

CARNIVOROUS PLANT NEWSLETTER OF AUSTRALIA



Volume 5

June, 1980.

Registered as a Publication, Category B.



EDITORS KEN HATLEY. - SUSAN HATLEY.

CORRESPONDENCE ADDRESSED TO : : C.P.N.A.

Wandena Rd, Bullsbrook East.

West Australia. 6084.

Published Quarterly by C.P.N.A. Subscriptions \$ 6-00 Annually.

Back copies issued to late subscribers.

FROM THE EDITORS.

We enter our second year of the C.P.N.A. with great enthusiasm, for we believed the newsletter would stand or fall on the re-newed interest shown. To date, many subscribers have re-newed, with more coming in daily. As yet we haven't reached last years total but we are confident that with the interest in c.p's increasing, we will pass last years total.

We would like to urge more subscribers to contribute articles as we are extremely low on material for all sections. Last year saw the same names appearing regularly which was very much appreciated, but we would like to see some fresh names along-side our regulars. Sit down and give it some thought, you will come up with some subject that will interest us all.

We are keen this year to add a section on individual growers and their collections. For this section send in details of how your interest and collection got started, future plans and a few photographs of yourself and some of your plants (negatives if possible) and we will do the rest.

During the past year we have had a steady stream of mainly Australian travellers calling in to see our collection. Many of these people were from the eastern states and have expressed a desire to know of c.p. collectors in other parts of the country that they could call on during their travels. Anyone with a collection (large or small) that they would like to share with other plant lovers and spend a happy hour chatting and making new friends in the c.p. world please drop us a line with your name and address and phone number and we will pass it around to anyone who may be making a trip to your area.

Word is coming in of exhibits of c.p's appearing at plant and flower shows around the country. This is exciting news, as c.p's were almost unheard of up to a year or two back.

Lets get to it this year and help educate people on our wonderful plants. If you have a local show on near you, exhibit some of your plants and you will be amazed at the response and interest you will receive.

Good Growing,

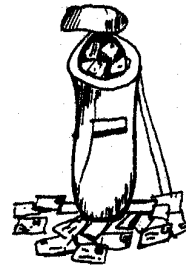
Editors.

.....

FRONT COVER - DROSER A ERYTHRO RHIZA.

HABITAT WEST AUSTRALIA.

C.P. LETTERBOX.



Editors It has been suggested to us here at C.P.N.A. that an occasional individual state or city get together for C.P. growers be arranged. This is an excellent idea and will give growers a great opportunity to meet and swap ideas and methods of growing plants. To organize these meetings from here in W.A. for the eastern states would however be a difficult task, so we would like to suggest that anyone who is interested in organizing a meeting along these lines to send in to C.P.N.A. your name and address so we can publish it in the next issue of the newsletter so that those interested in your area can contact you for further arrangements.

MRS MERLE THOMSON OF VICTORIA WRITES : Thank you for the copies of the newsletter. I'm surprized there are so many people interested in them, I have never come across another person who even knows what they are, in fact my friends think I'm pulling their leg when I explain what I have growing. Some time ago I was bothered with little moss flies in the glasshouse and since collecting a few c.p's, I'm glad to say, no more flies. I find them so interesting I might throw out all the other plants and just keep c.p's.

What I like about the newsletter is there is no heavy botany in it. When I read an article and its got chromosome counts and feeding worked out in fractions, I'm afraid my poor head goes round. This reading is straight forward and very interesting to a person like myself. Also, print you can read. Some society newsletters are printed so tiny it's hard to read. I hope to be reading the C.P.N.A. for a long time to come.

Thank you for your kind encouraging note Merle, we hope to hear more from you in the future. - Editors.

JIM LILLIS OF BAULKHAM HILLS, N.S.W. WRITES I have a very interesting book entitled 'Guide To Medicinal Plants' by Paul Schauenberg and Ferdinand Paris, (Lutterworth Press, London).

It may be of interest to c.p. growers to know that *Drosera rotundifolia* is included in the book as a valuable medicinal plant. The plant contains naphthoquinones, tannin, organic acids, quercetol (a flavonoid) and an anthocyanin pigment. These properties are listed as being expectorant, antispasmodic and effectively antibiotic against streptococci, staphylococci and pneumococci bacterias.

Apparently, a liquid extract of the plant is used in medicine for respiratory problems (e.g. asthma, whooping cough). In homoeopathy a tincture of the plant is used to treat rheumatic pains and pulmonary tuberculosis. In traditional European folk medicine it has been used to treat warts and, internally, as a diuretic, antispasmodic and aphrodisiac.

