with that of the skeletons found during the archeological explorations, is being made in order to determine the physical relations of the Indians of California with those of other regions. By correlating the physical characters, the particular cultures of the past and present Indians, and the various linguistic stocks or families still extant, it is hoped to solve the great problem of the relationship of the numerous groups of Indians in California, and their relationship with peoples of other parts of the continent and possibly with certain tribes of Asia.

Nowhere in America has there been such a diversity of Indian languages as in California, a condition which has long puzzled anthropologists. During the past five years more investigations of these languages have been made by the University and by eastern institutions than in all previous time. These Indian languages are now fast disappearing. Several are at the present moment known only by five or six, others by twenty or thirty individuals, and hardly a year passes without some special dialect, or even language, becoming extinct. For this reason it is desired that students should be instructed in the methods of recording and studying Indian languages, and then devote themselves to special research. The University is, therefore, giving instruction in this branch of linguistics with the hope of preparing students to carry on the research before the opportunities pass away. Similar reasons apply to researches in other divisions of ethnology, and in archeology; hence the training of students in these subjects is also undertaken by the Department of Anthropology.

The officers of the department make a special appeal to persons in all parts of the State and adjacent regions for aid in this survey. Hundreds of Indian objects are found annually, which if carefully labelled as to where and how found and sent to the university, would, when brought together for comparative study, aid in the settlement of many important questions. The distribution of a particular kind of stone implement or of an ancient form of basket, and of many other objects of Indian manufacture (even the peculiar stone of which an implement is made is of great importance), will aid in determining the distribution of a tribe or group of which other records may be lost or so uncertain that just such confirmatory evidence to establish a particular point is required.

Information relating to the location of caves, shellheaps, old burial places, ancient village sites, and scattered fragments or survivors of nearly extinct tribes, is earnestly solicited, that such may be investigated by the department and may be correctly recorded on its ethnological and archeological maps of the State.

The university is by this survey carrying on a research of great importance in obtaining a knowledge of the first peopling of the Pacific Coast and of the early migrations, and of the relationships of the recent and present Indians, a research that is required by anthropologists and by all interested in the early history of man. This work has been well begun, but assistance of many kinds is needed for its progress. This assistance it is hoped will be given to aid the University of the State in an undertaking of such general interest.

Two volumes of the publications of the department, relating to the languages, myths and customs of certain tribes of California, are now in press and are to be followed by others as the material is prepared.

Correspondence leading to aid in this survey is solicited by the Department of Anthropology of the University of California.

BENJ. IDE WHEELER,
President of the University.
F. W. PUTNAM,
Director of the Department of Anthropology.
BERKELEY, CALIFORNIA,
October 15, 1903.

SCIENTIFIC NOTES AND NEWS.

PROFESSOR RAPHAEL PUMPELLY, of Newport, R. I., has recently returned from a summer's journey in Turkestan, where he made a reconnaissance under the auspices of the Carnegie Institution of the ancient human occupation of the region in relation to its physiography. The other members of the expedition were Professor W. M. Davis, of Harvard; Mr.

Ellsworth Huntington, Carnegie research assistant, and Mr. R. W. Pumpelly, with Mr. S. de Brovtzine of St. Petersburg as interpreter. Mr. Richard Norton, director of the American School of Classical Studies in Rome, was an independent member of the party. From Baku, the great petroleum port on the west coast of the Caspian, the travelers crossed by steamer to Krasnovodsk May 23, whence the Central Asiatic railway carried them, with many stops and side excursions on the way, to the end of the main line at Tashkent and to the end of a branch line at Andizhan June 26. Professor Pumpelly, with Messrs. Norton and Pumpelly, then made an excursion southeastward across the Alai range and valley to Lake Karakul on the northern Pamir, returning *via* Andizhan, Baku and Constantinople, and reaching America on September 4. Professor Davis and Mr. Huntington went northeast, crossing the western Tian Shan ranges to Lake Issikul, where they separated; Professor Davis turned northward and came home *via* Semipalatirsk, Omsk and St. Peterburg; Mr. Huntington went south to Kashgar and west to Samarkand and Aschabad, where he has lately arrived and where he will make his winter headquarters after an excursion into northern Persia.

