

9:00 A. M. Central Standard Time. Those who attend provide their own means of transportation and bring packed lunches.

The complete schedule for 1934 is as follows:

- (1) Region south of Chicago—May 12
Group meets at Thornton Community High School
- (2) Ottawa region—May 19
Meeting place, Ottawa Township High School
- (3) Savannah region—September 22
Meeting place, Savannah High School

- (4) Lawrenceville region—September 29
Meeting place, Lawrenceville High School
- (5) Havana region—October 6
Meeting place, Havana High School
- (6) Hardin County region—October 13
Meeting place, Rosiclare High School

Further information regarding individual trips may be secured by addressing Don L. Carroll, Associate Geologist, State Geological Survey, Urbana, Illinois.

SCIENTIFIC NOTES AND NEWS

DR. ARTHUR H. COMPTON, professor of physics at the University of Chicago, has been appointed George Eastman visiting professor at the University of Oxford during the academic year 1934–35.

DR. PAUL S. EPSTEIN, professor of mathematical physics at the California Institute of Technology, has been appointed non-resident lecturer in physics for the summer session of Cornell University. He will give a course on the modern applications of thermodynamics.

PROFESSOR J. C. McLENNAN, emeritus professor of physics at the University of Toronto, will deliver the twenty-fifth Kelvin lecture before the British Institution of Electrical Engineers on April 26, taking as his subject "Electrical Phenomena at Extremely Low Temperatures."

THE doctorate of laws was recently conferred by Stanford University on Dr. James Rowland Angell, president of Yale University, and on Dr. Edmund Taylor Whittaker, professor of mathematics at the University of Edinburgh.

DR. HARRY FRIEDENWALD, emeritus professor of ophthalmology, University of Maryland School of Medicine, Baltimore, was the guest of honor at a dinner given by his associates on February 3. About forty physicians were present, including members of the staff of the Baltimore Eye, Ear and Throat Hospital, with which Dr. Friedenwald has been associated for thirty-six years.

SIR HENRY WELLCOME, of London, has been awarded by the New York Branch of the American Pharmaceutical Association the Remington Honor Medal for 1934 in recognition of his researches in pharmacy and medicine and his ethnological and archeological investigations. This medal, the highest honor conferred by the profession of pharmacy in the United States, is awarded annually "to the man or woman who has done the most for American pharmacy during the preceding year or whose efforts during a number of years have culminated during the year in

results considered most important and advantageous for the profession." Sir Henry is the fourteenth recipient of the award.

THE Duddell Medal has been awarded by the Physical Society, London, to Harold Dennis Taylor for his work in the invention and design of optical instruments. The medal is given "to persons who have contributed to the advancement of knowledge by the invention or design of scientific instruments, or by the discovery of materials used in their construction."

THE Keith Prize for the period from 1931 to 1933 has been awarded by the council of the Royal Society of Edinburgh to Dr. A. Crichton Mitchell, for his work on "The Diurnal Incidence of Disturbance in the Terrestrial Magnetic Field," and the Neill Prize to Dr. G. W. Tyrrell, for his contributions to the geology and petrology of sub-arctic and sub-antarctic lands.

AWARDS of the Royal Medals of the Royal Geographical Society have been made as follows: Founder's Medal to Mr. Hugh Rutledge, for his journeys in the Kumaon and Garwhal Himalaya extending over eight years and his leadership of the Mount Everest Expedition, 1933. Patron's Medal to Captain Ejnar Mikkelsen, for his explorations in the Arctic between 1900 and 1912 and for his work in Eskimo resettlement on the East Coast of Greenland. Medals awarded by the council are: Victoria Medal to Edward Heawood, for his eminence in the history of geography and cartography and his devoted service to the society as its librarian. Murchison Grant to John Rymill, for his work in Greenland and leadership of the party after the death of H. G. Watkins on his second expedition. Back Grant to Dr. D. N. Wadia, for his studies of the Himalayan axis and other problems of Indian geomorphology of importance to geographers. Cuthbert Peek Grant to Edward Shackleton, to assist him in his proposed expedition to Ellesmere Land. Gill Memorial to W. B. K. Shaw, for his explorations and studies in the Libyan desert.

PROFESSOR H. ROSENBERG, director of the Astronomical Observatory in Kiel, has been appointed

visiting professor at the Yerkes Observatory of the University of Chicago, beginning on May 1. This appointment is made possible through grants received by the University of Chicago from the Rockefeller Foundation and from the Emergency Committee in Aid of Displaced German Scholars.

