

viously deformed and folded mountain system; and that their present attitude and dissection are due to Tertiary faulting and vertical displacement, the surface margins and slope of the faulted blocks being indifferent to the general geological structure of the region.

As to the altitude of these surfaces of degradation before their sub-recent displacement, several opinions are held. Friederichsen suggests that they originated in interior basins, unrelated to the general baselevel of the ocean, and hence that their present altitude need not differ so very greatly from the altitude in which they were degraded (*Pet. Mitt.*, I., 1904, 272-273). Keidel explicitly states that it is as yet undetermined whether the present relief of the highland is due to elevation of the degraded masses or to sinking of the surrounding region. The undersigned has expressed the opinion that the even surfaces of degradation are uplifted members of a once far-extending peneplain, which bore residual mountains and mountain groups here and there; the best-finished part of the peneplain being seen still in or near its attitude of degradation in the neighborhood of Semipalatinsk, while other parts farther south have been faulted, uplifted and tilted in blocks of various areas, altitudes and attitudes ('The Bearing of Physiography upon Suess's Theories,' *Amer. Journ. Sci.*, XIX., 1905, 265-273). Hence, according to the second and third of these views, it would appear that the Tian Shan, like various other mountains, must be withdrawn from the class of forms whose present altitude, in relation to their surroundings, is due to crustal compression.

W. M. D.

THE SYSTEMATIC STUDY OF MOUNTAINS

THE systematic study of mountain forms in accordance with the scheme of the physiographic cycle has presented difficulties, because it has so seldom been possible to reconstruct with any fair degree of success the forms initiated by deformation, on which the sequential forms are then to be developed in due order by the processes of erosion. Substantial relief from this difficulty is promised

in all those cases, now increasing in number yearly, in which mountains are shown to be not in the original cycle initiated by disorderly compression and folding, but in a later cycle, initiated by uplift or by relatively simple block faulting, after more or less advanced peneplanation in a previous cycle. The systematic treatment of such mountains is relatively easy; for if they are not too much dissected the essential features of their initial forms may be easily determined and apprehended; and their sequential forms are in the main equally within the reach of explanatory description. If to this be added the recent increase in the understanding of high-mountain sculpture by glaciers, first clearly generalized by Richter and later presented in much detail for the Alps by Penck and Brückner, the possibility of developing a systematic method of mountain description does not seem so remote as it did a few years ago.

W. M. D.

SCIENTIFIC NOTES AND NEWS

COLONEL W. C. GORGAS, chief sanitary officer of the Isthmian Canal Commission, has been appointed by President Roosevelt a member of the commission.

PROFESSOR SIMON NEWCOMB has been elected honorary fellow of the Physical Society of London.

THE steam yacht *Virginia*, on which Mr. Alexander Agassiz was making explorations in the West Indies, struck a submerged wreck on February 11, and was obliged to go to San Juan under sail, where it was placed in dry dock.

PROFESSOR T. W. RICHARDS, of Harvard University, will sail for Germany on March 9, in accordance with the arrangements for an exchange of professors between Harvard University and the University of Berlin. Professor Richards will lecture on 'The Fundamental Constants of Physical Chemistry.' A laboratory has been fitted up for Professor Richards by Dr. Arthur Staehler, who last year worked with him at Harvard University.

MR. F. DARWIN has been nominated to represent Cambridge University at the celebration of the two hundredth anniversary of the birth of Linnæus, to be held at Upsala in May.

MR. H. F. NEWALL, of Trinity College, Cambridge, assistant director of the observatory, has been elected president of the Royal Astronomical Society, in succession to Mr. W. H. Maw.

THE Carnegie Institution has renewed its grant of \$2,000 to Dr. A. A. Noyes, professor of physical chemistry at the Massachusetts Institute of Technology.

AT the celebration of Washington's Birthday at Lehigh University, the honorary degree of doctor of science was conferred on Arthur Arton Hamerschlag, director of the Carnegie Technical Schools of Pittsburg, Pa. The orator of the day was the Hon. W. U. Hensel, of Lancaster, Pa., ex-attorney general of Pennsylvania.

PROFESSOR G. CANTOR, of Halle, has been made an honorary member of the Russian Mathematical Society.

PROFESSOR H. M'LEOD, F.R.S., director of the Royal Society's catalogue of scientific papers, will receive the honorary degree of LL.D. from the University of St. Andrews on April 2.