It is quite possible that many of the other *Drosera* species have similar medicinal properties and applications. I wonder if any other c.p. growers reading this could perhaps expand on this information and list other c.p's with medicinal properties?

C.P. LETTERBOX.

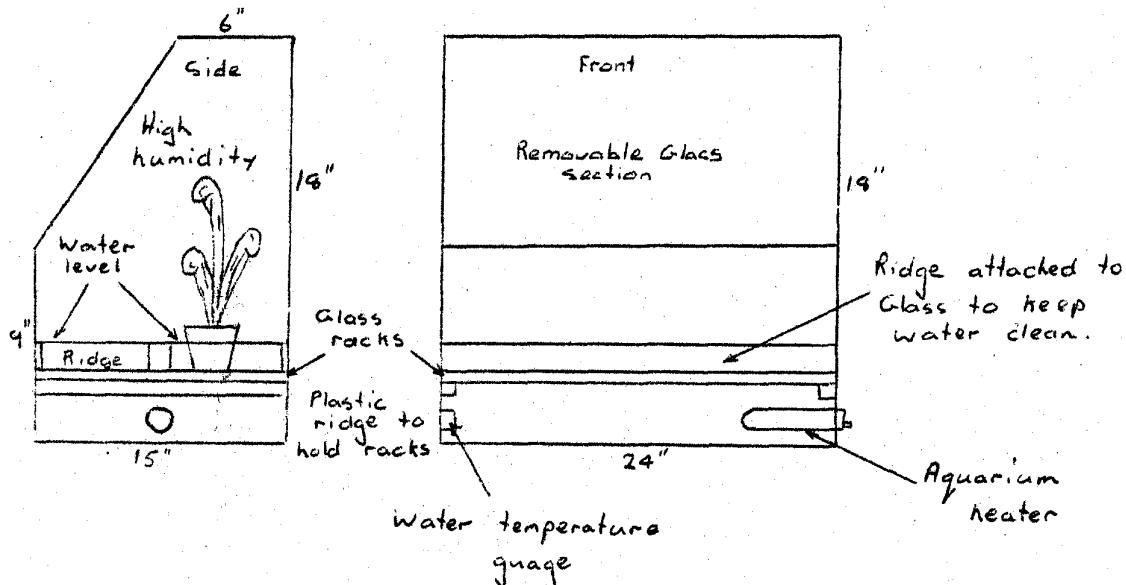
ANDREW HAWKINS OF 'GINGHI', BYLONG RD, RYLSTONE, NSW. 2849. WRITES :

In the near future I hope to construct the small glass house described in my diagram. I got the plan out of the C.P.N. (Vol 7, No 3, Page 77) and I plan only to specifically cultivate several varieties of Drosera in it. They suggest to make the glass house out of 1/14 inch plate glass, but I was wondering if thick perspex would be just as good? Would it be as strong and hold heat and humidity as well as glass?

Being a relatively inexperienced grower of c.p's, I am looking for some suggestions of Drosera that will possibly thrive in my perspex house. I am sure that the humidity will be rather high and therefore we must keep this in mind in selecting the varieties of Drosera. Several I already have in mind are D. schizandra, D. adalae, D. alicia, D. burmanni, D. prolifera and D. spathulata. Hopefully I won't encounter any fungus diseases but I presume there is always the possibility. How can I discourage fungus diseases, and if they do appear, how can I get rid of them?

Where can I obtain some green, growing sphagnum moss? Does it grow in Australia, is it alright to use normal bush moss for some c.p's? In conclusion, I must commend you on your excellent newsletter, although I feel there should be more articles on c.p's like Cephalotus Follicularis in Vol 4, 1980. I would also like to see the newsletter come out at least every two months, not three.

ENVIRONMENTAL CHAMBER



Editors.

Come on you experienced growers in the eastern states, drop Andrew a line and help him out with his query.

ANOTHER LOOK AT DROSERA SPECIES."Gidgeganup White". (S. Rose).

By Allen Lowrie.

Three seasons ago, Steve Rose one of the first private collectors of c.p's here in W.A., discovered quite a few new Drosera species that today are in collections across Australia, U.S.A., Germany and Japan.

As none of these new Drosera species are formally discribed, even to this day, Steve decided to label these Drosera's as above, i.e. area found and flower colour, to seperate the seven or so new species.

Drosera species 'Lake Badgerup White', 'Bannister Pink', Walyunga Pink', 'Gidgeganup Pink', and a few others. including of course Drosera species 'Gidgeganup White' were all discovered by Steve Rose.

