Review of Recent Literature

Adams II, RM and SS Koenigsberg, RW Langhans. 1979. In vitro propagation of *Cephalotus follicularis* (Australian pitcher plant). Hort Sci 14:512-513.

Rapid clonal multiplication of shoot tip material of the species was achieved with a 5-10 fold increase of plant material. The method offers a relatively inexpensive and rapid method of producing clonal offspring commercially. Details of media used, modifications and references are in the paper.

Barron, GL. 1979. Nematophagous fungi: a new *Arthrobotrys* with nonseptate conidia. Can. J. Bot. 57:1371-1372.

A new species of carnivorous fungus with loop traps, *Arthrobotrys botryospora*, is formally described and illustrated.

Beckner, J. 1979. A method of growing the impossible bog orchids. American Orchid Society Bulletin 48:556-560.

The author, who lives in St. Petersburg, FL, concentrates mainly on outdoor culture of terrestrial orchids, but also grows various CP as companion plants with his orchids. The article should be read for details, but briefly is as follows: All plants are grown outdoors in full sun in plastic tubs or wading pools raised off the ground. The growth medium is 5 parts perlite, 3 parts vermiculite, 2 parts of Canadian peat. A few drainage slits are placed in tubs with a knife just a few cm. below the soil surface, so there is always deep moisture in the medium. Plants are placed shallowly in this medium since the whole is finally top dressed with live sphagnum an inch or so deep. The author claims all plants flourish by this method in his area.

Harms, V. L. The native carnivorous plants of Saskatchewan. Blue Jay 36 (2): 71-81 (1978).

Mr. Dale Speirs sent in this article from the journal published by the Natural History Society. The author describes and indicates the distribution on the province map the following species : *Sarracenia purpurea, Drosera rotundifolia, anglica* and *linearis, Utricularia intermedia, vulgaris, minor* and *cornuta* and finally *Pinguicula vulgaris* and *villosa.*

Kondo, K. and RM Adams II (Illustrations by R. Scott Bennett). 1979. Forbidding Beauty: Orchid - flowered butterworts. American Horticulturist 58:29-33.

A generally good introductory article on the Mexican Pinguiculas with heavy emphasis on cultivation. The sumptuous frosting on the whole thing is contributed by the superb artwork of R. Scott Bennett who has provided three full color plates (one is also reproduced on the covers) that are works of art and meticulously produced. The publisher has used an excellent color separation process, but alas one wishes that the flower color of *P. gypsicola* had been printed more accurately (It is actually an 82AB purple-violet group rather than the 96AB violet-blue group shown — RHS Colour Chart, 1968). There are three points in the text that bear discussion, one of accuracy and two of point of view. The anther is described as being located beneath the ovary in *Pinguicula* flowers; in fact, the stamen filament is inserted just below the ovary whereas the actual pollen-bearing anther is immediately beneath the apron-like, flattened extension of the stigma. Also, this reviewer believes that in the case of Mexican Pinguiculas, the grower should also refer to the "soil" medium recommended by Mazrimas (CPN 8:46-..7) which is better drained than sphag-

num and where hydration is actually easier to control in a situation where one wishes to prevent a soggy medium. I have been growing my plants in a rapidly draining perlite medium for some time and like it much better than sphagnum, the latter still being useful for some temperate species. Finally, Casper (Brittonia 18:19-28, 1966) is used as the sole taxonomic reference. The serious *Pinguicula* enthusiast will wish to know that there are other points of view. Indeed, the Casper paper is a rebuttal attempt, and one may wish to know what he is trying to rebut. The culprits are Rogers McVaugh and and John T. Mickel (Brittonia 15:134-140, 1963), and you will want to read this paper which provides different taxonomic insights. McVaugh is a highly experienced and widely recognized expert in Mexican botany who was recently singularly honored by having an issue of the prestigious journal TAXON dedicated to him (Taxon 28(1,2), 1979). It is a question of the lumpers (McVaugh and Mickel) vs. the splitters (Casper), each with chosen references lined up behind him. Casper's argument that McVaugh and Mickel did not recognize seasonal heterophylly is untrue since the factor is mentioned often in their paper. Finally, Casper simply declares that everyone else has completely misunderstood Mexican Pinguiculas. McVaugh and Mickel bring out an excellent point of the severe limitations of classical dried herbarium specimens of Lentibulariaceae. Countless photos of such ciphers mar the otherwise excellent monograph on Pinguiculas by Casper (Bibliotheca Botanica, Heft 127/128, Stuttgart, 1966) where field and culture photos would have been far more useful. One cannot appreciate the color art in this article in a Xerox copy, so readers are encouraged to purchase individual copies of the magazine which are available (Send $2.50, specify August/September, 1979 issue of American Horticulturist, and mail to American Horticultural Society, 7931 East Boulevard Dr., Alexandria, VA 22308).

