

BOTANIST'S CORNER

by Larry Mellichamp

Botanical History of CP I: *Sarraceniaceae*

Introduction

The group of plants known as Carnivorous, or Insectivorous, Plants is large and varied; its members are spread widely throughout the plant kingdom and over the globe (see CPN Vol. 7, No. 1, pp. 18-19).

The CP show a great deal of diversity in all features: flowers, roots, stems, and especially leaves. The only thing they all have in common is their ability to catch, digest, and absorb various form of animal prey via variously and highly modified leaves. It is not surprising that th' characteristic was overlooked for many years as the various CP were discovered in the remote and not so remote corners of the earth. In many cases, the trapping mechanism is small and obscure, as in the widespread *Utricularia.* In other cases, the ability to catch insects is very obvious and was early recognized as a unique adaptation, as in *Dionaea,* a plant with a very restricted range as plants go. On the other hand, the pitcher plants, *Sarracenia,* which have been recognized botanically for over 275 years, were not proven to be truly carnivorous until the late 1880's when Dr. Joseph H. Mellichamp, a physician near Charleston, S.C., made the pioneer experiments that showed that insects were actually digested inside the pitchers. Before this time, many people thought the "water" was held in the leaves to be used by the plant in droughts; and that insects were in there "hiding" from predators.

It is interesting that while Charles Darwin, in his classic book Insectivorous Plants, meticulously studied specimens of *Dionaea, Drosera, Pinguicula, Utricularia* (all native to Europe except *Dionaea*), he did not observe *Sarracenia,* which surely were cultivated in England and accessible to him. Was it because it was not known that *Sarracenia* were carnivorous at that time?

Carnivorous plants have only relatively recently attracted attention horticulturally. For example, *Nepenthes* were first discovered in 1685; they were introduced live into England in 1750; but the first success at cultivating and artificial hybridizating did not occur until around 1850. It took that long to learn about the plant's habits and ecological requirements, and then to perfect the cultural conditions for growing them successfully.

In the next series of articles, I propose to discuss the various genera of CP from the historical point of view: their discovery, naming, attempts at cultivation, and especially the famous personalities associated with the CP over the years. CP provide a fascinating array of stories of exploration and discovery, confusion and controversy, fact and fiction, and detective work and legal action which rival adventure stories in excitement. Historical information on CP is often obscure and scattered. I have consulted such standard works as F. E. Lloyd (1945) *Carnivorous Plants,* L. H. Bailey (1917) *Standard Cyclopedia of Horticulture* and D. E. Schnell (1976) *CP of U.S. and Canada* in addition to older reference materials by original authors. It is interesting, though time consuming, to spend hours in large libraries tracking down odd books and journals to find little bits and pieces of information to make a larger story or answer a specific question. Some-

times it is frustrating to find what you are looking for, only to discover that it is in Italian (or some other unfamiliar foreign language). But the rewards are great!

Sarraceniaceae

The pitcher plant family *Sarraceniaceae* includes about 17 species in 3 genera and is completely confined to the New World (North America and N. E. South America). It is a distinctive and relatively uniform group morphologically and ecologically. The members are rather well known botanically and horticulturally and while some controversy does exist, there is a minimum of taxonomic and nomenclatural confusion.

The genus *Sarracenia* was one of the first CP to be discovered. According to Lloyd (1945 *loc. cit.*) the first known illustration (no specimen) was of a leaf of *S. minor,* probably from a Spanish explorer from Florida. The next appearance in Europe was in the form of a drawing of unknown origin of *S. purpurea,* in 1601. While it was not recognized as being carnivorous, the drawing was reproduced in the 1631 edition of Gerard's *Herbal* (a very large book on medical, herbal and horticultural botany of its day) in the hope that someone would rediscover the plant. It was discovered living by John Tradescant, a famous plant collector, in Virginia in 1640. He sent living specimens to England. In 1672 Josselyn in his book "New England Rarities" shows a drawing of what he calls the "Hollow Leaved Lavender," the plant which we now know as *S. purpurea,* (Fig. 1).

It was not given a generic name until 1700 when the famous French botanist Tournefort named it in honor of Dr. M. S. Sarrazin of Quebec, Canada, who sent Tournefort a specimen. This specimen was undoubtedly of the northern form *S. purpurea* ssp. *purpurea,* as opposed to the southern *S. purpurea* ssp. *venosa.* The name *Sarracenia* gained official status in



Josselyn's picture of the "Hollow Leaved Lavender," 1672. Redrawn from Bailey's *Cyclopedia* by Chris Sowers, UNCC.

1753 when Carl Linnaeus (the father of modern botany) used it in his book *Species Plantarum* ("Species of Plants"), which was the beginning of our modern naming system. Thus, the type, or first named form, for the genus was the northern form, probably the most typical of all the *Sarracenia* species because it is the only one that (1) grows naturally in the north; and (2) holds rain water in the open pitcher. It is *not* considered to be the most primitive, or first evolved, type of *Sarracenia.* While more research is needed, it is also possibly the only species that does *not* actually produce its own digestive juices, relying solely on bacterial decomposition in the pitcher fluid before absorbing nutrients.

Sarracenia flava is another important species in the South. It has long been known because it is large and conspicuous, and at one time was very abundant. Now, its habitat is severely threatened

(as are those of most *Sarracenia* species) in most areas of the S.E. coastal region where it grows. The story is told that in earlier days (perhaps even now) country folks would keep several potted specimens on the back porch before the advent of screening. They say the plants were relatively successful at attracting and catching flies and other insects, and thereby preventing them from entering the house; hence the common name "flycatcher," or "flytrap."