Steve Rose, a friend of mine for many years, introduced me to c.p's to the point today where I can be considered a hardcore c.p. collector.

Last season I collected 12 plants of D. 'Gidgeganup White' from the place Steve first discovered them. This season I planted out the gemmae and I am happy to say those 12 parent plants have produced approx 100 additional plants that are growing beautifully.

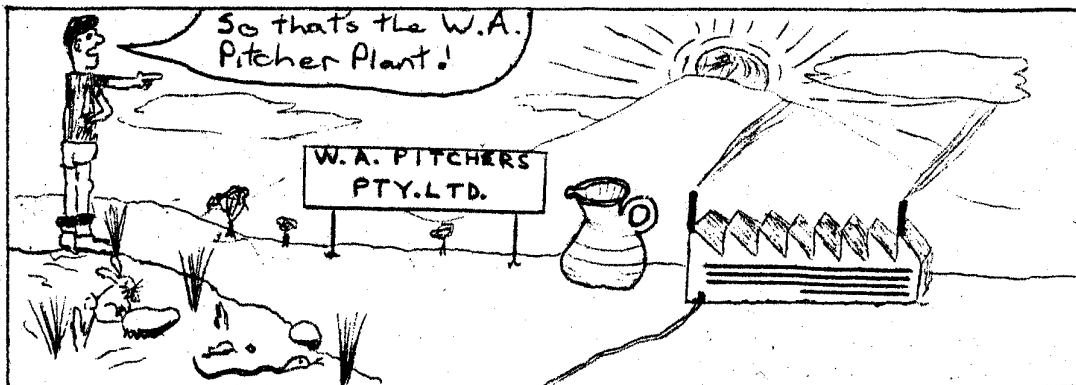
On closer observation of D. 'Gidgeganup White' it is a truely weird species.

- (1) It is a pygmy Drosera but not the typical flat to the ground rosetted style.
- (2) The traps can be likened to a clasping hand when it infolds its prey.
- (3) Standing approx 6 cm tall with approx 6 active leaves at any one time on the upper part of the plant. The older leaves die back then hang down on the main stem of the plant, making the lower part of the plant quite straggerly.
- (4) It has thick aerial roots which wander out from the main stem a few cm before growing down.
- (5) The white 5 petal flowers are born on a very hairy (like wooly white silk) flower spike. The sepals are also quite wooly.
- (6) The flowers are strongly perfumed that is very pleasant to the nose.

All in all D. species 'Gidgeganup White' is truely a strange and beautiful pygmy Drosera.

CARTOON CORNER.

This issues award goes to John Graham of Bracken Ridge, QLD.



CARNIVOROUS PLANTS OF THE SYDNEY REGION.

By F. Ludriks.

If you live in the Sydney region and you are interested in carnivorous plants, you may not know about the carnivorous plants growing in your area. There are eleven different types of c.p.'s growing around Sydney and suburbs. This group of plants consists of five species of Drosera's and six species of bladderworts (Utricularia).

The Drosera are, Auriculata - Binata - Peltata - Pygmaea - Spathulata.
The Utricularia are, Aurea - Biloba - Caerula - Dichotoma - Lateriflora - Uliginosa.

Drosera auriculata, the tall Drosera, is an erect plant reaching the height of between 10-30 cm. It is common in wet places, usually growing amongst long grass. Flowers from April to September, and the flowers are usually white or pinkish purple. This plant lies dormant from late spring to early autumn.

Drosera binata, aptly called the 'Forked Drosera', grows on wet, boggy ground, or more usually on ledges on rock faces. This plant is particularly robust with leaves rising from a base stock, and becoming forked. This plant when it becomes larger, cannot support its own weight, and if cultivated in a pot, the leaves tend to hang down, where as in nature surrounding plants hold up its leaves.

Drosera peltata, the pale Drosera, strongly resembles D. auriculata, but D. peltata has a hairy flower bud, a greener appearance, and its white or pale pink flowers only open when in strong sunshine. It also prefers wet grassy places, damp peatish soil, and cool cliff faces.

Drosera pygmaea, the pygmy Drosera, is a very small rosetted plant about 1-2 cm across which grows in damp coastal situations. It has a single white flower about 5 mm across on a stem about 25 mm high. It flowers September to February.

Drosera spathulata, called the 'spoon-leaved Drosera because of its spoon shaped leaves, is a fairly common plant. It has a rosette of leaves and a flower stalk about 15 cm high which carries 1-15 flowers. It has white or pinkish-purple flowers which emerge from June to January. D. spathulata can grow as large as a \$.50 piece.

