Review of Recent Literature

Beebe, J. D. 1980. Morphogenetic responses of seedlings and Adventitious buds of the carnivorous plant *Dionaea muscipula* in aseptic culture. Bot. Gaz. 141:396-400. Seeds cultured to seedlings on Murashige-Skoog medium containing added NAA and BA seemed to produce an inordinate incidence of adventitious buds at the tips of the petioles in place of traps. These buds could be subcultured to produce root, shoot and bud. The buds are useful in the propagation of the species. The adventitious bud formation seems dependent on a relatively higher BA/NAA ratio. A brief review of adventitious budding in *Dionaea* is in the paper.

Bell, E. A. and Charlwood, B. V., editors. 1980. Secondary Plant Products, vol. 8 of Encyclopedia of Plant Physiology. Springer-Verlag, New York. A rather large number of CPs are listed in a table (pp. 448-449) as containing free histamine, these including the genera *Drosera, Pinguicula, Nepenthes* and *Sarracenia*. (This information is derived from Werle in Paeck, K. and Tracey, M. V., editors, 1955. Modern Methods of Plant Analysis, vol. 4, pp. 517-623.) The significance of this compound in CPs is not yet known.

Cannon, J., Lojanapiwatna, V., Raston, C., Sincha, W. and White, A. The quinones of *Nepenthes rafflesiana*: The crystal structure of 2,5-dihydroxy-3,8-dimethoxy-7-methylnaptho-1,4-quinone = Nepenthone E and a synthesis of 2,5-dihydroxy-3-methoxy-7-methylnaphtho-1,4-quinone = Nepenthone C. Aust J. Chem 33(5):1073-1094, 1980. There are 5 Nepenthones, A, B, C, D, and E, beside plumbagin, droserone, and hydroxydroserone found in the roots of this CP.

Eastman, L. M. 1981. *Drosera anglica* Huds., New to New England. Rhodora 83:158-160 (one full page black and white plate.) The species is described for the first time from New England (closest previous stations being Gaspe County, Quebec and Bruce County, Ontario), in the crystal Bog Preserve of Aroostock Co., Maine. The plants had apparently been previously confused with *Drosera intermedia* which also occurs in the bog. See CPN 8:68 for a review of *Drosera linearis* in this same bog as being the only Maine location.

Heslop-Harrison, Y. and Heslop-Harrison, J. 1981. The digestive glands of *Pinguicula*: Structure and cytochemistry. Ann. Bot. 47:293-319. A thorough and well illustrated summary of the light and electron microscopic and physiologic studies of *Pinguicula* digestive (sessile) glands. This paper covers secretion, and an ensuing one is to cover digestion and absorption. Basically, the superficial or head cells of the digestive glands produce digestive enzymes and during the production period, various sub-microscopic cell structures disintegrate resulting literally in a bag (intervening lateral cell walls also dissolve) of enzymes ready for holocrine secretion. Superficial head cells are then apparently regenerated from basal reserve cells. The secretion stimulus has been shown previously to be chemical.

Luttge, U. and Noe Higinbotham. 1980. Transport in Plants. Springer-Verlag, New York. Pages 26ff and 92ff in particular mention CPs and the importance of studies on these plants in implications applicable to plant physiology in general. There is particular study and discussion of plant wall incrustations and cell wall transport (paricularly in glands) and a review of action potential physiology. For advanced readers with a particular interest in detailed physiology.

Martin. T. 1980. Hardy sundews. Quart. Bull. Alpine Gard. Soc. 48:328-331. This article discusses the outdoor culture in alpine gardens of *Drosera rotundifolia, D. anglica, D. intermedia, D. capillaris* and *D. filiformis* in Great Britain.

McCarten, N., Campbell, F. T. and Gibson, T. C., "The International Trade in Plants Focussing on the United States," January 1981. This huge report on orchids, cacti and CP can be obtained for $4.50 from TRAFFIC (U.S.A.), 1601 Connecticut Ave. N.W., Washington, D. C. 20009, telephone (202) 797-7901.

"Meat Eaters," in Good Gardening (Australia), Jan. 1981. A popular treatment of some common CP and how to culture them. *Sarracenia, Cephalotus, Dionaea* and *Drosera* are pictured and cultural instructions are given.

Moeur, John E. and Istock, Conrad A. 1980. Ecology and evolution of the pitcher-plant mosquito. J. Animal Ecol. 49:775-792. A discussion of the life cycle of *Wyeomyia smithii* from the viewpoint of energy flow economics, centered mainly around changes in maturation rates and directions *re* food supply.