Kondo, Masahiro. Carnivorous Plants. Nagoya Insectivorous Plant Society, 1979.

This 32 page booklet was printed in Japanese as a special issue on carnivorous plants by Katsu Kondo's father and published by the Chunichi Horticultural Society at Nagoya, Japan. Although it deals with all genera of CP, there is an interesting table of *Nepenthes* hybrids which we have permission to reprint in CPN. The booklet has some B&W photos of hybrid *Nepenthes* not seen before in other Japanese publications.

Meyers, DG and JR Strickler. 1979. Capture enhancement in a carnivorous aquatic plant: Function of antennae and bristles in *Utricularia vulgaris*. Science 203:1022-1025.

The authors present good documentation as a result of observations on *U. vulgaris* traps after progressive excission of trap appendages that tend to confirm Darwin's hypothesis that the antennae and bristles surrounding the trap door act as a funneling mechanism for directing small aquatic prey towards the door and its trigger hairs.

ONTARIO NATURALIST, Vol. 19, No. 2, Summer, 1979.

It is not often that we review an entire issue of a journal or magazine, but this particular issue warrants such consideration. ONTARIO NATURALIST is the publication of The Federation of Ontario Naturalists, an organization to which all Canadian CP enthusiasts should belong, and those Americans in the Northeast or who otherwise frequently botanize in Ontario. The Summer, 1979 issue is devoted to the subject of inland wetlands. The article by Dr. John H. Sparling (pp. 10-17) is alone worth the entire issue. This article is complemented by "Wetland

Primer" (pp. 29-34), a "centerfold" treatment of excellent photo illustrations of the wetland types described by Sparling. The importance of the two articles lies in the general confusion of when to use such various terms as swamp, marsh, bog and fen, and various subclassifications of these entities. British and Canadian naturalists use the term "fen" more often than Americans. Thus, what we often call a "marl bog" (perhaps colloquially?) is in actuality a kind of fen. Bogs are herein described as originating at pond, lake or stream margins, or upon old fens, and of course contain masses of sphagnum mosses in which certain ericaceous shrubs grow. The whole business of how to clasify wetlands is in some disarray. Elsewhere in the issue, Dr. Sparling is described as one of only a half dozen wetlands specialists in Ontario, and even they disagree in some aspects of classifying these vital areas — what to call any one. This difficulty is partially due, of course, to the nature of wetlands which well may be composites or spectra of several types intermingled. I would have preferred more than casual mention of the kettle or pond bog, and raised bogs founded on old fens may very often have underlying or adjacent diffuse springs as a water source rather than almost always being restricted to rain. Other than these two minor criticisms, the issue is strongly recommended as "must" reading for those interested in northern wetlands. The discussion, by the way, holds equal usefulness for Americans as well. The issue can be obtained for $2.00 from the Federation of Ontario Naturalists, 355 Lesmill Rd., Don Mills, Ontario M3B 2W7, Canada.

DES

Soepadmo, E. Pitcher Plants. Nature Malaysiana Vol. 2, pp. 38-43 (1977)

This magazine article describes the ecology and pitcher plant community in Malaysian lowlands and highlands. Nine species are pictured in beautiful color including *N. alba, macfarlanei, gracillima* and *sanguinea.* We would like to thank Geoffrey Wong for alerting us to this article and the list of four below which describe the ecology of *Nepenthes.*

C. G. G. J. van Steenis, *The Mountain Flora of Java,* E. J. Brill, Leiden, Netherlands, 1972, 90 pp.

C. G. G. J. van Steenis, "The Age of the Kinabalu Flora," *Mal. Nature J.* 20, 39-43 (1967).

C. G. G. J. van Steenis, "The Mountain Flora of the Malaysian Tropics," *Endeavour,* 21, 183-193 (1962).

Proc. Royal Soc. (London) B, Vol. 161; several articles on the national history of Mt. Kinabalu.

Tronchet, A. 1977, La sensibilité des plantes. Paris: Masson, 158 pp. P. 61-97. IN FRENCH.