The Utricularia's are not described in as much detail as the only part which really differs about them is their flowers.

Utricularia aurea - floating plant, yellow flowers.

Utricularia biloba - small blue flowers.

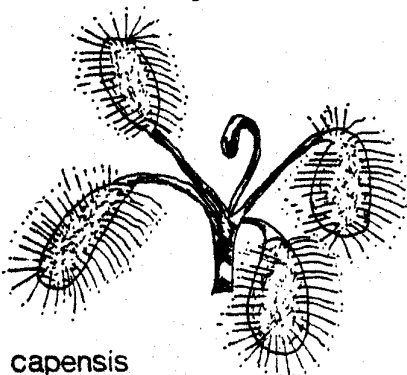
Utricularia caerula - small flowers, blue, mauve, pink or white.

Utricularia dichotoma - larger flowers, blue or lilac.

Utricularia lateriflora - small blue flowers.

Utricularia uliginosa - rare; small flowers, blue, pale or white.

If any readers would like to see some of these plants, come and visit me and I will show you. Please ring me on 451-4135 (Sydney) to arrange day and time.



D. capensis



D. capensis var. narrow leaf

DROSERA HUNTING IN SOUTH AUSTRALIA.

By Fred Howell.

South Australia is surely the poorest state for native Drosera, but nevertheless it was a great thrill for myself, my wife Elizabeth and Andrew on our first ever 'hunt' to find at least one plant as described in Rica Erikson's book "Plants of Prey".

Our first visit was to One Tree Hill area north of Adelaide. Two hours were spent to find two plants of *D. whittakeri*. Three miles later, the same plant was growing in profusion, mostly in scrubby country. The plants growing in fairly open ground were very red and seemed far more 'sticky' than the more sheltered ones. Seedlings were abundant, particularly near larger plants. On the same visit one plant of *D. planchonii* was found, although it wasn't recognised as such until later on.

Second trip was to the slopes of Mount Lofty. Only two plants of *D. whittakeri* were found but the next day aching legs reminded us of our visit.

By the third trip we were classing ourselves as 'experts', knowing where to look etc. This time the venue was Mooralta Falls. In 2 1/2 hours only ten plants were seen, nine of *D. planchonii* and one of *D. peltata*. A bit disappointing because now as experts we 'thought' we were in Drosera country.

Our next outing was to Clarendon where *D. whittakeri* var *praefolia* grow. There were plenty of *D. whittakeri*, but in about two hours six plants of var *praefolia* were found. What an interesting plant this is, flowering had already taken place and old heads. were only visible when leaves were lifted up. Leaves of var *praefolia* are basically similar to *D. whittakeri* but on closer inspection they are not alike at all. That sounds contradictory but that was my impression.

The last visit was to Eyre Peninsula (near Port Lincoln) where ten locations were visited. In every one *D. planchonii* was found, and between Port Lincoln and Cummins they were like a red carpet growing next to the highway. What a sight they should be when in flower.

The last of ten locations yielded plants of *D. glanduligera*, ? at least that is what they 'should be', but looking at the plant and also at Rica Erikson's book I'm not convinced. The leaves are 'too big' and stalks 'too long', who knows, I may have discovered a new Drosera.

Although none of the above plants are rare or exotic it was very enjoyable looking for and finding them, particularly as plants were found on every visit.

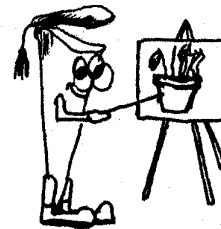
Note. Area visited Mooralta Falls is a National Park and taking of fauna is completely prohibited.

COMPETITION RESULTS.

The winners of the article competition for the L.P. records and tapes, donated by Astor Records, Perth Branch were

Liza Reinberger of Victoria & James Lennon of Queensland.

BEGINNERS PAGE.



SUNDEWS OF THE NORTH QUEENSLAND RAINFOREST.

By Robert W. Riedl.

