing Company, Pittsburg, Pa., or with the Western Electric Company, Chicago, Ill. Electrical Engineering graduates also obtain positions in the signal departments of railroads, with power development companies, and in other commercial positions.

The graduates of the Civil Engineering Department have been very successful in securing positions with important bridge companies, in the bridge and building departments of railways, in the engineering departments of railways, with the U. S. government in the reclamation service and the geological service, in municipal and sanitary engineering positions, and with consulting engineers. The demand for Civil Engineering graduates is much greater than the supply, and the opportunities in this field are unexcelled.

The graduates of the Mechanical and Chemical Engineering

Departments find employment with railways, with manufacturing concerns, chemical works, beet sugar factories and in other commercial positions.

Many of the former graduates of the College of Engineering have now reached positions of responsibility and prominence in engineering operations, which fact together with the improved standards of instruction has materially advanced the standing of the institution.

Distribution of Students.

The two hundred and ninety-two engineering students in attendance in 1909-1910 were divided among the four departments as follows: Civil Engineering Department, 105; Electrical Engineering Department, 133; Mechanical Engineering Department, 35; Chemical Engineering Department, 19. The registration for 1910-1911 will show an increase.

Engineering Research in the University of Colorado.

The research work which has been completed, is now in progress, or will be carried on by the different departments when the necessary funds are available is as follows:

Civil Engineering Department.

Work Completed or in Progress.—The department has carried on investigations along the following lines, mostly in connection with thesis work.

1. Pumping for Irrigation.
2. The Comparative Value of Slag and Sandstone as a Concrete Aggregate.
3. Bond Stress of Steel and Concrete.
4. Adhesion of Cement Mortar to Brick.
5. Pressure of Wheat in Bins.
6. Tests of Colorado Building Stone.
7. The Study of Boulder, Colorado, Sewerage.
8. The Flow of Water in Irrigation Ditches.
9. Tests of Old Timber Stringers.
10. Tests of Reinforced Concrete Mine Timbers.

11. Tests of Steel in Sixteenth Street Viaduct, Denver, Colo.
12. Compilation of Data on Water Supplies in Colorado.
13. Compilation of Data on Roads.
14. Compilation of Data on Dams in Colorado.

Timber Testing Station.—The U. S. Department of Agriculture, Division of Forestry, in co-operation with the University has established a Timber Testing Station in connection with the laboratory of Applied Mechanics of the Civil Engineering Department. Within the past year similar laboratories at Purdue University, the University of California, the University of Oregon, and the University of Washington have been discontinued and a Wood Products Laboratory has been installed at the University of Wisconsin, Madison, Wisconsin. This makes the University of Colorado Timber Testing Station the only one in operation west of Madison, Wisconsin, and adds materially to the importance of its work.

In order to provide for the Timber Testing Station the equipment of the Applied Mechanics Laboratory was increased by the addition of a 200,000-lb. Riehle Beam and Column Testing Machine that is capable of testing a beam 16 feet or a column 8 feet long; a 30,000-lb. Olsen Tension Testing Machine for use in making standard compression and tension tests; a compressometer; a drying oven; a power planer and a power saw; and other necessary minor apparatus for making timber tests. This additional apparatus makes the equipment of the Applied Mechanics Laboratory equal to that of any of the timber testing laboratories in the country.

In addition to the Engineering Staff of the Civil Engineering Department, the Forest Service maintains at the laboratory an experienced timber testing engineer with two engineering assistants. All the facilities of the laboratory are available for the purpose of instruction and investigation by the department. Varied tests of many different kinds of timber are constantly in progress. The following tests have been completed during the past two years:

1. Tests of Telephone Poles, including comparisons of fire-killed lodge pole pine and Engleman spruce with standard western cedar.

2. Tests of Round Timbers, including comparison of six species of coal mine caps and props, 5½ inches in diameter by

6 feet and 8 feet long, tested dry and green for comparison; and round beams 16 feet long and 8 inches, 10 inches and 12 inches in diameter, of lodge pole pine, fire-killed and green.

3. Preparation of Panels of Different Kinds of Native Timbers.

4. Determination of Weight per Cubic Foot for Fence Posts for Routt National Forest.

5. Numerous tests to determine properties of timber.

These tests were conducted in accordance with the most approved methods and form a part of the work of the Forest Service covering the whole United States. The work which has been completed by the Station is only the beginning of work in the Rocky Mountain States, so that many years must elapse before the work of the Station will be completed.

Road Materials Testing Laboratory.—A Road Materials Testing Laboratory, equipped with apparatus to make all commercial and special tests of road materials, has been established in connection with the Applied Mechanics Laboratory of the Civil Engineering Department. This will make it possible to carry on tests of road building materials and make investigations of the best methods for the construction and maintenance of roads and bridges in the State. Practically nothing has been done in connection with materials for building roads in Colorado, and the results obtained in this laboratory will prove of material benefit to the State.

Work to be Undertaken.—In addition to the above the Civil Engineering Department should take up the following lines of investigation:

1. Irrigation Investigations.
2. Power Investigations.
3. Sanitary Survey in Co-operation with State Board of Health.
4. Commercial Tests.

Electrical Engineering Department.

Work Completed or in Progress.—The following lines of work have been carried on under the direction of the Department:

1. Tests of the Light Distribution, Efficiency and Length of Life of Incandescent Lamps.

2. Efficiency and Relative Values of Different Shades and Reflectors for Incandescent Lamps.

3. The Accuracy of Watt-Meters.

4. Tests of the Electric Conductivity of Concrete and the Electrolitic Corrosion of Steel Anchors.

5. The Circuit Determinations for Automatic Block Signals.

6. The Study of the Mercury Art Rectifier.

7. The Oscillograph.

Work to be Undertaken.—The Electrical Engineering Department should take up the following lines of investigation:

1. Electric Railway Tests.
2. Lightning Protection.
3. Commercial Tests.

Mechanical and Chemical Engineering Departments.

Work Completed or in Progress.—The Departments have done considerable work on the analysis of Colorado coals in connection with the tests of the relative values of different fuels.

Work to be Undertaken.—The analysis of Colorado coals should be continued and the following lines of investigation should be taken up:

1. Efficiency of Lignite Coals.
2. Storage of Lignite Coals.
3. Gas Engines.
4. Power Developments.
5. Transmission of Power.
6. The Analysis of Water for Domestic and Commercial Purposes.
7. Investigations of Colorado Oils as to Cost and Methods of Refining.
8. Investigation of Fords.
9. Study of Clays.

Summary.

Special attention is called to the following recommendations, most of which have been outlined in the preceding discussion:

New Building and Equipment.—The crowded condition of the present Engineering Building and the laboratories makes it essential that a new Engineering Building with adequate recitation rooms, drawing rooms, and laboratories be provided in the near

future. While the laboratory equipment has been very effective with small classes, the rapid increase in the size of the Junior and Senior classes and the wear and depreciation due to the students' use will make it necessary to add materially to the laboratory equipment if the present grade of instruction is to be maintained.

Graduate courses are now offered in the different Engineering Departments as described in the University catalogue. The following courses especially meet the needs of Colorado and additional facilities should be provided for this work:

Power Plant Engineering.
Gas Engine Design.
Hydraulic Design.
Irrigation Engineering Structures.
Electric Power Plant Design.
Fuel Analysis.
Reinforced Concrete Construction.
Mine Buildings and Mill Structures.
Office Buildings.
Electric Traction.

Provision should be made for the following lines of investigation in addition to the work now being done by the Timber Testing Station, the Road Materials Laboratory, the Civil, Electrical, and Mechanical laboratories, and Departments of Chemistry and Geology:

Irrigation Investigations.
Power Investigations.
Sanitary Survey in Co-operation with the State Board of Health.
Commercial Testing Laboratory.
Test of Colorado Building Stones.
Test of the Pressure of Grain in Bins.
Tests of Reinforced Concrete.
Tests of Incandescent Lamps.
Tests of the Effect of Alkali on Concrete.
Tests of the Accuracy of Watt-Meters.
Railroad Signalling.
Electric Railway Tests.
Electrical Commercial Tests.
Tests of Coals.

Tests of Lignite Coals.

Tests of Gas Engines.

Study of Clays in connection with the Manufacture of Cement, Lime and Brick.

Tests of Mine Timbers.

SCHOOL OF MEDICINE.

Faculty Changes.

New Appointments: Henry S. Denison, B. A., M. D., Instructor in Medicine, September, 1909; Carbon Gillaspie, M. D., Instructor in Anatomy, September, 1909; Oliver Lyons, M. D., Lecturer on Genito-Urinary Diseases, February, 1910; Samuel B. Childs, A. B., M. D., Professor of Anatomy, September, 1910; J. W. Amesse, M. D., Instructor in Medicine, September, 1910.

Promotions: Clay E. Giffin, A. B., M. D., Assistant in Surgery, to be Instructor in Surgery, September, 1909; Alvin R. Peebles, M. D., Assistant Professor of Medicine, to be Professor of Medicine, January, 1910; Clough T. Burnett, M. D., Assistant Professor of Bacteriology, to be Professor of Bacteriology, January, 1910; Oscar M. Gilbert, M. D., Assistant Professor of Medicine, to be Professor of Medicine, January, 1910; Walter W. Reed, M. D., Instructor in Obstetrics, to be Assistant Professor of Obstetrics, September, 1910; Geo. E. Neuhaus, M. D., Lecturer on Psychiatry and Neurology, to be Assistant Professor of Psychiatry and Neurology, September, 1910.

Resignations: Carroll E. Edson, M. A., M. D., Professor of Medicine, September, 1910; Arthur L. Kennedy, M. D., Assistant Professor of Medicine, September, 1910.

The promotions and appointments were made as the result of

Attendance.

faithful and efficient service in the one case, or by reason of distingushed work in the various branches mentioned, in the other. The resignations were accepted with profound regret.

The attendance for the year 1909-1910 was 80, an increase of 60 per cent. over the previous year, and the highest in the history of the Department. For the present year the registration

to date numbers 95, not including students registered in the Denver and Gross College of Medicine, an increase of 18.7 per cent. over the attendance of last year. The first-year class, in spite of the increase from a high-school entrance requirement to the requirement of sixty college hours for entrance, numbers 16, a hopeful showing for the first year under the new rule.

Laboratory classes in anatomy, bacteriology, pathology, physiology and pharmacology, have been divided into sections, for lack of space to handle the entire class in our present quarters. The work of the teachers in these branches is thus greatly increased, while the effectiveness of the teaching is decreased on account of the separation of the laboratory courses from the didactic courses, with which they should run parallel.

Teaching Methods.

