Wald, of Columbia University, will each give two lectures. The titles of the lectures by Professor Neyman are "Theory of Confidence Intervals" and "On a Class of Tests Equivalent in the Limit to the Likelihood Ratio Tests," and of Professor Wald are "Outline of a General Theory of Statistical Inference" and "Asymptotic Properties of the Likelihood Ratio Tests."

The previous meeting of the society was held in New York City on October 30 and 31. On Friday morning, members were invited to attend a symposium of the Optical Society of America of invited papers on "Optical Instruments." In the afternoon, there was a symposium with the Optical Society of America on "Mathematics in the Field of Optics," with addresses by Professor J. L. Synge, of the University of Toronto; Dr. S. Q. Duntley, of the Massachusetts Institute of Technology; Dr. R. C. Jones, of the Bell Telephone Laboratories, and Professor Parry Moon, of the Massachusetts Institute of Technology. On Saturday, the sessions for contributed papers were held at Columbia University. In the afternoon, Professor Salomon Bochner, of Princeton University, delivered an address, by invitation of the program committee, on "Continuation of Analytic Functions in Several Variables."

SCIENTIFIC NOTES AND NEWS

A SYMPOSIUM on "The Physical and Chemical Organization of the Cytoplasm" will be held at the University of Chicago on November 13 in celebration of the seventy-fifth birthday of Professor R. R. Bensley. During the past ten years Dr. Bensley has separated a number of cytoplasmic constituents from the cytoplasm and subjected them to chemical analysis. He was for over thirty years director of the Hull Laboratory of Anatomy at the University of Chicago, and these pioneering studies on cytoplasm have been made in the ten years since his retirement.

AT the Richmond meeting of the Southern Medical Association, held on November 10, 11 and 12, the research medal of the association will be presented to Dr. Perrin H. Long, professor of preventive medicine at the Johns Hopkins University School of Medicine, "in recognition of his outstanding contributions to the knowledge of bacteriology and chemotherapy."

DR. C. VICTOR VIGNES, dean emeritus of the School of Dentistry of Loyola University, was honored recently by the dentists of New Orleans with a formal dinner in recognition of his fifty years of service to dental education and to the dental profession.

DR. WALTER H. SNELL, chairman of the department of botany of Brown University, has been appointed Stephen T. Olney professor of botany.

PROFESSOR W. LAWRENCE FAITH, of the Kansas State College, Manhattan, has been appointed professor of chemical engineering and head of the department at the State University of Iowa.

ALFRED TARSKI, the Polish mathematician and logician, formerly of the University of Warsaw, has joined the faculty of the University of California at Berkeley for the duration of the war. Dr. Tarski holds a Guggenheim fellowship, but prefers a post where he can continue teaching. He came to the United States in 1939 to attend a mathematical congress and to lecture at Harvard University. War conditions made it impossible for him to return to Poland. He has therefore decided to become a citizen of this country.

DR. WILLIAM CROCKER, managing director of the Boyce Thompson Institute for Plant Research, Inc., Yonkers, N. Y., will spend the winter quarter, from January to March, 1943, at the University of Washington, as Walker-Ames visiting professor. He will give a series of ten lectures on "Special Chapters in Plant Physiology," dealing with several projects developed at the institute during the last eighteen years. He will also give several popular lectures and conduct a seminar in botany.

DR. MATILDA M. BROOKS, research associate in biology at the University of California at Berkeley, has received the Grace Lavayea Fellowship of the Kappa Alpha Theta National Fraternity for the year 1942–1943, and also a grant-in-aid for research from the same source.

DR. R. ADAMS DUTCHER, head of the department of agricultural and biological chemistry at the Pennsylvania State College, has been appointed a member of a sub-committee of the Food and Nutrition Board of the National Research Council.

DR. E. R. GILLILAND, professor of chemical engineering at the Massachusetts Institute of Technology, and Ray P. Dinsmore, of the Goodyear Tire and Rubber Company, Akron, Ohio, are among the consultants appointed by the rubber director, William M. Jeffers, to study the technical aspects of the program.

DR. NED H. DEARBORN, dean of the division of general education of New York University, has been named executive vice-president and managing director of the National Safety Council, succeeding W. H. Cameron, who is retiring after serving for almost thirty years as managing director. Dr. Dearborn will

direct the greatly expanded war-time program now being conducted by the council.

