of the day. The temperature of the water should be 70-75°F (23°C). If the temperature is lower the growth is slower and at temperatures below 60°F (16°C) growth practically ceases. At lower temperatures the plant will attempt to go dormant. I don't give my plants any dormancy period since that is rather tricky and you may lose the plants trying to do so.

Also, I don't make any attempt to feed the plants since the water contains tiny organisms and tiny animals for the plants to feed on. You can feed the plants brine shrimp, daphnia or vinegar eels. Don't overfeed the plants since this fouls the water.

Healthy *Aldrovanda* plants have an onion-shaped growing tip and should produce at least one to two whorls per day. If your plants look sick and are not growing well, then change ⅔rds of the water with fresh water by carefully pouring off the old water and replacing it with fresh water. The surface of your artificial pond should be crystal clear and to make it so, swipe the surface with newspaper by dragging sheets of newspaper over the surface which removes both surface algae and grease and oils that contaminate the surface. Remember that the water should always be acid. Although in nature the plants grow in water at a pH of 6.5 or so, in cultivation they seem to like to grow in pHs of 4.5 to 5.5 since these pH values are easy to maintain with the above system that I described.

To propagate *Aldrovanda* is simple—just cut the stems at intervals containing 3 whorls or more. In a few weeks time, a new growing shoot will start from the whorl axil and grow into a new plant.

Although my plants have never flowered in cultivation, its interesting that the white petaled flower is related to *Dionaea* which is not too surprising because of the similarities mentioned in function described in the beginning of this essay.

Sibakoa, Takao in Annual Review of Plant Physiology. 20:165-184, 1967.

Review of Recent Literature

Adams, Richard II. 1978. Plant parenthood and the single cell. Horticulture 56(10):16-22.

While not dealing solely with CP, this excellent review article on the process of "meristemming" or "shoot tip culture" certainly has potential application for us. There is an inspiring full page color plate of some young *Cephalotus* "budlings" in an agar culture tube, and many other line drawings to illustrate the principles of this process.

Dexheimer, J. Study of mucilage secretion by the cells of the digestive glands of *Drosera capensis* L. using staining of the plasmalemma and mucilage by phosphotungstic acid. Cytologica (Tokyo) 43(1):45-52. 1978.

Phosphotungstic acid makes it possible to contrast the membranes and mucilage secreted by the digestive glands of the *Drosera* species under study.

Fish, D., Hall, D. W. Succession and stratification of aquatic insects inhabiting the leaves of the insectivorous pitcher plant, *Sarracenia purpurea.* Am. Midl. Nat. 99(1):172-183. 1978.

Three types of insects that inhabit the pitcher fluid of the above plant do so at different times and at different strata as they feed upon the dead insect remains. The buoyant larvae of *Blaesoxipha fletcheri,* of the fly family, feed up-

on newly captured insects floating on the surface. Free-swimming *Wyeomia smithii* (mosquito larvae) feed upon the suspended particulate insect remains drooping down from the surface and finally, *Metriocnemus knabi* (midge larvae) feed upon the bottom of the leaf chamber.

Johnson, Peter H. 1978. Venus's-flytrap. House Plants and Porch Gardens 3:60-63.
A popular article on *Dionaea* emphasizing horticultural aspects. Three color photos and source list.

Kondo, Katsuhiko and M. Segawa and K. Nehira. 1978. Anatomical studies on seeds and seedlings of some *Utricularia* (Lentibulariceae). Brittonia 30:89-95.
There has been much confusion regarding naming of various *Utricularia* vegetative parts, all of which seem diverse and multipotential. These first detailed anatomical seed and seedling studies also raise unresolved problems. There appears to be fairly consistent developmental diversity between aquatic and terrestrial species, especially regarding presence of cotyledons which these "dicot" plants do not always have.

Larochelle, A. The insectivorous plants of the genus *Drosera* L. as predators of *Odonata* (dragonflies). Cordulia 3 (4):136-138. 1977.
The author observed in a few hours in June 1977 in a southern Quebec, Canadian bog that *D. rotundifolia* trapped 96 dragonflies belonging to 9 species. Most of the specimens caught were the small sized males.

