

ing the material and social welfare of the people." Governor Browning this year has established a department of conservation which has proposed an extensive educational program of conservation and is now engaged in a scientific study of the available natural resources of the state. In view of these facts the academy appropriately passed a resolution to appoint a conservation committee to arrange for cooperation.

The attendance of members at the meeting and the number of papers on the program were the largest in the history of the academy. The address of President Bircher at the academy dinner on "The Aims and Future of the Academy" was most timely for the closing meeting of the twenty-fifth year of the academy. After the address the reshowing of the natural color cinematograph films illustrating the fauna and flora of Reelfoot Lake added much to the enjoyment of the occasion. The Tennessee Legislature last April made an appropriation to the academy for the Reelfoot Lake Biological Station of \$5,000 for the biennium 1937-39. The films were made by Dr. C. L. Baker, director of the station.

A field trip sponsored by the Geology Section and led by Kendall E. Born, of the Tennessee Division of Geology, was made on Saturday afternoon into the Wells Creek Basin, in Stewart County, the largest of the American cryptovolcanic structures.

The officers elected for 1937-38 were: *President*, Jesse M. Shaver, George Peabody College; *Vice-President*, Aaron W. Dieus, Tennessee Polytechnic Institute; *Secretary-Treasurer*, John T. McGill, Vanderbilt University; *Chairman*, Botany Section, Dr. H. M. Jennison, University of Tennessee; *Chairman*, Geology Section (not yet elected); *Chairman*, Physics Section, Dr. Francis G. Slack, Vanderbilt University.

JOHN T. MCGILL

VANDERBILT UNIVERSITY

### THE FLORIDA ACADEMY OF SCIENCES

THE second annual meeting of the Florida Academy of Sciences was held at the University of Miami, Coral Gables, Florida, on November 18, 19 and 20. November 18 was devoted to two all-day field trips. One of these was a marine zoological trip under the direction of Professors J. F. W. Pearson and E. M. Miller, of the University of Miami. About thirty-five members of the academy were carried by boat down Biscayne Bay and outside to Fowey Light below Soldier Key. The boat carried diving equipment, and each person was given the opportunity of going to the bottom in about eighteen feet of water and viewing the underwater life.

The other all-day field trip was botanical in nature and was under the direction of Professors W. S. Phillips and W. M. Buswell, of the University of Miami.

The group went to Costello Hammock, one of the many hammocks typical of the region between Miami and Homestead. Mangrove swamps and salt marshes were visited, and the return trip was through the Miami pinelands to the Everglades. Some interesting transitions between these two localities were observed.

On the afternoon of November 19 six papers were presented in a general session, five papers in the Biological Sciences Section and five papers in the Physical Sciences Section.

On the evening of November 19 the annual banquet of the academy was held, with Professor Jennie Tilt, of the Florida State College for Women, vice-president of the academy, as toastmaster. President Bowman F. Ashe, of the University of Miami, delivered an address of welcome, and the retiring presidential address, "The Background of our Knowledge of Florida Plants," was delivered by Dr. H. Harold Hume, director of research of the University of Florida Agricultural Experiment Station.

The achievement medal for an outstanding paper delivered at the 1936 annual meeting of the academy was presented to Dr. H. Harold Hume for his paper, "Cohering Keels in Amaryllids and Related Plants."

On November 20 six papers were presented in the Biological Sciences Section, three papers in the Physical Sciences Section, and two papers in a general session.

At the business session officers for 1938 were elected as follows: *President*, Dr. R. I. Allen, Stetson University; *Vice-President*, Miss Charlotte B. Buckland, Landon High School, Jacksonville; *Secretary*, Dr. J. H. Kusner, University of Florida; *Treasurer*, Dr. J. F. W. Pearson, University of Miami; *Chairman of Biological Sciences Section*, Dr. L. Y. Dyrenforth, St. Luke's and Riverside Hospitals, Jacksonville; *Chairman of Physical Sciences Section*, Dr. B. P. Reinsch, Florida Southern College.

About 100 members and guests were present.

J. H. KUSNER,  
*Secretary*

### THE OKLAHOMA ACADEMY OF SCIENCE

THE twenty-sixth annual meeting of the Oklahoma Academy of Science was held at the University of Oklahoma, Norman, Okla., on December 3 and 4, 1937. Of the 410 members, approximately 250 attended the meeting. Ninety-five papers were presented in the various sections.

Dr. Dwight M. Moore, head of the Department of Botany of the University of Arkansas, gave the annual address on Friday evening, December 3, in the Engineering Auditorium. The title of his lecture was "Wild Flowers in Relation to their Environment."