Happily the lower rate made for clinical patients at the Hospital has operated to increase steadily the number of patients available for teaching purposes. This change for the better has also been helped by the fact that patients are gradually learning that being in the Hospital as a clinical case involves no hardship or discomfort, but on the contrary the attention received from students and the greater attention received from members of the attending staff are distinct advantages. The clinical material available in medicine, surgery and obstetrics has been very satisfactory. The eye clinic has suffered during the past two years by its removal from the Hospital to the Dispensary. Clinical material in neurology, pediatrics, orthopedics, dermatology, genito-urinary and rectal surgery, etc., is, of course, less abundant, but this defect will be remedied if the third and fourth year classes are removed to Denver.

Steady progress has been made in the improvement of teaching methods, by bringing them more and more into harmony with the best modern practice. The schedule has been revised so as to give the students greater leisure, and opportunity for needed recreation, as well as for special reading or advanced laboratory work. Class work now stops at 4:20 p. m., with but two or three exceptions on single days. By careful rearranging of the curriculum also, a better articulation of the courses is being

steadily attained. Methods of administration are being improved so as to afford better, closer, and more constant supervision of the individual student.

These improvements have met with a most gratifying recognition on the part of medical educators throughout the country, and other schools are sending here, in steadily increasing numbers, students who, for one reason or another, are in need of the special advantages of the Colorado climate, and who, as, experience has shown, after graduation remain for the most part in Colorado as permanent residents of the State.

Publications.

Here follows a list of contributions and addresses by members of the Faculty during the past two years:

George H. Cattermole, M. D., Professor of Medicine:

"Diarrhoeal Diseases in Colorado." Pediatrics, March, 1909.

Frank E. Waxham, M. D., Professor of Rhinology and Laryngology:

"A Plea for the Free Distribution of Antitoxin in Colorado." Colorado Medicine, 1909.

"Intubation of the Larynx with Suggestions Regarding Anaphylaxis." Colorado Medicine, 1910.

"Diseases of the Accessory Sinuses Giving Rise to Ocular Symptoms." Laryngoscope, May, 1910.

"Some Interesting Cases: Tracheotomy Following an Intubation and Thrombosis of Sigmoid Sinus." Denver Medical Times and Utah Medical Journal, 1909.

"Bezold's Mastoiditis." Denver Medical Times and Utah Medical Journal, 1910.

Charles S. Elder, M. D., Professor of Surgery:

"The Scientific Method of William Harvey as Exhibited in His 'Discourse on the Motion of the Heart and Blood in Animals.'" Address before the Medical Society of the City and County of Denver, February 21, 1910.

"The Nature of Genital Prolapse in Women." Read before the Colorado State Medical Society, October 13, 1910.

James R. Arneill, B. A., M. D., Professor of Medicine:

"Malignant Endocarditis." Address before the Fort Collins Medical Society, 1909.

"A Report of Some Unusual Abdominal Cases, with Interesting and Instructive Diagnostic and Therapeutic Points." University of Colorado Medical Bulletin, 1910.

"Cancer of the Stomach, with a Report of Some Unusual Cases." Read before the Colorado State Medical Society, October 13, 1910.

Edward Jackson, M. A., M. D., Professor of Opthalmology:

"Opthalmic Year Book," Octavo, Illustrated, Vols. VI, p. 415, and VII., p. 393. In collaboration with Drs. G. E. de Schweinitz, T. B. Schneideman and William Zentmayer, of Philadelphia. Published by the Herrick Book & Stationery Co., Denver, Colo.

"Suggestions of the Pupil in General Disease." American Journal of Medical Science, October, 1908.

"The Teaching of Ocular Refraction." Opthalmic Record, November, 1908.

"Scissors-Magnet Extraction of Iron from the Eyeball." Journal American Medical Association, June 19, 1909.

"Observations Concerning Glaucoma." American Journal Ophthalmology, 1909.

"Accuracy in the Measurement of Refraction." Annals of Ophthalmology, 1909.

"Ocular and Orbital Symptoms of Thrombosis of the Cavernous Sinus." Ophthalmology, V.

"Blood Pressure in Its Practical Relations to Ophthalmology." Ophthalmic Record, 1909, p. 460.

"Tests of Visual Acuity and Cards for the Subjective Correction of Ametropia." Transactions, Section on Ophthalmology. American Medical Association, 1910, p. 137.

"Standardizing of Test-Types and Records of Visual Acuity." Transactions American Ophthalmological Society, Vol. XII., Part II.

"Operations on the Extrinsic or Orbital Muscles." Chapter III., Part IV. "A System of Ophthalmic Operations."

Edited by Casey A. Wood, M. D., Cleveland Press, Chicago, Ill.

Richard W. Corwin, M. D., LL. D., Professor of Surgery:

"When and How to Treat Hernia in the Young." Colorado Medicine, March, 1909.

"What Are the Causes Leading to Railway Accidents, and What Remedies Can Be Suggested." Read before the New York and New England Association of Railway Surgeons, held at the Academy of Medicine, New York City, November 17-18, 1908. International Journal of Surgery, 1909.

"Negligence of Employe from Disease and Overwork—Its Relation to Accidents and Remedies." Meeting of the New York and New England Association of Railway Surgeons, November 16, 1909.

"False Traumatic Hernia." Read before the 39th Annual Convention, Colorado State Medical Society, September 14, 1909.

"Tuberculosis Sunday." Temple Emmanuel, Pueblo, April 24, 1910.

"The Other Kidney." Railway Surgical Journal, November, 1908.

"Suggestions Regarding Hospital Management and Construction." Eleventh Annual Conference, American Hospital Association, September 22, 1909.

"The Modern Model School-house." Pamphlet, 1909.

"Typhoid." Otero County Medical Society, March 25, 1910, La Junta, Colo.

"Pancreas." Pueblo County Medical Society, 1910.

Oscar M. Gilbert, M. D., Professor of Medicine:

"Myocardial vs. Endocardial Affections." Colorado Medicine, 1909.

"A Plea for a National Department of Public Health." Read before the University Scientific Society, March, 1909.

"Some of the Medical Aspects of Blood Pressure." Colorado Medicine, 1910.

"Prevention of Tuberculosis." Address delivered before the Colorado Society for the Prevention and Control of Tuberculosis, November, 1909, and published in the official organ of the Society, 1910.

"Bilateral Sarcoma of the Adrenals with Metastases to the Lung, Simulating Tuberculosis." Read before the Colorado State Medical Society, October 12, 1910.

Alvin R. Peebles, M. D., Professor of Medicine:

"Clinical Observations on Blood Stains." Journal American Medical Association, 1909.

Walter W. Reed, M. D., Assistant Professor of Obstetrics:

"The External Antipartum Examination." American Journal Obstetrics, No. 2, 1908.

"The Dicephalus Dibrachius, with Report of a Case." Just completed.

William A. Jolley, M. D., Instructor in Pharmacology:

"A Pharmacologic Study of the Drugs Used in Diseases of the Genito-Urinary Tract." Colorado Medicine, 1910.

Frank R. Spencer, B. A., M. D., Instructor in Laryngology and Rhinology:

"Stitch Scissors for Eye, Ear, Nose and Throat." Journal American Medical Association, 1909.

"Cerebellar Abscess of Otitic Origin, with Report of a Case.' Read before the Colorado State Medical Society, October 12, 1910.

Henry S. Denison, B. A., M. D., Instructor in Medicine:

"Amboceptors and Complement in Typhoid Sera." Johns Hopkins Hospital Bulletin, 1908.

"Note on Pathological Changes Found in the Embryo Pig and Its Membranes." Anatomical Record, 1908.

"Melano-Sarcoma." Read before the Denver City and County Medical Society, December, 1909.

J. W. Amesse, M. D., Instructor in Medicine:

The following addresses:

"Pellagra."

"Management of Cholera Epidemics."
"Bubonic Plague." Denver, November, 1909.
"American Contributions to Tropical Medicine." Boulder, December, 1909.
"Medical and Social Economics in Cuba."
"Ellis Island and the Immigration Problem." Greeley, December, 1909.
"Address on Quarantine at the Fourth Annual Sanitary Congress of the American Republics." San Jose, Costa Rica, December, 1909.

The Constitutional Amendment and the Consolidation With the Denver and Gross School of Medicine.

The rapid strides in all branches of medical sciences are throwing a steadily increasing burden on medical education. Thirty years ago the raw and untrained youth could be taught all that it was then necessary for him to know of medical science, in one or two courses of lectures of six months each. Laboratory training, in the modern sense of the word, was all but unknown, and it cost little or nothing to maintain a medical school. But to-day, six years is all too short a time to lay the foundations of a medical education, and the development of laboratory methods has vastly increased the costliness of medical teaching. It is no longer possible to run a medical school on an income derived from students' fees. To attain this object, the fees would need to be so high as to exclude all but the wealthy from the study of medicine. Either generous endowment or state support is therefore rapidly becoming an absolute *sine qua non* of a medical college. This fact is abundantly testified by the widespread movement toward the absorption of medical schools dependent on fee income for their support by their stronger competitors, and the steadily increasing requirements enforced by various State Boards of Medical Examiners. Recent developments in Colorado are opening to the University an unexampled opportunity to create here a great center of medical education. It remains only to be seen whether the State will remain true to its general and generous policy in educational matters by providing means for such a school, for

the benefit of its youth seeking an education, and for the welfare of the whole people of the State.

The passage by the Legislature at its last regular session of the bill submitting to the voters the Constitutional Amendment permitting the teaching of all except the two first years of the medical course at Denver, is the first of the two most important events of the last biennial period. The second is the consolidation of the Denver and Gross Medical College with this Department, the contract for which was signed last spring by the Regents and the Board of Trustees of the Denver and Gross College. On January 1, 1911, the latter school becomes an integral part of this Department. The last obstacle to the passage of the Constitutional Amendment is thus removed, and a greatly enlarged field is opened to the Medical Department. The attainment of these objects, by consolidating medical education in Colorado under one head will enhance enormously the strength of medical education throughout the entire West. It will then remain only to perfect adjustments by which the abundant hospital facilities in Denver may be used to the fullest extent for teaching purposes. When this is accomplished, and facilities for laboratory study of cases, and for clinical research are provided, the Department will take its place in the very front rank of medical education.

State Laboratory of Hygiene.

Attention was called in the last biennial report to the advantages to be derived for the State at large from the establishment, in connection with the Department, of a Laboratory of Hygiene. Such laboratories have been established by many of our sister states, and have proved a potent factor for good in every instance. Such a laboratory would engage investigations such as the following:

1. Source and cause of epidemics in any part of the State, and the means of controlling same.
2. Publication and distribution of health bulletins from time to time, as occasion requires, for the benefit and guidance of the people.
3. Investigation of problems of health peculiar to this State.

