

Anthony Orville Dahl, Director of Morris Arboretum 1967-1970

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The United States was well into the Space Age when A. Orville Dahl, a Professor of Botany at the University of Minnesota, took a year of unpaid leave to conduct research with Allan Brown, a plant physiologist at the University of Pennsylvania. That is not the sort of move a tenured professor makes. But NASA needed scientists to research the effects of a weightless environment on plants. It was the opportunity of a lifetime and vital to U.S. space goals.

After extending his leave a second year, Dahl resigned from Minnesota in 1967 and accepted a dual appointment at the University of Pennsylvania as Professor of Botany and Director of Morris Arboretum. His experience in teaching, research and administration made him uniquely qualified for the job. Dahl accomplished his work by spending two days a week on campus and three at the Arboretum, which meant he packed his suitcase every week and went to a rooming house in Chestnut Hill.

One of Dahl's responsibilities as Arboretum Director was giving talks to local garden clubs and horticultural societies. Speaking to groups came easily to him, for he was considered an excellent lecturer. Plus he was quite capable of advising gardening enthusiasts on landscape plants since he was an avid gardener himself and could speak from experience.

A year after Dahl was appointed Director, he hired J. Angus Paxton Heeps as Superintendent, replacing John Tonkin, who had held the position since 1933. Heeps, a graduate of Wisley, was descended from Sir Joseph Paxton, designer of London's Crystal Palace. Under Dahl's direction, Heeps improved the Arboretum considerably by clearing overgrown areas, introducing new plant collections and repairing greenhouses.

In 1968, Dahl took on a responsibility that did not come easily to him—supervising the demolition of the Compton mansion. In consultation with staff, he determined which architectural elements were to be salvaged. Dahl deserves much of the credit for safeguarding decorative items in the mansion, including ornate wood paneling, brass sconces, chandeliers and fireplace mantels.

During Dahl's tenure, the Arboretum began hosting a children's summer camp sponsored by the Pennsylvania Horticultural Society. With Arboretum and PHS staff serving as their instructors, campers learned gardening skills by caring for their own garden plots at Bloomfield farm. The Arboretum also hosted a graduate botany course for high school teachers enrolled in the National Science Foundation Summer Institute.

Dahl and Brown's research on the effects of space travel on plants meant that they were away from campus periodically to conduct experiments at NASA's research center in California and present status reports at regional meetings. They ran preliminary experiments in 1966 for Biosatellite I, analyzed the condition of plants after Biosatellite II returned from orbit, and participated in the 1968 Biosatellite Symposium in Washington, D.C. The research of these two colleagues (in tandem with other scientists) was not only crucial to the Biosatellite program, it was fundamental to future space exploration.

Dahl resigned as Arboretum Director in 1970 and took a year's leave from teaching to work with another longtime colleague, John Rowley, Director of the Palynological Lab in Stockholm, Sweden. When Dahl returned to Penn, he taught courses in botany and served as Arboretum botanist. With NASA support, Dahl and Brown continued their experiments locally on a new state-of-the-art botanical centrifuge at the University City Science Center. Between 1965 and 1979, Dahl was co-investigator on eleven NASA research grants.

While Dahl's work in space plant science didn't affect daily life directly, his expertise in plant pollens benefitted thousands of people who suffer from seasonal allergies. His interest in wind-borne pollens began in the 1930s when he was a graduate student at the University of Minnesota. As assistant to the Chair of the Botany Department, he helped develop a standardized method for measuring the varieties and amounts of pollens that cause hay fever. However, the method was not common knowledge until a decade later when Dahl returned to his alma mater as a Professor and department staff started sending the daily "pollen count" to local newspaper. Thanks to Dahl, Minneapolis hay-fever sufferers had a reliable way of knowing when to avoid outdoor activities.

In 1986, after Dahl was appointed Professor Emeritus in Botany at Penn, he had a rare opportunity to investigate plant pollens on an unusual surface—a piece of old cloth. He found that the pollen was decidedly not wind-borne but came from the debris of flowers and plants placed directly on the cloth, perhaps during an ancient liturgical ceremony. Dahl's finding was significant. The pollen of 28 plant varieties embedded in the cloth confirmed that it originated in the Middle East and was not a "doctored" fraud. The cloth was the Shroud of Turin.

Photo of Orville Dahl courtesy of Eric Lemonholm