To the collector of rare plants, particularly if he happens to be a C.P. enthusiast at the same time, the North Queensland rainforest sundews - Drosera adelae, D. Schizandra and D. prolifera - will exert a strange and irresistible fascination. Hardly another species of Drosera will be as rare and as restricted in distribution as any of these three sundews. Although the tropical rainforest in which they occur extends almost uninterrupted over a distance of some 450 km from just north of Townsville to about Cooktown with vast areas of suitable drosera habitat, the three species are restricted to relatively tiny areas of mostly single water catchments and each species is geographically well isolated from each other. In spite of the fact that all three species differ vastly in habit and leaf morphology Dr. P.S. Lavarack of Brisbane stresses their similarity of sexual structures in their flowers and on this basis postulates that they should be all placed into the Drosera Section Arachnopus. Dr. Lavarack convincingly reasons "that the present rainforest distribution may have been much more discontinuous. Therefore the distributions of these species may not always have been linked by suitable habitats. It is consistent with present day knowledge to postulate an original ancestral species, widespread in a previous period of recent geological history. The continuous range of this ancestor species was then (interrupted by one or more dry periods and these now-isolated communities proceeded to evolve along different lines in response to slightly different environments. As there are now no obvious mechanisms for long range dispersal, the species have remained isolated."

D. adelae has been known since 1864 and has been recorded from Hinchinbrook Island and adjacent mainland areas. D. schizandra, known since 1906, has only been found in the foothills of the Bellenden-Ker Range west of Innisfail. D. prolifera, possibly the rarest of the three species, has only ever been recorded from Thornton's Peak between Cairns and Cooktown; since its original collection in 1937 by L.J. Brass and subsequent description by C.T. White in 1940, it was again collected in 1940 by Flecker, but then not found again for 33 years until it was collected by Stocker. All plants of this species which over the last couple of years have found their way into C.F. collections in many parts of the world are in all probability descendants of specimens collected in June 1977 by B. Gray of Atherton.

The 10-20 cm long mature leaves of D. adelae are narrowly lance-shaped and are spaced on short stalks along a gradually elongating central stem, older leaves closer to the base of the stem eventually wither and new ones are continuously formed near the stem's apex. The leaves of seedlings are initially rotund and clearly stalked, and the mature, lanceolate leaf-shape is only acquired as the plant matures. As in the other two species the leaves are pale green and the mucilage-secreting glands more thinly scattered than in most other sundews. The leaves of both D. adelae and D. schizandra are distinguished by having very conspicuous veins and midribs. The simple flower scapes are 20-30 cm long. Each scape can bear up to about 20 flowers, which have an approximate diameter of 6 mm, green sepals and pointed red ochre-coloured petals.

The mature, 15cm long leaves of D. schizandra are arranged in a rosette. They are typically wedge-shaped, about 6 cm wide at the widest point and usually notched at the leaf apex. Leaves of juvenile plants are rotund. The flower scapes are ca. 10 cm tall and bear up to about 20 attractively rose-coloured flowers (not whitish as some sources state;) which are slightly larger than those of D. adelae.

D. prolifera is a basally rosetted plant; the rosette may reach a diameter of 10 cm in mature specimens. The kidney-shaped leaf-blades measure about 2-3 cm across

CONT.

BEGINNERS PAGE CONT.

and have ca. 4-5 cm long, slender stalks. The flower scapes are usually 10-15 cm long, weak, trailing and frequently possess a vegetative bud at the end. The flowers per scape are usually fewer in number than in the previous two species, about 6 mm in diameter and pinkish-white.

The three species, in contrast to many other Australian sundews, thrive in cultivation provided one creates conditions similar to the micro-climates in which these plants grow along the mossy creek banks of our tropical rainforests ; very high humidity, non-extremes of temperatur and protection against excessive direct sunlight are the three key factors for their successful cultivation.

My plants are grown in plastic flower pots filled with sphagnum moss which is covered over with ordinary short-tufted moss or low-growing filmy ferns. The pots, provided with additional aeration holes along their sides, are placed into an aquarium filled with several cm of good quality water which should be changed periodically to prevent salt build-up. The aquarium, or rather terrarium, is positioned in a glass house or on a window sill where the plants receive some morning sun which in my experience has proven beneficial for vigorous growth. Covering the terrarium with a glass pane and just leaving a small open gap for gass exchange and to prevent excessive heat build-up will ensure the desired saturation of the air with water vapour. the summer temperatures within the terrarium should not exceed about 32 deg C and the winter night temperatures should not be allowed to fall much below 10 deg C to avoid temperature stress and subsequent damage to the plants. A rainforest sundew terrarium can probably be arranged more aesthetically by filling the entire terrarium bottom with a moss covered 15 cm deep layer of sphagnum provided the water, which maintains the substrate moist and the air humidity high, can be periodically and conveniently drained and replaced with fresh water to prevent any harmful build-up of salt and micro-organisms.

