

Kentucky. Several Kentucky ornithologists are interested in making a cooperative study of this bird as it occurs in the state.

The Tuesday session was devoted to bird-banding as a means of studying migration, etc. The speakers were: Dr. Lynds Jones (Oberlin College), E. A. Goldman (U. S. Biological Survey), A. F. Ganier (Nashville, Tenn.), William I. Lyon (Waukegan, Ill.), and J. M. Robinson (Alabama Polytechnic Institute). The papers aroused much interest in this comparatively new way of studying birds. It seems best to trap and band adults rather than to band the young. Traps are being devised to catch birds that do not come to the ground to feed, even humming-birds. It is hoped that many bird lovers will take up the fascinating work of banding and recording the birds of their localities.

SECTION G (BOTANICAL SCIENCES)

Vice-president and chairman, Charles J. Chamberlain.

Retiring vice-president, Francis E. Lloyd.

Secretary, Robert B. Wylie, State University of Iowa, Iowa City, Iowa.

(*Report by Robert B. Wylie*)

Under the auspices of the section committee a joint session with the Botanical Society of America and the American Phytopathological Society occurred on Friday afternoon. The first number on the program was the retiring vice-presidential address, given by Professor Francis E. Lloyd, of McGill University, on fluorescent pigments in plants. The green fluorescent pigments fluoresce red, while the others fluoresce yellow, orange or green. By Professor Lloyd's new method, dark-field illumination is so employed that not only the fluorescence of cell pigments *in situ* may be demonstrated but also structural relations may be studied at the same time. Preparations of living plants were microscopically exhibited, gleaming brilliantly in hues of red, orange or yellow, as were also color-process photomicrographs of these same organisms, the first photographs ever made by means of fluorescent light emitted by the plants themselves. Professor Lloyd's address was followed by three invitation papers. Professor L. R. Jones, of the University of Wisconsin, discussed the relations of environmental conditions to disease susceptibility in plants, specially emphasizing the influence of temperature. The paper was illustrated by charts of relations between temperature and susceptibility to disease caused by fungi in several crop plants. Dr. Lester W. Sharp, of Cornell University, discussed recent cytological progress, emphasizing the gains secured through the conception of protoplasm as a colloidal system. Thus are the points of view of cy-

tologists, physiologists and chemists brought together. Dr. Sharp discussed cytoplasmic inclusions and chromosomes. He stated that recent progress favors the plasmodial theory of the multicellular organism. Dr. B. M. Duggar, of the Missouri Botanical Garden, discussed hydrogen-ion concentration with reference to cell metabolism, reviewing recent contributions on the germination of spores, the growth of fungi and the problems of cell absorption and metabolism in higher plants, as influenced by the H-ion concentration. Isoelectric points in protoplasm received attention, and emphasis was laid on the necessity for distinguishing between the protoplasm and the cell sap when H-ion concentration is being studied.

The Botanical Society of America

President, Benjamin M. Duggar.

Secretary, Ivey F. Lewis, University of Virginia, University, Va.

The Cincinnati meeting was the eighteenth annual meeting of the society. It opened Thursday morning and was finished on Monday. The following officers for 1924 were elected: *President*, William Crocker; *vice-president*, A. F. Blakeslee; *representatives in the council of the American Association for the Advancement of Science*, B. M. Duggar and J. R. Schramm. The program of the meeting was arranged to care for papers on general botany (general sessions) and those of the three sections of the society: Physiological Section, Systematic Section, and Mycological Section. Several sessions of the society frequently occur simultaneously and each section has its own chairman and secretary. The Joint Genetics Section is a joint organization of students of genetics in this society and in the American Society of Zoologists. Its sessions are reported on a subsequent page, after the reports for both Sections F and G have been all presented; it is considered as the first in the series of organizations that are equally related to those two sections of the association. The reports for the general sessions of the Botanical Society will be given here, followed by those for the sessions of the three sections of the society.

General Sessions, B. S. A.

