



Hunt Institute for Botanical Documentation
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About the Institute

The Hunt Institute for Botanical Documentation, a research division of Carnegie Mellon University, specializes in the history of botany and all aspects of plant science and serves the international scientific community through research and documentation. To this end, the Institute acquires and maintains authoritative collections of books, plant images, manuscripts, portraits and data files, and provides publications and other modes of information service. The Institute meets the reference needs of botanists, biologists, historians, conservationists, librarians, bibliographers and the public at large, especially those concerned with any aspect of the North American flora.

Hunt Institute was dedicated in 1961 as the Rachel McMasters Miller Hunt Botanical Library, an international center for bibliographical research and service in the interests of botany and horticulture, as well as a center for the study of all aspects of the history of the plant sciences. By 1971 the Library's activities had so diversified that the name was changed to Hunt Institute for Botanical Documentation. Growth in collections and research projects led to the establishment of four programmatic departments: Archives, Art, Bibliography and the Library.

MISSOURI BOTANICAL GARDEN
FIFTEENTH ANNUAL SYMPOSIUM ON SYSTEMATICS

OCTOBER 18-19, 1968

THE PRACTICAL VALUES OF SYSTEMATICS

This Symposium is designed to search for the basic aims and utility of systematics. Systematics has been said to be an organizational system, a technique for arranging our knowledge of living things so that information of diverse sorts from many sources can be filed in a logical system based on the degree of relationship. Taxonomy, the scientific application of names, is a basic part. As a tool, systematics uses facts and complex ideas and these may be recovered in patterns which lead to new ideas. Recent discussions and published articles on the role or definition of systematics have not stressed its aims in the light of practical applications of the method, nor have systematists vigorously attempted to discover and demonstrate ways in which their methods can be used in such fields as biochemistry, anthropology, geography, medicine and public health, agriculture, economics, and many others. The methodology of systematics brings like things together and, therefore, its use will facilitate information retrieval in any field.

The program will cover a wide range of organisms in short and varied papers designed to encourage constructive discussion. Ways to present the multi-dimensional, polyphyletic, evolutionary network of living things in a way so that facts and ideas can be recorded, recovered, and then used by many kinds of people will be considered. This will lead to a discussion of the function and preparation of floras and monographs and means to conserve and utilize data from all fields of biology. Some of the findings may lead to more imaginative use of electronic data processing equipment.

We would like any suggestions and comments you may have so that a brief summary of ideas and opinions can be distributed before the Symposium in order that time will not be spent during the Symposium on basic and elementary data.

Registrations must be accompanied by a non-refundable \$5.00 fee which includes lunch and dinner on Saturday, October 19. No funds are available for general travel support and this year no barracks space will be available. Checks should be made out to:

Missouri Botanical Garden
2315 Tower Grove Avenue
St. Louis, Missouri 63110

SPACE IS LIMITED TO 200. PLEASE REGISTER EARLY!!!

Hugh Cutler
Symposium Chairman

HC/dg

Missouri Botanical Garden's 14th Systematics Symposium

F. R. Fosberg of the Smithsonian Institution told participants of the 14th annual Systematics Symposium of the Missouri Botanical Garden that botanists and zoologists must cooperate and study what man is doing to the environment in order to know what steps must be taken to maintain conditions adequate for existence. For many areas where extensive changes are going on and developments planned, we do not even know what organisms are present and we lack data which would enable us to predict what will result from some of the changes we plan, he said.

The symposium was held at the Garden, Oct. 13-14. It provided a forum at which botanical and zoological taxonomists from Midwestern institutions discussed professional matters and exchanged ideas on systematic problems fundamental to biology. The symposium was organized by a committee selected by Hugh C. Cutler, chairman, from biologists at the Garden and at Washington University.

Charles A. Reed (University of Illinois, Chicago), in a paper on the environment and hunting habits of the late Paleolithic, upper Pleistocene people of northern Iraq, discussed the results of excavations in several small caves in the foothills of the Zagro Mountains.