THE administration of the new president of Brazil, Dr. Affonso August Moreira Penna, who was inaugurated on the fifteenth of November last, promises to open a new era for science in that country. For the portfolio of Industry, Highways and Public Works, he has called Dr. Miguel Calmon du Pin e Almeida, formerly secretary of agriculture of the state of Bahia where he fully justified his reputation as one of the most able and farsighted of the younger generation of Brazilian engineers and administrators. One of the first acts of Dr. Calmon was to initiate a general geological investigation of the country under the direction of the well-known geologist Mr. Orville A. Derby who organized and for many years directed the geographical and geological survey of the state of São Paulo. Mr. Derby will be assisted by such native and foreign

resident geologists as have made valuable contributions to the geology of Brazil. The new department is denominated *Serviço Geológico e Mineralógico do Brasil* and will be located in Rio de Janeiro. The leading feature of its program is the rapid reconnaissance of the general geology of the country with detailed investigation of the districts that on account of their mineral wealth, deficiencies of water supply or other reasons offer special scientific and economic interest for investigation. Owing to the lack of proper topographic maps, no systematic map work will for the present be attempted.

MR. W. R. BUTTENSHAW, a scientific assistant in the imperial department of agriculture for the British West Indies, has been appointed botanist in the agricultural department of India.

THE tenth lecture in the Harvey Society course will be given at the New York Academy of Medicine on March 8, at 8:30 p.m., by Dr. Friedrich Müller, professor of medicine at the University of Munich, Germany, on 'Neuroses of the Heart.' This is the last lecture of the present year's series. All interested are invited to be present.

PROFESSOR ANDREW C. LAWSON, of the University of California, presented an address before the Washington Academy of Sciences on January 31, 1907, on 'The Dominant Tectonic Lines of California.' It was discussed by Drs. G. F. Becker, Waldemar Lindgren and Ralph Arnold. Dr. Charles B. Davenport, director of the Laboratory for Experimental Evolution of the Carnegie Institution, of Washington, Cold Spring Harbor, L. I., addressed the Washington Academy of Sciences on February 26, 1907, on 'Heredity and Mendel's Law.' The address was illustrated by lantern slides and was discussed by Professors O. F. Cook and W. J. Spillman.

PROFESSOR CHARLES PALACHE, of Harvard University, delivered in February a course of six lectures in the Geological Department of the University of Wisconsin on the subject, 'Recent Developments in the Study of Crystals.'

At a meeting of the American Ethnological Society at the American Museum of Natural History, on March 4, a public lecture was given by Dr. George A. Dorsey, of Chicago, on 'The Human Sacrifice Ceremony of the Pawnee.'

MR. FRANK M. CHAPMAN, of the American Museum of Natural History, has given a course of lectures on 'Bird-lore' at Wellesley College.

THE fourth of the series of public lectures on 'Problems of Insanity' was delivered at the Academy of Medicine, New York City, on March 2. Subject: 'The Development of the Legal Regulations concerning the Insane, with Suggestions for Reforms,' by Dr. Allan McLane Hamilton.

PROFESSOR F. R. HUTTON, head of the department of mechanical engineering of Columbia University, will deliver the principal address at the anniversary exercises of the Clarkson School of Technology at Pottsdam, N. Y., in commemoration of the charter day, on March 19.

A MEETING in memory of the late William Wells Newell, secretary of the American Folklore Society, will be held at the first parish church, Cambridge, on the afternoon of March 10. Among the speakers will be Colonel Thomas Wentworth Higginson, Professor Toy, of Harvard University, and Professor Boas, of Columbia University.

PROFESSOR WILHELM VON BEZOLD, director of the Royal Prussian Meteorological Institute, died on February 17 in his seventieth year.

THE deaths are announced of Professor Nicholas Menschutkin, professor of chemistry at St. Petersburg; of Dr. Johann Rajewski, associate professor of mathematics at Lemberg, and of Dr. K. Harz, professor of botany at the Veterinary School at Munich.

THE position of resident naturalist at the Station of the Marine Biological Association of San Diego will be vacant after June 1, 1907. A student well advanced toward the doctor's degree should, provided he has had considerable experience in marine biology, be

competent for the place. Inquiries may be addressed to Professor Wm. E. Ritter, University of California, Berkeley, Calif.

