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Herbarium of the State University of Iowa

By ROBERT F. THORNE

Since it was founded about 1870 by Thomas H. Macbride, the herbarium of the State University of Iowa has grown steadily until it now contains approximately 143,000 mounted or otherwise properly accessioned plant specimens. According to the best figures available for other herbaria (Jones and Meadows, 1948), our herbarium ranks about thirty-fifth in size in the United States or fourteenth in size among herbaria of state universities or state colleges.

The total number of specimens is divided among the major plant groups as follows:

vascular plants	81,000
fungi	50,000
bryophytes	11,000
algae	1,000

In addition to these the herbarium has a large collection of cones, fruits, seeds, cacti, economic woods, fibers, and other plant materials of economic importance.

The annual rate of increment varies with the different collections. Recently Dr. H. S. Conard donated his entire collection of Hepaticae to the herbarium thus increasing the liverwort collection from about 800 to nearly 4,500 specimens. Dr. G. W. Martin reports that additions to the mycological collections of slime molds and other fungi average about 2,000 specimens a year. Since July, 1950, nearly 4,000 mounted sheets have been accessioned and incorporated in the phanerogamic collections. It is hoped that vascular plants can be added at the rate of 5,000 sheets a year.

As to the nature of recent accessions, the following sets received by exchange, gift, or purchase may be mentioned as examples: 2500 sheets received on exchange from the universities of Georgia, Wisconsin, Minnesota, California, West Virginia, and Tucuman, R. Argentina, from North Carolina State College, Adams State College, Colorado, the United States National Herbarium, and the Missouri Botanical Garden; and 900 specimens received by gift or collected by members of the Botany Department of S.U.I., including material from Cuba, Panama, Florida, Alabama, West Virginia, New Hampshire, New York, Colorado, Wyoming, California and Washington. We are especially anxious to fill up gaps or strengthen our collections from particular regions by obtaining material from the tropics,

from boreal America, and from the northeastern and southwestern United States.

The phanerogamic collections include several large sets of considerable interest and value although we possess very few type specimens. One of the largest sets is the large series of sheets received long ago from the British Museum, the exchange probably having been arranged by Dr. Macbride. Surprisingly enough, this material amounts to about one-third of the entire phanerogamic collections, or more than 25,000 sheets. The British Museum specimens average amounts to about one-third of the entire phanerogamic collections, are represented, such as E. Fries, Hooker, Kerner, Lagerheim, Rugel, W. Schimper, Shuttleworth, Tenore, and Welwitsch. Although most of these sheets are from Europe, they include specimens from Labrador, Greenland, Iceland, Lapland, and Kamchatka south to the Azores, Canary Islands, Algeria, Abyssinia, Arabia, and India. Also included among them are American collections sent to Europe by Buckley, Chapman, Drummond, Gray, Knieskern, Lesquereaux, Nuttall, Pursh, Rugel, Torrey, Vasey, and others. As an interesting example, *Carex baltzellii* Chapm., a very rare and well defined sedge endemic to Gadsden County, Florida, and adjacent Thomas County, Georgia, is represented in our herbarium by a specimen collected by Chapman and sent via the British Museum to Iowa. This sedge has apparently not been collected in many years, and was sought in vain on several occasions by the writer in Florida and southern Georgia. Probably few herbaria possess a specimen of this *Carex*. In addition to the British Museum material, there are probably 2,000 sheets of the John Ball Collection from Europe and additional European sets totaling perhaps 700 sheets.

Iowa specimens also comprise about one-third of our phanerogamic collections. About 20,000 sheets were collected throughout the state by Bohumil Shimek. Approximately 5,000 Iowa sheets were collected by T. H. Macbride, W. A. Anderson, H. S. Conard, H. A. Anderson (Cerro Gordo County), Fred Reppert (Muscatine), R. I. Cratty (Emmet), G. H. Berry (Linn), T. J. Fitzpatrick, J. E. Cameron, Ora Fellows (Tama, Fayette), J. E. Gow (Adair), Mary Linder (Johnson), J. H. Mills (Henry), G. B. Rigg (Calhoun), and others. The H. A. Anderson, Reppert, Berry, and Cratty collections are especially large, totaling over 3,000 sheets. Among these are many species not listed from the state of Iowa in Cratty's list (1933) and its supplements (Hayden 1940, 1945), including some never reported from Iowa, such as *Polygala paucifolia* Willd. and *Decodon verticillatus* (L.) Ell. (both collected in Linn County by Berry,

who seems to have been an especially keen collector). Several relatively complete county collections made by R. G. Brown (Jones County), N. W. Easterly (Iowa), and M. J. Fay (Cedar) have not yet been added to the permanent collections, and are not included in the total above.

Several years ago Dr. Conard identified and had inserted into the collections many hundreds of Shimek's Iowa plants. He also sorted through the tens of thousands of Shimek duplicates making up 20 large sets. These have been distributed to various herbaria in the United States. Many thousands of Shimek duplicates remain to be disposed of.