The Research Laboratory of Physical Chemistry at the Massachusetts Institute of Technology, the establishment of which was announced in Science for June 5, 1903, was opened on September 20 with a staff of eight research associates and assistants and two graduate scholars working under the direction of Professors A. A. Noyes, H. M. Goodwin and W. R. Whitney. The following investigations are already in progress: 'The Electrical Conductivity of Aqueous Solutions at High Temperatures (up to 306° and higher),' three separate researches carried on by Dr. W. D. Coolidge, Dr. H. C. Cooper and Mr. A. C. Melcher; 'The Conductivity of Fused Salts,' by Mr. R. Haskell; 'Electrical Transference Determinations with Nitric Acid,' by Mr. Y. Kato; 'The Migration and Coagulation of Colloids,' by Dr. J. C. Blake; 'The Equilibrium in Solution between Milk Sugar and Its Hydrate,' by Mr. C. S. Hudson; 'The Dissociation-Relations of Sulphuric Acid at Various Temperatures,' by Mr. M. A. Stewart; 'The Hydrolysis of Ammonium Sulphide determined by Vapor Pressure Measurements,' by Mr. C. F. Sammet. The researches upon the conductivity of aqueous solutions and upon transference are assisted by grants made to Professor Noyes by the Carnegie Institution. Besides these physico-chemical investigations, work is being continued with the assistance of Mr. C. S. Bryan in developing a new system of qualitative analysis which shall include nearly all the rare metallic elements.

At the ceremonies attending the installation of the Rev. Dr. Gordon as principal of Queen's University, Kingston, Ont., the degree of LL.D. was conferred, among others upon Dr. J. E. Creighton, professor of philosophy at Cornell University, and Dr. Victor Goldschmidt, professor of mineralogy, Heidelberg University, Germany.

The Harvard correspondent of the *Evening Post* states that the Hon. William H. Moody, secretary of the Navy, and Mr. Gifford Pinchot, chief of the Bureau of Forestry, will speak at a meeting of the members of Harvard University on November 2, under the auspices of the Political Club, a non-partisan organization of students organized to promote interest and active participation in politics on the part of university men. Secretary Moody's subject will be 'The Administration of the Navy,' and Mr. Pinchot's 'The Opportunities in the Government Scientific Departments.'

Dr. Edgar J. Banks has been given charge of the archeological excavations to be undertaken near Bysmias by the University of Chicago with the permission of the Turkish government.

P. G. Nutting, A.B. (Stanford), Ph.D. (Cornell), has been appointed to a position in the National Bureau of Standards.

Dr. L. Messerschmidt has been appointed assistant to the director of the Royal Museum in Berlin.

A COURSE of lectures on tropical medicine will be given at the Jefferson Medical College by Capt. Charles F. Kieffer, assistant surgeon, U. S. Army. The lectures will be given at 4 P.M. each Monday in the amphitheater of the hospital.

ACCORDING to a cablegram to the daily papers, Mr. L. A. Fischer, of the National Bureau of Standards, has compared the American meter with the international standard and has found it accurate. Mr. Fischer is investigating the systems of weights and measures of European countries with the view of drawing up a report upon which Secretary Cortelyou, of the Department of Commerce and Labor, will make recommendations to Congress.

THE Stockholm correspondent of the London *Morning Advertiser* says that the Academy of Science proposes to confer the Nobel prize for physics on Mr. William Marconi.

A MONUMENT is to be erected at Brussels as a memorial to Zenobe Gramme, known for his work in electricity. M. Léon Janssen is chairman of the committee in charge.

AN obelisk of unpolished grey granite has been placed over Virchow's grave in the old Matthäi graveyard, Berlin. It bears on one side a black marble tablet, on which is inscribed 'Rudolph Virchow,' and the date of his birth and death. A statue of Virchow will also be erected near the place where his scientific work was conducted.

PROFESSOR ALEXANDER ROLLETT, of Graz, known for his researches in the physiology of blood and muscles, died on October 1, in his seventieth year. The death is also announced of M. G. R. Dahlander, professor in the Polytechnic Institute at Stockholm.

