carried on for several seasons by Drs. Campbell and Maxson under the auspices of the Carnegie Institution. A river trip was necessary in order to visit sections inaccessible by pack train from the rim. Work in the Granite Gorges was greatly facilitated by the excellent topographic maps of Matthes, Evans and Birdseye and by the careful geological reconnaissances of Noble and Moore.

The final results of the present trip must wait for laboratory examination of rock specimens under the microscope, which may to some extent modify the interpretations of field observations. Among the latter, however, may be tentatively listed:

1. The recognition of many primary structures in the Archean (Vishnu) schists, establishing definitely their origin as dominantly sedimentary.
2. The tracing of isoclinal folds across regional schistosity of the recrystallized sediments by means of bedding outlined by biotite concentrations along lines of fracture cleavage and by the presence of pegmatite and quartz stringers following lines of drag folds in the schists.
3. The close folding, repeating many times the Vishnu series in the Canyon, instead of a single, large, open fold involving an extremely thick series of the old schists, as formerly thought.
4. The presence of a large amount of amphibolite schists, which are so intimately intercalated with the sedimentary schists, that a water-lain, tuffaceous origin is suggested; and a lesser amount of cross-cutting amphibolite, assumed to represent old basic intrusions.
5. The record of two magmatic invasions, possibly separated in time but probably emanating from the same batholithic chamber underlying the Canyon section. The larger magmatic invasion was migmatitic in character, while a smaller granitic mass was somewhat more mafic, due to stoping and assimilation of amphibolitic country rock. A later series of pegmatite and aplite dikes cut the granites and schists, and represent the last event of Archean history in the Canyon sections.

Besides the detailed work in the Archean sections there was opportunity also for some observations on the continuity and changes in the lower Paleozoic formations; for some data on late inter-canyon lava flows; and for structural studies including the mapping of new faults and the recognition of repeated movement along many of the old fault zones.

Much credit is given to the boatmen for their skillful work, which left the geologists of the party free for scientific observations the greater part of the time.

THE SECTION OF GEOLOGY OF THE TENNESSEE ACADEMY OF SCIENCE

THE first meeting of the Section of Geology of the Tenessee Academy of Science was held on Friday afternoon, November 26, 1937, at the time of other section meetings of the forty-first meeting of the Tennessee Academy of Science at George Peabody College for Teachers in Nashville. Professor L. C. Glenn, of Vanderbilt University, a charter member of the academy, presided. Thirty-seven members and visitors attended the meeting.

On Saturday afternoon and Sunday (November 27–28) the section, under the leadership of C. W. Wilson, Jr., of Vanderbilt University, and Kendall E. Born, of the Tennessee Division of Geology, sponsored a geologic field trip into the Wells Creek Basin, a typical cryptovolcanic structure in southeastern Stewart County. The Wells Creek Basin, the largest of the American cryptovolcanic structures, consists of an intensely disturbed area of approximately 9 miles square. At the center of the disturbance the Knox dolomite of Cambro-Ordovician age is brought up through the St. Louis (Mississippian) limestone, a vertical displacement of more than 1,000 feet. Formations of Cambro-Ordovician, Ordovician, Silurian, Devonian and Mississippian ages are involved, many of which are not exposed elsewhere in Middle Tennessee. Sunday was spent in the examination of some of the more complex structural and stratigraphic aspects of this unique area.

On Saturday afternoon, *en route* to Wells Creek Basin, the following points of geologic interest were visited: Block faulting in North Nashville; Silurian, Devonian and lower Mississippian sections on the western flank of the Nashville dome; and a typical Tuscaloosa (Upper Cretaceous) outlier on the western Highland Rim.

Twenty-one members and visitors from six states were present on this field trip.

THE ANNUAL MEETING OF THE NEW YORK ACADEMY OF SCIENCES

A. CRESSY MORRISON, industrial chemist, chairman of the advisory committee of the Hayden Planetarium at the American Museum of Natural History, was elected president of the New York Academy of Sciences, the oldest scientific society in New York City, at the one hundred and nineteenth annual dinner of the academy held on November 15.

Twenty-nine members were elected fellows of the academy and honorary members were elected as follows: Dr. Orpen Bower, botanist of the University of Glasgow; the Rev. Pierre Teilhard de Chardin, S.J., paleontologist, of the Cenozoic Research Laboratory, China; Dr. D. Obrutschew, geologist, of the Soviet Academy of Sciences, Leningrad; Dr. Charles Palache, mineralogist of Harvard University; Dr. H. Spemann, embryologist, of the University of Freiburg, and Dr. Franz Weidenreich, director of the Cenozoic Research Laboratory.

In an address made after the elections, Dr. Barnum Brown, curator of fossil reptiles at the American Museum of Natural History, described his research last

summer in the so-called "dinosaur bowl," near Rock Springs, Wyo., and in the coal mines of Colorado.

