

covery. No one can contract to deliver it on a specified day for a specified price. No employee can be hired to produce it in return for wages received.

To the investigator the considerations I have endeavored to present are unimportant. Science for its own sake is his sufficient incentive; but it is all important for the community at large to realize that no real addition to knowledge is useless or trivial; that progress depends on scientific productiveness; that science, which must be fostered if we are to continue to prosper, is a republic whose watchwords are *liberty, equality, fraternity*.

World power in the near future is to be a question of knowledge—not of battleships—and what is now spent on armaments is to be devoted to its pursuit.

Beyond lies that future in which it will no longer be a question of supremacy among nations but of whether the race is to maintain its foothold on the earth. For that great struggle we shall need knowledge, and ever more knowledge, and it is high time that we should prepare for war in these days of peace and plenty.

EDWARD L. NICHOLS

CORNELL UNIVERSITY,

December 14, 1908

#### UNIVERSITY REGISTRATION STATISTICS

##### II.

Taking up the registration at the universities in order, we find that the *University of California* shows an increase of 75 in the graduate school, of 96 in the undergraduate body in arts, science and engineering, and of 77 in the professional schools. In arts there are 79 more men and 43 fewer women, a net gain of 36. The enrollment in the summer session exhibits an increase of 228 over 1907. The 95 students registered in law are enrolled in the Hastings College of the Law in San Francisco. Besides these there are 24

seniors and 17 graduate students in jurisprudence at Berkeley, of whom a considerable number are candidates for the degree of *juris doctor*, these 41 students thus in reality constituting a graduate school of law. Of the extension students about 750 are enrolled in San Francisco, about 150 in Stockton, and about 250 in Sonora, and there are other centers in process of organization. Mr. James Sutton, recorder of the faculties, reports as follows:

Professor Eugene W. Hilgard, who was called to the University of California as professor of agriculture in 1874, has retired from the active work of the department, and Professor Edward J. Wickson becomes professor of agriculture and director of the agricultural experiment stations. Professor Frank Soulé, who became a member of the faculty in 1869, has been appointed professor of civil engineering, emeritus, and has been succeeded as the head of the department of civil engineering by Professor Charles Derleth, Jr., formerly associate professor of structural engineering. The regents have established a professorship of psychology, and have appointed thereto Professor George M. Stratton, who since 1904 has been professor of experimental psychology at Johns Hopkins. Another chair established during the year was that of professor of agricultural practise and superintendent of farm schools. The first appointee is Leroy Anderson, formerly of Cornell University. To the chair of Romance languages, which has been vacant for several years, the regents have appointed Professor William Albert Nitze, until recently professor of Romance languages in Amherst College. The department of Semitic languages suffered grievous loss in the death, on April 27, 1908, of its founder and head, Dr. Jacob Voorsanger. Assistant Professor William Popper is in charge of the work of the department.

Plans have been prepared for the Boalt Memorial Hall of Law. Mrs. Boalt's original gift was \$100,000, but members of the California bar have pledged an additional \$50,000 to complete the building. In addition, there is available a considerable fund for a law library. Construction work upon the new Doe library is well advanced. Present plans contemplate the completion immediately of the northern part of the building, which will amply allow for library needs for several years to come. The amount available at the

present time for construction is \$575,000. The building now under way will contain a main reading-room with accommodations for 400 readers and several smaller reading-rooms. There will be 29 seminar-rooms, 2 class-rooms, besides the usual administrative departments of a large library. The book stacks will have a capacity of 300,000 volumes and will be capable of extension indefinitely. As an annex to the agricultural building, there has recently been erected the so-called fertilizer control laboratory. The work of this laboratory is of immense importance to agriculture and horticulture in California. A building for the departments of hygiene and pathology is under construction near the Rudolph Spreckels physiological laboratory. The frame building which houses the department of architecture has been enlarged this year to three times its former capacity. On the university farm, at Davis, there have been erected a creamery, a live stock judging pavilion, and several cottages for the members of the staff. In addition, contracts have been let for a dairy barn and sewer system. The university has begun the erection of a galvanized iron temporary building as a museum of vertebrate zoology. The collection of representative specimens of Californian vertebrate fauna will be immediately begun under the direction of Mr. Joseph Grinnell. Miss Annie M. Alexander, of Oakland, has agreed to give to the university the sum of \$7,000 yearly for seven years to equip and maintain the museum.

The Massachusetts Association for the relief of California, organized shortly after the great earthquake and fire of 1906, has remitted to the San Francisco Relief and Red Cross funds (incorporated) the sum of \$100,000, being the balance of the relief funds in the hands of the Massachusetts Association upon the completion of the active work of relief. In accordance with the recommendation of the Massachusetts Association, this money has been paid over to the regents of the University of California for the university hospital in San Francisco, provided that the hospital shall always maintain at least ten free beds to be known as the Massachusetts beds and a ward to be known as the Massachusetts ward. In the assignment of these beds the university is to give preference to deserving sufferers of the disaster of April 18, 1906.