THE *Bulletin of the American Mathematical Society* states that the Carnegie Institution has in preparation, under charge of the librarian of Congress, a handbook of learned societies and institutions, which is to contain various information of importance to scholars, but not hitherto published in convenient form.

THE Marconi system of wireless telegraphy has been put in operation between Peking and the coast.

IT is said that Dr. August Greth of San Francisco, who had put his small savings into an airship of crude construction, sailed about over that city on October 18, apparently having full control of his machine. While sailing to the Presido his power, furnished by a six horsepower gasoline engine, failed him, and he descended into the water of the bay. Money has now been offered him to build a better machine.

THE third annual intercollegiate geological excursion in New England was held at Meriden, Conn., on Saturday, October 17, under the guidance of Professor Gregory of Yale University. The geological profit of the excursion was unfortunately interfered with by fog on West Peak of the Hanging Hills, and by several heavy showers in the valley; nevertheless the general structure of the region was pointed out, the double lava flow in the Meriden quarry was well seen and several of the faults by which the district is divided into long, narrow blocks were demonstrated. The largest delegations of students were from Yale University, under Professors Gregory, Pirsson and Barrell, and from Wesleyan University under Professor Rice. Harvard, Wellesley, Amherst, Smith and Williams were also represented, as well as a number of secondary schools. Over one hundred persons took part in the excursion.

THE *Zoological Society Bulletin* states that the end of the next twelve months will reveal an important advance in the development of the New York Zoological Park. The Antelope House and its twenty-two yards outside will be ready for use about November 1. The building of an Ostrich and Cassowary House, 170 feet long, has been begun and also the erection of a Small Mammals' House, 170 feet long. A contract for the large Bird House was awarded on September 14. Plans for a large Deer House are now in course of preparation. The Llama House is ready for use and the entire collection of animals arrived about October 1 as the gift of Mr. Robert S. Brewster. The visitors to the Park during the month of August numbered 155,000, an increase of 29,000 over the records of

the previous year. The largest attendance so far was on Sunday, September 16, amounting to 35,667 persons.

The director-in-chief and other members of the staff of the New York Botanical Garden will be pleased to receive members and their friends at the grounds in Bronx Park on every Saturday in October and November. Train leaves Grand Central Station, Harlem Division, N. Y. C. R. R., at 2:35 P.M., for Bronx Park. Returning train leaves Bronx Park at 5:32 P.M. Opportunity will be given for inspection of the museums, laboratories, library and herbarium, the large conservatories, the herbaceous collection, the hemlock forest and parts of the arboretum site. The walk planned will be a little over a mile. Lectures will be given in the museum building at 4:30 o'clock, as follows:

October 3, 'The Botanical Exploration of the West Indies,' by Dr. N. L. Britton.

October 10, 'Some Aspects of Tropical Agriculture,' by Professor F. S. Earle.

October 17, 'Some Features of Jamaican Vegetation,' by Professor L. M. Underwood.

October 24, 'Features of the Land and Marine Flora of Porto Rico,' by Dr. M. A. Howe.

October 31, 'Explorations in Hayti, the Negro Republic,' by Mr. G. V. Nash.

November 7, 'Mountains and Forests of Dominica,' by Professor F. E. Lloyd.

November 14, 'Beverages of Vegetable Origin,' by Professor H. H. Rusby.

Among the lectures to be given this season before the Royal Institution, London, are the following:

'The Present Position of English Commerce,' by Lord Avebury, F.R.S.

'The Work and Aims of the London University,' by Sir Arthur W. Rücker, F.R.S.

'The Brains and Minds of Animals,' by Alex. Hill, Esq.

'Persia and the Persian Gulf,' by J. D. Rees, Esq.

'Radium and the Periodic Law in connection with Recently Discovered Elements,' by Sir William Ramsay, F.R.S.

'Volcanoes, with special reference to the recent eruptions,' by Professor E. J. Garwood.

'Balloons and Flying Machines,' by J. M. Bacon, Esq.

'The Ice-Breaker *Ermack*,' by Arthur Gulston, Esq.

"Mars and its 'Canals,'" by E. Walter Maunder, Esq.