4. Manufacture and free distribution of preventive vaccines and curative sera for smallpox, rabies, diphtheria, lockjaw, hog cholera, anthrax, black leg, etc.

At the same time such a laboratory could be made of great use as an adjunct to the present medical curriculum, by training medical students in methods employed in attacking various diseases by first hand experience, thus equipping them to be of correspondingly greater use in their several communities after graduation. An appropriation of about $5,000.00 per year would suffice to initiate this work on a highly useful basis, and with provision for extension of the work as the means at hand would permit.

Immediate Needs.

As noted in the last report, the greatest single need of the Department at the present time is a suitable and dignified building. The present cramped, shabby and ill-arranged quarters of the School constitute a great handicap to its legitimate progress. The second-year class now has to be taken to another building at a distance from the Medical Building for lectures and recitations, where any apparatus needed for demonstrations cannot be used except as it is carried back and forth between the buildings. Rooms set apart for research workers have been gradually, and of necessity, converted to other uses, and, in a word, the proper and adequate teaching of the most important branches of the first two years is impossible, even with the added space to be made available by the removal of the last two years of the course to Denver. There is critical need of a building which should afford, in a seemly and dignified manner, two amphitheaters accommodating 150 students each, two or three smaller recitation rooms for section work, adequate and well arranged laboratories for teaching pathology, bacteriology, physiology, pharmacology, histology and embryology, besides research rooms, animal rooms, museum, toilet and reading rooms. To fail to provide such a building within the near future will be to fail in grasping the opportunities opened to us by the passage of the Constitutional Amendment, and to find ourselves top-heavy with a school well provided for in the last two years, but woefully deficient in the first and fundamental years. No visitor to the

school in its present habitat can fail to carry away any other than a most unfavorable impression.

SCHOOL OF LAW.

There have been to the date of this report 110 registrations in the Law School for the academic year 1910-11, an increase over the two previous years.

The methods of instruction remain practically the same—succinctly described as combinations of the case and text-book system for the lower classes and the study of cases in the upper classes, with lectures upon special topics by eminent practitioners, followed by examinations in each instance.

No changes have been made in the faculty or lecturers, with the exception that Mr. John E. Robinson of Denver, an acknowledged authority upon the law of bankruptcy, has taken the place of Mr. Wm. B. Harrison, as lecturer upon that subject.

We refer with satisfaction to the results of the examinations held in Denver in June last, by the State Board of Bar Examiners for admission to the bar of Colorado. There were 58 candidates, distributed among the various institutions of the country, the Law School connected with the University of Colorado furnishing 17 of the number, or practically 30 per cent. There were 12 failures reported, of which, it is noted the Colorado School of Law furnished none, while the highest mark of all the applicants was attained by a student of that School, who graduated June, 1910.

The general catalogue of the University for this year and the last annual Law School announcement contain the statement that beginning September, 1912, two years of College work will be required for admission to the Law School. This departure from the requirements for admission which have obtained in the past, and which have been based upon simply a high-school education or its equivalent, the Regents believe, is in accord with the more enlightened views respecting legal education. Ample notice is given of the change, and the altered standards, it is believed, will in the end result in better lawyers, while not seriously lessening the opportunities of the youth of the State for the varied and responsible service which is and should be demanded of the legal profession.

The need of the Law School for a suitable building, referred to in the last report has been amply met by the munificence of a citizen of the State, and the School for about a year past has been occupying the beautiful structure upon the campus designed for its special use, and sufficient for its needs for many years, the gift of Senator Simon Guggenheim. Appropriate dedication exercises were held upon completion and presentation of the building November 24 of last year. Here follows the dedication programme:

1. Music .....Band
2. Address.....Hon. S. R. Fitzgarrald, Lieutenant Governor of Colorado
3. Presentation of Building.....Senator Simon Guggenheim
4. Acceptance for Regents.....President James H. Baker
5. Acceptance for Law School.....Dean John D. Fleming
6. Address.....Chief Justice Robert W. Steele
7. Music .....Band
8. Inspection of Building by Public.

An extension of the library facilities of the School remains at present the most pressing need. A generous appropriation for the filling up of incomplete sets of law reports, the continuations of the current reports, both State and Federal, and for the purchase of the latest approved text-books and treatises, is required.

The School continues a member of the Association of American Law Schools, an organization of the more prominent law schools of the country, formed in 1890, for the purpose of elevating and maintaining the standards of the legal education in all the States. The reports of their meetings, held each year in conjunction with the meetings of the American Bar Association, of which the Dean of the School is the Vice President for Colorado, furnish valuable data upon the subject of legal education generally.

ORATORY AND DEBATE.

Oratorical and debating contests are now recognized as forming an important branch of the student activities. The exercises and contests among the literary and debating societies

and other student organizations are conducted under the management of the different memberships; all other oratorical and debating contests are held under the management of the Debating Board of the Associated Students, this board consisting of the three members of the University Senate Committee on Oratory and Debate, and three student members. In addition to the Annual Prize Oratorical Contest and the Inter-Class Debate for the Griffin Prize, debates were held in 1908-9 with the Universities of Kansas, Missouri, Texas and Utah; and in 1909-10 with the Universities of Kansas and Texas. The decrease in the number of inter-university debates last year was due to the fact that it was necessary to omit the contest with the University of Utah on account of the expense, and that afterward the University of Missouri failed to fulfill its engagement.

The organization in 1908 of a class in debating under an instructor of the English Department, chosen especially for his fitness to lead in such work, has resulted in increased interest among the students in oratory and debate, and a marked improvement is observable in the public contests. At present, however, instruction can be given to only a limited number. As soon as funds can be provided for the purpose, all freshman students, both men and women, should be given instruction in what might be termed "oral English," so that they may gain thorough practice in correct habits of speech and in the ability to think on their feet and to express their thoughts clearly and readily. Such instruction, while it should be designed primarily to improve the general powers of expression in the ordinary circumstances of life, will stimulate the interest of a larger number in public speaking, and will give them the foundation upon which they may build in improving further their powers in oratory and debate.

PHYSICAL CULTURE AND ATHLETICS.

Systematic training in physical culture is given in formal gymnasium classes, and in the main branches of in-door and out-door sports. All these are under the competent supervision of the Director of Athletics, with the aid of two assistants in the gymnasium and a graduate medical attendant for women.

During the football season a coach and an assistant coach are employed for this sport.

For the most part the athletic training is on a voluntary basis, but a formal course in physical culture is required of the freshman class in the College of Liberal Arts. It is as yet impracticable to require gymnasium work of other classes because of the limited facilities of the present gymnasium, which is entirely too small to meet the needs of our rapidly growing student body. A large well equipped gymnasium is one of the crying needs of the University.

Fortunately the climate is such as to make out-of-door recreation and games agreeable during most of the year. Adequate training and coaching are given to football, baseball, track athletics, cross-country running, basketball; and this spring special attention is to be given to tennis.

It is the purpose of the University to stimulate interest in the greatest possible variety of wholesome games and sports. The policy of developing highly specialized inter-collegiate teams is subordinated to that of providing suitable forms of corrective and upbuilding exercise for all members of the student body.

The present athletic field, being inadequate for our purposes, the University has recently acquired twelve acres north and east of the campus, and just across Boulder Creek. To this field—to be known as Stratton Field—additions may be made by later purchase. This new playground has the advantage of being not far from the center of the campus; it is beautifully situated along the shady river bank, and will be large enough to give ample room for all the various College sports.

Athletics—especially inter-collegiate athletics—are placed on a more stable financial foundation under the organization of the Associated Students of the University. A fee of $5.00, for the support of all student interests and activities, which the students imposed upon themselves by an almost unanimous vote, is now sanctioned by the Regents, and is collected from each student at the beginning of the year.

General supervision and direction of athletics is vested in the Athletic Board, composed of three members of the Faculty, appointed by the President of the University, and three student members, who are officials of the Associated Students. This Board is responsible in all things to the University Senate.

ASSOCIATED STUDENTS.

The Associated Students of the University of Colorado (A. S. U. C.) is an organization whose membership includes every student registered at the University. It came into being through the adoption, by the students, of a Constitution, whose preamble recites its purpose, "to form a more efficient government for the conducting and determining of all matters of general student concern."

The need for "a more efficient government" was evident, because the existing organization known as the "Combined Student Body," had no definite powers, and was simply a medium for conducting general mass meetings. There existed, also, a separate Athletic Association, an Oratorical and Debating Association, a distinct Constitution for the Silver and Gold, and a separate Tennis Association. There was no centralization of power and responsibility, and no consistent student governmental or financial policy.

A Convention of Students, called by the President of the Combined Student Body, authorized the drawing of a new Constitution, January 14, 1908. The Constitution was prepared, referred to the Convention, adopted, and its adoption finally ratified by a mass meeting of students, held on May 26, 1908, by a vote of 517 to 5. Later it was approved and accepted by the Faculty Senate and the Board of Regents. The new Constitution went into effect at the opening of the succeeding school term, September, 1909.

It provides four legislative bodies for the government of all matters of general student concern: The Commission, the Athletic Board, the Debating Board and the General Board.

The Commission is composed of one Faculty member, appointed by the President of the University, and eight student members, elected at large by the students—the President of the Associated Students, the Vice President of the Associated Students, the Yellmaster and four Commissioners. This body legislates on student tradition, the general welfare of the A. S. U. C., the student publications, musical organizations and all other student interests, except Athletics and Debating.

The Athletic Board is composed of three Faculty members, appointed by the President of the University, and three student

members—the President of the Associated Students and two others appointed by him from the Commission. It formulates the athletic policy of the University and makes all rules and regulations governing athletics in all of its forms.

The Debating Board is likewise composed of three Faculty members, appointed by the President of the University, and three students—the President of the Associated Students, and two others appointed by him from the Commission. All matters pertaining to intercollegiate debates and oratorical contests are decided by this Board, which also makes rules concerning the selection of teams and questions.

The General Board is composed of the members of the Commission, Athletic Board and Debating Board. It selects the General Manager, who has charge of all of the finances and property of the A. S. U. C., and who schedules all games, contests, concerts and events, and is the general executive.

One of the most important features of the new Constitution is the provision for a five-dollar fee to be paid by each student at the time he registers. This fee entitles the student to a coupon ticket book whose coupons admit him, without further charge, to all football, baseball and basketball games, to all track meets, all debates, the concert of the University quartettes, the band concert, and, in addition to these events, gives him the term's subscription to the Silver and Gold, and the privilege of membership, voting and holding office in the A. S. U. C.