All three rainforest sundews seem very inefficient in trapping insects and trapped larger prey frequently leads to localized leaf decay. Considering the relative nutrient richness within the top layer of rainforest soils I suspect these plants depend a great deal more on nutrient uptake from the substrate than most other sundews and thus respond favourably to about 4-weekly mistings with half-strength orchid fertiliser. With the exception of D. prolifera which flowers sporatically throughout the year, my plants of the other two species bloom profusely right through spring and early summer. My D. adelae plants have the longest flowering period of the three species starting about September and flowering until late December or early January. Like D. binata none of the three rainforest sundews is self pollinating. To obtain seed, the scapes of two plants from different clones are simply brought together and the open faces of their flowers are lightly brushed against each other with a circular motion to effect mutual transfer to adequate pollen to the stigmas and subsequent fertilisation. This process may have to be repeated on consecutive days to ensure success. If fertilisation has occurred the seed capsules ripen slowly over a period of 2-4 months and on turning dark brown the dust-like seeds can be shaken out and collected. The seeds can either be stored for some months in the refrigerator for future use or are sown straight away onto short-tufted sphagnum. On the average the seeds will germinate within 10 days in an environment similar to the one recommended for the cultivation of adult plants provided the temperature does not drop below 18 deg C. The seedlings develop rather slowly and are during their early stage of development susceptible to damping off.

Vegetative propagation is much more rapid. Mature leaves are simply cut off the parent plant, firmly brought in contact with moist sphagnum moss under conditions of warth, high humidity and diffused light, and within 2-4 weeks new plantlets will sprout from the slowly decaying leaf. This process of vegetative propagation even occurs quite routinely on unsevered older leaves; as soon as a leaf of a plant begins to decay while contacting the moist moss substrate young vigorous plantlets start to emerge from the dying tissue.

CONT OVER.

BEGINNERS PAGE CONT.

These rainforest sundews are periodically so prolific in multiplying themselves vegetatively that only frequent "weeding" will prevent overcrowding in one's terrarium.

So far my plants have not been attacked by insect pests, but I suppose they are too protected in a terrarium. Usually after feeding the plants with fruit flies (*Drosophila melanogaster*) some white, fluffy mould patches appear around trapped and only partly digested prey remains, but do little damage to the plant as a whole.

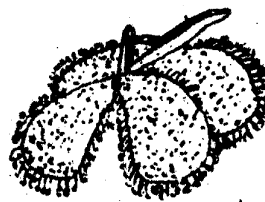
The North Queensland rainforest sundews are precious rarities in the plant world, hard to obtain and desirable objects for any good C.P. collection. During the middle of last year I have sent several specimens of each species to my good friends Ken and Susan Hatley to make these plants available through them to a wider circle of c.p. enthusiasts. If the Hatleys propagation programme has been successful some of these droseras should become available in the near future to other c.p. growers through the Exotic & Bizarre Plant Nursery. I too would be happy to exchange North Queensland sundews for other rare carnivorous plants with interested growers in the coming spring.

REFERENCES :

Erickson, R. 1968. Plants of Prey in Australia, pp. 50 - 52.

Lavarack, P.S. 1979. Rainforest Drosera of North Queensland. CPN Vol.8, pp.61 - 64.

Slack; A. 1980. Carnivorous Plants. p. 147, p. 220.

D. adelaeD. schizandraAUSTRALIANPLANT & SEED SOURCES.

<u>NAME & ADDRESS.</u>	<u>CATALOGUE.</u>	<u>GENERA.</u>
CARNIVOROUS & UNUSUAL SEEDS. 3 Normandy Ave, Para Hills. S.A. 5096.	S.A.E.	Carries a good variety of seed only.

<u>EXOTIC & BIZARRE PLANTS.</u> Wandena Rd, Bullsbrook East. West Australia. 6084.	SEND \$.20 STAMP	Dionaea-Nepenthes Pinguicula-Drosera Sarracenia-Cephalotus Most C.P. Seed.

Overseas inquiries please contact United States agent
Mr R. Minton. Carolina Exotic Gardens. P.O. Box 1492, Greenville, N.C. 27834. USA.

A 10% discount on plant orders is available to C.P.N.A. subscribers. (Aust Only).



SEED BANK.

We would like to start this section by offering our apologies for any inconvenience caused with the temporary closure of the Seed Bank. On the brighter side however, we have received an offer to take control and run the bank by Mr Ian Fraser of Mordialloc, Victoria.

Ian is due to leave on an overseas holiday shortly and will not be able to take over fully until November, so until that date if you could direct your seed orders to C.P.N.A. Headquarters, we will endeavor to send the seed on to you. We would appreciate members holding any seed donations to the bank until Ian is in control.