'1. Ice, 2. Water, 3. Steam,' by Dr. William Hampson, M.A.

'Mexico and its Natural History,' H. F. Gadow, Esq. F.R.S.

'The Food of the People,' by Robert Hutchinson, Esq.

'The Crustacean Question,' by Professor G. B. Howes, F.R.S.

'The Measurement of the Heavens,' by J. D. McClure, Esq.

According to the latest bulletin of the Health Department of Chicago, the remarkable decrease in the mortality of children less than one year old that has taken place since 1891—a decrease of 60.1 per cent.—is due not so much to an improved milk supply, the antitoxin treatment of diphtheria and other causes often cited to account for it, as to the work of woman's clubs and similar organizations in the education of mothers in the hygiene of the young. This, it is believed, is the principal factor in giving the baby a better chance for life.

The New York *Times* states that the board recently organized to consider and report upon the subject of engineering instruction and training for officers of the line of the navy, of which Captain George A. Converse is the senior member, recently held its first session in New York. The recommendations contained in the order convening the board were talked over, and, while no definite outline was determined upon, it was concluded that the subject is one of large scope, which will require careful study and preparation. Undoubtedly there will be established an engineering school for officers, and this may, perhaps, be located at the Naval Academy at Annapolis, using the engineering experimental station recently established at that place. Congress at its last session created this experimental station upon the recommendation of Rear Admiral George W. Melville, head of the Bureau of Steam Engineering of the Navy Department, who advocated the idea for several years before his efforts were successful. The board expects that it will take at least six months for it to prepare and outline a proper course of

instruction for the new school. The board has decided to hold its sessions in Washington hereafter.

DR. FREDERICK ROSE, British consul in Stuttgart, has lately prepared a series of reports on technical education of various kinds in Germany, which have been issued from time to time by the Foreign Office. The latest of these deals with instruction in forestry and the present condition of forest economy. According to the abstract in the London *Times*, he describes the preliminary educational and other qualifications demanded from students, and then proceeds to explain the organization and course of instruction at Eberswalde, in Prussia, Aschaffenburg, in Bavaria and Karlsruhe, in Baden, as well as the subsequent prospects of the qualified students in the different states, in order to show what forestry as a profession is in Germany. He then takes the kingdom of Würtemberg as an example of the economical benefits of the scientific management of forests, and from this estimates the annual value of the forest products of the Empire. Some of his statements on this subject will be of interest. Out of the total of 135 million acres forming the German Empire, about 35 million consist of forests or forest lands. Rather more than half of this consists of purely forest holdings, the remainder being attached to agricultural holdings. Baden has the largest relative area of forests; the proportion of the whole area of the State being 40 per cent., while in Prussia it is 25, in Bavaria 33 and in Würtemberg 30 per cent. The oak is chiefly grown on the Lower Rhine and in Westphalia, the beech in Pomerania, the fir in South Germany, the pine on the Central German hills, the Scotch pine on the plains of northeastern Germany, while the low-lying lands everywhere grow the elm, ash, beech, oak and birch. The Scotch pine is the most widely cultivated of any tree, the pine and fir and the beech coming next in extent of area covered. The annual revenue derived from forests in Germany is estimated at 15 to 18 millions sterling; in regard to Würtemberg the precise figures are known. This state possesses 1½ millions of acres of forests, the produce of which in 1900 yielded £1,700,000; the cost of production was £500,000, leaving a profit of £1,200,000, or about 16s. an acre. If the taxation be deduced from this, there is a clear profit of 14s. an acre. Statistics given by Dr. Rose show a steady annual increase in the value per acre of forest produce since 1860, which amounts in the cases of Prussia, Saxony and Würtemberg to as much as 80 per cent. The report concludes with some interesting observations on the importance to a nation from various points of view—sentimental, esthetic and hygienic, as well as economical—of its forests.

