

Review of Recent Literature

Adams, RM and Koenigsberg, SS, Lanhans RW, 1979. In vitro propagation of the butterwort *Pinguicula moranensis* H.B.K. HortScience 14: 701-702.

The authors describe an agar formula technique for successfully obtaining more rooted buds from leaves of the above species. The agar formula and methods are described in detail.

Adams, RM, and Langhans, RW., cover by R. Scott Bennett, 1979. Carnivorous plants underexploited for indoor culture. HortScience 14: 678, 787, and color covers.

This article briefly describes CP useful for indoor culture, along with some general CP descriptions, functions and problems. There is a fine painting of five CP species in color on the cover. Reprints (the article on one side and the color painting reproduced double page on the other of heavy paper suitable for framing) are available at cost, \$1.00 including postage, from: Dr. RW Langhans, Cornell Floriculture, 20 Plant Sciences Bldg., Ithaca, NY 14853.

Army Corps of Engineers, 1977, and 1979 (supplement). Wetland plants of the eastern United States. (Publication No. NADP 200-1-1 with supplement 1, US Army Corps of Engineers, North Atlantic Division, 90 Church St., New York City, 10007, both parts for \$8.40, ppd.).

This interesting handbook was designed for ACE personnel to use in the field and is by the photo matching concept. Each wetland species for the area features a description and at least one, most often two, color photos. CP covered are *Drosera ffishiformis*, *D. intermedia*, *D. rotundifolia*, *Sarracenia purpurea* ssp. *purpurea*, and *Utricularia "cornuta"* (the photo actually shows *U. vulgaris*!). In addition to the CP,

several hundred other wetland plants of interest are covered as well, including some native orchids. There will likely be further supplements. In spite of the *Utricularia* error identification, the set is well worth the low cost. Be certain to get both parts for the one price since the supplement is actually larger than the first portion, and contains the table of contents, index, corrections and bibliography. (DES)

Beaver, R.A., Biological studies of the fauna of pitchers plants (*Nepenthes*) in West Malaysia. Ann. Soc. Entomol. Fr. 15(1):3-18 1979.

The author describes 25 species of insects and 3 species of arachnids living in the pitchers of *N. albomarginata*, *N. ampullaria* and *N. gracilis* in Penang. The differences between the faunas of different *Nepenthes* species can be related to the habitats & pitcher structure. Most of the species have aquatic larvae that feed on nutrients in the pitcher liquor but one predator spider and one fly larvae actually catch insects entering or leaving the pitcher. Most of the insects (79%) breed only in the pitcher habitat and are termed nepenthebiont species.

Beaver, R. Description of the male and larvae of *Endonepenthia schuitemakeri*, new record, from *Nepenthes* pitchers. Ann Soc. Entomol. Fr. 15(1): 19-24. 1979.

A small two-winged fly of hunchback appearance (Diptera, Phoridae) was found living in *Nepenthes* pitchers in West Malaysia.

Dexhimer, J. Ultrastructural localization of enzymatic activities in the cells of the digestive glands of *Drosera capensis* during the mucigenic phase: Detection of glucos-6-phosphatase activity. Cytologia (Tokyo) 44(1): 153-160. 1979.

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The author found that the majority of the enzyme activity was concentrated in the cell wall, in the zones where mucilage accumulate.

Grjebine, A. The mosquitoes living in the Malagasy pitcher plants: New species of the genus *Uranotaenia* (Diptera, Culicidae). Ann. Soc. Entomol. Fr. 15(1): 53-74. 1979.

Four new species of mosquito are described which exhibit faunistic differences depending if they live in the ground pit-

chers or the trumpet-like pitchers of taller plants. The mandibles of two of them are highly adapted to predation.

Kurahashi, H., Beaver, R. *Nepenthomyia malayana*, a new genus and species of calliphorid fly bred from the pitchers of *Nepenthes ampullaria* in West Malaysia. Ann. Soc. Entomol. Fr. 15(1): 25-30. 1979.

The authors describe a large blow-fly of a new genus living in *Nepenthes* pitchers.

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Carnivorous Plants Do Not Appear To Be Cannibals

by D.C. Speirs (Box 6830, Stn. D, Calgary, Alberta T2P 2E7, Canada)

In an 1879 issue of Gardener's Chronicle (Vol. 12, page 565) is an interesting note on *Nepenthes*. A plant was illustrated showing a young pitcher that pushed into an older pitcher and developed inside it. The interior pitcher was quite healthy and green, and it did not appear to be affected by the digestive juices of its host. For those of you who grow *Nepenthes*, this might make an interesting study, deliberately pushing young pitchers into older ones and seeing what happens. This could be done in two ways. Firstly, both pitchers might be from the same plant. secondly, each pitcher could be from a different plant or clone, to see if the host will attack the foreign pitcher.

In the century since this note was published, it appears that this unusual occurrence has not been repeated. Because 1879 issues of Gardener's Chronicle are difficult to come by, the original sketch has been redrawn and is presented here, showing a cut-away view of the host pitcher with its companion inside.