PROFESSOR J. R. MATTHEWS, head of the department of botany at the University of Reading, has been appointed Regius professor of botany at the University of Aberdeen. Professor F. E. Weiss will be acting head of the department during the summer term.

DR. E. J. WAYNE has been appointed professor of pharmacology at the University of Sheffield.

DR. GWILYM OWEN, professor of physics and formerly vice-principal, has been appointed principal for the remainder of the current session of the University College of Wales, Aberystwyth, owing to the resignation of Principal Sir Henry Stuart-Jones, on account of ill health.

At the twenty-fifth annual meeting of the American Society for Pharmacology and Experimental Therapeutics held in New York on March 30, the following officers were elected for the year 1934-35: *President*, R. A. Hatcher, Cornell University; *Vice-president*, A. L. Tatum, the University of Wisconsin; *Secretary*, E. M. K. Geiling, the Johns Hopkins University; *Treasurer*, O. H. Plant, the State University of Iowa; *Council*, W. de B. MacNider, the University of North Carolina, R. L. Stehle, McGill University; *Membership Committee*, C. D. Leake, University of California.

DR. ROLAND G. KENT, professor of Indo-European philology at the University of Pennsylvania, was elected president of the American Oriental Society at the recent Philadelphia meeting. Vice-presidents elected included: Dr. Ira M. Price, University of Chicago; Dr. A. K. Coomaraswamy, Museum of Fine Arts, Boston, and Dr. Berthold Laufer, Field Museum of Natural History, Chicago. The new directors include Dr. Morgenstern, Dr. Edward H. Hume, Yale-in-China, and Dr. Walter E. Clark, of Harvard University.

DR. EMERY R. HAYHURST, hygienist and consultant in occupational diseases to the Ohio State Department of Health, Columbus, has been appointed president for America of the Seventh International Congress on Occupational Diseases which meets in Brussels in July, 1935.

DR. LIVINGSTON FARRAND, president of Cornell University, and Franklin B. Kirkbride, economist and author, were elected to the board of directors on April 5 at the annual meeting of the Milbank Memorial Fund. Among members elected to the Advisory Coun-

cil were: Dr. Henry E. Sigerist, director of the Institute of the History of Medicine at the Johns Hopkins University; Assistant Surgeon General Lewis R. Thompson, chief of the Division of Scientific Research of the U. S. Public Health Service; Dr. Wade Hampton Frost, professor of epidemiology at the Johns Hopkins University; Dr. Raymond Pearl, professor of biology at the School of Hygiene and Public Health at the Johns Hopkins University, and Dr. Kendall Emerson, managing director of the National Tuberculosis Association.

At the annual general meeting of the Physical Society, London, held on March 16, the following officers were elected: *President*, Lord Rayleigh; *Vice-president*, Dr. D. Owen; *Secretaries*, Dr. Allan Ferguson (Papers), Dr. Ezer Griffiths (Business); *Foreign Secretary*, Professor O. W. Richardson; *Treasurer*, R. S. Whipple; *Librarian*, Dr. J. H. Brinkworth; *New Members of Council*, H. H. Emsley, Professor H. R. Robinson.

THE staff of the summer course in general physiology of the Biological Laboratory at Cold Spring Harbor will be increased this season by the addition of Dr. H. A. Abramson and Dr. Kenneth S. Cole, both of the College of Physicians and Surgeons of Columbia University, and Dr. Eric Ponder, of New York University. As in past years, Dr. Ivon R. Taylor, of Brown University, will have general charge of the course. Dr. Hugo Fricke, of the laboratory, who has been previously associated with the course, will continue to offer work as a member of its staff. Recently facilities have been considerably increased by a special grant for equipment.

PROFESSOR GEORGE A. CRABB, a member of the staff of the College of Agriculture of the University of Georgia since 1913, has been granted leave of absence to become chief soils expert with the Soil Erosion Service of the Department of the Interior. Professor Crabb will be in charge of the work in the Sandy Creek region of Clarke, Jackson and Madison Counties, Georgia. An appropriation of \$300,000 has been made for this work.

PROFESSOR P. H. ELWOOD, head of the department of landscape architecture at Iowa State College, has been appointed national consultant to the Iowa State Planning Board.

DR. ALWIN M. PAPPENHEIMER, professor of pathology of the College of Physicians and Surgeons, Columbia University, has returned after a visit of several months in Puerto Rico, where he has been visiting professor in the School of Tropical Medicine, San Juan.