Last year we reported the installation of the Bancroft library of American history and the transfer of this collection to the library of the newly organized Academy of Pacific Coast History, in one of the university buildings at Berkeley.

Very soon after the Bancroft collection was brought to the university, the "lost Carondelet papers" were discovered among the miscellaneous manuscripts of the collection. Baron de Carondelet was the last Spanish governor of Louisiana, and historians have long known that his papers must be in existence somewhere. An eminent historian has declared that the discovery of these papers will necessitate the rewriting of the history of the southwest.

Perhaps the most unusual gift ever made to the university was that received by President Wheeler on Friday, September 25. On that evening a stranger called at Dr. Wheeler's house, saying that he was a messenger from a man "up in the woods" who wished to "grubstake" some student who was working his way and needed a little money to help him finish his college course. The stranger then delivered a small sack containing \$349 in coin. The amount had been \$350, but one dollar had been allowed the messenger for delivering the money. No clue to the identity of the donor could be obtained. The gift will be known as the Grubstake Loan Fund.

The *University of Chicago* shows a gain of 242 in the fall and of 414 in the summer enrollment, or one of 520 in the grand total for the year, 540 summer students having returned for work this fall, as against only 404 last year. The greatest gain in the fall registration, one of 167, is found under "other courses," which embrace those given for teachers afternoons, evenings and Saturdays. There is a loss of 15 men in the college, which is offset by a gain of 17 women. The professional and graduate schools all exhibit a small increase.

The enrollment of *Columbia University* shows a highly gratifying increase in all departments. The total registration represents a gain of almost 500 students over last year, of which over 80 per cent. can be credited to the fall registration. The grand total this fall exceeds that of two years ago by over 1,000 students, a growth of 22 per cent. in that brief interval. Both Columbia and Barnard colleges (arts, men and women, respectively) show a sub-

stantial increase over last year's figures, the entering class being the largest in the history of each institution. The non-professional graduate schools of political science, philosophy and pure science, taken as a whole, continue to share in the general growth of the university, although the faculty of philosophy has experienced a slight loss, no doubt owing to the establishment this fall of free courses for teachers by the College of the City of New York. The total enrollment of graduate students, including those with their major subject in education—primarily registered at Teachers College—is 958, as against 938 in 1907 and 513 in 1902. The professional schools, without exception, have made encouraging gains in attendance, the schools of mines, engineering and chemistry having recorded the largest increase in actual number of students, namely, one of 92, whereas the largest percentage gain has been registered by the school of law, namely, one of almost 30 per cent.; the entering class in the medical school shows a growth of no less than 40 per cent., while pharmacy has gained 55 students. Including students from the college registered in the professional schools, the total enrollment of these schools is as follows: Law, 346; medicine, 318, and mines, engineering and chemistry, 699. The almost phenomenal development of Teachers College continues without interruption, there being 950 students enrolled this year, as against 563 in 1902. The two residence halls for men are practically filled this year, and the erection of a third dormitory for men has become a need sooner than even the most optimistic anticipated. The summer session was even larger than that of the preceding year, the total attendance being 1,532, as against 643 in 1902, 34 of the students being registered at the medical school in 1908. The 655 officers are ex-

clusive of 87 instructors in the Horace Mann and Speyer Schools, as well as of the summer session staff. In 1906 there were 571 officers. The extension work continues to make satisfactory progress, the evening technical courses established the winter before last attracting many students.

The domestic economy building in process of erection at Teachers College should be ready for occupancy before the close of the year, whereas work has been temporarily discontinued on Kent Hall, the new building for the schools of law and political science.

The incumbent of the Kaiser Wilhelm professorship this year is Professor Albrecht Penck, of the University of Berlin, whose subject is physiography, Professor Felix Adler, of the Columbia department of philosophy, being the third incumbent of the Theodore Roosevelt professorship at the University of Berlin. President Benjamin Ide Wheeler, of the University of California, has been selected by the trustees as the Theodore Roosevelt professor for 1909-10.

The sum total of the gifts received in money during the year is \$329,385.39, while the grand total of such gifts received in the last seven years is \$10,286,296.58. The total outstanding debt of the university is \$3,489,156.45; the income for 1907-8 amounted to \$1,960,258.40, and the annual budget for 1908-9 provides for the expenditure of almost two million dollars.

