# In Memoriam

## Linda Theus

**b. 6 April 1942 d. 2 March 1991**

Linda Theus, longtime member and past President of the International Aroid Society passed away March 2, 1991 after a long fight with cancer. Linda was one of the hardest workers we had. Whenever there was work to be done, Linda was always the first to show up.
Linda was a Miami resident since 1972 and worked in the personnel field until 1988. She served as a docent at MetroZoo for five years and also volunteered at Fairchild Tropical Garden.
We send our condolences to her family. Linda is greatly missed by The International Aroid Society not only for her willingness to devote so much of her time to the society, but also for her sparkling personality which gave us the incentive to go forward.

# Aroid Encounters in Europe

**Dr. Thomas B. Croat**
**Missouri Botanical Garden**
**P.O. Box 299**
**St. Louis, MO 63166-0299**
**USA**

During six weeks in early winter and late spring of 1991, I made a trip to a number of botanical gardens and herbaria in Europe to study Araceae and to meet with various aroid colleagues.

My first stop was Moscow, where my friend, Dr. Mikhail Serebryanyi, also known as Misha, met me. Misha is in charge of tropical and subtropical plants at the Main Botanical Garden. It is called Main, because there are four other botanical gardens in Moscow. The Garden was founded in 1945 and consists of 361 hectares (1,559 acres) of land; 200 hectares are natural vegetation. The live plant collection purportedly numbers 21,000 taxa, making it the most species-rich collection in the Soviet Union. The glasshouses cover 9,300 sq. meters. The aroid collection numbers 49 genera and about 300 species. The aquatic aroids are particularly well grown, under the able supervision of Vadim Shelejkovsky. He has introduced a number of unique growing situations, including an expandable totem made from synthetic fibers in nylon netting surrounding PVC piping which can be moved down the pipe as new segments are added above. This enables the plant to increase in size but to always remain at eye level.

Serebryanyi and others from the Garden have made excursions to Viet Nam, so they have a good collection of species from that region. Misha has finished the Araceae treatment for the *Flora of Viet Nam*, which contains 21 genera and about 85 species. Though it is to be published in the regular Russian series, *Flora of Viet Nam*, he has promised to

publish an edited version in English, together with photographs, in *Aroideana*, sometime in the future. Serebryanyi has also completed a revision of the genus *Pseudodracontium*, recognizing four species.

After visiting the Moscow Main Botanical Garden and the Botanical Garden of the Moscow State University, Misha and I traveled to Leningrad, and then to Kiev to visit two other botanical institutions. In Leningrad, we visited the famous Komarov Botanical Institute, founded in 1713. It consists of 23 hectares and contains the largest herbarium collection in the Soviet Union with 5,770,000 specimens. Many of the herbarium collections are important, especially those of Ludwig Riedel whose original set of material is at Leningrad. The living collection at the botanical garden of this institution consists of 8,435 taxa, and the glasshouses comprise 10,000 sq. meters. The Araceae collection numbers 36 genera and about 200 species, making it the second largest in the Soviet Union (after Moscow). We were shown through the living collections in Leningrad by Nicolai N. Arnautov and his wife, Elena M. Arnautova, curators of the subtropical and tropical plant collections, respectively.

Both the Komarov and the Moscow collection had a number of species in cultivation that I had not previously seen in the United States. These include a number of new species of plants from Viet Nam being described by Serebryanyi, including a new species of *Aglaonema*, a new *Cryptocoryne*, and others, as well as some very old collections which, to my knowledge, have never before been in cultivation in the United States. One of these, *Philodendron eximium* Schott, apparently has survived in Europe since the middle of the last century. It is a species of unknown origin, but the material seen is a perfect match for the paintings made by Schott that I later studied in Vienna. Some of the collections seen in the Soviet Union have, remarkably, survived the turmoil of World War II, since it is unlikely that they were reintroduced there since their original introduction.