DOW V. BAXTER, associate professor of forest pathology at the University of Michigan, who has leave

of absence for six months, has sailed for Europe. He plans to spend most of his time in Stockholm, and will also visit Denmark, studying the forest fungi of northern Europe.

R. H. MANSFIELD, of the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, who has been stationed at the Huancayo Magnetic Observatory in Peru since September 26, 1932, will leave the observatory the latter part of April for Buenos Aires whence he will proceed to Capetown, South Africa. After comparing his instruments with those at the University of Capetown, he will make his way up the east coast of Africa to Aden, Port Sudan and Suez, taking *en route* magnetic observations at selected stations previously occupied by observers of the Carnegie Institution of Washington. The principal object of this expedition is to obtain data for the study of the secular change of the earth's magnetism in the region visited. O. W. Torreson, of the department, accompanied by Mrs. Torreson, sailed from New York on April 7, for Peru, where he will join the staff of the Huancayo Magnetic Observatory.

DR. ALEŠ HRDLÍČKA, with a party of volunteer students, is leaving on May 15 on his sixth expedition to Alaska. These expeditions, carried on under the auspices of the U. S. National Museum and the Smithsonian Institution, have for their objects the tracing, as far as it may still be possible, of the coming of man from Asia, the location of long abandoned sites of human habitation in the far north and the search for old skeletal remains which may show what types of men came over from the Old World. This season's work will be concentrated on Kodiak Island, on a specially favorable prehistoric site covering two acres to the depth of over 15 feet and reaching to the barren glacial till that formed the original surface of the locality. The human deposits here are rich in skeletal remains of both man and animals, show three distinct zones of culture and at least two separate populations. The party will return late in September.

PROFESSOR HERBERT S. GASSER, head of the department of physiology at Cornell Medical College, lectures on "The Nerve Fiber as a Mechanism" before the New York University Chapter of the Society of the Sigma Xi on April 13.

J. GORDON BAKER, of the Research Laboratories of the Westinghouse Electric and Manufacturing Company, gave on February 7 a lecture on "Self Induced Vibrations" before the faculty and students of the Engineering College of the University of Wisconsin.

THE Smith-Reed-Russell lecture at the School of Medicine, George Washington University, was delivered on March 27 by Dr. Benjamin Watson, professor of obstetrics and gynecology of the College of Physi-

cians and Surgeons of Columbia University and director of the Sloane Hospital for Women. Dr. Watson's subject was "Present-day Conceptions of Puerperal Sepsis." The April lecture to the faculty and students will be given by Dr. Dean Lewis, professor of surgery at the Johns Hopkins University and president of the American Medical Association.

THE centenary of the birth of Mendeléeff in 1834 will be celebrated by the Chemical Society, London, at a meeting to be held on April 19 at the Royal Institution. Lord Rutherford will deliver a lecture entitled "The Periodic Law of Mendeléeff and its Interpretation."

THE eighty-first anniversary of the founding of the California Academy of Sciences occurred on April 4. The occasion marked the opening of the spring course of lectures, the first of which, on "Desert Lure of the Coachella," was given by John Claire Monteith, of Los Angeles. Lectures were planned for April 11 and 18, to be given by Mrs. W. P. Cockerell, of Boulder, Colo., entitled "The Romance of a Flower," dealing with the discovery and development of the red sunflower, and "The Guests of the Flowers." This course of lectures is the seventh course on the general subject "The Beauties of Nature." The African wild life habitat groups now being installed in Simson African Hall were on view for the first time. Four of the groups are now under glass and six others are nearing completion.

UNDER the auspices of the Edinburgh Mathematical Society a Mathematical Colloquium will be held in St. Andrews, Scotland, from July 18 to 28. The following lecture courses have been arranged: "World-Structure by the Kinematic Methods of the Special Theory of Relativity" by Professor E. A. Milne, Oxford; "Ramanujan's Note-Books and Their Place in Modern Mathematics" by Professor B. M. Wilson, Dundee; "Pictorial Geometry" by Professor H. W. Turnbull, St. Andrews, and "Expansions Relating to the Problem of Lattice Points" by W. L. Ferrar, Oxford. In addition there will be single lectures and informal discussions. A number of well-known mathematicians have announced their intention of being present. The chief foreign guest of the society will be Dr. Willem de Sitter, professor of astronomy at the University of Leiden.

