

Bailey Herbarium Guide to the Collections & Collectors



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The Bailey Herbarium, which is the largest private college herbarium in the state, houses more than 32K flowering and non-flowering plants from all over the world. These specimens are used for teaching and research and include several special and unique collections:

CSB|SJU Permanent Collection & Collectors

The permanent collection represents the bulk of the holdings in the herbarium. These collections, which occupy *ca.* 30 cabinets, are typical herbarium specimens. In other words, the plants have been pressed, dried, identified and mounted on standard-sized sheets (11.5 x 16) of archival paper. The specimens are filed phylogenetically according to the system of Cronquist (1993). This collection is essentially a reference library of plants and includes specimens from all over the world. We have especially good collections of the Minnesota flora, especially from Stearns County. Other well-represented areas include the Great Plains, southeastern United States, and New Zealand.

These collections are used for both teaching and research. For example, the collections were studied by the Minnesota Department of Natural Resources during the Stearns County Biological Survey and have been used for a variety of projects by CSB|SJU students: Steven McGreevy (*history of prairie on campus*); James Wollack (*phenological studies of spring wildflowers*), Anna Pilsbacher (*leaf margins as a proxy for mean annual temperature*), and Hieu Van (*biomechanism analysis of mullein and other species*). The collections are also used in

teaching various courses, especially Plant Systematics (BIOL308).

If you accept published suggestions that each specimen is worth about \$10.00 based upon cost of supplies, labor costs in preparing and maintaining the specimens, then the CSB/SJU Herbarium permanent collection is worth more than one-quarter million dollars.

Some of the individuals who have deposited large numbers of specimens in the herbarium include:

- **Dr. Thomas Daggy** (*Davidson College, NC*) – a plant taxonomist at Davidson College (NC) for over 43 years during which time he accumulated more than 18,000 specimens. By March 1996, the entire Davidson Herbarium had been transferred to the Herbarium of the University of North Carolina at Charlotte (UNCC) on "permanent loan." While integrating the Daggy collections into their herbarium, the staff of UNCC (*Dr. James Matthews, Curator; Donna R. Allen, Assistant*) removed duplicates and prepared them for exchange with other institutions. In response to receiving a gift of an orchid specimen from the Chandonnet specimen (*see Saupe's article, "Morality in the Herbarium"*), UNCC sent to CSB|SJU, in January 1999, six boxes containing more than 500 specimens from the Daggy Collection. This exchange was a welcome gift that increased the diversity of our collection of plants from the southeastern U.S. and greatly enriched the value of our herbarium.

- **Fr. James Hansen** (*St. John's Abbey*) – Father James was the first large-scale collector at Saint John's. He made extensive collections of plants, lichens, mosses and fungi from the Colledgeville area. His work serves as the base for the original Saint John's Herbarium.
- **Dr. Stephen Saupe** (*CSB/SJU Biology Department*) – deposited a variety of collections including *ca.* 200 plants from New Zealand, fungi, lichens, and vascular plants from central Minnesota.
- **Sister Remberta Westkaemper** (*St. Benedict's Monastery*) – made an exhaustive collection of primarily vascular plants from Stearns County (MN). This collection served as the basis for the original St. Benedict's Herbarium.
- **Dr. Nick Zaczkowski** (*CSB/SJU Biology Department*) – conducted extensive surveys of plants from the Great Plains (especially North Dakota) and central Minnesota. Dr. Zaczkowski deposited numerous specimens in the Herbarium during his association as staff and Curator.

Teaching Collection

This collection includes *ca.* 10 cases full of specimens that are used strictly for teaching. These specimens are either duplicates of permanent collections or are unsuitable (*i.e.*, lack of sufficient collection) to include in the permanent collections. Many of these plants were made by students during BIOL308. The teaching collection is arranged alphabetically by family. This collection also includes a small collection of frozen specimens. These specimens are collected during the flowering season and placed in a deep freeze until needed by classes. Because this technique preserves the structure and color of the flower much better than drying it is ideal for teaching purposes.

Laminated Collection

The herbarium has a collection of more than 500 specimens that have been laminated. These specimens are used primarily for teaching because the lamination process makes them more durable than a regular herbarium specimen and hence, can survive the relatively rough treatment they receive in the classroom. The specimens have been laminated by one of two methods: (1) Contac® Paper – in this method the specimen is simply covered with clear Contac® Paper. In a typical mount, a full-sized herbarium specimen is placed on a cardboard drier and then this unit is covered. The cardboard backing strengthens the specimen and minimizes damage; or (2) Machine Laminator – this technique uses a commercial laminator to attach the specimen to a sheet of tag board. The advantage of this technique is that the entire unit is laminated, not just the front and sides as is done with Contac® Paper. Also, the machine-laminated specimens are much more attractive and easier to study because the plastic is more transparent and adheres more tightly to the specimen. Except when a specimen is needed quickly, our specimens are now laminated by machine.

Z.L. Chandonnet Collection

This collection consists of about 6000 specimens from various parts of the world including the U.S., France, Canada, Puerto Rico, Switzerland and Algiers. Many date to 1888. According to a letter written by Sister Juliana, OSB, dated April 13, 1967, "*this collection was obtained by CSB before 1917. . . The original owner, Reverend Z.L. Chandonnet, indicated in his will that his Herbarium collection . . . was to be sold to a small college where it would be kept intact. Our college [CSB], he stated, was to have first chance to buy it...Father Chandonnet, a native of Minnesota, was forced by tuberculosis to spend a great deal of time out of doors. He started collecting plants and flowers as a hobby. His hobby led him to become one of the worlds' greatest botanists, highly honored and respected by his colleagues.*" Chandonnet obtained many

of the specimens in the collection by trading with other botanists including such famous individuals as Charles Deam (*Flora of Indiana*) and Charles K. Dodge. In accordance with the request in his will, the CSB|SJU Herbarium has kept this collection intact – the Chandonnet collections are placed in separate folders designated by a red dot.