The ice was still thick on the streets of Moscow and Leningrad when we left on the train for Kiev. As we proceeded southward, through Byelorussia (White Russia), the climate changed, and the snow-covered ground gave way to wisps of green, then finally to early spring flowers. The densely wooded landscape became more open, with prairies and more heavily used agricultural land. By the time we were met by a fellow aroider, Natalja Denisjevskaya, at the Kiev Railroad Station in the Ukrainian capitol, all the snow had melted. The Kiev Botanical Garden, at 50° 25′ N, is built on a series of hills overlooking the city and the Dnieper River. Founded in 1936, it is the largest of three botanical gardens in Kiev, and was formerly known as the Central Republic Botanical Garden. It has 12,000 plant collections and 5,500 sq. meters of glasshouse space. We were given a tour of the facilities by Dr. Cherevchenko, Director of the Garden. The aroid collection has 37 genera and about 250 species. The Garden is in the midst of a massive building project which will double their greenhouse capacity. The new facilities will include a new central display house, offices, and research facilities. Though we were too early for the best display of flowering, it is obvious that the botanical garden is one of the world's finest. Highlights include a huge collection of lilacs and ornamental fruit trees, many specially trained into various shapes. The aroid collections are well-grown and feature species collected by Dr. Cherevchenko in Cuba, Viet Nam, and Brazil, and by Natalja in Brazil, including a flowering plant of *Rhodospatha blanda* Schott, a species I had not previously seen alive.

My Russian hosts were very generous with their plants, and by the time I left for Czechoslovakia, my bags were bulging. With my travel visa expiring on the day I departed the Soviet Union and being

unable to get a reservation for the train to Prague, Misha and Natalja worked the cars feverishly once the train arrived to try to find a conductor willing to make accommodations for me. Finding a sympathetic conductor at the last moment, they whistled and I jumped aboard, spending the next 35 hours in the linen car.

In Prague, I stayed with my friend, Jiří (George) Haager. We visited the Charles University Herbarium and Botanical Garden. The Charles University Herbarium does not contain many Araceae, but it is important, along with the other Prague herbarium at nearby Průhonice, for having the first set of Thadeus Haenke (1716-1817) collections. Most of these collections from Central and South America exist nowhere else except in Czechoslovakia. The living collection at Charles University is attractive, although it holds little out of the ordinary specimens.

George also showed me his personal living collection from Mexico, Venezuela, and Ecuador. Like many other citizens of the "captive" nations of eastern Europe, he had few opportunities to travel out of his country. Still, George made the best of trips to Mexico, Venezuela, and Ecuador by gathering a nice assortment of tropical Araceae. It was amazing that on an earlier visit to Prague in 1985, I discovered a new species of *Anthurium* sect. *Pachyneurium* in George's greenhouse that he had collected near the Pacific Ocean in Mexico. That species, *A. sarukhanianum* Croat & Haager, is one of the few species in that particular sect. from Mexico. It has been published in the *Annals of the Missouri Botanical Garden* Vol.78(3).

After a short train ride to Vienna, I worked in the Natural History Museum, studying and photographing the H. W. Schott aroid colored plates and visiting with the director, Dr. Harald Riedl, a past contributor to *Aroideana* and author of the Araceae treatment for the *Flora Iranica*. Though many of these very important Araceae drawings and paintings were photographed and distributed years ago by the New York Botanical Garden, and more recently rephotographed and placed onto microfiche by I. D. C. (Schott, 1984), the color photographs have never been published in their original color. These paintings are meticulously accurate in detail and color. Color, for many species, is critical for identification purposes, and taking my own color photographs was therefore important. Forty rolls of film and three days later, I finished most of the complex New World genera, including most species of *Anthurium, Dieffenbachia, Monstera, Philodendron,* and *Xanthosoma.*

Since Holy Week intervened in my working schedule, and since all establishments were closed for at least three days, I went to Zagreb, Yugoslavia, to visit with another aroid researcher, Dr. Marija Bedalov, who works with the genus *Arum* in Europe. Marija took me on a tour of the University of Zagreb facilities where she works and teaches, including her laboratory and greenhouses with a small collection of Araceae.

Zagreb is the capitol of Croatia, and being a Croat myself, I had always wanted to visit the country. Though my ancestors were actually Luxembourgers at a time when no family names were in use, the name Croat appeared in baptismal records about the time the Croatian mercenaries were employed by the King of France to put down a rebellion in this, then French province. Though Croatian is a Slavic language, the Croats look mostly Germanic, so I guess I never will know if the Croat name is all I got from the mercenaries!