UNDER the terms of the Janet Van Hise will, the sum of \$20,000 is left to the University of Wisconsin for the establishment of the Charles R. Van Hise fellowship in the department of geology. Under the will of Mary Clark Brittingham a bequest is made of \$10,000, the income to be used for research in the field of internal medicine. After making several individual bequests, the residue of the Stephen Moulton Babcock

estate is turned over to the regents, the income from which is to be used for the purchase of books for the University College of Agriculture and for the support of research fellowships in agricultural chemistry. The will of William A. Henry provides that after other bequests have been made, two thirds of the remainder of the estate is to be given to the university for the purchase of books, pamphlets and manuscripts relating to animal nutrition and animal husbandry.

AN American expedition to the Canadian Arctic will be led by Lieutenant Commander Donald B. MacMillan, who was a member of Peary's supporting party on his expedition of 1909. Button Islands in

Hudson Strait are the goal of the expedition, which is to be known as the MacMillan-Bowdoin College Ornithological and Botanical Expedition. Dr. Alfred O. Gross, of Bowdoin College, and at least one other professor and eight undergraduates will share in the adventure. The party will leave Wiscasset, Maine, on June 9, in the schooner *Bowdoin*, returning in September. The Button Islands were named for their discoverer, Sir Thomas Button, who commanded an expedition sent in search of the Northwest Passage more than three centuries ago. The main object of the expedition will be an attempt to complete the life history of certain North American birds, such as especially the fulmar and the kittiwake gull.

DISCUSSION

SILENCING THE "GUNS" OF SENECA LAKE

A MYSTERY of sound has hovered over Seneca Lake, in central New York, for more than a century. Occasionally, in calm weather with quiet water, a faint, low, dull boom is heard distinctly, suggesting a far-distant, muffled explosion. Fanciful stories and legends have arisen about the strange sounds, which have been doubted but well confirmed, widely described and discussed, with tentative explanations more or less imaginative and unscientific. To residents along the southern part of the lake the sounds have become commonplace.

A few well-attested observations have noted areas or patches of disturbance in the lake surface coincident with the booming. A few persons have associated the disturbances of the water surface with escape of gas; but the source and nature of the gas and the physics of the phenomena were yet unexplained.

However, the phenomena and the physical problem are now quite positively solved. The credit belongs to Mr. A. M. Beebe, the geologist and gas engineer of the Rochester Gas and Electric Corporation, who has recognized the association of certain geologic features and physical conditions as having relation to the Seneca Lake phenomena. The explanation found by him requires description of two geologic structures—the deep, buried valley that holds Seneca Lake and the location and rock structure of the Dundee gas field.

BURIED CANYON OF THE SENECA VALLEY

Southwestern America has its Colorado Grand Canyon. Central New York has its great Susqueseneca Canyon. But, while the Arizona trench is open to view as the most superb scenic feature in the whole world, the New York ravine is invisible and must remain unseen.

The only deep, open valleys in eastern America which in dimension and form merit the term "great canyon" are the valleys in the Catskill Mountains.

But these have brief horizontal extent. The buried canyon of the Seneca Valley is much over one hundred miles in length, with a depth, below the three-mile width in the southern part, of over two thousand feet. Although completely filled with glacial deposits and the imprisoned lake, and forever invisible, it is yet a physical reality of much interest and educational value.

During the Tertiary Period, preglacial time, while northeastern America had elevation several thousand feet higher above ocean than it has to-day, the north-flowing river which carved the deep Seneca Valley had captured the flow of all the Susquehanna system in New York, and poured its copious flood into the Ontarian River that possessed the great basin now holding Lake Ontario.

The actual depth of the Susqueseneca Canyon is unknown. A drilling at Watkins, near the level of the lake, probed to depth of 1,200 feet without reaching the rock bottom of the ancient valley. The erosional work of the Tertiary river was terminated by the invasion into New York of the Quebec continental ice-sheet, initiated on the alpine heights of the eastern highlands. The overriding of New York by the glacier or glaciers, through probably hundreds of thousands of years, completely filled the Susqueseneca River canyon with glacial and lake deposits and the existing lake. A cross-section diagram of the buried canyon, with some exaggeration in vertical scale, is given herewith.

THE DUNDEE GAS FIELD

In recent years a rapid development of rock gas has been made in the territory between Seneca Lake and Keuka Lake. In the western part of the gas area, the Wayne field, 97 wells have, during two years, reduced the pressure of the gas to near zero. In the eastern field, south and southwest of Dundee, 33 wells have reduced the gas pressure from 770 pounds per