Sarracenia have long been a favorite horticulturally, especially the hybrids which seem to flourish. It is common knowledge that all species are capable of hybridizing in cultivation, and some magnificent selected forms have resulted. While many of the hybrids are more unusual than beautiful, a few are outstanding. Just as an example, *S.* X *catesbaei* (pronounced kates bee eye) is one of the most beautiful and vigorous, as well as being one of the first known (it was first discovered in 1717). It is a natural hybrid between *S. purpurea venosa* and *S. flava.* As with most plants, there is some confusion when it comes to naming hybrids. You can either give it a separate Latin name (e.g. *S. catesbaei*) or use the parents names as above. The "times sign — X" indicates hybrid. One of the most recent artificial hybrids is *S. minor* X *S. alabamensis* ssp. *wherryi* produced by Fred Case of Saginaw, Michigan (see next issue's cover of CPN). This hybrid does not have a separate Latin name yet, but it is quite charming. When making artificial hybrids, it is desirable to take care to select unusually good specimens to cross, to get the best possible hybrids with desirable characteristics of form and color.

Finally, one name that will always be associated with *Sarracenia* is that of Dr. Edgar T. Wherry (see CPN Vol. II No. 3). He is one of North America's most eminent botanists of this century. An excellent field botanist (and not just limited to *Sarracenia*!) his astute observations led to the formal recognition of northern and southern forms of *S. purpurea;* and to the realization that distinctive forms exist in the *S. rubra* complex (there is an ongoing controversy as to whether the forms are species, subspecies, varieties, or unworthy of recognition). He was the first to map the distributions of *Sarracenia* species; and the first to indicate that soil pH might be significant in explaining why certain plants are restricted to certain types of soils. Dr. Wherry is still alive (he is 93 years old) and lives in Philadelphia where he continues to curate a herbarium (dried plant specimens) and correspond on the subject of botany.

The species of *Sarracenia* and the meanings of their names:*

S. alata [Common name: Pale Pitcherplant] (alata = wing or flange, referring to wider rim of pitcher opening)

S. alabamensis [Alabama Canebrake pitcherplant] (alabamensis = coming from Alabama)

S. flava [Yellow Pitcherplant] (flava = yellow; referring to flowers &/or leaves)

S. jonesii [Upland Red Pitcherplant] (jonesii = named in honor of Dr. F. M. Jones, an authority on pitcher plant insects)

S. leucophylla [White-topped Pitcherplant] (leucophylla = white-leaved)

S. minor [Hooded Pitcherplant] (minor = smaller, or lesser, perhaps referring to the stature of the plant)

S. oreophila [Green Pitcherplant] (oreophila = mountain-loving; the plant comes from the uplands of NE Alabama)

S. psittacina [Parrot Pitcherplant] (psittacina = parrot-like. i.e. with green or contrasting colors)

S. purpurea [Purple Pitcherplant] (purpurea = purple color; flower &/or leaves)

S. rubra [Red Pitcherplant] (rubra =

red color; referring to the flower &/or leaves)

*Refer to early issues of CPN for details of ecology and culture.

Next — *Darlingtonia* and *Heliamphora*, a study in confused names.

Special Notice

We wish to apologize for omitting mention of The Plant Shop's Botanical Gardens as a CP source in the last issue. Write for their catalog (18007 Topham St., Reseda, CA 91335).

Q & A

What is a good method for propagating *Cephalotus follicularis?* MM, Merrimack, NH.

Cephalotus is easily propagated by division of the rhizome as well as by leaf cuttings. Hormone can be used to speed and improve rooting. Keep moist in well lit location between 70°-80°F. Do not keep too wet or cuttings will rot. Sphagnum is best for rooting, but you probably could use medium size vermiculite. (LCS)

Beginner's Corner

by L. Song

(Continued from last issue)

Asexual methods, on the other hand, require only a "starter plant" or a portion thereof. Large numbers of uniform individuals can be built up relatively quickly and has proven to be the difference between making a plant very rare or common. A good case in point are the pygmy droseras. Seeds of these species have generally been very difficult to germinate, but they make up for this in producing specialized bodies called gemmae that are ready-made buds with a built-in food supply that begin to grow almost immediately after being shed from the mother plant. These propagules can even be induced under controlled conditions — short photoperiod (fewer than 12 daylight hours in a given 24 hour period) and relatively low temperatures. More on these methods when propagation of these species are discussed further.

Propagation by asexual means must also be used where a particular variety or hybrid is to be increased. To use seed of these would result in progeny with mixed genetic makeup, different from the special variety or hybrid and therefore undesirable. Furthermore, in cases where portions, such as a leaf, stem or root, are used, these can be taken almost at any time the plant is in active growth, which is generally a longer period per given season than when seed is available.

In propagating a given plant, a balance must be reached between the two methods and the ultimate goal must also be considered. Sexual propagation will ensure the variability of the offspring and would make them, through time, better able to adapt to changes in their environment, whereas the production and distribution of asexually propagated plants results in a more uniform group and therefore a more highly vulnerable population to changing conditions. The latter method works in cultivation because we can control the environment more.

Now we will begin a discussion of each of the genera and the methods of propagation generally employed starting with the genus *Sarracenia.*