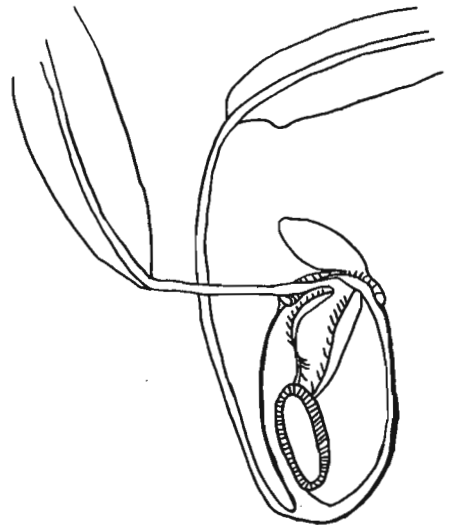


Fig. 2.
Cotton Grass in bog at
Bishops Dyke

Photo by
David Taylor



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Matile, L. *Xenoplatyura beaveri*, new species, (Diptera, Mycetophiloidea) of Keroplatidae living in *Nepenthes* pitcher plants in Malaysia. *Ann. Soc. Entomol. Fr.* 15 (1): 31-36. 1979.

A two-winged fungus gnat was bred from larvae spinning webs in the urns of the pitcher plant *Nepenthes ampullaria* on the island of Penang.

Nesbitt, H.H.J. A new anoetid, *Creutzeria seychellensis*, a new species from the Seychelles. *Can. Entomol.* 111 (11): 1201-1206, 1979.

Nepenthes pervillei pitchers support the above genus of tick.

Schnell, Donald E. 1980. *Pinguicula caerulea* Walt. forma *leucantha*: A new form. *Castanea* 45:56-60.

A white flowered variant of *Pinguicula caerulea* Walt. is herein described and pictured, its significance being possible confusion in field identification with commonly white flowered plants of *P. pumila* Michx. (Reprints: D.E. Schnell, Rt. 4, Box 275B, Statesville, NC 28677, USA)

Taylor, Sylvia. 1979. Insectivorous plants in British Columbia. *Davidsonia* 10:41-53.

An excellent summary article on the CP found in British Columbia. Brief but accu-

rate descriptions of the plants are given, often with a sketch, and habitats are discussed. There is a general introduction discussing carnivory. Note: Reprints of this article are *NOT* available, but copies of the entire journal can be purchased for the reasonable cost of \$1.50 plus postage (your choice) from the Office of the Botanical Garden, 6501 Northwest Marine Dr., Vancouver, BC, V6T 1W5, Canada; ask for *Davidsonia*, Vol. 10, No. 3.

Shinonanga, S., Beaver, R. *Pierretia urceola*, a new species of sarcophagid fly found living in *Nepenthes* pitcher plants in West Malaysia. *Ann. Soc. Entomol. Fr.* 15 (1): 37-40. 1979.

The authors described a new species of sarcophagid fly found living in *Nepenthes* pitchers in Malaysia.

Skogen, A. 1979. *Drosera intermedia* in Norway. *Blyttia* 37: 15-20. IN NORWEGIAN (English summary).

This interesting distributional and ecologic review indicates that many herbarium sheets for the country are mislabeled due to confusion of *D. intermedia* with *D. x obovata* (*D. anglica* x *rotundifolia*). Correction of these and additional locations indicate a southern coastal range with the
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limiting factors being sufficient moisture (in either rich or impoverished soils), sufficiently long growing season (southern distribution in Norway), and low competition. The species rarely occurs inland and north, and in addition to lack of suitable wet, low competition habitat in a sufficient growing season, poor dispersal (probably by birds) is felt to play a part. DES (article sent by DC Speirs)

Winston, R.D. and Gorham, P.R., 1979. Roles of endogenous and exogenous growth regulators in dormancy in *Utricularia vulgaris*. *Can. J. Bot.* 57:2750-2759.

A companion paper to the above by the same authors in which plant growth regulators (plant hormones) effects on dormancy are investigated. Regulators studied were the classes auxins, abscisic acid, gibberellins and cytokinins. During turion induction, abscisic acid levels rose and gibberellins were bound, abscisic acid applied to actively grown plants could induce dormancy. Kinetin induced sprouting in innate dormancy but further growth could not be sustained, unless supported (best response in last stage of dormancy) by auxin and / or gibberellin applications. Levels of these compounds measured in the turions during three states of dormancy and variations of light and temperature as discussed in the preceding paper paralleled the experimental results. An excellent flowchart summary of the work is provided.

Winston, R.D. and Gorham, P.R., 1979. Turions and dormancy states in *Utricularia vulgaris*. *Can. J. Bot.* 57:2740-2749.

Turion studies were made over a year in the field, and from specimens collected throughout dormancy and treated to varying degrees of temperature and photoperiod in the lab. Dormancy was found to be in three states: pre-, innate and imposed. Turions began forming soon after summer solstice and short days seemed to be the inducing factor. In late fall and early winter, innate dormancy could be temporarily broken by high temperatures (30°C) but

cooling to 20°C resulted in prompt turion reformation in spite of photoperiod manipulation. Only during the last stage (imposed or environmentally controlled) of dormancy would high temperature sprouting and long day treatments result in robust growth. An excellent study worth reading in its entirety for details of the exploration of this subject.

Wirth, W.W. and Beaver, R.A. The *Dasyhelea* biting midges living in the pitchers of *Nepenthes* in southeast Asia. *Ann. Soc. Entomol. Fr.* 15 (1): 41-52, 1979.

Five species of the genus *Dasyhelea* midges are found in *Nepenthes* pitchers and are known to breed there.

SPECIAL NOTICE

CPN wishes to apologize for the delay in mailing of the March, 1980 issue. Various problems in the production were responsible. We sincerely hope that this problem will not be repeated.



N. rafflesiana

Photo by Steve Smith