THE Treasury Department announces that an examination will be held at Washington on April 15 to examine candidates for assistant surgeonships in the U. S. Public Health and Marine-Hospital Service. Candidates must be between twenty-two and thirty years of age. The salary is \$1,600, with quarters provided. On April 29 there will be an examination for assistant surgeons in the army, there being at present twenty-five vacancies.

THERE will be civil service examinations on March 13 and 14 for the position of engineering and hydrographic aid, at salaries ranging from \$720 to \$1,200 per annum, in the Reclamation Service and Geological Survey. It is probable that from eight to ten hydrographic aids will be required for service under the Geological Survey. From the eligible list secondary positions in the engineering and hydrographic corps will be filled, with a salary of \$900 and upward. On the same day there will be an examination to fill during the coming season twenty to twenty-five vacancies in the position of topographic aid in the Geological Survey, and vacancies as they may occur in any branch of the service requiring similar qualifications. The salary of this position is \$900 per annum.

DR. W. JARVIS BARLOW has presented to the Clinical Association of Los Angeles, for the use of the medical profession, a library building, the cost of which was \$32,000, apart from the ground.

A LABORATORY for oceanographical research, organized through the efforts of Mr. W. S. Bruce, leader of the Scottish Antarctic Expedition, was formally opened at Edinburgh by the Prince of Monaco during a visit to the city in January. The laboratory is installed in a portion of the Surgeons' Hall.

The British Medical Journal states that preparations for the next International Medical Congress, which is to be held at Budapest in 1909, are already in active progress.

It has been decided that there shall be twenty sections, namely, anatomy, physiology, general pathology, therapeutics, internal medicine, surgery, obstetric medicine, ophthalmology, children's diseases, neurology, psychological medicine, dermatology, urology, laryngology, otology, stomatology, hygiene, forensic medicine, military hygiene, and industrial hygiene.

A COURSE of nine lectures upon science and travel has been arranged by the Field Museum of Natural History, Chicago, for Saturday afternoons in March and April, at three o'clock. These lectures will be illustrated by stereopticon views and will be given in Fullerton Hall, Art Institution, Michigan Avenue and Adams Street. The lectures are as follows:

March 2—'The Iron Ores of the Minnesota Ranges,' Professor C. W. Hall, University of Minnesota.

March 9—'Scientific Notes on the Russian Convict Island of Sakhalin,' Mr. Charles H. Hawes, M.A., University of Cambridge, England.

March 16—'Bird Husbandry,' Dr. N. Dearborn, Assistant Curator, Division of Ornithology, Field Museum of Natural History.

March 23—'The Blackfoot Indians,' Dr. Clark Wissler, Curator of Anthropology, American Museum of Natural History.

March 30—'A Superposed Vegetation—The Plant Rusts,' Professor J. C. Arthur, Purdue University, Lafayette, Indiana.

April 6—'The Monuments of a Prehistoric Race,' Mr. Frederick I. Monsen, New York.

April 13—'The Indiana of Nature—Its Evolution,' Professor W. S. Blatchley, State Geologist, Indiana.

April 20—'How some Insects have solved the Problem of Life,' Professor Herbert Osborn, Ohio State University.

April 27—'Physiography and Life in Western Norway,' Professor Mark S. W. Jefferson, State Normal College, Ypsilanti, Michigan.

QUOTING from the *Beilage zur allgemeinen Zeitung* for January 30, *Nature* states that an expedition is in course of being organized, under the auspices of the Royal Academy of Sciences of Berlin and the government of the Dutch East Indies, for the purpose of exploring Java in search of further remains of

Pithecanthropus. The originator of the idea appears to be Frau Professor Selenka, widow of the late Professor Selenka, of Munich, who has already traveled extensively in Borneo for the purpose of collecting embryos of the orang-utan. Dr. Elbert is attached to the expedition as geologist, whilst Dr. Maskowski, of Berlin, goes out as zoologist. A Dutch engineer, Mr. Oppenoorth, will have charge of the surveying and excavating operations. The Pleistocene volcanic breccia from which the original remains of Pithecanthropus were obtained by Professor Dubois at Trinil is believed to have a wide extent in the mountains of Java, reaching in some places to a height of 100 meters or more above sea-level, and it is proposed to examine this stratum thoroughly in a number of the more promising localities.