An amendment to the statutes was adopted by the trustees on February 3, 1908, which provides that "each professor and adjunct professor shall be entitled, once in every seven years, to a leave of absence of one year on half pay, or to a leave of absence of one half year on full pay, such period of absence to count as service to the university." This provision renders it possible for those officers who

can not live for a year upon half of their present salaries to secure eight months' absence once in seven years on full salary. During the year the statutes were also amended in order to establish the new grade of associate, ranking below the grade of adjunct professor and above that of instructor. It is to be employed "in the case of an officer of instruction who is not expected to devote the greater part of his time to the service of the university, but to give statedly a limited amount of instruction upon a special subject."

A system of academic advisers was put in operation in Columbia College last spring, "by the terms of which each undergraduate student is assigned to the oversight and care of an officer of instruction, who becomes his guide and friend as well as his teacher. By frequent personal meetings and conferences, it is the duty of the adviser to keep himself closely informed of the progress and academic life of each of the small group of students assigned to him and to give to such students the counsel and direction which they need, not only in regard to their studies but in regard to all phases of their undergraduate activity and life."

The requirements for admission to the medical school were recently revised, "so that, from and after July 1, 1910, the minimum requirement will be the completion of not less than two full years of study in an approved college or scientific school, which course must have included instruction in the elements of physics, in organic chemistry and in biology."

*Cornell University* reports a gain of 407 in the grand total, to which the fall enrollment has contributed 368, the summer session showing an increase of 86 in actual number of students. All of the faculties have experienced an increase this fall with the exception of medicine, where increased

standards for admission have resulted in a reduction of the attendance by 109. The academic registration and the engineering enrollment both show a gain of 94 students, agriculture one of 69, architecture of 30, law of 23, the graduate school of 41. The students listed under "other courses" are taking the short winter course in agriculture, and there are 114 more of these than there were last year. Of the 1,727 engineering students, 1,158 are registered under mechanical and 569 under civil engineering.

*Harvard University's* grand total is to all intents and purposes equal to that of last year, but there has been a loss of 37 in the total fall enrollment. The loss of 37 men in the college is offset by a gain of 34 women in Radcliffe, the scientific school suffered a decrease for the reason explained in full last year, the law school has lost 26 students, the graduate school of arts and sciences has gained 18, while medicine, dentistry and divinity have remained practically stationary. The summer session of 1908 was larger by 224 students than that of the previous year, and there has been a gain of 61 in the number of instructors. Of the extension students, 1,119 are registered in courses offered at the Lowell Institute by Harvard instructors, and in the case of qualified candidates, counting towards a Harvard degree.

The new graduate school of business administration attracted 56 students; it furnishes a two-years' course leading to the degree of master in business administration. The Bussey Institution has ceased to exist as an undergraduate department for instruction in practical agriculture, the Bussey fund being now devoted to advanced instruction in problems relating to agriculture, such as economic entomology, animal heredity, experimental plant morphology and comparative pathology of animals.

The *University of Illinois* shows consistent gains in every department, with the exception of music, where there has been a loss of 24 students, of library science ("other courses"), which reports a loss of 10 students, of art, where the registration has been reduced from 10 to 4, and of law, where the registration shows a falling off of 3 students. The largest gain, one of 68, is in the graduate school, while medicine has gained 48, and the male academic and commerce each 37. Architecture, pharmacy and dentistry have also gained over 30 students each. The total increase in the fall enrollment amounts to 247 students, while the summer session was larger by 101 students than that of 1907. Owing to the fact that the percentage of summer-session students who returned for work in the fall was considerably greater in 1908 than in the year preceding, the gain in the grand total over last year is only 228. The total registration in 1903 was 3,239, as against 4,400 this year, a gain of 35 per cent. in five years.

The distribution of students by faculties under *Indiana University* is somewhat different from what it was last year, and it is consequently difficult to make accurate comparisons. The loss in law and the gain in medicine have been explained above. There are 9 more women in the academic department than there were last year, while a loss of 66 students in the graduate school is more than offset by a gain of 122 men in the college, but this may be due to the inclusion this year of a number of graduate students in the academic department. The total increase in the fall enrollment is 192, and the summer session exhibits a gain of 284, the growth in the grand total being one of 446.

The *State University of Iowa* exhibits an increase in every department except that of dentistry, which reports a loss of 16

students, and those of medicine and music, where the enrollment has remained stationary. The largest gain is in the academic department, namely, one of 85 men and 60 women, whereas the scientific schools have only two more students than last year. Pharmacy has gained 14, law 10, the graduate school 11, and the nurses' training schools (other courses) 9, the increase in the entire fall registration being one of 158 and in the grand total for the year one of 168, the summer session of 1908 having been slightly larger than that of the preceding year. In the fall of 1903 there were only 1,260 students registered at Iowa, as against 2,356 this year.