THE Royal Society of New South Wales held a conversazione on August 27. The exhibits included the following: Mr. R. T. Baker, exhibits from Technological Museum; Mr. Henry Deane, models of the new Central Railway station: clock tower, smaller tower, arrival bridge, general view; His Honor Judge Docker, stereoscope and set of stereographs of Tasmanian scenery; Geological Survey, N. S. Wales, framed photographs of N. S. Wales geology, meteorite and casts from Gilgoin Station, N. S. Wales, miscellaneous minerals; Mr. W. M. Hamlet, microscope showing metallic structure by etching methods now used in metalloscope, microscopes; Mr. H. L. Jones, Clark automatic telephone switchboard, model of modern bogey frame with wheels, used on heavy railway tracks in the United States; Mr. J. H. Maiden, copies of plans of the botanic gardens and government domains from 1807 to 1880; Mr. Ernest W. Warren, physical apparatus—vacuum tubes, X-Rays, high frequency apparatus, induction coils, etc.

DR. F. HENROTIN writes to the *Journal of the American Medical Association* that Rush Medical College, Chicago, has established a museum in which will be preserved and exhibited permanently objects of interest and value in the history of medicine. Especial attention will be given obsolete instruments and appliances for the diagnosis and treatment of disease. Many physicians and others have instruments that perhaps even a short time ago were in use, but which have been

laid away for more recent inventions; these are of historical value. Medicine in the United States has so brief a history that it should not be difficult to represent in this museum its complete development in the instruments and appliances that have come and gone, that have been of great value, but have given place to better inventions as the art has progressed. The late Professor Fenger bequeathed his own instruments to this museum, and it was the wish of this thoughtful man that his gift should be but the foundation for a collection that would show the development of the art he loved and for which he did so much. Rush Medical College has set aside a commodious room in the newly-opened Senn Hall for the permanent use of this museum. Gifts will be inscribed with the name of the donor and any remarks as to their history, original owner, user, etc., that may increase their interest. All other objects that have any interesting relation to the history of medicine or to renowned physicians will be given place, such as original manuscripts, autograph letters, portraits, etc. Information may be had by addressing Rush Medical College, Chicago.

The Berlin correspondent of the London *Times* states that the German government intends to have its customs officials instructed not only, as at present, in the superficial knowledge of the products of commerce and industry, but also in chemistry, physics and mechanical technology. It is also regarded as desirable that these officials should be acquainted with the elements of finance, of commercial policy and of commercial geography. At the most important customs offices in every province a laboratory, together with a library of technical books, will be established, where the minor officials will receive technical instruction from the customs officers of higher rank. These higher officials will themselves be trained in a great laboratory and auditorium which it is proposed to build at the chief customs office for foreign goods in Berlin. The teachers in this establishment will in part be professors of the technical colleges and kindred institutions in the German capital.

UNIVERSITY AND EDUCATIONAL NEWS.

The daily papers state that the Lawrence Scientific School of Harvard University will receive a very large sum from the estate of the late Gordon McKay, but there is, as yet, no official confirmation of this report.

By the will of the late Miss Mary T. Ropes, Harvard University will ultimately receive the endowment of a chair of political economy and a scholarship. Money for a chair of modern languages and a scholarship goes to the New Church University, a Swedenborgian institution at Albano, Ohio.

By the will of the late Dr. George Haven, the Harvard Medical School will ultimately receive $25,000 and half the residue of the estate.

Mr. J. B. Whittier, of Saginaw, has given $4,000 to the University of Michigan for a fellowship in botany.

It is announced that registration statistics for the year at Harvard show a total of 4,291 students in all departments, an increase of 65 over last year. The graduate school shows an increase of 83, while the college and scientific school show decreases of 37 and 19, respectively. The freshman class numbers 673, somewhat less than last year.

The freshman class at Yale University numbers this year 707, an increase, as compared with last year, of 69 in the Sheffield Scientific School and 39 in the Academic Department.

Five Rhodes scholars from South Africa began residence at Oxford at the beginning of the present term. They enter as ordinary undergraduate students, reading for the B.A. degree.

Dr. C. K. Edmunds, Ph.D. (Johns Hopkins), has been appointed professor of physics and electrical engineering at the Christian College in Macao, China.

At Trinity College, Cambridge, fellowships have been awarded to Mr. J. E. Wright, senior wrangler, mathematical tripos, 1900, and to Mr. H. A. Webb, bracketed third wrangler, 1902.