Steve Jackson has advised us that during his last quarter the number of seed donations had fallen sharply; The seed bank will only succeed with a joint effort from all members, so please make the effort and get the inventory built up to a reasonable standard.

Editors.

SEED BANK INVENTORY. As of 7th February, 1980.

D. anglica.	D. burmanii (Pink).	D. burmanii (Taiwan).
D. burmanii var dietrichiana. (5).		D. burkeana.
D. capensis narrow.	D. capensis.	D. capillaris.
D. erythrorhiza.	D. filiformis var filiformis.	
D. from W.A. mix (5).	D. from U.S.A. mix (4).	D. glanduligera.
D. golden leaf var major.	D. heterophylla.	D. intermedia.
D. liearis.	D. linearis x rotundifolia.	
D. macrantha.	D. macrantha (Pink).	D. macrophylla.
D. peltata (15)	D. peltata (Pink) 2.	D. planchonii.
D. rotundifolia.	D. spathulata (Aust).	D. spath (Mauve) 17.
D. subhirtella.	D. spp Montana.	D. stolonifera.
P. vulgaris.	P. caerulea (12).	
N. Khasiana.	N. mirabilis.	N. ampullaria (5).
S. leucophylla.	S. mixed.	
Cephalotus follicularis.	Utricularia menziesii.	Darlingtonia californica.

ORDERS

Cost of seed - \$ - .50 per packet.

Any number of packs may be purchased, but only one per species can be bought. List what seeds you would like and also an equal number of substitutes in case stocks are low. Clearly print your name and address and send cheque or money order made out to C.P.N.A. Seed Bank.

All overseas orders must be paid in Australian currency.

NOTE

The CPNA would like to express their thanks to 'World Insectivorous Plant Nursery' of Florida, U.S.A. for allowing us to use their plant sketches in the newsletter.

PACKAGING CARNIVOROUS PLANTS FOR MAILING.

by James C. Fife.

(CPN Vol v, No 3.)

Thanks to the Plant and Seed Exchange, we enthusiasts of carnivorous plants are able to establish friends the world over. One of the best ways to begin a friendship, as well as increase your collection, is to ship or receive a package of c.p.'s. But there are certain procedures and techniques which will make the shipping of plants safer and more enjoyable.

Sooner or later, you will be the recipient of a plant package which will be in such a mangled, crushed, destroyed state you'll probably wish it was never sent! However, the reception of a damaged or "destroyed" package doesn't mean the carrier (whether the postal service, parcel delivery agencies, etc.) is to blame. In fact, the damage was probably due to improper packing methods. With the enormous amount of mail and parcels delivered today, the shipper MUST use the best method possible to prevent crushing. Therefore, here are some points to consider before you send a friend a package of c.p.'s:

(1) Decide beforehand exactly what species and the quantity of each species you will send. Try to be generous if possible, as transplant loss is expected occasionally. Never send an "Overly generous" supply of plants unless the recipient has informed you of his having ample space to house them. If you've been collecting in the natural habitat, don't forget conservation laws.

(2) Select a very strong cardboard box sufficiently large to safely house the species, corrugated cardboard cartons being the best. Too large a box, however, will not only waste space, cost extra for postage, and give the recipient an illusion of "great expectations", but will increase the likelihood of damage. Remember to allow some room for protective cushioning.

(3) Plants will quickly dehydrate in transit if not wrapped in plastic. Root balls or exposed roots will survive if wrapped in damp peat moss or sphagnum, wrapped in plastic. Never wrap a specimen in newspaper alone, the paper will absorb the moisture and probably desiccate the specimen. Therefore, make sure all damp parts are wrapped in plastic bags or wrap. Wax paper is an excellent substitute.

(4) Tall plants (such as Sarracenias) or ones with easily broken traps or leaves will ship best if sent with strong pieces of cardboard wrapped about them as reinforcement. The exact method of reinforcement is left up to the shipper, but a few moments of thought will reveal the possibilities are unlimited. Attach the wrapped specimen on a piece of flat cardboard; or fold cardboard into a protective sheath for tall pitchers. A stick from the branch of a tree can even be used. Added protection is easily obtained by wrapping the reinforced specimen in newspaper.

(5) Always label each specimen bag, on the outside please. Make sure the label is legible and not smeared by damp fingers. Refrain from placing more than one species in the same specimen bag.

(6) Pack the box. Try to arrange the specimens in such a manner as to reinforce the cardboard box. Open, unused spaces should be filled with crushed newspaper or a substitute cushioning medium. The packed carton should feel solid.