The standards of admission to the law school were raised this fall, inasmuch as no students were permitted to enter who did not present the entire thirty credits or fifteen units, whereas in previous years students were admitted with deficiencies aggregating three credits. Beginning with September, 1909, one full year of college work, in addition to the four years of high school work formerly required, will be demanded for admission to the school of medicine, and beginning with September, 1910, the requirement will be still further increased to two years of college work. Beginning with September, 1909, the requirements for admission to the college of dentistry will be advanced to four years of high-school work. No other changes in the standards of admission to the several schools of the university are in immediate contemplation.

The university has completed during the past year an extension to the engineering building at a cost of about \$75,000. The extension duplicates the capacity of the building, and completes the first wing of the engineering quadrangle. A building for the law school is now being erected. This building will cost \$125,000, and will be completed in about a year. Both of the buildings mentioned are of Bedford stone, fireproof construction, in accordance with the general plan of the

regents, and in their location the regents have followed the plan of the ultimate campus, which has been prepared by landscape architects.

*Johns Hopkins University* has gained 47 students since last year, of whom 30 are found in medicine and 17 in the graduate school, the academic department having remained stationary. In 1902 there were 162 students in the college (166 in 1908), 329 in medicine (1908: 355) and 179 in the graduate school (1908: 177).

The scientific schools (— 10), medicine (— 9) and art (— 3) have suffered slight losses at the *University of Kansas*, which are much more than offset by gains in the other departments, the academic department alone contributing an increase of 106 students—77 women and 29 men. Law has gained 22, music 19, pharmacy 8 and the graduate school 12, the total increase in the fall registration being 108. The summer session enrolled 89 students more than that of 1907, the increase in the grand total being one of 154 students.

The *University of Michigan* reports an increase in the fall registration of 148 students, law alone exhibiting a loss (41 students), while medicine has remained uniform. The academic department has registered a net gain of 45, this figure representing an increase of 47 men and a decrease of two women. The graduate school has gained 65 students, the scientific schools 28, dentistry 23 and pharmacy 7. The summer session was slightly larger than that of the preceding year, but the number of those enrolled both in the summer term and the regular college year was considerably smaller, resulting in an increase in the grand total of 235 students. The attendance at Michigan passed the five-thousand mark for the first time this year, it having reached 4,000 in 1904. Mr. Shirley W. Smith, secretary of the university, has submitted the following items of general interest:

The session of the summer of 1908 for the academic department was for the first time in our experience fixed at eight weeks instead of six, and the fee was raised from \$15 to \$20. The fact that this change was followed by an increase in attendance of thirteen per cent., which increase was largely made up of those not enrolled in the regular session, is interesting as showing the demand by teachers for the largest opportunity for actual summer work.

Our engineering faculty have made provision for a six-year course, by the completion of which students will secure a broader foundation of general culture and larger technical attainments. We shall look forward with interest to see whether these increased opportunities will meet a real demand in the education of young men preparing for the active life of to-day.

In our law department we have sought to encourage and to recognize the superior equipment of those who combine academic with legal training, and have established the degree of J.D. (*juris doctor*) to be conferred upon certain college graduates completing the full three years' law course. The age of admission to the first year class of the law department has been raised from eighteen to nineteen years, with a corresponding higher age requirement for the two upper classes.

In the material equipment, our most important additions are as follows: An extensive addition has been made to the observatory building, including a new dome 40 feet in diameter. We are installing a large reflecting telescope which is now approaching completion. This instrument has been designed especially for photographic and spectroscopic work, and it is arranged for use either as a Newtonian or as a Cassegrain reflector. When used in the latter manner, the mirrors give a three-fold magnification with an equivalent focal length of 60 feet.—We have acquired by gift of an alumnus and from the city of Ann Arbor a tract of land of about ninety acres to serve as a botanical garden and arboretum. This land has an exceptional variety of soil, elevation and exposure, including a border of over one half mile on the Huron River, and the tract is easily accessible from the campus. The opportunities for the study of landscape gardening by our students in engineering, architecture, forestry, and general culture, as well as those in botany and landscape gardening proper, are considerably extended by this gift.—The Woman's League of the university has purchased a seven-acre tract of land, very convenient of access, which will be developed as an

athletic field for the women of the university.—Another welcome gift is in the form of about fifteen hundred acres of land, the purchase price of which, beyond possibly ten per cent. of the value, was donated to the university, lying along the shores of Douglas Lake in Cheboygan County. This land will serve as the site for our summer engineering camp, and its topography, including forest and open, land and water, various elevations, etc., is particularly well adapted to the purpose, and we also look forward to its use as a biological station of importance. In honor of the donor it has been named The Bogardus Engineering Camp.—Buildings completed or practically so during the year include the memorial hall, the gift of alumni and other friends, and a new building for the dental college. The latter, erected at a cost of \$125,000, is probably responsible in a large part for the increase in our enrollment in the dental college. Contracts have been awarded for a chemical laboratory to cost \$245,000 and an addition to our engineering building to cost \$75,000.