Romeo, John T. and John D. Bacon, Tom J. Mabry. 1977. Ecological considerations of amino acids and flavanoids in *Sarracenia* species. Biochemical Systematics and Ecology 5:117-120.
Leaf extracts of cultivated samples of plants were analyzed by two-dimensional paper chromatography, high voltage electrophoresis and gas chromatography for amino acids, alkaloids and volatile amines. Only common amino acids were detected, and there were no alkaloids or volatile amines; cf. other references quoted by the authors. Flavanoid complements were remarkably similar with only one or two varying somewhat among the taxa. Characteristic patterns of flavanoids for each of the taxa were not observed with leaf extracts, these techniques, and limited samples pooled and examined.

Schnell, D. E. 1978. *Sarracenia* L. petal extract chromatography. Castanea 43: 107-115.
Two-dimensional thin-layer chromatographic studies were done on petal extracts of all species of *Sarracenia,* including many infra-specific variants for a total of 24 taxa. Comparisons are made with a previous report of paper chromatograph studies of dry pitcher hoods, and there is a discussion of the relative value of the procedure in this genus along with observations on the results. It is noted that red-flowered species do indeed have underlying yellow and sometimes blue pigments which would presumably be visible to bee pollinators (red is generally held not to be visible to bees). (Reprints: DE Schnell, Rt. 4, Box 275B, Statesville, NC 28677).

WANT ADS

Mark Maloof, 5 Gerard Drive, Merrimack, NH 03054. (WB) any Nepenthes plants, cuttings (with the exception of N. khasiana), N. rafflesiana and N. maxima plants and cuttings.

Chris Tate, 779 Elaine St., Pomona, CA 91767. (WTS) Plants or seeds of Cephalotus, Heliamphora nutans, Nepenthes rafflesiana.

Tucker, Gordon C. 1978. Notes on the flora of Rhode Island. Rhodera 80: 596-597.

Among several other plant species, the author reports *Drosera filiformis* as a new record for the state, located near South Kingstown. There were six vigorous plants with about 50 seedlings in a gravel bank along the edge of a pond. (Ed. note — The finding of six plants along a pond margin in a state with no previous reports causes one to wonder: What if the six mature individuals were transplanted there by someone unknown to the author, and the 50 seedlings are the progeny of these plants? It is peculiar there are not more and that there were mature adults and very small seedlings only with no intermediates.)

Short Notes

Some Thoughts And Observations on *Sarracenia*

by Paul McMillan
(2155 Old Patagonia Rd., Nogales, AZ 85621)

In regard to Sarracenias, I feel strongly that the large Gulf coastal plain form of *S. flava* which is larger and more robust than that on the Atlantic coastal plain should be given *varietal* status as *S. flava* variety *Rugelii* as it was described in Bailey's Encyclopedia of Horticulture. It has no anatomical or morphological variations from the type so it doesn't qualify as a subspecies nor is it a mere form since large and consistent populations occupy the area in which it occurs. In addition to being larger and more robust than the type, the really definitive thing that characterizes it is the red blotch of color in its throat (on the column below the hood) and no red venation or red pigment elsewhere. One can certainly observe ecophenic variations in Sarracenias and color *can* be a result of exposure and season of the year. However, when color consistently and hereditarily shows a definite, delimited pattern which is distinctive as in this case, then I believe the entity under consideration is entitled to nomenclatural recognition as a variety in the technical sense of the word. In the Atlantic coastal plain, one can see in the same interbreeding population of a colony of *S. flava* various color forms involving heavier or lighter red veining or general color. These have no real nomenclatural significance and are simply expressions of genetic segregation although, as Schnell has pointed out, they may be "microecotypic" forms and may in the long run be very important evolutionarily especially if they are responses to the man-made modifications of their habitats. I think many striking forms such as the white-flowered variants of some of the pink-flowered native orchids and the all yellowish-green form of *S. flava* are undoubtedly homozygous for recessive genes where color is concerned and this certainly would explain their occasional occurrence in otherwise typical populations. In my own observations, *S. flava* var. *Rugelii* is the only type of *S. flava* to be found on the Gulf coastal plain but this may not be the true situation. To me, it is the giant of the *S. flavas.*

In regard to *Sarracenia* evolution on the old peneplain surface in eastern North America, I think it should be kept in mind that there was really more topographic diversity then than is sometimes