When the Constitution first went into effect, the fee was four dollars, instead of five, and was optional. The students petitioned the Board of Regents to make it compulsory, and the Regents took such action at their regular meeting in April, 1910. The fee is now collected as a part of the regular registration system of fees, and gives the A. S. U. C. a definite fund on which to finance all of the student activities.

The Constitution contains other interesting features. Its operation, up to the present time, has been very satisfactory. The Commission has enacted needed legislation concerning discipline and certain University traditions, and is considering many other questions of a broader nature. In all its affairs the organization of Associated Students is subject to the general rules of the Regents and the Faculty Senate.

RELATION TO THE HIGH SCHOOLS.

During the past two years the problem of mutually helpful relationship with the High Schools of the State has absorbed much of the attention of the Committee on High Schools and High-School Conference. This committee, as now constituted, consists of seven members, representing those departments of the University most directly in touch with the High-School courses of study.

The High-School Conference, called by Principal William H. Smiley and Professor Ira M. De Long, the officers appointed at the Conference held at the University in 1903, met at the University of Colorado January 1 and 2, 1909. Principal William H. Smiley presided the first day and Superintendent A. B. Copeland the second day. There was a large representation of the High Schools of the State and many important matters were fully discussed, resolutions were passed expressing the sense of the Conference, and plans were formulated for the more complete organization of the Conference and arranging for future meetings. The resolutions passed at the meetings and the committees appointed follow:

Number of Units.

Resolved, That each High School should be at liberty to arrange the contents of four to six units of its course to the end of best subserving local needs and that the University should accept for entrance such units of this work as have been well organized and well taught even though the subject-matter is not traditional.

Standardization of Units.

Resolved, That an attempt should be made to secure throughout the State a practically uniform content in the usual High-School courses: English, Mathematics, Ancient and Modern Languages, History, Physics, Chemistry and Biology, and that committees should be appointed to prepare syllabi for these courses.

Group Electives in High School.

Resolved, That atomistic election in the High School should

be discouraged, and that the matter of grouping should receive more careful attention.

The Content of High-School Science.

Resolved, that the qualitative side of High-School science should be more strongly emphasized than at present; that more attention should be given to facts pertinent to living rather than so exclusively to conventional experiments and detailed methods; that it should serve to eliminate superstitions and folk-way notions from the student's mind; and that it should much more than now introduce to the universe and fund interests.

The Unit System.

Whereas, The various studies of the High-School curriculum differ in respect to the purpose for which they are taught and to their functions, and

Whereas, The usual practice in High Schools now is to teach all subjects without any differentiation in method with respect to function and purpose, be it

Resolved, That it is the sense of this body that such a differentiation in method should be made; that certain studies should be taught intensively to the end of producing definite powers and abilities; and that content subjects should not be taught with the methods suitable to formal subjects, but should be taught to the end of inspiration, producing equivalent results with a small expenditure of time and energy; and that this may be done, be it further

Resolved, That it is the sense of this body that the present unit system, with its insistence upon mathematical measurement of inspirational result, and its tendency toward mechanization of method, is unsatisfactory, and that some modification is desirable.

Units.

Resolved, That 15 units are not too much for admission requirements.

Resolved, That fractional units of 2-5, 1-2, 3-5 and 4-5 in some subjects should be admissible.

The One and Two-Teacher High School.

Resolved, That, while the equipment of the teachers in these schools should not be inferior to that of teachers in larger schools, there should not be attempted more than five units in three subjects in the one-teacher High School, nor more than ten units in six subjects in the two-teacher school.

High-School Athletics.

Resolved, That the one-year rule in inter-collegiate contests should apply to freshmen as well as higher class students;

That High Schools should encourage, by the employment of physical directors or by the attention of teachers, all students to take part in athletic games and contests in the home town;

That classification for athletic purposes should be upon the physical basis with due regard to scholarship.

Resolved, That a committee of five be appointed to draw up uniform rules to govern all inter-scholastic athletic relations for the State of Colorado; that this committee submit their report to the respective schools for approval or suggestions; and that the report be finally considered at the next High-School Conference.

High School and University Relations. Permanent Organization.

Resolved, That the relations of the High School and the University should be more intimate and reciprocal, since both institutions deal in part with the same problems; that there should be closer co-operation between the various University departments and the corresponding departments in the High School; that semester reports of freshmen's standing be sent to the student's preparatory school; and finally, that there should be a committee selected to arrange a program for a second High-School Conference and to submit a plan for permanent organization.

Committee on Organization.

Frank E. Thompson.
Vivian A. C. Henmon.
William T. Fletcher.
Charles E. Carter.

Committee on Athletics.

William H. Smiley.
George Norlin.
H. P. Shepherd.
F. H. Merten.
George F. Speiser.

Since this meeting eight special committees, consisting of College and High-School men, have been appointed to consider carefully values, aims, methods and sources of all the High-School subjects. These committees have all done some work, some have done much, and all are now formulating recommendations touching aims, methods and courses of study for presentation to the next Conference, which will meet November 25 and 26, 1910. It is further planned to assemble these various recommendations and print them as a High-School manual for Colorado. It will be the work of the Conference after this to revise and improve this manual from year to year. The plan seems to afford a means of bringing College and High-School men together on many of their points of apparent difference.

The accredited list has been somewhat revised during the past year. Some schools have been added and two have been dropped. Fifty-six schools are now accredited and ten to fifteen more are nearly up to the minimum standard. The accrediting scheme seems to work well in the matter of maintaining and raising standards.

A larger number of the High-School teachers of the State are now University of Colorado graduates. Of those who have taken places during the past two years, practically all have made good records and have been promoted either in responsibility or salary or both.

BUILDINGS AND GROUNDS.

The following are the improvements made during this biennial period:

(1) Heating, Lighting and Power Plant, including 1,700 feet of tunnel, boilers, machinery, pipes, wires, etc.; completed May, 1910. (2) Two wings added to the Hale Science Building; completed May, 1910. (3) West Wing of a Science and

Museum Building; nearly ready for roof October 1. Total cost approximately $176,000.

Simon Guggenheim Law Building, gift of Senator Guggenheim, dedicated November 24, 1909; cost about $55,000.

Macky Auditorium, bequest of Andrew J. Macky, under construction; payments to October 1, $73,704.33; cost when completed about $290,000.

"Stratton Field," twelve acres, purchased from the "Stratton Fund," at a cost of $9,350.00. It is situated northeast from the campus, north of Boulder Creek. It will be devoted in the near future to athletics.

Refitting Cottage 1 as a Woman's Building: Headquarters for Dean of Women, Woman's League, Young Women's Christian Association.

Grading and parking along Broadway; extending walks; small addition to training quarters; enclosure adjoining Woman's Building; enclosure adjoining Engineering Building.

Changes in quadrangle: removing driveway from quadrangle; widening walk to eight feet; extending minor quadrangle to University Station; replanting and adding to rows of elms on plan made by the Landscape Architect.

NEEDS.

The following are the most important needs of the University:

(1) A reasonable increase in salaries of all instructors; additional instructors. See pages 6, 7.

(2) Increase in facilities for experiment and research. See pages 6, 18, 35, 47-48, 60.

(3) Developing a Graduate School.

(4) Placing the Medical School on a solid foundation. See pages 47, 48.

(5) Buildings: Medical Building, the Center and East Wing of the Science and Museum Building, Women's Building, Main Building, Gymnasium, completion of Library, addition to Shops Building.

(6) Improvements on Grounds.

Items 1, 2, 3 and 4 call emphatically for a larger income. In all justice provision must be made for living salaries for pro-

fessors and instructors. The teaching force, especially in the College of Liberal Arts and the Graduate School should be increased thirty-three per cent. The Graduate School has no definite support and is maintained almost as an extra voluntary service on the part of the Faculty. The Graduate School is rapidly becoming the distinctive feature of a true University and Colorado is to be one of the great centers of the United States for a University of first standing. The union of the Denver and Gross College of Medicine with the University of Colorado School of Medicine is a move that insures a great medical school for this entire Rocky Mountain region. Medical education today must be supported either by a great private foundation, or by the State. The demands of the science and its importance to the people, but recently fully understood, make unnecessary any apology for asking adequate support for the Colorado School of Medicine.

In the past two years some of the building needs have been met, but in addition the buildings enumerated above are necessary for the immediate work of the University. The importance of these buildings was urged upon the Legislature six years ago.

The average annual running expenses during the past two years (aside from $12,892.46 paid out of the General Fund for new buildings) was.....		$212,017.76
The average income, general funds, was.....		203,097.58
The deficit was covered by transferring to the General Fund:		
From Permanent Land Fund.....	$24,044.29	
Balance of Stratton Fund.....	3,406.78	$ 27,451.07

These are the conditions of extreme economy under which the deficit occurred:

1. Underpaid instructors.
2. Inadequate teaching force.
3. No appropriations last year to the departments for equipment.
4. No special fund for the Graduate School.
5. No addition for the development of the Medical School.

When we consider that this extreme economy can no longer be employed, that there has been an increase of about twenty-

five per cent. in students in two years, that the University must have funds to meet all urgent needs for development, that there is no longer a fund to draw upon in emergency, it is evident that there must be a substantial increase of regular income in the next biennial period.

GIFTS.

Civil Engineering Department.

Adamant Brick Co., Boulder, Colo., brick for tests	$ 3.00
Bonnot Company, Canton, Ohio, one two-jar grinding machine	100.00
Bonnot Company, specimens of paving and building brick	3.00
Cook Well Co., St. Louis, Mo., two sections of well strainers	3.00
Goulds Mfg. Co., Seneca Falls, N. Y., one well point	8.00
Ideal Cement Co., Portland, Colo., two barrels cement	4.00
United States Portland Cement Co., Concrete, Colo., one barrel cement	2.00

Electrical Engineering.