My next stop was at the Munich Botanical Garden, truly one of the world's finest gardens and home to Josef Bogner and his fantastic aroid collection. The Garden was established in 1914, near the Nymphenburg Palace of the former king of Bavaria. The Garden consists of about 20 hectares and is laid out in a largely systematic manner,

characteristic of so many European gardens.

Josef and I potted up most of the collections I brought from the Soviet Union and Czechoslovakia, because they had suffered long enough during the previous two weeks of travel. No matter how many times I visit the Munich collection, I find the stay exciting. Josef has most aroid genera in cultivation, and the display houses have some magnificently well grown specimens. By the time I arrived in Munich, trees were starting to leaf out and several temperate aroids, including *Symplocarpus foetidus* (L.) Nutt, *Lysichiton americanus* Hulten & H. St. John, and *L. camtschatensis* Schott were in full bloom.

The next stop was Geneva, where the Garden (officially, the Jardin Botaniques de la Ville de Geneve, Botanical Garden of the City of Geneva) was in full spring bloom with most trees leafed out. The Garden's 18 hectares, founded in 1917, are under the control of the City of Geneva. There are about 15,000 taxa under cultivation, but the living collection of Araceae is, unfortunately, only modest. The real importance of the Garden is the herbarium, one of the finest in Europe and probably exceeded in importance for Araceae (many old collections and type specimens) only by Kew and Berlin (Croat, 1988). The herbarium is housed deep underground in blast-proof bunkers, hardly a place to enjoy the spring flowers.

After three days of work in the herbarium, I went on to Frankfurt to visit the Palmengarten. Though it was founded in 1869, it is one of the most modern I have seen. It purportedly has holdings of 10,000 taxa, but its Araceae holdings are mediocre. It has 50 glasshouses totaling 12,000 sq. meters. Many are large and house specialized collections. The Garden also has beautifully landscaped grounds, a rock garden mountain, and a

Fig. 1. Natalja Denisjevskaya and Misha Serebryanyi in Old Kiev.

large lake. In the nearby Botanical Institute of the University, Professor Kohlenbach and his students developed the technique to successfully do meristem culturing of *Amorphophallus titanum* Becc. from leaf tissue.

A short train ride up the Rhine River valley brought me to Bonn, where I met Dr. Wolfram Lobin for the first time. Doctor Lobin is a staff member of the Bonn Botanical Garden and is working on the African members of *Amorphophallus*. The Garden, though small, is very interesting. It has a rich assortment of plants from several areas of the world, but emphasis is placed on plants from the Canary Islands.

Another brief train ride brought me to the Netherlands where, over the course of one week, I met with a variety of botanical and horticultural researchers. I spent the first evening and following day with Wilbert Hetterscheid, an aroid researcher working on a revision of *Amorphophallus*. Wilbert works for Vaste Keurings Commissie in Aalsmeer, a private group responsible for the naming and classification of all plants sold in the Dutch auction houses. He is personally responsible for verifying or naming all plants. *Amorphophallus* is his sideline, but he has a rich assortment of living and herbarium plant material, and is well on his way to completing the revision.

I spent one day with Hans Vissers, who is in charge of all living collections at the Free University of Amsterdam. After studying the small but interesting collection there, we drove up to Friesland to visit Rene Vogelsang. Vogelsang, an erstwhile agricultural engineer turned professional welder and multi-talented friend of Vissers, built and now operates a tissue culture lab. When he is not designing and building machinery, painting landscapes, or welding and forming metal into intricate shapes, Vogelsang spends his retirement developing tissue culture media and growth hormones.

Next, I spent three days at the State University of Utrecht Herbaria to study New World Araceae, especially specimens for the *Flora of Guiana* project currently in progress. I stayed with an old friend, Dr. Paul Maas, and his wife at their home in Bunum, near Utrecht. Paul is a specialist on Zingiberaceae, Cannaceae, and parasitic *Gentians*.

While in Utrecht I visited the new University Botanical Gardens and the greenhouse complex and identified some Araceae for them. I also visited the Leiden University Botanical Garden, which was founded in 1590. Though none of the Dutch botanical gardens are remarkable for the extent of Araceae collections, all contain a number of interesting plants.