Flora Exsiccata Austro-Hungarica

On November 9, 1926, for \$2.12 in postage, Father James Hansen, who was curator of the St. John's Herbarium, received in the mail 10 boxes containing 2000 plant specimens from the Abbey of Seitenstetten in Austria. This collection was part of the *Flora Exsiccata Austro-Hungarica*.

As background, an "exsiccata" is a collection prepared by professional botanists to document the diversity of plants in a particular part of the world. The collectors would gather a large number, say 100, of each type of plant and then divide them into 100 separate collections that were typically sold to, or traded with, other institutions. Although exsiccata collections are no longer prepared, these once popular collections were sought by herbaria to improve their holdings.

The *Flora Exsiccata Austro-Hungarica* was commissioned by the Imperial Academy of Sciences. Dr. Anton von Kerner, Professor and Director the of Botanical Museum of the University of Vienna, is a famous botanist who was charged with the task of preparing the collection. He gathered a staff of 80 specialists and collectors who began work in 1881. At the time of Dr. Kerner's death in 1898, a total of 2,800 numbers had been issued. Work on the collection continued under the supervision of Dr. Karl Fritsch until he moved to Gras in 1902. He was succeeded by Dr. Richard von Wettstein, Director of the Imperial Botanical Garden of the University of Vienna and was assisted by Dr. Handl-Mazzetie and I. Doerfler. A total of 4000

numbers were issued for the complete *Flora Exsiccata Austro-Hungarica*.

Each botanist who participated in the *Exsiccata* received a set of plants as partial restitution for their services. The Abbey at Seitenstetten owned two sets of the *Exsiccata* because Fr. Pius Stasser OSB and Fr. Bernard Wagner OSB, both who taught at the highly acclaimed high school of the Abbey, participated in the project. Sadly, Fr. Bernard died after a long illness in 1894 before the collection was completed. As a consequence, the Abbey received only half of the 4000 numbers of the complete *Exsiccata*. It is this set of plants that the Abbot of the Seitenstetten Abbey, Dr. Theodore Springer OSB, offered for sale to Abbot Alcuin at Saint John's in February 1926. Upon advice from Fr. James that "the collection is of the highest authority and correspondingly valuable," St. John's sent Abbot Theodore a draft for \$100 in March 1926. This was a fabulous bargain for such a wonderful collection that reflects our Benedictine history.

In a letter he wrote to Fr. James in July 1931, Fr. Pius stated that the collection "...is a valuable scientific monument to the former famous Austro-Hungarian monarchy" and that the collection is unique because it "can hardly be found in bookstores [and] because of the small number printed...or for sale anywhere else. Only very few scientific institutes could be furnished with this study." The Bailey Herbarium is indeed lucky to own this important collection.

The specimens from this collection are intermixed with other specimens in the permanent collections of the herbarium. However, they can be readily identified by their label and in addition, they are stored in a white sheet of newsprint for added protection.

Type Specimen

When a plant is named, a specimen is selected and deposited in a recognized herbarium. This specimen is called the "holotype", or simply "type", specimen. Type specimens are very important because they serve as a "reference" or "model" for the species and are the basis for any future name changes. A duplicate of the holotype is termed an isotype. As an example, assume that you collect five specimens of a particular kind of plant and determine that it is a new species. You select one of the five to serve as the holotype. The other four specimens are isotypes. If the type specimen is lost or destroyed or otherwise absent, one of the isotypes can be appointed to replace it. Our herbarium owns one isotype, *Mikania citridora*, that was collected by Dr. Walter Holmes in Brazil. This specimen, a tropical vine in the sunflower family (Asteraceae), was received in exchange for orchid samples we sent to their herbarium.

Plant Pathogenic Fungi

In June 1995 the herbarium was given a large collection of fungi pathogenic to plants. This gift was received from the herbarium from the Department of Plant Pathology, University of Wisconsin – Madison. Dr. Craig Grau, Chair of the Department donated the collection in behalf of the department. The collection includes Riker mounts (encased in glass frames) and various packets of fungi, many dating to the first quarter of the 20th century.

Winter Weed Collection

Floral decorators have long appreciated the beauty of dried plants and their pods. Not only do the dried remnants of plants collected in the winter make particularly attractive displays, but these remnants can be used to identify the plant. An extensive collection of herbaceous plants collected in the winter is on display in the herbarium. By studying this collection, plants can be identified during any season, even during

winter in Minnesota. There are over 100 dried specimens in this collection. Each is labeled with common name, scientific name and family. They are displayed in the Herbarium. Visitors are welcome to study this collection.

Grasses of Minnesota

Grasses once dominated the landscape in central Minnesota stretching westward from St. John's to the way to the Dakota's. Although a novice may think that there are only a few kinds of grasses, in reality more than 200 species of grasses grow in Minnesota. Just in the St. John's prairie there are about 30 different species. In recognition of this common and important group of plants we have prepared a display of grasses. This display documents the common prairie and weedy species of grass that live in our area and highlights the subtle beautiful of these important plants. Currently, the display includes about 30 different species.

Wood and Seed/Fruit Collections

The CSB/SJU Herbarium owns extensive collections of seeds, fruits and wood samples. These are currently being developed into useful collections.