Allis-Chalmers Co., Milwaukee, Wis., transformer 4 k. w.	$ 50.00
Crouse-Hinds Co., Syracuse, N. Y., sample board condulets	2.50
Electric Storage Battery Co., Philadelphia, Pa., sample board storage battery parts	5.00
Fort Wayne Electric Works, Fort Wayne, Ind., sample board transformer parts	2.00
General Electric Co., Schenectady, N. Y., sample board cabinet panel fittings	2.50
Gould Storage Battery Co., New York, N. Y., storage battery, 80 amp. hr	10.50
Hall & Crawford, Boulder, Colo., sample set high tension insulators	7.00
Hall & Crawford, Boulder, Colo., chemical rectifier	5.00
Hendrie & Bolthoff Mfg. & Supply Co., Denver, Colo., integrating wattmeter (Wagner)	25.00
H. W. Johns-Manville Co., New York, N. Y., switchboard panel, asbestos wood	7.00

Moloney Electric Co., St. Louis, Mo., transformer, 4 k. w.$ 50.00
National Carbon Co., Cleveland, O., sample board carbon products 10.00
Pittsburg Transformer Co., Pittsburg, Pa., auto-transformer 25.00
Standard Electric Accumulator Co., New York, N. Y., storage battery, 80 amp. hr..... 9.00
Westinghouse Electric & Mfg. Co., Pittsburg., Pa., framed pictures: single phase motor car, D. & I. Ry. Co.; 225 h. p. single phase railway motor; 1600 k. w. rotary converter; 15 car passenger train..... 12.00
Westinghouse Storage Battery Co., Boonton, N. J., storage battery, 96 amp. hr..... 10.00

Mechanical Engineering.

Morse Machinery Co., Denver, Colo., 18-inch American centrifugal pump .....$ 60.00
Pictures and drawings..... 25.00

Law.

Charles M. Campbell, Boulder, Colo., a number of digests .....$ 10.00

Economics.

Thirty volumes of statutes donated by various States..$ 30.00
Constitution and legislative manual of each State..... 50.00

Geology.

H. A. Aurand, Denver, Colo., vivianite and silver ore from Leadville, cassiterite concentrates from Black Hills, calcite crystals, crystal pyrite from Salida, feldspar crystals from Pike's Peak, pebbles from Duluth, Minn., specimens of gold, tin, lead and zinc and rock-making minerals.....$ 18.00
Robert N. Bell, Weiser, Idaho, infusorial earth..... 1.00
Boulder Club, Boulder, Colo., ores and minerals..... 4.00

Ivan S. Crawford, Nederland, Colo., two specimens muscovite ..... $ .25

R. H. Cressingham, Denver, Colo., specimen serpentine, asbestos ..... .50

A. L. Dierstein, Denver, Colo., silver and lead ores from Leadville 3.00

Stanley A. Easton, Kellogg, Idaho, lead ores and structural specimens 20.00

R. Evert, Bonanza, Colo., copper minerals, Rawley Mine .50

J. P. Flynn, Aspen, Colo., specimens silver from Aspen, Lake City and Rico 12.00

R. D. George, Boulder, Colo., lead mineral from Idaho.. 25.00

E. M. Green, Nederland, Colo., specimen scheelite from Randsburg District, Cal..... .50

William J. King, Villa Grove, Colo., specimen covellite, specimen enargite, five specimens copper from Ouray District, specimen copper mineral, two specimens turquoise from Old Mexico, obsidian pebbles from Salida 11.25

Carl Knoettge, Idaho Springs, Colo., rhodochrosite from Idaho Springs ..... .50

E. B. Lynch, Leadville, Colo., specimen native copper, malachite, chrysocolla, and melaconite from Ibex Mine, Leadville 2.00

H. R. Mosley, Newman, Colo., two specimens pyritohedrons of pyrite 1.00

K. G. Nesmith, Central City, Colo., specimen pitchblende from Kirk Mine, Gilpin County..... 2.50

F. F. Nickell, Sinks Grove, W. Va., specimen tetrahedrite from Cripple Creek ..... .50

E. C. Regnier, Boulder, Colo., specimen tungsten..... 1.50

F. Richter, Ouray, Colo., specimen gray copper, gold and silver 1.00

A. C. Smith, Golden, Colo., two specimens roscoelite, Sawpit, Colo. 1.00

C. C. Smith, Denver, Colo., specimen calaverite from Cripple Creek 8.00

J. F. Sundbye, Salida, Colo., four specimens zinc mineral, four specimens zinc 6.00

Harold D. Thompson, Cripple Creek, Colo., native silver, Boulder County ..... $ 12.00
Dr. E. B. Trovillion, Boulder, Colo., specimen native gold in conglomerate from Transvaal..... 7.00
United Oil Co., Boulder, Colo., through M. T. Rathvon, crude and refined oil and oil products..... 10.00
H. E. Vernia, Cripple Creek, Colo., five specimens calaverite from Cripple Creek..... 8.00
Western Elaterite Co., Denver, Colo., two specimens elaterite 2.00
F. E. Wheeler, Cripple Creek, specimen wulfenite, Old Mexico 10.00
Charles H. Wing, Boston, Mass., specimen samarskite from Mitchell County, N. C..... 5.00
F. H. Wolcott, Boulder, Colo., specimen vanadinite from Magdalena Mountains, N. M..... 2.00
P. G. Worcester, Boulder, Colo., mineral specimens from Vermont 8.00

Philosophy.

Madam La Forgue, Paris, France, old Chinese porcelain plate from Chateau of Comte de Salmard, specimen of Strasburg faience, plate from service of Comte de Provence (Charles X.), Chateau de Salmard.

Physics.

American Book Co., New York, N. Y., Laboratory Manual of Physics—Chester, Dean, Timmerman..... $ .80
Ginn & Co., Boston, Mass., a First Course in Physics (Millikan & Gale)..... 1.25
D. C. Heath & Co., Boston, Mass. A New Course in Physics (Lineborger) ..... .80
Oliver C. Lester, Boulder, Colo., Science, back volumes to 1907 and current numbers; Physical Review, back volumes to 1907 and current numbers; School Science and Mathematics, current numbers; Bulletin of the American Mathematical Society from 1906 and current numbers 55.00

Macmillan & Co., New York, N. Y., Elements of Electricity and Magnetism (Franklin and MacNutt).....$ 2.50

Museum.

Dr. H. W. Allen, Boulder, Colo., set of deer antlers....
D. M. Andrews, Boulder, Colo., mollusks and fossils....
E. L. Aurand, Denver, Colo., fossils and archæological material .....
J. P. Beatty, Newton, Iowa, mollusks.....
William S. Bellman, Boulder, Colo., bird.....
Mrs. George Bennett, Denver, Colo., bird.....
E. Bethel, Longmont, Colo., mollusks.....
N. DeWitt Betts, Boulder, Colo., birds and mammals..
John J. Blanchard, Boulder, Colo., birds and mammals...
William Brackett, Boulder, Colo., bat.....
L. C. Bragg, Fort Collins, Colo., mollusks.....
T. D. A. Cockerell, Boulder, Colo., mollusks.....
James Cowie, Boulder, Colo., bird.....
Albert Dakan, Longmont, Colo., fossils.....
Terry Duce, Boulder, Colo., fossils and mammals.....
Egyptian Government, through British Museum, fine collection of Egyptian fishes.....
Dr. Carl H. Eigenmann, Bloomington, Ind., fishes from British Guiana .....
Frank Goddard, Goldhill, Colo., mammals.....
R. D. Goss, Glendale, Calif., mollusks.....
Ernest Greenman, Boulder, Colo., fossils.....
Mrs. Louise Henderson, Los Angeles, Calif., mollusks and crustaceans .....
Norman E. Hinds, Denver, Colo., fossils.....
H. W. Hyde, Boulder, Colo., mounted peacock.....
H. S. Kittle, Santa Ana, Calif., mollusks.....
Joseph Klemme, Boulder, Colo., birds.....
Mrs. Carrie Lang, Los Angeles, Calif., mollusks.....
Harvey R. Markman, Montclair, Colo., mollusks and mammals .....
C. J. Marvin, Denver, Colo., fossils.....
Allen McArthur, Boulder, Colo., bird.....
William McArthur, Boulder, Colo., bird.....

Thomas A. McBeth, Springfield, Ohio, fossils.....
Mrs. Lucy Price McIntyre, Cynwyd, Pa., herbarium specimens .....
Irvin McKeuren, Boulder County, Colo., bat.....
Burnham Prince, Boulder County, Colo., bat.....
J. L. Riland, Meeker, Colo., minerals, fossils and archæological material .....
Frank Rohwer, and Joe Rowland, Boulder, Colo., turtle..
Willard Rusk, Boulder, Colo., fossil leaves, reptile bones, etc.....
D. W. Spangler, Longmont, Colo., fossils and mammal...
Dr. Frank R. Spencer, Boulder, Colo., deer.....
Frank Springer, Las Vegas, N. M., fine collection of fossil crinoids .....
Sidney Starcey, Boulder, Colo., reptile.....
William Thorn, Lyons, Colo., fossil amphibian footprint..
O. H. Wangelin, Boulder, Colo., fossil and recent mollusks
E. R. Warren, Colorado Springs, Colo., amphibians, etc..
A. E. Wilbur, Los Angeles, Calif., mollusks.....

Value of above donations.....$ 465.00

Library.

Library Gifts:

	Books.	Pamp.	Maps.
Ayer, Prof. Charles C.....	26		
Baker, President James H.....	49	72	
Canada Geological Survey.....	8	20	43
Carnegie Institute of Washington.	35	7	
Carstens, Miss Ruby.....	7		
Cockerell, Prof. T. D. A.....		82	
Colorado State Reports.....	78	21	
Coman, Mrs. L. Z.....	48		
Edson, Dr. Carrol E.....	34		
Fleming, Dean J. D.....	2		
Fulton, Mrs. H. & Sloan, Mrs. C. F.	107		
George, Prof. R. D.....	11		
Guggenheim, Senator Simon.....	4		
Hagen, Fred E.....	3		

	Books.	Pamp.	Maps.	
Harlow, Dr. W. P	15	2		
Hunter, Dr. E. W		1		
Kearns, J. W	7			
Lesher, Arthur L	5			
Lester, Prof. O. C		6		
Lobb, John D	19			
Maine—Official Reports	18	7		
New York Educational Dept	122	24		
Office	20	251		
Ohio Arch. and Hist. Society	17			
Perley, Col. H. A	110	15		
Phillips, Prof. John B	1	9		
Raymond, G. L	9			
Rippon, Miss Mary	12			
Rohwer, S. A		19		
Rucker, Cong. A. W		5		
Smith, A. C	5			
Smith, Miss Edna	5			
Teller, Henry	338			
U. S. Miscellaneous Publications	791	4,648	38	
University and College Catalogues, Etc.		1,409		
University of Chicago		61		
University of Colorado, College of Education, 1909	62			
University of Colorado, Students in History, 1910	33			
University of Colorado, theses	148	33		
University of Michigan	8	39		
University of Pennsylvania, theses		34		
Willard, Prof. James F	112	1		
Miscellaneous	1,029	1,680	43	
Total Library Gifts	3,300	8,449	124	$4,370.00
Total gifts				$5,609.85

Summary.