WE learn from *The American Museum Journal* that the museum has acquired by purchase a collection from the Samoan Islands. Among other things this contains a complete outfit for the manufacture of bark or 'tapa' cloth. In the manufacture of this cloth, single strips of bark from a species of mulberry are prepared by scraping and soaking in water, after which they are beaten out very thin by means of small wooden clubs. These thin sheets, while still wet, are laid one over another and the whole beaten together to form a large sheet of uniform thickness. Such bark cloth is in some respects a kind of paper, but it is serviceable as cloth since it is not easily damaged by water. The finished cloth is often ornamented by printing, or rather rubbing. For this purpose designs in relief are carved on wood or built up of palm-leaf cuttings, upon which the cloth is laid and rubbed with sticks of coloring matter, like crayon. This leaves an impression of the raised portion of the carving similar to that produced when a school-boy rubs the impression of a coin into the fly-leaf of his book. Aside from the tapa outfit, the collection contains several handsome pieces of finished cloth and a number of costumes, household utensils and other implements. It is proposed to install this collection together with other material in the museum as a special exhibit from

one of the colonial possessions of the United States.

UNIVERSITY AND EDUCATIONAL NEWS

By the will of the late Mrs. Peter Redpath, of the Manor House, Chiselhurst, England, McGill University will receive \$150,000 for the Peter Redpath Museum and the Peter Redpath Library. Of this sum \$120,000 is for the library and \$30,000 for the museum. The library will receive in addition the books of the Manor House Library. Both the library and the museum were the gift of Mr. Redpath.

It is announced that Mrs. Russell Sage has given an additional \$50,000 for the school at Sag Harbor.

YALE UNIVERSITY has received a bequest of \$10,000 from Mr. John J. Abernethy for the establishment of a fellowship.

THE New York *Evening Post* states that in a few weeks ground will be broken at Homewood, the new site of Johns Hopkins University, for the botanical gardens and laboratory, while the clearing away of the ground set apart for the houses of the faculty is being pushed rapidly. It is expected that the botanical gardens and laboratory will be in use by the close of the year.

THE new building for the College of Physicians and Surgeons, San Francisco, was formally dedicated on January 18. Dr. Winslow Anderson, president of the institution, delivered the address.

New buildings are being erected for the Schools of Mines and Metallurgy of the Pennsylvania State College, of which Professor Wadsworth is dean. These buildings are to be thoroughly equipped and when finished will cover a ground space of some twenty-one thousand square feet.

ACCORDING to the *British Medical Journal* a meeting of professors of the University of Warsaw, now closed, was recently held under the presidency of Professor Amalizki with the object of selecting a place for the establishment of a new Russian university. The choice appeared to be between Saratow and

Woronesch. The former city was said to be prepared to contribute a million roubles, while the latter offered 950,000 roubles.

At the annual midwinter commencement of the University of Nebraska, held on the thirty-eighth anniversary of its charter day on February 15 thirty-four students were graduated. Nineteen of these were bachelors of arts, thirteen bachelors of science and two bachelors of law.

THE summer school of New York University will offer a number of courses in advanced chemistry under Professor Arthur B. Lamb, director of the Havemeyer Laboratory, and Professor Martin A. Rosanoff. These courses will include a lecture course in physical chemistry, a laboratory course in physical chemistry, a laboratory course in electrochemistry, a laboratory course in organic synthesis, and a laboratory course in organic analysis. In addition to these courses the usual work in general chemistry, qualitative analysis and quantitative analysis will be offered.

GENERAL JAMES A. BEAVER, ex-governor of Pennsylvania, judge of the Superior Court and president of the board of trustees of the Pennsylvania State College, has been elected president of that institution. Dr. Judson P. Welsh, who was principal of the Bloomsburg State Normal School for many years, has been elected vice-president and business manager.

A CHAIR of industrial chemistry has been established at the University of Kansas to be occupied by Professor Robert Duncan.

DR. SHEPHERD IVORY FRANZ, psychologist to the Government Hospital for the Insane, has been appointed professor of experimental psychology in the George Washington University.

At the College of the City of New York George M. Hayes, of St. John's College, has been appointed tutor in mathematics, and the following tutors have been promoted to instructorships: Dr. Coffin, physics; Dr. Gutman, chemistry; Dr. Cohen, mathematics.

PROFESSOR THOMAS LOVEDAY, professor of philosophy at the South African College, Cape Town, has been appointed librarian to the University of Sheffield.