Dr. Horace W. Stunkard, professor of zoology at New York University, the retiring president, delivered an address entitled "Parasitism and Evolution as Illustrated by Some of the Lower Forms of Life."

The A. Cressy Morrison Prizes of $200 each were awarded to Robert H. Denison for a paper on paleontology and to Raymond L. Zwemer and F. H. Pike for their paper on the effect of nerve excitation on potassium in body fluids.

Announcement was made that two prizes of $200 would be awarded by Mr. Morrison in 1938 for the best papers in a field of natural science, and that there would be an additional prize of $500 for the best paper on scientific developments relating to the source of the sun's energy.

Officers elected in addition to Mr. Morrison are: Ida H. Ogilvie, Herbert Johnson, Irving Lorge, Harry L. Shapiro, *vice-presidents;* Wyllys R. Betts, Jr., *treasurer;* Frederick H. Pough, *recording secretary;* Dr. Stunkard, *corresponding secretary;* G. Kingsley Noble, *librarian;* John H. Barnhart, *editor;* Dr. Brown and A. T. Poffenberger, *councilors,* and Herbert F. Schwarz, John D. Sherman, Jr., and Wayne M. Faunce, *members of the finance committee.*

SYMPOSIA OF THE AMERICAN CHEMICAL SOCIETY

A THREE-DAY symposium on the "less familiar chemical elements" sponsored by the Division of Physical and Inorganic Chemistry of the American Chemical Society, will be held at Cleveland, beginning on December 27. Professor Harold S. Booth, of Western Reserve University, is chairman of the division.

There are thirty-one papers on the program covering technological, scientific and economic developments concerning the rarer elements, including beryllium, tungsten, molybdenum, tantalum, columbium, indium, lithium, rubidium, gallium, cesium, selenium, germanium, rhenium and osmium.

M. J. Rentschler, general manager of the J. H. R. Products Company, Willoughby, Ohio, will be the chief speaker at a banquet on the evening of December 28, at the Hotel Statler, headquarters of the meeting. His subject will be "One of the More Familiar of the Less Familiar Elements." In addition to the papers to be read before the technical sessions there will be a symposium at 8 A.M. on Monday, December 27, at which Dr. J. Papish, of Cornell University, will discuss the non-terrestrial occurrence of the less familiar elements, and B. F. Scribner of the National Bureau of Standards will point out their occurrence in everyday materials; H. C. Meyer, president of the Foote Mineral Company, Philadelphia, will outline their economics, and Dr. E. G. Zies, of the Geophysical Laboratory, Washington, D. C., will describe their concentration through igneous and related activity.

An industrial trip to the General Electric Company Wireworks is scheduled for Tuesday afternoon, December 28. The manufacture of tungsten and molybdenum wire from ore, and the separation and purification of argon will be demonstrated. Tours will be made on Thursday morning through the inorganic chemistry division of the Morley Chemical Laboratory of Western Reserve University, where the manipulation of fluoride gases will be illustrated; the research laboratories and color department of the Harshaw Chemical Company; and the laboratories of the Ferro Enamel Corporation. An exhibition will be arranged at the Hotel Statler.

At the seventh national organic chemistry symposium of the society to be held in Richmond from December 28 to 30, leading organic chemists will report progress in research dealing with vitamins, proteins and carbohydrates, synthetic drugs, refrigerants and the structure of other carbon compounds. Seventeen colleges and universities and three research laboratories will be represented by the addresses given.

Dean Frank C. Whitmore, of the Pennsylvania State College, who will take office as president of the society on January 1, will be one of the opening speakers on Tuesday morning, December 28. Professor I. A. Updike, of Randolph-Macon College, will give the address of welcome. Dr. Robert R. Williams, chemical director of the Bell Telephone Laboratories, will discuss the chemistry of thiamin, or vitamin B, the "beriberi vitamin," the structure of which he discovered after twenty-five years of effort. Professor Roger Adams, of the University of Illinois, past president of the society, will be present at the meeting and will read a paper describing the structure of gossypol, the toxic principle of cottonseed, at the Tuesday afternoon session.

Six reports on microchemistry will be presented on Tuesday evening. These have been arranged by Professor Alsoph H. Corwin, of the Johns Hopkins University; Dr. Lyman C. Craig, of the Rockefeller Institute for Medical Research, and Dr. Walter R. Kirner, of the Carnegie Institute of Technology, chairman of the Microchemical Section.

Dr. Max Bergmann, of the Rockefeller Foundation, will be the chief speaker at a dinner meeting on Wednesday. His subject will be "Protein Structure in Relation to Biological Problems."

OFFICERS OF THE AMERICAN CHEMICAL SOCIETY

DR. CHARLES A. KRAUS, professor of chemistry and director of chemical research at Brown University,