Gifts previous to 1896	$27,207.00

Gifts, 1896-1898	$11,556.00
Gifts, 1898-1900	7,042.00
Gifts, 1900-1902	756.00
Gifts, 1902-1904	1,949.00
Gifts, 1904-1906	7,123.75
Gifts, 1906-1908	2,980.50
Gifts, 1908-1910*	5,609.85
Total	$64,224.10

*Note—These should be added: Simon Guggenheim Law Building, dedicated November 24, 1909, $51,000; Macky Auditorium (under construction, see p. 83).

REPORTS SUBMITTED.

We submit herewith the Pay Roll of the University, Secretary's Fee Report, Report on Permanent Fund, Report on University Lands, Report of State Auditor, Treasurer's Report, Treasurer's Report on Building Fund, Secretary's Report on Building Fund, Report on Macky Bequest, Secretary's Report, Librarian's Report, Inventory of Property.

Respectfully submitted,

HAROLD D. THOMPSON,
THOMAS D. BAIRD,
CHARLES R. DUDLEY,
JOSEPH C. BELL,
RALPH TALBOT,
ETHELBERT B. ADAMS,
Board of Regents.

JAMES H. BAKER,
President.

FRANK H. WOLCOTT,
Secretary.

APPENDIX.

PAY-ROLL OF THE STATE UNIVERSITY (Annual).

Administration.

James H. Baker, M. A., LL. D., President	$ 5,000.00
Frank H. Wolcott, B. S., Secretary Board of Regents	1,500.00
Fred E. Hagen, B. A., Secretary and Registrar	1,500.00
Katharine Kalene, Stenographer	720.00
Frances B. Jones, Stenographer	540.00
Gertrude H. Collins, Stenographer	480.00
Dean Worcester, Employment Bureau	300.00
Bertha Hunting, B. A., Students' Aid	200.00
V. May Smith, Faculty Stenographer	450.00
Additional clerical help in Registrar's Office	294.00
	$10,984.00

College of Liberal Arts.

Fred B. R. Hellems, Ph. D., Dean; Professor of Latin.	$ 2,600.00
J. Raymond Brackett, Ph. D., Dean of the Graduate School; Professor of Comparative and English Literature.	2,500.00
Ira M. DeLong, M. A., Professor of Mathematics	2,500.00
Charles C. Ayer, Ph. D., Professor of Romance Languages.	2,500.00
S. Griswold Morley, Ph. D., Acting Professor of Romance Languages	.....
George Norlin, Ph. D., Professor of Greek	2,500.00
Francis Ramaley, Ph. D., Professor of Biology	2,500.00
Melanchthon F. Libby, Ph. D., Professor of Philosophy.	2,400.00
John B. Phillips, Ph. D., Secretary of the College of Commerce; Professor of Economics and Sociology.	2,400.00

John B. Ekeley, Ph. D., Professor of Chemistry	$ 2,500.00
Russell D. George, M. A., Professor of Geology	2,500.00
Theodore D. A. Cockerell, Professor of Systematic Zoology	1,000.00
George M. Chadwick, Professor of Music	1,200.00
James F. Willard, Ph. D., Professor of History	1,900.00
Oliver C. Lester, Ph. D., Professor of Physics	2,300.00
Frank E. Thompson, B. A., Secretary of the College of Education; Professor of Education	2,300.00
Junius Henderson, B. A., Professor of Natural History; Curator of the Museum	2,100.00
John S. McLucas, M. A., Professor of English	1,900.00
Grace F. van Sweringen, Ph. D., Professor of German	1,700.00
Milo G. Derham, Ph. D., Professor of Latin	1,400.00
Lawrence W. Cole, Ph. D., Professor of Psychology	1,900.00
Martha G. McCaulley, M. A., Dean of Women; Assistant Professor of Literature	1,200.00
S. Antoinette Bigelow, M. A., Acting Dean of Women; Assistant Professor of Literature	.....
Fordyce P. Cleaves, M. A., Instructor in Oratory	550.00
Charles B. Dyke, M. A., Instructor in Education	450.00
Joseph L. Kingsbury, B. A., Instructor in History	800.00
Whitford H. Shelton, M. A., Instructor in Romance Languages	800.00
Wilfred W. Robbins, M. A., Instructor in Biology	1,100.00
Harry A. Curtis, M. A., Instructor in Chemistry	1,000.00
Adolph G. Pierrot, Ph. B., Instructor in English	800.00
William R. Brackett, B. A., Instructor in Physics	800.00
Mildred S. McArthur, M. A., Instructor in German	800.00
David J. MacDonald, M. A., Instructor in Education	800.00
Easley S. Jones, M. A., Instructor in English	500.00
Elva Cooper, M. A., Instructor in Mathematics	500.00
Arnold J. Lien, M. A., Instructor in Economics	800.00
F. M. Handy, B. A., Instructor in Geology	1,200.00
William V. Casey, Instructor in Education	200.00
Margaret L. Wheeler, M. A., Instructor in English	800.00
Paul M. Dean, B. A., Instructor in Chemistry	800.00
Cleophile Bell, M. A., Assistant in Literature	300.00
Ethel R. Ford, B. A., Assistant in Literature	100.00

Gladys C. Shufelt, M. A., Assistant in Mathematics	$ 300.00
Helen O. Coates, Assistant in Romance Languages	200.00
Louise L. Tourtellotte, B. A., Assistant in Biology	200.00
Warren E. Watkins, B. S., Assistant in Biology	200.00
Katherine E. Dier, M. A., Assistant in Philosophy	400.00
Charles F. Poe, Assistant in Chemistry	100.00
Winthrop W. Leach, Assistant in Chemistry	100.00
Philip G. Worcester, B. A., Assistant in Geology	250.00
Roy M. Butters, B. A., Assistant in Geology	150.00
Colin B. Goodykoontz, Assistant in History	100.00
Frederick V. Bliss, B. S. (E. E.), Assistant in Physics.	400.00
Cornelius J. Marvin, Assistant in Physics	200.00
Bulah Stearns-Macauley, B. A., Assistant in English	200.00
Ferd J. Lockhart, Assistant in English	400.00
Ruth M. Shelledy, B. A., Assistant in German	400.00
Mary E. Lakenan, B. A., Assistant in Psychology	150.00
Iva Pearl Smith, Dean's Secretary	360.00
Mildred Peck, Attendance Secretary	180.00
Other clerical service in Dean's Office	195.00
Inez Kennison, Clerk College of Education	180.00
	$61,565.00

Summer School.

Twenty-two instructors	$ 2,730.00

College of Engineering.

Milo S. Ketchum, C. E., Dean; Professor of Civil Engineering	$ 2,600.00
Herbert S. Evans, E. E., Professor of Electrical Engineering	2,200.00
John A. Hunter, M. E., Professor of Mechanical Engineering	2,000.00
Saul Epsteen, Ph. D., Professor of Engineering Mathematics	1,400.00
David R. Jenkins, E. E., Assistant Professor of Electrical Engineering	1,200.00
Clement C. Williams, C. E., Assistant Professor of Civil Engineering	1,600.00

George L. Sullivan, M. E., Instructor in Mechanical Engineering	$ 800.00
Guy W. Smith, M. S., Instructor in Engineering Mathematics	800.00
Edward C. Stocker, B. S. (C. E.), Instructor in Civil Engineering	800.00
Ollison Craig, B. S. (M. E.), Instructor in Mechanical Engineering	800.00
Harland C. Woods, B. S. (C. E.), Instructor in Engineering Drawing	1,100.00
Joseph B. Morrill, B. S. (E. E.), Instructor in Electrical Engineering	600.00
Siebelt L. Simmering, B. S. (M. E.), Instructor in Mechanical Engineering	800.00
Whitney C. Huntington, B. S. (C. E.), Assistant in Civil Engineering	400.00
Frederick V. Bliss, B. S. (E. E.), Assistant in Engineering Mathematics	200.00
Carl M. Duff, B. S. (C. E.), Assistant in Engineering Mathematics	200.00
Carl M. Duff, B. S. (C. E.), Assistant in Engineering Drawing	400.00
Irma Lindsley, Dean's Secretary	240.00
Additional clerical work	200.00
	$ 18,340.00

School of Medicine.

William P. Harlow, B. A., M. D., Dean	250.00
Luman M. Giffin, M. D., Professor of Surgery	200.00
John Chase, B. A., M. D., Professor of Ophthalmology and Otology	.....
Thomas E. Taylor, B. A., M. D., Professor of Obstetrics.	50.00
William B. Craig, M. D., Professor of Surgery	.....
E. Barber Queal, M. D., Professor of Physiology	250.00
George H. Cattermole, M. D., Professor of Medicine (Pediatrics)	150.00
Frank E. Waxham, M. D., Professor of Rhinology and Laryngology	25.00

Francis Ramaley, Ph. D., Professor of Histology and Embryology	(salary noted elsewhere)
Charles Fisher Andrew, M. D., Professor of Materia Medica and Therapeutics	$ 100.00
Charles S. Elder, M. D., Professor of Surgery (Gynecology)	100.00
Newton Wiest, M. D., Professor of Dermatology	100.00
John B. Ekeley, Ph. D., Professor of Chemistry	(salary noted elsewhere)
James R. Arneill, B. A., M. D., Professor of Medicine (Clinical Medicine)	.....
Richard W. Corwin, M. D., LL. D., Professor of Surgery	45.00
Charles B. Lyman, M. D., Professor of Surgery	.....
John M. Foster, M. D., Professor of Otology	25.00
Edward Jackson, M. A., M. D., Professor of Ophthalmology	25.00
Edward F. Dean, M. D., Professor of Anatomy	600.00
Ross C. Whitman, B. A., M. D., Secretary; Professor of Pathology	2,000.00
Oscar M. Gilbert, M. D., Professor of Medicine (Clinical Medicine)	50.00
Alvin R. Peebles, M. D., Professor of Medicine (Therapeutics)	800.00
Clough T. Burnett, M. D., Professor of Bacteriology	800.00
Samuel B. Childs, M. D., Professor of Anatomy	25.00
Walter W. Reed, M. D., Assistant Professor of Obstetrics	150.00
George E. Neuhaus, M. D., Assistant Professor of Neurology and Psychiatry	100.00
Eugene H. Robertson, Ph. M., M. D., Lecturer on Electro-Therapeutics	200.00
Edward Delehanty, M. D., Lecturer on Neurology	50.00
Theodore D. A. Cockerell, Lecturer on Comparative Anatomy	(salary noted elsewhere)
Oliver Lyons, M. D., Lecturer on Genito-Urinary Diseases	25.00
Edward B. Trovillion, M. D., Instructor in Anatomy	300.00
William A. Jolley, M. D., Instructor in Pharmacology	75.00

Willard J. White, M. A., M. D., Instructor in Medical Jurisprudence	$ 50.00
Jacob Campbell, M. D., Instructor in Minor Surgery	250.00
John Andrew, B. A., M. D., Instructor in Anatomy	300.00
Frank R. Spencer, B. A., M. D., Instructor in Laryngology and Rhinology; Opthalmology and Otology.	100.00
Clay E. Giffin, B. A., M. D., Instructor in Surgery	150.00
Henry S. Denison, B. A., M. D., Instructor in Medicine	150.00
Carbon Gillaspie, M. D., Instructor in Anatomy	300.00
J. W. Amesse, M. D., Instructor in Medicine	50.00
Walter W. Wasson, B. A., M. D., Instructor in Anatomy	300.00
William O. Callaway, B. A., Assistant in Bacteriology	200.00
	$ 8,345.00

University Hospital.