(*Report by I. F. Lewis*)

General sessions of the society were held Friday forenoon and afternoon (in the latter case jointly with Section G and the Phytopathological Society; see directly under the heading for Section G, above), Saturday afternoon (jointly with the American Society of Naturalists and the American Society of Zoologists; see under the former) and Monday forenoon. The Botanists' dinner occurred Friday evening, at which the retiring president's address was given by

Professor Henry C. Cowles, of the University of Chicago. He spoke on "Some successes and failures in the field of ecological research."

The Friday forenoon general session included ten papers, about evenly divided as to subject between algae and seed-plant anatomy. Dr. W. D. Hoyt, of Washington and Lee University, emphasized the importance of physiological characters in delimiting alga species. Dr. E. L. Stover, of Eastern Illinois State Teachers' College, discussed thickening in xylem vessels. Eloise Gerry, of the U. S. Forest-Products Laboratory, presented new information on the relation of depth of chipping to turpentine flow and to the value of the lumber subsequently recovered from pines that are used for turpentine production. Dr. C. A. Noé, of the University of Chicago, exhibited specimens of American coal balls, which promise to furnish much new information on fossil plants of the Carboniferous. The Monday forenoon general session included 11 papers. Isabel S. Smith, of Illinois College, described anatomical features of the *Nelumbo* seedling. D. M. Mottier, of Indiana University, reported on experimentation with fern prothallia, and H. M. Benedict, of the University of Cincinnati, spoke on senile changes in leaves of annuals. J. T. Lloyd, of the University of Cincinnati, demonstrated the separation of the leaf pigments of the copper beech. A paper by Elizabeth G. Britton, of the New York Botanical Garden, dealt with the present promising and encouraging status of the wild-flower conservation movement.

The Systematic Section, B. S. A.

Chairman, John H. Schaffner.

Secretary, Alfred Gundersen, Brooklyn Botanic Garden, Brooklyn, N. Y.

(Report by Alfred Gundersen)

Dr. W. R. Maxon was elected chairman of the section for 1924, and Mrs. Agnes Chase, of the U. S. Bureau of Plant Industry, was elected secretary. A committee, with H. A. Gleason as chairman, was appointed to study the project for the Systematic Section to prepare a list of genera of the United States and Canada, to set forth all the various points of view thus far taken by workers in taxonomy.

The Systematic Section met on Saturday with Professor Schaffner as chairman, for a symposium on the "Age and area hypothesis of Willis." Of the five papers presented, four were opposed to the hypothesis. Dr. H. A. Gleason, of the New York Botanical Garden, discussed evidence from phytogeography that retreating migrations are important factors in the history of most plants, particularly in the North Temperate zone. Endemics of isolated habitat may never have opportunity for expansion. Professor E. W. Berry, of the Johns Hopkins University, pointed out that continual environmental flux must result in the extinction of more specialized, less plastic forms. Large genera are not necessarily older than small ones. The distribution of fossil genera was generally much more extensive than is the distribution of corresponding existing genera. Professor M. L. Fernald, of Harvard University, spoke on ancient and modern floras of the Gaspé Peninsula and of Newfoundland. The ancient ranges were much more restricted, both within and outside of these regions. The unglaciated areas about the Gulf of St. Lawrence have 100 endemic species, whose nearest relatives are from 1,500 to 3,000 miles away. On the other hand, glaciated western Nova Scotia has essentially no endemics. According to Professor E. W. Sinnott, of the Connecticut Agricultural College, widely dispersed species are to be regarded as comparatively young ones, which have not yet had time to become disintegrated, rather than as very ancient ones. Dr. J. M. Greenman, of the Missouri Botanical Garden, alone spoke in favor of the Willis view as recently qualified. From a study of certain groups of the genus *Senecio* in Central and South America, he found evidence that species of the same group show more or less definite relation between the area occupied and the age of the species. However regarded, Willis's hypothesis has stimulated interest in plant geography more than any contribution since the days of Lyell, Sir Joseph Hooker and Darwin.

NOTE

Reports of the sessions of the other sections and societies and the statement of the permanent secretary concerning the organization and work of the association will be printed in the issue of SCIENCE for February 1.

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