Bentrup, FW. 1979. Reception and transduction of electrical and mechanical stimuli. In Physiology of movements, Encyclopedia of plant physiology, Vol. 7 (W. Haupt and ME Feinleib, ed.) New York: Springer-Verlag, p. 42-70.

Both of the above book chapters contain excellent, detailed summations of movement and electrophysiology of Droseras, *Dionaea* and Utricularias. References are current, including several papers by Stephen Williams whose work has been mentioned in this column several times and who has contributed to CPN.

Tzean, SS and RH Estey. 1979. Transmission of electron microscopy of fungal nematode-trapping devices. Can J. Plant Sci. 59:785-795.

The nematode-trapping devices of carnivorous fungi *Arthrobotrys dactyloides* constricting rings), *Monacrosporium cionopagum* (adhesive columnar processes and scalariform loops) and *Dactyella* sp. (sticky knobs) were studied to determine organelle changes coincident

WANT ADS

When submitting Want Ads, please be sure to print clearly for best results and to eliminate mistakes. Please indicate the correct letter before each item (**W**ant, **T**rade, **S**ell or **B**uy). Want ads are limited to carnivorous plants, terrariums, greenhouses and moss. There is a charge of ten cents per item, with no limit to the number of items you may submit per issue.

Send coin or check to:
Arboretum, Want Ads
California State University
Fullerton, CA 92634

Richard Chinnock, 3316 Old Kirkwood, Virginia Beach, VA 23452. (WB) Indoor Greenhouse, D. schizandra, D. prolifera, Heliamphora Plant (any species). (TS) Aldrovanda vesiculosa.

William Clemens, 3147 Steele Manor #3, Memphis, TN 38127. (WTB) Byblis gigantea seed, Drosera regia seed or plants, Drosera villosa plants or seeds, Heliamphora (any species, plant, seed, cutting). (TS) Cephalotus follicularis, Drosera burkeana, Sarracenia purpurea pur. seedlings, Drosera brevifolia, D. rotundifolia, D. hamiltonii, Sarracenia psittacina, Darlingtonia californica.

Anthony Ford, 320 E. O'Keefe, #4, Palo Alto, CA 94303. (WB) Drosera schizandra, D. macrophylla, D. erythrorhiza, D. zonaria, D. arcturi, D. prolifera, D. pulchella, D. hamiltonii, D. bulbosa, Nepenthes rafflesiana (plants or cuttings of all of the above).

Jeffrey Gold, 13126 Anza Drive, Saratoga, CA 95070. (WB) seeds, plants, cuttings, or divisions or epiphytic, orchid-flowering Utricularia, other interesting Utricularia species, Nepenthes mirabilis, N. maxima, Mexican Pinguiculas, Sarracina alata, S. oreophila, Drosera prolifera, D. regia, Genlisea, carnivorous fungi, live sphagnum moss.

John Graham, 8 Waruda St., Bracken Ridge, 4017, Queensland, AUSTRALIA. (WB) Seed only of the following: D. cuneifolia, D. trinervia, D. villosa, D. madagascarensis, D. sessilifolia, D. regia, D. binata extrema, D. petiolaris, P. caudata, P. gypsicola, U. sandersoni, U. pubescens, U. prehensilis and U. racemosa.

Andre Horvath, 60 Pringle Ave., Belrose, NSW 2085, AUSTRALIA. (WT) Australian CPs for Utricularia, Pinguicula, Heliamphora, Darlingtonia and Drosera.

Leo Ohtakay, 3905 Skycrest Dr., Pasadena, CA 91107. (W) The following plants free or reasonably priced: Nepenthes khasiana, N. x dicksoniana, N. mirabilis, Cephalotus follicularis.

Steve Smith RD #1, Box 296, Kirkwood, NY 13795. (WTB) D. schizandra, D. adelae, D. regia, Heliamphora (any), P. gypsicola, P. caudata, D. trinerva, D. villosa. (T) N. rafflesiana, N. hookeriana cuttings.

REVIEW OF RECENT LITERATURE (cont)

with nematode trapping. It is postulated that the rapidly swelling cells of constricting rings which effect trapping of nematodes as they pass through, is due to generated gases rather than fluid shift.

Windler, DR. 1979. A water plant with a taste for tiny beasts. Smithsonian 10: 91-94. (Photos by Robert Noonan).

A moderately informative popular article on U.S. Utricularias (for those who know nothing about them), but with five interesting color photos, four of these featuring unique lighting and magnification features. DES

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