The *University of Minnesota* shows a slight decrease in pharmacy, but has made good gains in all other departments, especially in the schools of agriculture (102), law (99) and medicine (69). The increase in the law school is due to the fact that this is the last year in which students may enter that college upon presentation of a high-school diploma. Beginning with September, 1909, all students entering the college of law will be required to have one year of regular academic work in the college of science, literature and the arts. The large growth in medicine is due to the fact that the medical department of Hamline University has recently been absorbed by the University of Minnesota, which now conducts the only medical school in the state. The college of engineering entered this fall upon the five-year course leading to the degree of B.S. at the end of the fourth, and the professional degree at the completion of the fifth year. The school of mines shows no falling off in enrollment, although the entrance requirements in mathematics were raised this fall. The agricultural

department has developed rapidly as a result of the impetus given to that line of work throughout the state, larger provision being made for agricultural training than ever before. The academic department shows a net gain of 42 students, namely, a gain of 48 men and a loss of 6 women, the number of women, however, being still far in excess of that of the men. Compared with last fall, there has been an increase in the total of 398 students, and a practically similar gain if the summer session be included.

Mr. Irvin Switzler, registrar of the *University of Missouri*, reports as follows:

The total registration of the present session shows a relative as well as an absolute increase when compared with preceding sessions. The rate of increase during the two preceding sessions was a trifle less than ten per cent. The registration of the present session exceeds that of the corresponding date of 1907 by 284 students, an increase of almost exactly twelve and a half per cent. This increase is found chiefly in the college of arts and science, the teachers college, the school of agriculture, the department of law and in the department of journalism, which was inaugurated this session with an enrollment of 60, as indicated in the table under the head of "other courses."—The steady increase which has been noticed in the college of arts and science in preceding sessions has continued, being due to the growing appreciation on the part of students of the advantages of college preparation for professional work. The rapid growth of the high schools in Missouri has led to an increased demand for trained teachers. This has contributed to the increase in the teachers college, which has also attracted many superintendents and principals who desire advanced courses.—While the engineering courses show a slight increase, the freshman classes in this department show a decrease, probably due to the effect of the financial depression upon the demand for graduates in engineering. Some who would otherwise have entered the engineering department have taken up agriculture. The registration in this school has also been favorably influenced by the spread of information regarding the importance of scientific training in this field.—The department of law has recovered the ground lost during the preceding session, on account of

increased entrance requirements, and has in addition made a substantial increase. The department of medicine has suffered from the uncertainty regarding the future due to plans for removing the last two years to St. Louis or Kansas City. The matter is still pending, but will be determined during the present session. While the graduate department shows exactly the same registration as during the preceding session, the number who are candidates for degrees has increased.

On account of ill health Dr. R. H. Jesse resigned as president of the university on July 1, after an administration of seventeen years, and was succeeded by Dr. A. Ross Hill, formerly dean of the college of arts and science of Cornell University. Before accepting the latter position Dr. Hill was dean of the teachers college of this university, and he is familiar with the educational problems of this state and section. His formal inauguration as president occurred on December 10 and 11, 1908.

This university conducts extension courses at St. Louis, Kansas City, St. Joseph, Joplin, Nevada and Sedalia, but as the registration does not begin until after November, it has not been included in the table. The registration in extension courses during the session of 1907-8 was 134.

The total gain in the fall enrollment is 265, and the summer session shows an increase of 56 students. As the first item of double registration (416) is 102 in excess of that of last year, no accurate comparisons can be made by faculties with 1907.

The *University of Nebraska* has made a gain of 342 in the grand total and of 270 in the fall total, this year's summer session having attracted 104 students more than that of 1907. Agriculture shows the greatest increase—one of 140 students, and music has gained 50. A teachers college was established this year and has drawn students from the academic department, thus at least partially explaining the falling off of 149 women in the latter department. The registration of men in the college and the law school enrollment have remained stationary, while the scientific school has lost 40, and the medical school 20 students.

The graduate school and the school of art have also suffered a slight loss.

The school of commerce has contributed most heavily (200) to the gain in the fall attendance at *New York University* of 224 over last year. Owing primarily to increased standards for entrance to the professional schools of law and medicine, the enrollment in these schools has suffered a loss—of 36 in law and of 67 in medicine. The teachers college has gained 49, the engineering school 31 students, and the academic department 19 men and 31 women, while the graduate school has remained stationary, and veterinary medicine has lost 11 students. Of the 298 men registered in the college of arts, 143 are at University Heights and 155 at Washington Square, while all of the 167 women in this division are at Washington Square. The summer session was larger by 86 students than that of the preceding year, the grand total increase being one of 303 students.