Dr. B. D. Barclay gave the annual presidential address at the luncheon held on Saturday in the Oklahoma Union ballroom. He spoke on "Contributions of Morphology to Modern Plant Science."

The Research Award of \$50, for 1937, financed by the American Association for the Advancement of Science, was made to Dr. Milton Hopkins, of the Botany Department of the University of Oklahoma.

The annual business meeting was held on Saturday, December 4. Miss Edith R. Force, Tulsa, Okla., was made a fellow in the society, and the following officers were elected for 1938:

*President:* C. M. Perry, University of Oklahoma.

*Vice-Presidents:*

Section A—F. A. Fenton, Oklahoma Agricultural and Mechanical College.

Section B—O. F. Evans, University of Oklahoma.

Section C—J. E. Webster, Oklahoma Agricultural and Mechanical College.

Section D—G. M. Rankin, Central State Teachers College.

*Secretary-Treasurer:* G. L. Cross, University of Oklahoma.

*Assistant Secretary-Treasurer:* H. I. Featherly, Oklahoma Agricultural and Mechanical College.

G. L. CROSS,  
*Secretary-Treasurer*

## SPECIAL ARTICLES

### SULPHANILAMIDE AND VIRUS DISEASES

SINCE the report of Domagk<sup>1</sup> in 1935 concerning the chemotherapeutic action of Prontosil in streptococcal infections, it has been found that a fraction of the Prontosil molecule, para-aminobenzene sulphonamide (sulphanilamide), is also effective in streptococcal infections and in a few other bacterial infections as well (meningitis, gonorrhea, etc.).

Naturally one of the early questions which arose was the possibility of using these chemotherapeutic agents in virus diseases. In September, 1937, Rosenthal, Wooley and Bauer<sup>2</sup> reported that Prontosil possessed therapeutic activity against the virus of choriomeningitis in mice but that sulphanilamide and Prontosil Soluble were inactive.

We have recently tested experimentally three additional virus diseases with sulphanilamide (Prontylin) with results similar to those described by the above authors. Since this subject is a very active one in the field of medical research at the present moment and since the mode of action of these drugs is of such interest, we wished to call particular attention to the apparent negative action of sulphanilamide on the virus diseases we have tested.

Employing sufficient numbers of animals for experimental infection and for controls we tested the activity of sulphanilamide against the viruses of poliomyelitis, rabbit fibroma and rabbit myxomatosis. In the poliomyelitis experiments a group of monkeys was inoculated intracerebrally with mixed poliomyelitis virus. Forty-eight hours later several of these animals were given subcutaneous injections of sulphanilamide, while others received no treatment with the drug and were kept as controls. The animals treated were given one-half gram of the drug, suspended in physiological salt solution, per kilogram of body weight. The treat-

ments were continued for five successive days. The animals received a total of from six to twelve grams of the drug, depending upon their weights. All the monkeys died, including the controls, in from ten to fourteen days with typical symptoms of poliomyelitis except one monkey, which survived for twenty-seven days. This animal had received the drug daily for five days, beginning forty-eight hours following injection, and a total of 9.1 grams of sulphanilamide were administered. Kelson<sup>3</sup> has also reported negative results in experimental poliomyelitis when animals were infected by the intranasal route.

Rabbits experimentally infected with fibroma and myxoma viruses, respectively, were also given subcutaneous treatments with the drug. The dosage used was the same as in the experiments with poliomyelitis virus. An equal number of infected, but untreated, animals were kept for controls. In the case of myxoma virus all the animals, both treated and untreated, died with myxomatosis on the tenth to twelfth day following injection with the virus. Treatments with sulphanilamide were begun forty-eight hours following injection with virus and were continued for three successive days. Experiments with fibroma virus were carried out similarly, and all animals, treated and untreated, developed fibroma, except for two controls which died of an intercurrent infection.

These negative results with sulphanilamide in treating experimental virus infections raise certain questions regarding the mode of action of this drug, particularly in view of a few bacterial diseases in which it is apparently highly efficacious. One of the essential differences between virus and bacterial infections is that the former are invariably of an *intracellular* nature while the latter are chiefly *intercellular*, though in some bacterial diseases cellular invasion is also characteristic. It is suggested that sulphanilamide is un-

<sup>1</sup> G. Domagk, *Deutsch. Med. Wchnschr.*, 61: 256, 1935.

<sup>2</sup> Sanford M. Rosenthal, Jerald G. Wooley and Hugo Bauer, *Pub. Health Rep.*, 52: 1211-1217, 1937.

<sup>3</sup> Saul R. Kelson, *Proc. Exp. Biol. and Med.*, 36: 718-720, 1937.