Jean McIntosh, Matron	$ 720.00
Twelve Nurses	1,152.00
Hospital employees, as cook, laundress, maids, porter	2,100.00
	$ 3,972.00

School of Law.

Appropriation for traveling expenses of professors and lecturers whose salaries are not indicated	$ 100.00
John D. Fleming, B. A., LL. B., LL. D., Dean; Professor of Law; Associate Judge of Practice Court	2,500.00
Moses Hallett, LL. D., Dean and Professor of American Constitutional Law, *Emeritus*.	
John Campbell, M. A., LL. B., LL. D., Dean *Emeritus;* Professor of Law of Private and Municipal Corpotions.	
Albert A. Reed, LL. B., Professor of Law	1,400.00
William H. Bryant, B. S., LL. B., Professor of Law	
Edwin Van Cise, Professor of Law	250.00
William H. Pease, B. A., LL. B., Professor of Law	2,100.00
James F. Willard, Ph. D., Professor of American and English Constitutional and Political History	(salary noted elsewhere)

Fred G. Folsom, B. A., LL. B., Instructor in Law; Judge of Practice Court	$ 1,000.00
Joseph L. Kingsbury, B. A., Instructor in History	(salary noted elsewhere)
Hugh Butler, Lecturer on Common Law Pleading.	
Robert S. Morrison, Lecturer on Law of Mines and Mining.	
Charles S. Thomas, LL. B., Lecturer on Law of Evidence.	
Lucius M. Cuthbert, M. A., LL. B., Lecturer on Roman Law.	
John A. Riner, LL. B., Lecturer on International Law.	
Ralph Talbot, B. A., Lecturer on Criminal Law and Procedure.	
Charles D. Hayt, Lecturer on Law of Taxation.	
Caesar A. Roberts, M. A., Lecturer on Colorado Civil Code.	
Willard J. White, M. A., M. D., Lecturer on Medical Jurisprudence.	
Ernest L. Williams, LL. B., Lecturer on Appellate Procedure.	
James W. McCreery, Lecturer on Law of Irrigation and Water Rights.	
John E. Robinson, Lecturer on Bankruptcy.	
William B. Waldo, Law Librarian	150.00
Oliver C. Wilson, B. A., Assistant Law Librarian	50.00
Eugene A. Bond, Assistant Law Librarian	50.00
John S. Stidger, Stenographer	50.00
————, Engineering Law Lecturer	50.00
Arthur W. Fitzgerald, Clerk of the Practice Court	25.00
Sheriff of the Practice Court	
	$ 7,725.00

Library and Physical Training.

Walter L. Barnes, Ph. B., Assistant Librarian in charge (12 months)	$ 1,400.00
Faith B. Foster, Assistant Librarian (12 months)	650.00
Jennie B. Ritchie, Assistant Librarian (12 months)	600.00

C. Belmont Preston, Assistant in Library (12 months)	$ 300.00
Jacob C. Preston, Assistant in Library (9 months)	150.00
Frank R. Castleman, B. S., Director of Physical Training and Athletics	1,500.00
Margaret L. Johnson, M. D., Instructor in Gymnasium	400.00
Earl E. Wright, Assistant in Gymnasium	120.00
	$ 5,120.00

Other Employees.

Joseph Klemme, Steward	$ 900.00
William W. Parce, Landscape Gardener	200.00
George R. Moore, Carpenter	900.00
John Gumeson, Carpenter	960.00
Dan E. Haywood, Employee on Campus	600.00
E. S. Garwood, Night Watchman	720.00
W. J. Albertson, Teamster	600.00
Abraham L. Smith, Janitor Main Building	600.00
E. M. Dickson, Janitor Engineering Building, Gymnasium, and Old Anatomy Building	360.00
Harley E. Tomlinson, Janitor Chemistry Building	180.00
Arthur Duff, Janitor Shops Building	180.00
Leon Pichugin, Janitor Medical and Anatomy Buildings and care of animals (12 months)	540.00
Irwin L. Lowe, Janitor Hale Science Building	315.00
Giley R. McConnell, Janitor Law Building and Stoker Cottages 1 and 2	270.00
R. C. Morris, Janitor Library	135.00
Mrs. Mary Coffey, care of rooms Woodbury Hall and Cottages 1 and 2	342.00
Other employees for regular care of buildings and grounds	4,179.89
Charles E. Cummings, Superintendent of Heating and Lighting	1,200.00
John Burgner, Fireman	720.00
E. E. Barrows, Fireman	720.00
Thomas Storm, Fireman (9 months)	540.00
————, Fireman	.....
	$15,161.89

Summary.

Administration	$ 10,984.00
College of Liberal Arts	61,565.00
Summer School	2,730.00
College of Engineering	18,340.00
School of Medicine	8,345.00
University Hospital	3,972.00
School of Law	7,725.00
Library and Physical Training	5,120.00
Other Employees	15,161.89
	$133,942.89

SECRETARY'S FEE REPORT.*

From October 1, 1908, to October 1, 1910.

Receipts.

Cash on hand last report	$ 7.64
Cash in hands, H. S. Visitor	100.00
Tuitions and fees from College of Liberal Arts and College of Engineering	28,669.00
Tuitions and fees from Law School	9,504.66
Tuitions and fees from Medical School	11,034.33
Hospital receipts	20,560.40
Summer School tuitions and fees	4,968.00
Biology fees	206.50
Chemistry fees	3,321.35
Geology fees	195.45
Physics fees	10.00
Botany fees	41.00
Education fees	113.00
Engineering materials fees	2,870.00
Associated Students of the University of Colorado	5,690.00

* Note—Of the $178.00 in notes reported October 1, 1908, $38.25 has been collected and included in the cash receipts; the remainder has been cancelled as uncollectible. Notes for tuition during this biennial period are not included in this report, but will be accounted for as collected.

Room rents	$ 2,286.95
Deposits	986.00
Fines	276.56
Miscellaneous	3,159.20
	$94,000.04

Deposits with Treasurer, Etc.

Deposited with University Treasurer	$93,719.40
Cash in hands H. S. Visitor	100.00
Cash on hand	180.64
	$94,000.04

Respectfully submitted,

FRANK H. WOLCOTT,
Secretary Board of Regents.

REPORT ON PERMANENT FUND.

From October 1, 1908, to October 1, 1910.

By balance, October 1, 1908:		
Invested warrants	$ 27,763.87	
Cash available	21,140.58	
		$ 48,904.45
By receipts, October 1, 1908, to October 1, 1910	$ 3,284.25	
To payment to University Treasurer		$ 24,044.29
To balance, October 1, 1910:		
Unavailable warrants invested		$ 27,763.87
Cash available		380.54
	$ 52,188.70	$ 52,188.70

W. J. GALLIGAN,
State Treasurer.

REPORT ON UNIVERSITY LANDS.

October 1, 1910.

Total acres owned, October 1, 1910	11,005.96
Total acres in Reservation	4,200
Total acres outside of Reservation	6,805.96
Total acres sold from Oct. 1, 1908, to Oct. 1, 1910	240
Total acres now rented	3,465.96
Total amount turned over to the State Treasurer by the State Board of Land Commissioners for the credit of the University Permanent Fund between the dates of October 1, 1908, and October 1, 1910. (This is made up of all payments on the purchase price of lands sold during this time, as well as the annual payments on lands previously sold and now covered by certificates of purchase)	$ 3,284.25
Total amount turned over to the State Auditor by the State Board of Land Commissioners for the credit of the University Income Fund between the dates of October 1, 1908, and October 1, 1910. (This includes all rentals for lands leased, and interest upon the deferred payments on certificates of purchase covering lands sold)	$ 5,953.95

B. L. JEFFERSON,
Register, State Board of Land Commissioners.

REPORT OF STATE AUDITOR.

From October 1, 1908, to October 1, 1910.

University Tax Fund.

By Balance, October 1, 1908	$ 1,637.97	
By receipts from levy	302,580.66	
To amount paid University Treasurer		$304,218.63
	$304,218.63	$304,218.63

University Income Fund.

By Balance, October 1, 1908	$ 1,017.23	
By interest	853.94	
By Receipts, rent	5,953.95	
To refund, unearned rent, T. K. Propst		$ 18.00
To amount paid University Treasurer		7,807.12
	$ 7,825.12	$ 7,825.12

University Land Permanent.

By balance, October 1, 1908:			
Invested warrants	$ 27,763.87		
Cash available	21,140.58		
		$ 48,904.45	
By receipts, October 1, 1908, to October 1, 1910		3,284.25	
To payment to University Treasurer			$ 24,044.29
To balance, October 1, 1910:			
Unavailable warrants invested			27,763.87
Cash available			380.54
		$ 52,188.70	$ 52,188.70

Special Building Appropriation.

By Legislative Appropriation, 1909:		
Lighting and Heating Plant	$ 70,000.00	
Scientific Building	70,000.00	
Hale Building	36,000.00	
To amount paid University Treasurer		$176,000.00
	$176,000.00	$176,000.00

Respectfully,

ROADY KENEHAN,
State Auditor.

TREASURER'S REPORT.

From October 1, 1908, to October 1, 1910.

Receipts.*

Cash on hand October 1, 1908		$ 15,285.52
From State Treasurer, 2-5 mill rate		304,218.63
From State Treasurer, Land Income, interest	$1,384.17	
From State Treasurer, Land Income, rent	6,422.95	
		7,807.12
Secretary, Board of Regents, receipts		93,719.40
Transferred from State Treasurer, Permanent Land Fund		24,044.29
Transferred from Stratton Fund		3,406.78
Transferred from Macky Fund (account previous payments)		450.00
Philo Sherman Bennett Fund:		
Balance October 1, 1908	$429.73	
Interest	14.14	443.87
		$449,375.61

Disbursements.* *

Warrants paid October 1, 1908, to October 1, 1910		$434,244.59
Cash on hand October 1, 1910		14,687.15
Philo Sherman Bennett Fund:		
Warrant paid	$ 16.00	
Balance October 1, 1910	427.87	443.87
		$449,375.61

CHARLES H. CHENEY,
Acting Treasurer, University of Colorado.