*Northwestern University's* grand total is about 400 in excess of last year's, representing a gain of 15 per cent. Of the 270 students mentioned under other courses, 234 are enrolled in the school of oratory and 36 are attending the special pre-medical course. Mr. William H. Long, secretary to the president, writes as follows:

Northwestern University shows an increase of almost twenty per cent. in the fall enrollment. The gain is especially noticeable in the college of liberal arts, which enrolls 480 men against 389 the year previous. On the other hand, there has been a decrease in both the percentage and the actual number of women. The gain is noteworthy coming in a year in which the tuition fee is raised twenty-five per cent. A part of the increase in the number of men is due to the fact that the first class of engineering students are included in the college of liberal arts. The college of engineering will be formally inaugurated in the fall of 1909. Mr. John F. Hayford, of the United States Coast and Geodetic Survey, has been elected director. A course has been outlined that will require five years. At the end of the fourth year



the student will receive the degree of bachelor of science, and at the end of the fifth year an engineering degree. This year students are accepted in the beginning work only. In the medical school the admission requirements have been advanced one year. The effect upon attendance has been slight, as the figures are practically the same as those of last year. The only school that shows a decided decrease is the dental school, which feels, for the first time, the full effect of the recent large increase in entrance requirements. The new school of commerce meets with remarkable success. More than 200 students are in the first year of the course. The entire course will extend through three years.

On the campus at Evanston the Swift hall of engineering is nearing completion. Ground has been broken for a new gymnasium and the foundation is nearly completed. This building is the gift of Mr. James A. Patten. It will be of white stone and brick. It will contain a club room and social rooms for men, offices for various student enterprises, a large swimming pool, locker rooms, baths, a large gymnasium room, 87 by 135, of the usual type. A rather unique feature is the "indoor field," which will provide for field sports. This field is a room, 120 feet by 215, clear from supports, and having a dirt floor surrounded by a ten-lap-mile track of dirt. This room will accommodate a full-size baseball diamond and two of the three field positions.—Plans for dormitories are under way, but their erection has been held in abeyance.

*Ohio State University* reports an increase in the grand total registration of 356, and gains this fall in every department with the exception of law. The college has gained 54 men and 27 women, the scientific schools 72, agriculture 45, veterinary medicine 29, the graduate school and domestic science (other courses) 25 each, pharmacy 19, forestry 18 and pedagogy 12 students, while law has lost 11. Of the 925 students in the scientific schools, 43 are enrolled in the so-called short course, two years in length, and similarly there are 68 short-course students in agriculture out of 216 and 4 in domestic science out of 119. The summer session experienced an increase of 78 students.

Mr. Edward Robins, assistant secretary of the *University of Pennsylvania*, has furnished the following descriptive material to accompany the figures of this institution:

The final figures of registration for the current academic year at the University of Pennsylvania show a substantial and gratifying increase over corresponding figures for the preceding year. The net registration for the entire university is 4,555, an increase of 277, or  $6\frac{1}{2}$  per cent. over last year. Every department but one has practically equaled or exceeded its registration for the previous year, and in that department additional entrance requirements, which operate for the first time this year, have materially affected the total. The college, with an increase of 127 students, now numbers 1,853. The law department has increased from 303 to 326; the department of veterinary medicine from 131 to 150; the graduate school from 336 to 339; the evening school to 272 from 223. The dental department's total, 383, is 7 less than last year's figure. The attendance in the college courses for teachers is 352, and may be increased by late registrations during the next few weeks. The summer session of 1908, with an enrollment of 472, exceeded that of 1907 by 110 students. The medical department begins the year with 563 students, or 42 less than last year, due largely, as stated above, to a raising of the standard of entrance requirements. Heretofore, the requirements for admission to this department have been equivalent to those prescribed for admission to the freshman class of the college, but for the academic year 1908-9 a knowledge of physics, chemistry and general biology or general zoology and two foreign languages is demanded. Entrance requirements for the next two years will be further raised so that in 1910-11 candidates must have completed work equivalent to that prescribed for the freshman and sophomore classes in colleges recognized by the university.

The enrollment of students in the college is distributed by courses as follows, every course sharing in the increased registration of the department: architecture, 168; arts, 323; biology, 49; chemistry, 78; chemical engineering, 58; Wharton school of finance and commerce, 463; civil engineering, 292; mechanical engineering, 387; music, 35; total, 1,853.

Interest in registration figures naturally centers in the freshman class, which this year for the whole university numbers 1,258, an increase of 126, or 11 per cent. The college shows an excep-

tional gain of 25 per cent., the enrollment now being 611. The law and veterinary medicine classes, 146 and 63, respectively, have each increased ten. The medical and dental departments each show a slight falling off, the registration being 160 and 121, respectively, as against 188 and 139 for last year. The evening school enrolls 157 regular students, an increase of 29.