DR. EDWARD S. ROGERS, acting assistant commissioner for medical administration of the New York State Department of Health, Albany, has been appointed director of the Office of War Nutrition Service of the New York State War Council. He will direct the work of all the departments and agencies that are concerned with problems related to nutrition. Dr. Alvin A. Florin, Woodmere, assistant district health officer, has been appointed assistant to Dr. Rogers.

DR. C. H. GRAVES, assistant professor of mathematics at the Pennsylvania State College, has leave of absence to enable him to serve as associate educational statistician in the Federal Security Agency, Office of Education, Washington, D. C.

DR. D. K. TRESSLER, head of the division of chemistry of the New York State Agricultural Experiment Station at Geneva, has presented his resignation, effective in January, to accept a position with the General Electric Company at Bridgeport, Conn. He will conduct research in the field of food refrigeration.

DR. FRANK E. EGLER, assistant professor of forest botany at the New York State College of Forestry, Syracuse, N. Y., has been appointed the first director of the newly established Experiment Station of the Chicle Development Company, with business offices at 500 Fifth Avenue, New York, N. Y., and field headquarters at Honey Camp, British Honduras, Central America. The Chicle Development Company is the Latin American subsidiary of the Beech-Nut Packing Company and the American Chicle Company. Dr. Egler maintains his affiliation with the New York State College of Forestry.

DR. M. DON CLAWSON, director of dental education at Meharry Medical College, who has served twelve years in the Near East, has been placed at the head of a mission to the Near East sponsored by the American Dental Association. The commission will make a survey in that area of the dental needs of the United Nations.

DR. ERNEST CARROLL FAUST, president of the American Society of Tropical Medicine, which meets at Richmond conjointly with the Southern Medical Association, will deliver the presidential address at the luncheon of the society on November 11. He will speak on "Horizons of American Tropical Medicine." The address of Dr. Herbert C. Clark, president of the American Academy of Tropical Medicine, will be given in the evening at the dinner of the academy. His subject will be "Some Impressions of Medical Practice in the Tropics."

THE third Alvarenga Prize Lecture was delivered before the College of Physicians of Philadelphia and the Philadelphia County Medical Society on October 14 by Dr. Edwin J. Cohn, professor of biologic chemistry and head of the department of the Harvard Medical School. His subject was "The Plasma Proteins: Their Properties and Functions."

DR. J. C. DRUMMOND, scientific adviser to the British Ministry of Food, delivered the Harben Lectures for 1942 at the Royal Institute of Public Health and Hygiene, London, on October 26, 27 and 28. His subject was "Problems of War-time Nutrition."

DR. R. M. TAYLOR, of the Rockefeller Foundation and the head of the virus department of the National Department of Hygiene, recently lectured on influenza at the Academia Nacional de Medicina of Buenos Aires.

BECAUSE of the war and the attendant difficulties, bringing increased burdens upon the membership of the Mineralogical Society of America, together with the difficulties of travel and arranging accommodations, the council of the society has voted to cancel the meeting originally scheduled for Ottawa from December 29 to 31. Abstracts of papers to be published will be received as usual, but publication of the official program for the annual meeting will be omitted this year. Abstracts submitted will be published in the March issue of the *Journal*, together with the report on the affairs of the society for 1942.

THE dedication of the Mineral Industries Building of West Virginia University was attended by five hundred delegates and visitors from the state and from neighboring states. The first day, October 16, was devoted to registration and general meetings and the second to divisional meetings.

THE industrial chemical investigations of the Regional Soybean Industrial Products Laboratory of the U. S. Department of Agriculture have been transferred from the University of Illinois to the Northern Regional Research Laboratory at Peoria, leaving at the university only an agronomic laboratory and oil, meal, engineering and analytical units. Dr. T. H. Hopper, director of the laboratory, has been appointed chief of the analytical and physical chemical division of the Southern Regional Research Laboratory at New Orleans.

THE Committee on Public Health Relations of the New York Academy of Medicine has made a report on oxygen therapy, a method of treatment which is growing in importance and in scope of application. It urges in eight recommendations that certain standards and regulations be adopted on the medical procedures to be followed and on the equipment to be used.