Pooney, S. C. et. al. 1979. *Drosera linearis* Goldie rediscovered in Crystal Bog, Crystal, Maine. Rhodora. 81:145. Crystal Bog in Aroostook County, Maine is the only herbarium location for *D. linearis* in Maine, there having been seven collections and the last of these in 1935. In June, 1978, two stands of about one hundred plants were rediscovered in this same location by the authors. They were accompanied by *D. rotundifolia* and *D. intermedia*.

Robins, R. J. and Juniper, B. E. 1980. The secretory cycle of *Dionaea muscipula* Ellis. II. Storage and synthesis of the secretory proteins. III. The mechanism of release of digestive secretion. New Phytol. 86:297-311, 313-327. In the first of these two consecutive papers, it is shown for the first time in a carnivorous plant that *de novo* protein synhesis occurs during the secretory phase of activity and that part of this protein is directly secreted (as opposed to secretion of stored proteins only). In the second paper, autoradiography is used to propose a model of secretory activity: direct fusion of endoplasmic reticulum to the plasmalemma, or via vacuoles and vesicles derived from endoplasmic reticulum.

Robinson, James T. 1981. *Sarracenia purpurea* L. forma *heterophylla* (Eaton) Fernald: New to Connecticut. Rhodora 83: 156-157. For the first time in the state, f. *heterophylla* is described as being found in a bog in a natural area of the Connecticut Arboretum at Connecticut College. It was found in January while exploring the frozen-over bog, several plants of the form being mixed with typical forms. Population studies will continue.

Schnell, Donald E. 1980. Notes on the biology of *Sarracenia oreophila* (Kearney) Wherry. Castanea 45:166-170. The apparent optimum habitat of this species, often misunderstood in the literature, is clarified as an open, grassy seep-slope bog. The relative timing of anthesis and pitcher maturation is discussed, as well as the phenology of pitcher leaf deterioration in late summer along with phyllodia formation. Flower fragrance, also disputed in the literature, is again emphasized as present and similar to that of *S. flava*. (Reprints: D. E. Schnell, Rt. 4, Box 275B, Statesville, NC 28677, U.S.A.).

Schnell, D. E. 1980. Notes on *Utricularia simulins* Pilger (Lentibulariaceae) in Southern Florida. Castanea 45:270-276. Previously considered *U. fimbriata* (see CPN 3:4-5), the species was rediscovered in western Collier County, Florida. The paper gives a brief history of the species in Florida, plant descrip-

tion with photos, and discussion of its ecologic relationships. (Reprints: D. E. Schnell, Rt. 4, Box 275B, Statesville, NC 28677). (Ed. Note — See color photo CPN 8:72.)

Simons, P. J. 1981. The role of electricity in plant movements. New Phytol. 87:11-37. A good review of the part electrical stimuli (intrinsic) and conduction contribute to movements in plants. Several genera of CP are mentioned wherein there has been at least some detailed research, and other speculative areas where this process is involved is discussed. The comparisons of CP (in which we all specialize) with other plants exhibiting movements is interesting and provides perspective.

Smith, Lauralee V. 1981. *Nepenthes*. Am. Horticulturist 60:20-21, 34. A popular article on the genus from Longwood Gardens, discussing morphology, trapping, digestion and culture. One color and one black and white photo. Source list.

Tiagi, Y. D., and Trivedi, A. P. 1978. Photoecotypic differentiation among natural populations of *Utricularia inflexa* Forsk. var. *stellaris* (Linn. f.) Taylor. Environ. Physiol. Ecol. Plants, pp. 155-164. This Indian species has a strong habit with coppery coloration of leaves when grown in sun, and a weaker habit with green leaves when growing in the shade. These are interpreted as photoecotypes. (Note — The above publication is a book published in India and is not a journal.)

Yanchinski, S. "De Fungus," in New Scientist, Oct. 1980. p. 38. This article is a review of a recent BBC television movie called "Rotten World About Us" and describes all the habits of fungi including the well known strangling fungus that digests small worms and nematodes found in soil.



Jeanette Taylor, age 7.

A POEM BY DAVID TAYLOR

1. *WHAT WONDERS ARE THESE*
   THAT SHINE IN THE SUN
   THAT LIE QUIET AND STILL
   THEY LOOK SO MUCH FUN
2. *THOSE POOR LITTLE FLIES*
   THAT BUZZ ALL AROUND
   CAUGHT BY THE PLANTS
   WITH HARDLY A SOUND
3. *MY DAD'S ALWAYS HERE*
   DAY AFTER DAY
   WALKING AROUND
   WATERING EACH TRAY
4. *HE'S HERE BEFORE BREAKFAST*
   AND STRAIGHT AFTER TEA
   YOU CAN'T UNDERSTAND IT
   WHEN YOUNG JUST LIKE ME