The last third of the phanerogamic collections consists largely of non-Iowa material from the New World. Areas best represented in the United States are the Midwest, Southeast, and Northwest. Besides Iowa the states best represented are, in order of number of sheets, Georgia, Florida, Illinois, Washington, Minnesota, Texas, Idaho, and California. There are perhaps 24,000 sheets from the United States exclusive of Iowa.

Our tropical collections are relatively small, totaling about 5,400 sheets with over 3,000 of these from Mexico and Nicaragua (largely collections of C. L. Smith, C. G. Pringle, and B. Shimek). There are nearly 1,000 sheets from Cuba, and the remainder are mostly from other parts of Latin America and Hawaii.

American exsiccatae with printed labels total probably about 5,000 sheets, with the largest sets being those from the Gray Herbarium (1300 sheets), A. H. Curtiss (1500), C. S. Pringle (900), Rocky Mountain Herbarium (600), I. W. Clokey (400), A. A. Heller (325), and F. L. Harvey (150).

The permanent phanerogamic collections were transferred from old wooden cases to 45 standard, insect-proof, steel herbarium cases in 1948, as planned by the late Professor W. A. Anderson and under his direction, although he was already suffering from a fatal illness. All the wooden cases were discarded, and the herbarium was rearranged to allow ample working space at centrally located, long, wooden-top tables.

The phanerogamic collections are arranged by families according to the Englerian system, with genera and species arranged alphabetically within each family except for the Gramineae and Compositae, in which the genera are arranged by tribes and *Carex*, whose species are arranged according to Mackenzie's treatment in the North American Flora. Iowa specimens are placed in tabbed folders for ready reference. A smaller class herbarium of local material

and many cases of teaching specimens are also available for the use of students or others interested in the local flora.

In the past some of the collections have been severely damaged by insects. To prevent any further depredations, the cases were first sprayed with DDT and then those cases showing recent damage were dosed heavily with paradichlorobenzene. All specimens of such families as the Compositae, Scrophulariaceae, Cruciferae, and Liliaceae, which are apparently savored most by dermestid larvae, were painted with mercuric chloride solution, and all new acquisitions are poisoned similarly before being mounted.

The mycological collections are estimated by Dr. Martin to contain about 50,000 specimens. Among the more important sets are the A. P. Morgan collection of fungi, tropical American fungi collected by C. L. Smith, B. Shimek, and G. W. Martin, and about 10,000 specimens of fungi exsiccati. The last-mentioned include North American Fungi of Ellis and of Ellis and Everhart, Fungi Columbiani of Ellis and Everhart, Reliquiae Farlowianae, Fungi Selecti Exsiccati of Jaap, Mycotheca germanica of Sydow, with various smaller series. Material that is especially desired for addition to the collections are Myxomycetes and tremellaceous fungi.

There are many thousands of collections of fungi awaiting checking of determinations before being added to the permanent collection. Little has been done with the lichens, and thousands of specimens, many collected by Shimek in nearly all counties of Iowa and in New Mexico, as well as collections from many other areas, are awaiting study.

The bryophyte collections have been completely worked over in recent years by Dr. Conard, who has checked all the identifications of Iowa material and removed duplicate specimens. Dr. Conard has recently finished incorporating his personal collection of hepatics into the University herbarium. He reports that of 114 genera and 460 species of liverworts known from North America our herbarium includes 92 genera and 291 species.

The bryophytes are largely from Iowa but most of the other United States and Canadian provinces are represented in the collections, as well as such countries as Sweden, Austria, Ireland, France, Germany, England, Finland, Switzerland, Japan, and China. Although type specimens and exsiccati with printed labels are not numerous, the herbarium contains the earliest extant collections of Iowa bryophytes on which are based the early reports by Savage (mosses) and Shimek (liverworts).

The specimens of mosses and liverworts are filed in uniform

packets in uniform boxes alphabetically by genera and by species. Iowa material is placed first in each species followed by other North American and then by foreign specimens. The boxes, of heavy, glazed cardboard, are specially made to fit two on a shelf of a standard herbarium case.

The algae collections are very small and consist mainly of exsiccatae, including 550 specimens of Josephine E. Tilden's American Algae, 300 of Francis Wolle's Fresh Water Algae of the United States 32 boxes of M. Föslie's Lithothamnia Selecta Exsiccata, and smaller series of F. S. Collins, Farlow, and Farlow, Anderson, and Eaton.

Various taxonomic research projects currently being carried on by members of the botany staff include Dr. Martin's monographic work on the Myxomycetes and the Tremellales of North America and Dr. Conard's studies on the distribution and variation of mosses of Iowa and preparation for publication of his "Vegetation of Iowa." The writer has recently prepared for publication a catalogue of the vascular plants of southwestern Georgia and has been working on a check list of the vascular plants of Iowa. Mr. Frank Venning is making a monographic study of the circumtropical genus *Spondias* of the Anacardiaceae. Mr. M. J. Fay and Mr. N. W. Easterly have recently completed surveys of county floras in eastern Iowa.

It is hoped that our collections will continue to grow both in quantity and quality, and that they will receive ever increasing use.

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