My trip to Europe was sponsored, in part, by Nic van der Knaap Anthuriumselecties, an excellent Anthurium breeding company in Bleiswijk, Holland. I toured their facilities and observed their breeding operations. I also studied, photographed, and vouchered the extensive collection of wild origin Ecuadorian Araceae made by Nic van der Knaap, owner, and Nick van Rosmalen, who is in charge of the breeding program. Some Ecuadorian plants will be used in their breeding operations and at least the sectional affinity of each collection is thus important to them. Their *Anthurium* breeding operation is probably the largest of its kind in the world and is expanding into new, more modern facilities which will have much of the routine growing operation computerized and automated. Potted plants are presently monitored by photoelectric cells and are automatically re-spaced on benches to allow for better growth. Watering and fertilizing are also automated. The breeding program is extensive, with about 100 crosses resulting in over 100,000 seedlings each year for cut flower types and for houseplants. From those, about 3,000 are selected, tested, and registered. Those that pass the stringent tests will be reproduced by tissue culture, then grown

out before being sold to growers in the cut-flower industry. The Anthurium cut-flower industry is very large and sophisticated in Holland with much of it being centered around Bleiswijk. I visited a grower, Arjan Kooy Anthuriums, to see the production facilities as well as packaging and shipping operations. Over 3,500 flowers were shipped to the auction that day, eventually then shipped to Italy, Germany, France, Japan, and other parts of the world.

From Holland I traveled to Meise, north of Brussels, Belgium, and home of the National Botanical Garden of Belgium. The Garden was originally founded in 1870 in a small area in downtown Brussels, but it was gradually reestablished in Meise a number of years ago (between 1939-1973). It now consists of 93 hectares with 57 glasshouses comprising 12,500 sq. meters. The herbarium contains over 1.5 million specimens and emphasizes Belgium, Zaire and tropical Africa collections. The living collections consist of about 20,000 taxa, with more than 10,000 taxa under glass. The aroid collection numbers 46 genera and 500 taxa; it is one of the finest in Europe and is richest in material from the New World tropics. The modern collections are largely from French Guiana and many were collected by my good friend, Dr. Frieda Billiet, staff member and taxonomist, who is responsible for the correct identification of the collections of living plants.

I visited the Paris Herbarium, home of so many old herbarium collections from Mexico, Brazil, and the West Indies for two days before going on to Kew Gardens near London. Founded in 1635, the Jardin Botanique in Paris is a formal garden of 13 hectares (32.5 acres).It purportedly has 21,000 species of plants in cultivation. The live aroid collection has nothing out of the ordinary, but its herbarium, with seven million collections, is one of the world's largest. It contains many old, original collections of Araceae, including many type specimens.

The Royal Botanic Garden at Kew is probably the world's largest botanical gardens, comprising 120 hectares and purportedly having 72,000 taxa in cultivation. It has a total of 56 glasshouses with over 20,000 sq. meters of space. The aroid dried and live collections here are among the finest anywhere. The living collections previously housed in their own display house, a building known locally as "Number One" house, are temporarily being stored elsewhere while renovation continues on the house. Another series of greenhouses store the even more interesting research collections, many of which come from eastern Brazil where aroid specialist Dr. Simon Mayo has concentrated his efforts in recent years. Indeed, Simon was away in Brazil when I visited Kew. Mr. Peter Boyce, also on the Kew staff, returned from a trip to Thailand about the same time I arrived at Kew. Peter is working on a revision of *Biarum* and other members of the subfamily Aroideae. He is also working on the treatment of several aroid genera for the *Flora Melesiana*. The genera include: *Hapaline, Epipremnum, Rhaphidophora*, and *Scindapsus*. In addition to discussing various Araceae projects with Peter, my time at Kew Gardens was spent going through the extensive herbarium collection.

My six weeks in Europe were profitable and interesting ones. I visited or passed through 13 countries and 18 horticultural or botanical institutions. I obtained a lot of living plant material and borrowed many herbarium specimens. □

**Literature Cited:**

Croat, T. B. 1988. Important collections of New World Araceae, *Taxon* 37(4):855-869.

Schott, H. W. 1984. *Icones Aroideae et Reliquiae*. Microfiche edition. Inter Documentation Company, A. G. Postrasse 14, 6300, Zug, Switzerland. 4800 plates.