Studies at the Missouri Botanical Garden, mainly on corn, squash, and pumpkins, which show that periods of greatest movement and change in cultivated plants coincide with periods of greatest cultural change, were presented by Hugh C. Cutler

in his paper on plant remains from archeological sites. He emphasized that, though many archeologists recognize the value of plant and animal remains, very few make serious efforts to save more than the most obvious and large specimens to study. Unless some way is found to encourage the preservation and study of such materials, he said, records essential to an understanding of the flora and fauna of the past and the evolution of domesticated forms will be lost.

Peter H. Raven (Stanford University) reviewed the structure and change in plant taxonomy of a Tzeltal-speaking community in his paper, Botanical ethnography of highland Chiapas, based on about 16,000 plant collections with ethnographic data. He pointed out that while important indigenous plants usually have many local names for variants unrecognized in European classifications, local names for post-Conquest introductions usually are equivalents of the Spanish names.

Richard W. Pohl (Iowa State University) showed in his paper, "Interactions between man and grasses," how the evolution of some animals, including the horse and man, is directly related to the evolution of grasses.

Barbara Lawrence (Harvard University) emphasized the morphological evidence pointing to a small wolf-like animal as the ancestor of the domestic dog. Polymorphism and behavioral traits bear this out, she said. The distribution and characters of presently known specimens of early dogs suggest the possibility that the ancestral form came from southeast Asia, even though the oldest dated specimens (C_{14} date of approxi-

mately 8400 B.C.) of domestic dogs found thus far come from North America. These furnish evidence that domestication took place well before the agricultural revolution. The earliest unmistakable dogs from western Europe and the Near East are about a thousand years more recent and are roughly contemporaneous with each other. At these early dates, dogs were clearly doglike and showed considerable variation in size.

In "A computer-aided morphological classification of cassava (*Manihot esculenta* Crants)," David J. Rogers (University of Colorado) showed how vegetative characters could be used to study the complex relationships among variations of a cultivated species. Population samples were taken from plants growing in the West Indies and Central and South America. In the computer, each population sample was compared with every other sample and pair-wise measures of similarity were produced. These similarity measures were used to place the populations in a series of hierarchies and to cluster each with its closest neighbors. Graphing techniques following the clustering program provided a convenient illustration of interrelationships. This is the first known application of computers to the classification of a cultivated species. The method could be used with other species to provide information on relationships which could be used in plant breeding programs.

HUGH C. CUTLER
*Missouri Botanical Garden
and Washington University
St. Louis, Mo.*

**THE MISSOURI BOTANICAL GARDEN
FELLOWSHIPS FOR ADVANCED GRADUATE
STUDY IN BIOPHYSICAL ECOLOGY**

BOTANISTS

ZOOLOGISTS

PHYSICISTS

MATHEMATICIANS

BIOCHEMISTS

ENGINEERS

The Missouri Botanical Garden is offering additional doctoral and post doctoral awards for the study of biophysical ecology. These expanded programs are supported by the Ford Foundation under the leadership of Dr. David M. Gates and with the cooperation of Washington University in St. Louis, Missouri.

Ph.D. Candidates will work within the Departments of Botany or Biology at Washington University. (Special arrangements can be made with other science departments.) Candidates must satisfy the requirements of the Graduate School, Washington University and the specific departments.

Post doctoral and sabbatic fellows are encouraged to apply.

Predoctoral fellowships are \$4840 per academic year which includes tuition. The postdoctoral fellowship stipends are \$7500.00 per year.

FIELDS OF RESEARCH

Energy Exchange Theory

Physical Principles in Ecology

Systems Ecology

Physiological Methodology

Mathematical Models of Ecosystems

Plant Systematics and Energy Exchange

Meteorological and Environmental Instrumentation

Although we emphasize the analytical and theoretical aspects of ecology, we use every opportunity to make extensive field measurements within natural and man-made ecosystems. Field work in alpine, arctic, tropical, desert or other ecosystems is included.

FACILITIES AND EQUIPMENT

The herbaria, library, 1600 acre arboretum, laboratories, greenhouses and living collections of the Missouri Botanical Garden provide unique facilities and equipment for research. The computer facilities and library of Washington University are also available.

APPLICATIONS

Requests for applications should be addressed to:

Dr. David M. Gates, Director
Missouri Botanical Garden
2315 Tower Grove Avenue
St. Louis, Missouri 63110
U.S.A.