

Botanical collections of Brother Gerfroy Arsène Brouard.

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ABSTRACT

The herbarium at The College of Santa Fe (Santa Fe, NM) houses plants collected by Brother Gerfroy Arsène Brouard and other Christian Brothers in northern New Mexico from 1916 to 1938. The collection of nearly 1800 specimens includes bryophytes, liverworts, other non-flowering plants, and flowering plants from the plains, foothills, and mountains near Santa Fe and Las Vegas, NM. Included are mosses that were the basis of Bartram's 1931 article, "Mosses from New Mexico." Arsène is best known for his extensive collections from Mexico. He collected 180 new species from that country and at least 24 species were named for him. As many as 20,000 of his specimens reside in herbaria worldwide. This article presents a brief botanical biography of Bro. Arsène's collecting and a preliminary assessment of the specimens he collected in northern New Mexico.

I told Mrs. [Agnes] Chase today that I always remembered the many beautiful flowers that grew on the mesa east of Santa Fe, and in the mountains nearby, but that I feared, now that Brother Arsène was there, in a few years we shall see only bare sand and rocks, without any indication of the former luxuriant vegetation! The mosses and lichens especially are going to suffer much!

So wrote Dr. Paul Standley (in litt.), of the Smithsonian Institution, to Br. Arsène in 1926 when Standley learned of Arsène's move to New Mexico. Standley had corresponded with Brother Arsène for a decade, identified or passed to other taxonomists literally thousands of Arsène's specimens, and recognized the Brother's continuing contributions to botany. Brother Arsène came to New Mexico near the end of his career to teach science, mathematics, and French at the Sacred Heart Training College in Las Vegas and at Saint Michael's College in Santa Fe.

Arsène Gustave Joseph Brouard was born near Orleans, France, in 1867 and at the age of 17 became the secretary and assistant to botanist E. L. de la Chappelle. Two years later de la Chappelle died but Arsène had earned a reputation as an excellent botanist and was elected honorary President of the Botanical Society of Limousin. Subsequently, Arsène was a salesman then was called to military service. After discharge with the rank of lieutenant, Arsène struggled to find a career that could satisfy his religious convictions and his love of botany. The Brothers of the Christian Schools (Frères des Écoles Chrésiennes) offered a religious life devoted to teaching. As a Brother, Arsène could lead the religious life he desired, teach science and mathematics, and have some time to continue his botanizing! He joined the order in 1895 and began teaching in 1897. When the church schools in France were suppressed by the government, Br. Arsène chose to remain a religious and was sent by the order to Mexico to continue teaching science, French, and mathematics in the Brothers' schools.

Br. Arsène spent eight years in Puebla, Morelia, Mexico City, and Queretero. There, he, confreres, and students collected plants extensively. They often walked 20-30 miles in a day and ultimately assembled a collection of 12,000 lichens, mosses, ferns, and flowering plants. In 1912 Arsène presented an exhibit on regional natural history at a scientific meeting. The scientists were impressed with Arsène's collections and awarded him the sole gold medal of the congress.

Arsène shipped specimens to experts for identification, inclusion in research herbaria, and

sales to collectors. Prince Roland Bonaparte eagerly purchased Arsène's herbarium sheets. Nearly 8,000 are at the Smithsonian, 15,000 at the National Museum in Paris, and 1000s more now reside in 26 herbaria in a dozen countries. In all, Arsène collected nearly 200 new species. Standley wrote, "Brother Arsène's contributions to botanical knowledge of Mexico are monumental. They will endure as long as the science itself remains."

Early in the Mexican revolution the Christian Brothers were forced to leave the country—Arsène traveled to the U.S. via Cuba (where he discovered several new species of lichens) and taught for a few years each in New York, Pennsylvania, Maryland, and Louisiana. He finally came to New Mexico in 1926. From then until his death in 1938, Brother Arsène taught at the Sacred Heart Training College in Las Vegas, NM, and St. Michael's College in Santa Fe, NM, and collected extensively.

Arsène's first years in New Mexico were productive—at the age of 60 he still took confrères and students on 20 mile hikes and collected plants from the plains to the peaks of the southern Rockies, grassland to alpine tundra. Following his habit of collecting many duplicates, Br. Arsène sent specimens of plants to experts for identification—for example, grasses to Hitchcock and Chase, most non-grass phanerogams to Standley, lichens to Bouly de Lesdain, mosses to Bartram, and hepatics to Haynes.

Brother Arsène was the first collector to work extensively in northern New Mexico since the early botanical explorations in the 1840s by Gambel, Wislizenus, Emory, and Fendler. Wooten and Standley collected east of Santa Fe briefly in 1908. Arsène's notes indicate that he collected at least 5,000 specimens in northern New Mexico, several thousand of which are at the Smithsonian and nearly 1800 are in the herbarium at The College of Santa Fe. For 60 years the College collection was stored in boxes—only recently did we "rediscover" it, prepare a preliminary catalog, and preserve the sheets adequately.

The collection at The College of Santa Fe comprises approximately 1800 specimens of seed plants collected by Arsène and confrères including 67 families, and 319 genera. Although Arsène discovered only one new species of vascular plant in New Mexico (*Muhlenbergia arsenei*), a half-dozen specimens were new to the State. No new species were recorded among the 128 species of mosses or 26 species of liverworts. Arsène extensively collected lichens, including more than 60 new species in New Mexico. Some of these lichens are at the Smithsonian; the Lichen Herbarium at Arizona State University houses nearly 500 specimens.

The specimens collected by Arsène could be valuable in reconstructing historic ranges of plants in Mexico and New Mexico and examining changes in their distributions because of direct human activity, climate change, and introduction of exotic species. Indeed, one new species of moss (*Jaffueliobryum arsenei*) collected by Arsène in Mexico is now on the IUCN Red List of the world's 50 most endangered bryophytes. Arsène noted that several species were rare in northern New Mexico when he collected them (*Eriogonum effusum*, *Heuchara pulchella*, and *Nolina microcarpa*).

A copy of this article and the preliminary catalog of Arsène's New Mexico collections housed at The College of Santa Fe.

Herbaria housing specimens collected in New Mexico by Br. Arsène.

Arnold Arboretum, Jamaica Plain MA

California Academy of Sciences, San Francisco CA

Field Museum, Chicago IL

Gray Herbarium, Harvard Univ., Cambridge MA

Herbarium, Museum of Southwestern Biology, University of New Mexico, Albuquerque NM

Herbarium, The College of Santa Fe, Santa Fe NM

Laboratoire de Cryptogamie, Muséum d'Histoire Naturelle, Paris, France

Langlois Herbarium, Catholic Univ. of America, Washington DC

Lichen Herbarium, Arizona State University, Tempe, AZ

Missouri Botanical Garden, St. Louis MO

National Herbarium, Smithsonian Institution, Washington DC

New York Botanical Garden, Bronx NY

Selected Botanical Bibliography of Br. Arsène Brouard.

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