The growth of the university as represented by the foregoing figures is more readily appreciated when a comparison is made with the registration of five years ago. Since 1903 the university has increased its student population 69 per cent. The college, the department of veterinary medicine and courses for teachers have practically doubled their enrollment. The graduate school has increased 68 per cent. and the professional schools have increased materially. The evening school of accounts and finance and the summer school have sprung into being during this period. The corps of professors, instructors and assistants has been augmented nearly fifty per cent., the total teaching force now approximating five hundred. The physical equipment of the university has had valuable additions in the several years past in the new laboratories and buildings of the departments of medicine, veterinary medicine, engineering and physical education, while the construction of new dormitories enables the university to house seven hundred of its students in these comfortable apartments.

*Princeton University's* total is practically the same as that of last year, 1,314 in 1908 as against 1,311 in 1907. The academic department lost 24 students and the graduate school 21, whereas the scientific school shows a gain of 50 students.

At *Stanford University* there has been a net loss in the fall registration of 51 students, the gain of 33 graduate students, 48 law students and 19 women in the academic department not quite offsetting the loss of 151 men in the latter department (including the scientific school). Mr. O. L. Elliott, registrar of the university, writes as follows:

A tuition fee of twenty-five dollars per semester has been instituted in the department of law, applicable to all students in law not registered in the department on March 6, 1907. (There are

no tuition fees in other departments of the university.)

The Cooper medical college of San Francisco has been transferred to the university as a free gift, and a department of medicine has been instituted in the university. Instruction will begin in September, 1909. There will be a four-years' course in medicine, preceded by not less than three years of collegiate work. One and a half years of the medical course will be given at Palo Alto, and the remaining two and a half years in San Francisco.

The falling off in the number of students may be attributed partly to the effects of our disciplinary upheaval last year, and partly to the unusual number of failures in scholarship during the second semester of last year.

It should be remembered that the number of students at *Stanford University* is strictly limited.

*Syracuse University* reports a gain in the fall total of 41 and in the grand total of 42, the summer session showing a decrease of 16, but fewer students having returned for work this fall than was the case last year. A loss of 53 in pedagogy is offset by a gain of the same number in music; the graduate school has lost 23, while the college has gained 29 and architecture 11. Law, medicine, and the scientific schools have remained to all intents and purposes stationary. The entrance requirements in medicine have been increased, so that next fall one year, and in the fall of 1910 two years, of college work will be demanded for admission, the college work to include a competent course in physics, biology, chemistry, Latin and one modern language.

The Lyman hall of natural history is now fully occupied by the departments of biology, geology and mineralogy, and botany, while the work in chemistry has been transferred to Bowne Hall. The gymnasium will be ready for occupancy at the opening of the second half-year.

The attendance at the *University of Virginia* is exactly the same as last fall, al-

though several changes have taken place in the distribution of the student body by faculties. The decrease in enrollment in the college (24), the scientific schools (11), and medicine (14), may be attributed to increased requirements for admission that became operative this fall. The gain in the law school is due primarily to the fact that the course becomes one of three years, instead of two, beginning with 1909-10. A number of students transferred from the college to law this fall, in order to complete their law course before the new requirement goes into effect. The graduate school has remained stationary. A new course has been established in the engineering department leading to the degree of chemical engineer. An additional wing has been provided for the university's hospital group of buildings; also a commons hall, which furnishes table board to students at cost.

*Western Reserve University* on October 1 incorporated a pharmaceutical school with 75 students, and has gained 27 students in addition over last year. The academic department shows an increase of 33, all men, while law has gained 9 and the library school (other courses) 7 students. On the other hand, dentistry shows a loss of 12, the graduate school of 5, and medicine of 4 students. The 80 students mentioned under extension teaching are in attendance on standard university courses given in the evening.

Mr. D. C. Mathews, executive secretary, writes as follows:

The opportunities offered by the medical school will be largely increased by the opening of the new H. K. Cushing laboratory of experimental medicine. The department of experimental medicine was made possible by the gift of \$100,000 each by Mr. H. M. Hanna and Colonel Oliver H. Payne. Professor George N. Stewart, formerly of the University of Chicago and recently returned from a year's study in Europe, is head of the department. The building was dedicated on No-

vember 20, the principal address being delivered by Dr. William H. Welch, of Johns Hopkins University.

Work is progressing upon the chemical laboratory on the Adelbert College campus. The building is named for Professor Edward Williams Morley, for thirty-seven years professor of chemistry in Western Reserve.

