***"Sarracenia purpurea* ssp. *purpurea*. The most notable and one of the most abundant plants on the island. Note the red veins and copper hues. Though its mid-June, a flower stem is coming up."**

"Small *Drosera rotundifolia* hiding among the moss and cranberries. Note the deep reds that have developed due to the amount of sunlight it has received."

The Floating Isle of Carnivorous Plants

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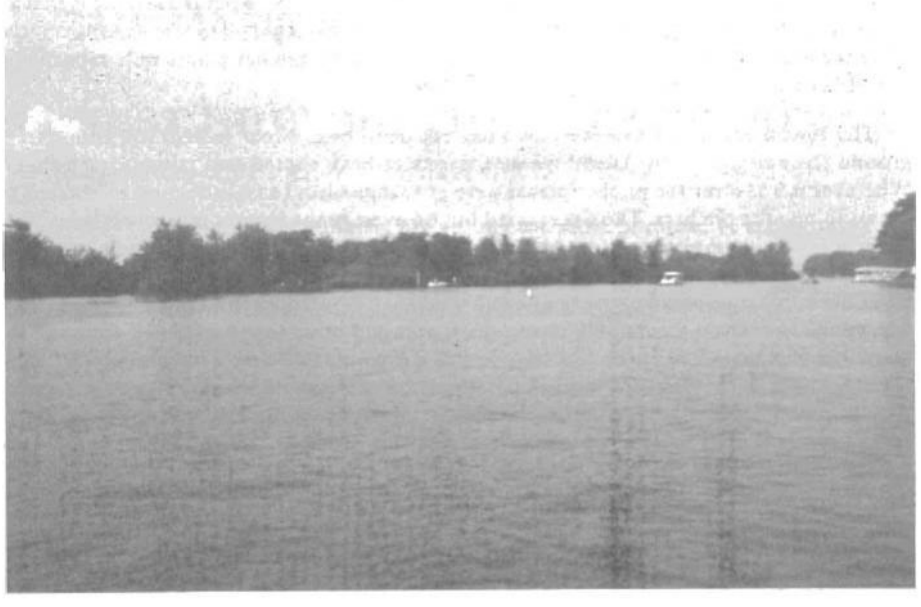
The State of Ohio is not usually thought of in terms of its native carnivorous plants. Unlike the southern states which are noted for many types of pitcher plants, sundews and others only a few are found in Ohio and these few are difficult to find in the wild. There is one site that is an exception and this is Cranberry Island near the north shore of Buckeye Lake, Ohio. Here are found *Sarracenia purpurea ssp. purpurea, Drosera rotundifolia* and *Utricularia vulgaris*. More Sarracenia are found at this location then probably exist in the rest of the state of Ohio.

Cranberry Island is located in Licking County Ohio about 30 miles east of Columbus and is just off of State Route 79 south in the community of Buckeye Lake.

Cranberry Island is, in fact, the only bog in the world that is entirely surrounded by water. The island literally floats on the lake! As the lakes water levels rise and fall, the island also will rise and fall. When the lake freezes in the winter the ice pressure will cause the island to arch in the middle. Only some 20 acres at most, the island is about 100 yards wide and 600 yards long. The outer margin of the island is ringed by trees, including Maples and Oaks, since the pH levels are alkaline. Beyond this lake water pH effect of 7 to 8, natural bog acidic conditions dominate, pH 4 to 5. About 90% of the island is open bog.



"A view of Cranberry Island from the north shore of Buckeye Lake, Ohio. Note the line of Oaks and Maples along the Island's margin. These trees cannot grow inland due to acidic conditions of the bog."

The history of this island is almost as fascinating as the carnivorous plants that grow on it. The last ice age, the Wisconsian, plowed its way across Ohio 20,000 years ago. As it advanced slowly across the state it not only changed the physical characteristics of the land but also the plant life as well. Plants that are normally found in Canada today also advanced in front of the ice sheet. These plants colonized the land until the glacier rode over two of them. In the case of the Buckeye Lake region a large pre-glacial river valley already existed. The glacier deepened and then later dropped its load of dirt and rock in the form of an end moraine on the south and the retreating ice sheet on the north. As the glacier slowly declined it retreated back toward Canada and with it the Canadian plant life. This plant life colonized the Buckeye Lake valley and formed a large lake with a sphagnum moss bog in the middle. The deep valley and thick, water soaked sphagnum preserved the Canadian bog environment for 11,000 years.

In 1830, the State of Ohio was busy building a vast canal system that went from the Erie Canal in the north to the Ohio River in the south. To make a connection with different river systems a series of locks and dams were constructed. Water was needed to flood the locks so the Buckeye Lake valley was impounded to provide a reservoir of water. This flooding destroyed most of the bog and its plants (about 4300 acres); however, a large mat of sphagnum rose up out of the water to form Cranberry Island, so named because of the cranberries. This floating island of moss was some 50 acres at that time; today it is about 15 acres.