Stratton Fund ($12,756.78, including $457.87 interest):		
For Stratton Field		$ 9,350.00
To General Fund		3,406.78

* The $200.00 included in previous report, due from E. J. Temple, omitted by order of Board as uncollectible.

* *The Special Funds reported in 1908 have been devoted by order of the Board to appropriate uses as follows:

Balance Guggenheim Fund to Museum	$ 36.21
Women's Fund to Women's League	25.00
Men's Fund to Y. M. C. A., for student interests	25.00
Engineering Fund to Engineering Journal	50.00

TREASURER'S REPORT ON BUILDING FUND.

Account to October 1, 1910.

Receipts.

From State Treasurer	$176,000.00

Payments.

On Heating, Lighting and Power Plant; Wings of Hale Science Building; West Wing of a Science and Museum Building	$134,169.29
Balance in hands of Treasurer October 1, 1910	$ 41,830.71
	$176,000.00

CHARLES H. CHENEY,
Acting Treasurer, University of Colorado.

SECRETARY'S REPORT ON BUILDING FUND

To October 1, 1910.

Total Warrants issued on Heating, Lighting and Power Plant; Wings of Hale Science Building; West Wing of a Science and Museum Building:	
Amount paid by Treasurer	$134,169.29
Amount outstanding	1,365.42
Total warrants issued	$135,534.71

FRANK H. WOLCOTT,
Secretary Board of Regents.

REPORT ON MACKY BEQUEST.

From August 3, 1909, to October 1, 1910.

Estimated Value.

Real Estate (estimated)	$ 30,500.00
Personal Property (appraised)	197,449.00
Cash	10,171.43
In hands of Executor, about (of the $47,000.00 part has been paid for expenses)	47,000.00
Interest, rents, coupons, dividends, etc	6,568.40
	$291,688.83

Payments.

On Macky Auditorium	$ 73,704.33
Expenses	1,273.42
	$ 74,977.75
Property converted	$ 65,049.39
Estimated cost of building	$290,000.00
Payments to date	73,704.33

CHARLES H. CHENEY,
Acting Treasurer, University of Colorado.

FRANK H. WOLCOTT,
Secretary Board of Regents.

SECRETARY'S REPORT.

From October 1, 1908, to October 1, 1910.

Warrants issued in payment of expenses of the several departments of the University, during the biennial period, October 1, 1908, to October 1, 1910:

General Administration—Regents' service and mileage, President's and Secretary's salary, salaries of Registrar and his assistants, and all expenses of Registrar's office	$ 24,502.33

College of Liberal Arts—Instruction and expense	$120,726.05
Biology—Books, apparatus, supplies	1,345.09
Chemistry—Books, apparatus, supplies	3,660.36
Economics—Books	498.00
Education—Books, supplies	273.52
English—Books	241.66
Geology—Books, apparatus, supplies	3,207.00
German—Books	181.81
Greek—Books	549.45
History—Books	623.75
Latin—Books	347.15
Literature—Books, apparatus	302.90
Mathematics—Books, apparatus	487.24
Museum—Books, apparatus, specimens, etc	2,154.28
Music—Books, supplies	550.44
Philosophy—Books	273.47
Physics—Books, apparatus, supplies	2,552.76
Psychology—Books, apparatus, supplies	554.22
Romance Languages—Books	110.65
Systematic Zoology—Books, apparatus, supplies	308.76
College of Engineering—Instruction and expense	32,039.22
Civil Engineering—Books, apparatus, supplies	5,960.87
Electrical Engineering—Books, apparatus, supplies	1,867.52
Mechanical Engineering—Books, apparatus, supplies	2,051.63
Engineering Mathematics—Books, apparatus, supplies	274.71
General Engineering Drawing—Books, apparatus, supplies	150.38
Shops—Machinery, instruments, supplies	2,387.09
School of Medicine—Instruction, apparatus, supplies, hospital, dispensary, nurses' cottage and other expense (largely reimbursed by medical tuitions and hospital receipts)	54,301.59
School of Law—Instruction, Library, and other expense (partly reimbursed by tuitions)	16,075.86
Summer School—Instruction and expense (largely reimbursed by tuitions)	6,779.44
Library—Services, books, periodicals, binding and supplies	14,094.91

Physical Training—Salaries for Physical Training, apparatus and expense		$ 3,704.76
Buildings and Grounds—		
Salaries (janitors, heating and lighting service, and care of grounds)	$30,975.70	
Repairs	4,185.64	
Insurance	5,326.65	
Water rent	1,735.00	
Fuel	16,548.46	
Horses	533.71	
Unclassified	1,031.46	
Tools	50.20	$ 60,386.82
Buildings and Grounds—		
New Buildings	$12,892.46	
Improvements on Buildings	3,264.43	
Improvements on Grounds	5,840.58	21,997.47
Furniture and Supplies		11,153.59
Printing		9,650.33
Stationery and Postage		2,835.82
Heat and Light Supplies		525.47
Telephone and Telegraph		301.69
High School Visitation, Lectures by Faculty members, etc		3,174.48
Advertising		890.46
Refunds (including fees to "Associated Students")		9,723.93
General Unclassified (including interest)		13,149.06
Total for Biennial Period		$436,927.99
Warrants issued not paid by October 1, 1910		$ 5,197.98
Warrants, outstanding October 1, 1908, paid		2,514.58
		$ 2,683.40
Warrants issued from October 1, 1908, to October 1, 1910		436,927.99
Subtract		2,683.40
Sum paid by Treasurer		$434,244.59

Total expenditure for Biennial Period.....$436,927.99
On new buildings 12,892.46

For Running Expenses (including usual necessary improvements and repairs) $424,035.53
Average annual expenditure, 1909, 1910 (not including new buildings) 212,017.76

Respectfully submitted,

FRANK H. WOLCOTT,
Secretary Board of Regents.

LIBRARIAN'S REPORT.

To the President and Board of Regents, University of Colorado:

GENTLEMEN: I have the honor to present herewith my report on the Library, covering the period from October 1, 1908, to October 1, 1910.

Additions.

The total number of volumes accessioned and placed in the Library during the two years is 8,410, derived from various sources, as follows:

Gifts (public documents)..... 700
Gifts (miscellaneous) 2,758

Total gift accessioned 3,458
By binding 1,129
By purchase 3,823

Total accessions 8,410

Donations.

Gifts have been received, entered and acknowledged as follows:

Books 3,300
Miscellaneous—College catalogues, pamphlets, etc..... 8,449
Maps 124

Total 11,873

Note—Donations are shown in detail on page 66.

Binding.

Periodicals (completed volumes)	1,341
Books issued in paper	790
Newspapers	16
Volumes rebound	445
Total	2,592

Summary.

Number of volumes reported October 1, 1908		44,289
Additions—		
By gift	3,458	
By binding	1,129	
By purchase	3,823	8,410
Total		52,699
Deductions—		
Cancelled (lost and worn out)	150	
Less returned and found	13	137
Total number of volumes in Library Oct. 1, 1910		52,562

Respectfully yours,

WALTER L. BARNES,
Librarian in Charge.

INVENTORY OF UNIVERSITY PROPERTY.

The following estimates, taken from inventories recently made, are presented as fair approximations:

Grounds.

Campus, sixty-three acres (estimated present value unimproved)	$138,000.00
Twelve acres Stratton Field	12,000.00
Improvements, as fences, grading, roads, walks, pipes, drains, lake, trees, bridges, athletic field, (less pipes transferred to Power Plant invoice)	$ 30,000.00
Total	$180,000.00

Buildings.

(Approximate Cost of Each.)

Macky Auditorium, expended up to October 1, 1910, about (Cost completed about $300,000)	$74,000.00
Main Building	40,000.00
Library (not including extension of heating pipes in grounds)	75,500.00
Gymnasium	6,000.00
University Cottage	8,000.00
Women's Building	6,000.00
Women's Cottage	4,000.00
Woodbury Hall	25,000.00
Brick House (1037 Regent Street)	1,000.00
Hale Science Building (two wings added)	87,000.00
New Science Building, expended October 1, 1910, about (Cost completed about $55,000)	12,000.00
Chemistry Building	43,000.00
Class Room Building	2,000.00
Engineering Building	50,000.00
Engineering Shops Building	32,500.00
Heating, Lighting and Power Plant, including building, boilers, machinery, tunnel, pipes and wiring in building and tunnel, and extension of pipes and wires beyond tunnel, but outside of buildings	112,000.00
Medical Building	9,500.00
Anatomy Building (with refrigerator)	3,300.00
Hospital (furnished)	15,000.00
Nurses' Home	3,500.00
Simon Guggenheim Law Building	55,000.00
Steward's House	1,500.00
Observatory	200.00
Ice House	200.00
Stable and Sheds	1,700.00
Total Buildings	$667,900.00

Furniture, Implements.

Room furniture, as chairs, settees, desks, tables, movable cases, pictures, office furniture, hospital and dormitory equipment, shades, janitors' supplies, gymnasium apparatus (value)	$37,745.00
Team, implements, tools, carpenter's supplies (value)	4,081.00
Total	$41,826.00

Library.

Library (value)	$75,000.00

Apparatus, Etc.

College of Liberal Arts—	
Biology	$ 3,879.00
Chemistry	9,010.00
Economics	205.00
Education	616.00
Geology	3,167.00
German	55.00
Greek	391.00
Latin	15.00
Literature	704.00
Mathematics	868.00
Museum	520.00
Music	751.00
Physics	10,636.00
Psychology	1,810.00
Romance Languages	10.00
College of Engineering—	
Civil Engineering	12,373.00
Electrical Engineering	10,688.00
Mechanical Engineering and Shops	15,487.00
General Engineering Drawing	662.00
School of Medicine—	
Medical, Anatomy and Dispensary	8,512.00
Hospital	1,946.00
Hospital Clinical Laboratory	639.00

School of Law—	
Inventory	$ 454.00
	$83,398.00

Collections.

Art	$ 1,899.00
Geological and Mineralogical	7,841.00
Museum (including Biological collection)	17,405.00
	$27,145.00

Summary.

Grounds	$ 180,000.00
Buildings	667,900.00
Furniture, Implements	41,826.00
Library	75,000.00
Apparatus, etc	83,398.00
Collections	27,145.00
	$1,075,269.00