The Cleveland School of Pharmacy was recently incorporated into the university. The school is now in its twenty-seventh year. The course of study includes thorough courses in general, inorganic and organic chemistry, physics, pharmacy, materia medica, microscopy and physiology. It is proposed to give to the course of study certain larger relationships than its merely technical requirements would demand.

The *University of Wisconsin* reports an increase of 360 students in the fall enrollment, and of 475 in the grand total, the summer session having attracted no less than 376 students more than attended the session of 1907. All of the faculties have contributed to the gain in the fall registration: The academic department 85 men and 42 women, agriculture 72, the scientific schools 26, music 14, law 8, medicine 6, and pharmacy 4 students. The graduate school shows an actual increase of 14 students over last year, although there is an apparent loss of 137. This is due to the fact that the figures for last year included the graduate students who attended the 1907 summer session and did not return for work in the fall; of these there were 151. This year there were 227 graduate students in attendance at the summer session only, so that the total registration of graduate students is 353 for 1907 and 443 for 1908. The first item of double registration (151) is made up of 114 students enrolled in letters and arts, as well as in law, music and medicine, plus 37 students given separately under pharmacy.

There have recently been established a course in chemistry, a course in mining engineering, and a middle course in agri-

culture. The two former are four-year courses, leading to a baccalaureate degree. The last is a two-year course, the entrance requirements for which are the same as those of the regular long course, certificates being awarded at the close, instead of degrees. There has also been organized, within the college of letters and science, a new course for the training of teachers. Within the past year a new central heating plant has been built, as well as an addition to the administration building. A woman's building and a new animal husbandry building are in process of construction.

The increase in *Yale University's* grand total is one of 31, while that for the fall only amounts to 149, the discrepancy being due to the withdrawal of the summer school of this institution; the 48 students mentioned under summer session attended the summer school of forestry. Gains in the fall attendance have been registered by every department with the exception of the academic, which shows a loss of 41 students, whereas the Sheffield scientific school has gained six. To the enrollment of the latter should be added 154 graduate students who are members of the graduate school or the school of forestry. The law school reports a gain of 92, the graduate school one of 51, divinity 26, art 10, forestry 9, music 8, and medicine 5.

RUDOLF TOMBO, JR.

COLUMBIA UNIVERSITY

#### THE NATIONAL GEOGRAPHIC SOCIETY

THE arrangements for lectures for the current season are as follows:

December 11—"The Redemption of Ireland," by Mr. William E. Curtis. No longer does the Irishman in Ireland live on potatoes and peat. Illustrated.

December 18—"Present Conditions in Turkey," by Dr. Howard S. Bliss, president of the Syrian Protestant College, Beirut.

January 4—"The Sierra Nevada," by Dr. Grove Karl Gilbert.

January 8—"A Digger's Work in Palestine," by Dr. Frederick J. Bliss, author of "A Mound of Many Cities," "Excavations in Palestine," etc.

January 15—"The Non-Christian Tribes of the Philippine Islands," by Dr. Frederick Starr, of the University of Chicago.

January 22—"The Panama Canal and the Spanish Main," by Mrs. Harriet Chalmers Adams.

January 29—"Abraham Lincoln—Boy and Man," by Mr. W. W. Ellsworth, of the Century Company.

February 5—Major General A. W. Greely, U. S. Army, will address the society.

February 12—"The Bird Islands of Our Atlantic Coast," by Mr. Frank M. Chapman, of the American Museum of Natural History. Illustrated with lantern slides and moving pictures of the pelicans and fish hawks.

February 19—"Java—The Garden of the East," by Mr. Henry G. Bryant.

February 26—"Aerial Locomotion," by Mr. Wilbur Wright or Mr. Orville Wright.

March 12—"The Hunting Fields of Central Africa," by Mr. Gardiner F. Williams, for twenty years general manager of the De Beers diamond mines at Kimberley.

March 19—"Ruwenzori, the Snow-crowned Mountain of the Equator," by Professor Edwin A. Fay, of Tufts College, president of the American Alpine Club.

March 25—"Brittany—The Land of the Sardine," by Dr. Hugh M. Smith, deputy commissioner of the U. S. Bureau of Fisheries.

April 2—"Homes for Millions—Reclaiming the Desert," by Mr. C. J. Blanchard, of the U. S. Reclamation Service.

#### A BIBLIOGRAPHY ON SCIENCE TEACHING

At a meeting of the executive committee of the American Federation of Teachers of the Mathematical and Natural Sciences held April 28, 1908, it was voted to appoint a committee on bibliography of which Professor Richard E. Dodge, of Teachers College, New York, is chairman.

This committee was requested to prepare, at an early date, a selected and annotated bibliography on science teaching for publication by the federation. The field to be covered includes teaching in elementary, secondary and normal schools and colleges. The list is to