The author spent some time on the island during the Ohio Department of Natural Resources annual Cranberry Island open house this past June 20, 1987. The numbers of pitcher plants with their flower stems in the air was, at first, overwhelming. I have never seen so many *Sarracenia purpurea* in one place and never in the wild. A 1983 estimate of the *Sarracenia* population by K.E. Schwaegerle was 157,000 plants. What is amazing is that all the pitcher plants are reportedly the descendants of a single pitcher plant that was introduced on to the island about the year 1912 by Freda Detmers. No pitcher plants were reported in any of her studies and surveys of the island before then.

The thousands that I saw were in excellent condition. Most receive full sun, except around the margins of the island where some trees have rooted and now provide shade. Wherever it was clear the pitcher plants were growing. Also, I saw little disease, mildew or decay among the pitchers. The sizes varied but on average the clumps of pitchers were 10 to 12 inches across, the pitchers were 4 to 6 inches in length with flower stems over a foot in the air. Most of the petals were gone at this time since they usually flower in late May but judging from the number of bees humming about I would say a bumper crop of seed is on the way. The contents of the pitchers were mosquitoes, ants and other insect odds and ends and the plants seemed very well fed indeed. Most of the pitchers had deep reddish veins of color running through them except for those in the shade of trees and shrubs. Here, the pitchers were green with very little red color.

The small *Drosera rotundifolia,* unlike the pitcher plant, has always been in the valley but its presence is harder to detect. Its color and size make it blend exactly with the sphagnum background. Most of the ones I saw were no more than an inch or two in diameter but very dark red and covered with gnats. The little sundews seem to like the areas next to the boardwalk of the island. Here the moss is disrupted the most and other plant competition less which make growth for the sundew ideal. Several sundews were displayed in pots for the visitors and they appeared more prominent in the natural background of the moss and pitcher plants. It was worth the effort.

The author did not see *Utricularia vulgaris,* but I was assured that it is growing in the swampy areas of the bog mat. *Utricularia minor* has been reported but has not been seen recently.

An interesting aspect of the field trip was that the air temperature at 11:00 a.m. was 85 degrees F but a thermometer on the bog surface read over 90 degrees and another only 6 inches under the surface showed only 63 degrees. The sphagnum moss makes an excellent heat insulator. The roots of many of the plants including Sarracenia are protected from extremes of temperature and kept cool year around. The water trapped in the moss absorbs heat during the summer and then releases it during the winter. This insulator/latent heat effect helps explain how northern plants can survive so far south. The sphagnum itself, is saturated with water, alive and healthy.

The carnivorous plants are not found on the shores of the lake since conditions for survival do not exist there. Only on the island can they survive and the survival of the island is in doubt. Wave action and the alkaline water of the lake are destroying it. It may last another 150 years, but who really knows? To help preserve it the island is now a Registered Landmark and Nature Preserve. Today, all that can be done is to preserve the island as well as possible. The island can be visited during the annual open house or a permit can be obtained from the O.D.N.R., Division of Natural Areas and Preserves, Fountain Square, Bldg. F, Columbus, Ohio 43224.

See it while it's still with us, this floating isle of carnivorous plants.

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THE MYSTERY OF THE NEPENTHES OR JUST HOW DID THEY GET THERE?

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Species of the genus Nepenthaceae are among the most beautiful of the carnivorous plants. The multi-colored and multi-shaped pitchers are truly wonders to behold. Along with the beauty of *Nepenthes* comes a mystery. How did these plants get where they are today or what method of distribution accounts for their present locations?

Nepenthes are found on the island of Madagascar, the Seychelles Islands, Sri Lanka, the Assam region of India, Thailand, Laos, Cambodia, Vietnam, Malaysia, New Guinea, the Philippines, the northern tip of Australia and the island of New Caledonia. The distance from the western limit, Madagascar, to the eastern limit, New Caledonia, is about 12,000 miles with vast areas of water in between. How could they travel so far? New Guinea and New Caledonia both support the same *Nepenthes* species, *N. vieillardii,* yet are 1200 miles apart with only a few islands and ocean between them. No *Nepenthes* are found between these two islands. Why? Madagascar is only 200 miles from Africa yet no *Nepenthes* have ever been found in Africa. Why? The Seychelles are surrounded by the Indian Ocean and *N. distillatoria* lives on its highlands; with *Nepenthes* to the east, Assam, and west, Thailand and in Malaysia, Burma has none. Again, why is this so?

Mysteries of nature are bound together by seemingly unrelated events or processes that are themselves mysteries. The mystery of the *Nepenthes* is a classic example. In the past twenty-five years earth science has undergone a revolution in theory and thought about the