THE Parmly Foundation for research in hearing has been established at the Illinois Institute of Technology with an endowment of $300,000 by the late Samuel P. Parmly, Jr., who, though deaf, was a successful and well-known Chicago business man. The foundation will concentrate on the physics of hearing and will cooperate with the medical profession in studying other aspects of the problem involved.

ACCORDING to an announcement appearing in the daily press, the Swedish-American News Exchange was informed on October 16 from Stockholm that the Nobel Prizes would not be awarded this year. The prizes have not been awarded since 1939.

THE American Standards Association recently announced approval as American standards of twenty-three standards and specifications developed by the American Society for Testing Materials. All are of considerable interest to manufacturers and purchasers in the mechanical industries. Seven deal with wrought-iron and wrought-steel pipe and tubing; twelve cover specifications for testing materials for boilers, pressure vessels, flanges and boltings, locomotives, etc.; two cover malleable iron castings and cupola malleable iron and two deal with fabricated steel bars and welded steel wire fabric for concrete reinforcing. These twelve specifications cover materials for boilers, pressure vessels, flanges, locomotives, etc.

DISCUSSION

DEFORMATION OF ROCK STRATA BY EXPLOSIONS

THE greatest natural explosions produced on earth are due to the fall of giant meteorites and to volcanic explosions. Those of the first sort produce meteorite craters, those of the second calderas. Craters of both origins may be so nearly alike that surface configuration offers no sure criterion for their differentiation. Effects of the two types of explosions on the bed-rock are however quite unlike. Meteoric explosions may produce intense deformation in rock layers beneath and adjacent to craters; volcanic explosions produce little or no such deformation.

Examples to support this are found not far apart in Arizona. The famous "Meteor Crater," 4,000 feet across and 600 feet deep, records the impact and explosion of a giant meteorite, fragments of which were blown by the thousands over the surrounding plains. Sedimentary rocks exposed in the walls of the crater are tilted radially away from the center, and variation in the dips around the periphery defines a bilateral structural symmetry.[1] The brecciated wall rocks are broken by radial faults.

Evidences for violent volcanic explosions attended by eruption of lava and fragmental materials are found in the Hopi Buttes area in northeastern Arizona.[2] Some of the calderas thus formed were the size of Meteor Crater. Many have been deeply eroded, so that the structure of the underlying and adjacent bed-rock is displayed. Hack, who has studied and mapped these features in admirable detail, states that in no example was the bed-rock deformed as a result of the explosions.

From comparison of meteorite craters with volcanic calderas, it may be concluded that sudden deformation of bed-rock by flexing and faulting is characteristic only of explosion craters of the first type.

No one knows by direct observation how a dissected meteorite crater might appear or what types of structures would be revealed by deep erosion. However, the excavations at Odessa Meteorite Crater in Texas have shown that the rim rocks are folded and faulted and that deformation is highly localized around the periphery.[3] Generalizing from this observation and from the fact that fractured rim rocks of meteorite craters are usually elevated so as to dip away from the center in all directions, the type of structure to be expected beneath a large meteorite crater would consist of a central dome flanked by folds and broken by faults and joints.

Structures of this general pattern have long been known, and it is highly improbable that some of them can ever be accounted for in terms of stresses originating within the earth. Examples are the Flynn Creek structure of Tennessee,[4] formed during the Paleozoic, the Sierra Madera dome of western Texas,[5] formed between Permian and Cretaceous time, and several of the domical structures that Bucher[6] has called "cryptovolcanic."

Presumably meteorites have been falling since the beginning of geologic time, and it would be strange indeed if the lithosphere did not somewhere bear the scars of their impact and explosion.[7] The structures

[1] D. M. Barringer, *Proc. Acad. Nat. Sci. Philadelphia*, 57: 861–866; 66: 556–565.

[2] J. T. Hack, *Bull. Geol. Soc. Am.*, 53: 335–372.

[3] E. H. Sellards and G. Evans, mimeographed circular dated September 1, 1941, *Bur. Econ. Geol.*, University of Texas.

[4] C. W. Wilson and K. E. Born, *Jour. Geol.*, 44: 815–835.

[5] P. B. King, *Univ. Texas Bull.*, 3038: 123–125.

[6] W. H. Bucher, Rept. 16th Internat. Geol. Cong., p. 1055–1083.

[7] J. D. Boon and C. C. Albritton, Jr., *Field and Lab.*, 5: 1–9, 53–64; 6: 44–64.