(7) It is always appreciated if a short note or letter is included with the specimens telling what specimens have been enclosed, where they came from, or any special instructions as to their care. Such a note will make the package more enjoyable and personal.

(8) Wrap the box. Use strong wrapping paper, freezer paper (dull side out), or if the box is small enough, you can use a paper grocery bag. Wrap the paper tightly securing the folds with plenty of strong tape. Don't be stingy with your tape. Then tie thick string or twine about the carton tightly. Attach or print on the address labels, and it is ready to ship.

(9) Select the carrier : (a) Use AIRMAIL or Air PARCEL POST for all packages sent outside the U.S. When sending plants to another country, check with the

Packaging C.P.'s For Mailing Cont.

recipient as to whether special permits or procedures are necessary. Customs forms are available at the Post Office. (b) Airmail delivery within the U.S. takes the same time for delivery as First Class, and is expensive. United Parcel Service (UPS) is the least expensive and generally takes only three days for delivery. Air Parcel Post is a relatively inexpensive intermediate.

(10) A few cautions (a) Try to ship packages early in the week to prevent them from sitting dormant over the weekend. (b) Avoid mailing packages during peak holiday rush periods, such as New Year's, Christmas, etc. (c) Never send small plants or cuttings by placing them in an envelope used for mailing. They are not in the least bit protected from crushing, and probably won't survive. Bubble plastic will afford some protection when envelopes are used, but crushing still occurs. Instead, use a small box.

I was told once that it is too time consuming and bothersome to go through all the above trouble each time you send a plant to someone. What is the use in sending your rare plants if they are killed in transit because you were too lazy to take the precautions against their damage!

.....

CONFUSION IN SIMILARITY OF TWO DROSERA'S.

Following a few inquiries from growers regarding the difference in distinguishing between *Drosera capillaris* and *Drosera burkeana*, two very similar carnivorous plants, we are printing the two following excerpts sent to us by Patrick Dwyer, of the U.S.A. C.P.N. Seed Bank.

DROSERA CAPILLARIS.

Stem 1-2 cm long, bearing a rosette of leaves. Petiole 0.6-4 cm long, sparsely glandular-pilose. Leaves broadly spatulate, 0.5-1 cm long, 3-5 mm wide, usually shorter than petiole. Stipules free, or adnate for the first millimeter, then breaking into numerous setaceous segments 3-5 mm long. Scape glabrous, 4-20 (35) cm long, bearing 2-20 flowers. Flowers about 1 cm in diameter. Sepals oblong-elliptic, 3-4 mm long, 1-2 mm wide, obtuse, united at base. Petals pink, 6-7 mm long, 2-3 mm wide. Styles 3, bipartite to the base. Capsule 4-5 mm long, surpassing the calyx. Seeds brown, 0.4-0.5 mm long, elliptic to oblong-ovate, asymmetric, coarsely papillose-corrugated in 14-16 ridges
Common in the coastal area from southern Virginia to Texas.

DROSERA BURKEANA.

Acaulescent perennial. Leaves in a basal rosette; blade suborbicular, 2-10 mm long, 2-9 mm broad, glandular on and around the margin of the upper surface, glabrous on the lower surface; petiole 2-20 mm long, narrow throughout and broadening abruptly into the blade, glabrous or pilose. Stipules 3 mm long, connate at the base, apex lacerated. Peduncles 1-4, 4-30 cm long, arising laterally from the rosette then curving to become erect, canaliculate, glandular; inflorescence racemose, often secund, 2-12 flowered, pedicels 2-12 mm long, glandular; bracts narrowly obovate, 1-2 mm long, glandular or glabrous. Sepals 5, elliptic, 4-5 mm long, 2 mm broad, acute or obtuse, irregularly serrulate at the apex, glandular.

Petals 5, 5-7 mm long, 3-4 mm broad, white or pink. Stamens 5, filaments 4 mm long. Ovary subglobose, glabrous; styles 3, bifid nearly to the base.

Native habitat South Africa.

THE GREAT ESCAPE...ALMOST.

By John Graham.

At one time or another, most of us have read descriptions in books or magazine articles, of how insects are lured and trapped by plants of the genus *Sarracenia*. These are usually drab, lifeless accounts describing the various shapes of the pitchers, their functions, and how insects are attracted and imprisoned by them. These descriptions usually leave out what I consider to be one of the most interesting and important points. That point is the behaviour of the insect as it is being led to its doom, plus the attempts it makes to avoid capture.

My *Sarracenia* collection (about 20 adult plants) is housed within an outside enclosure where they receive full sunlight. This open setting provides an optimum amount of insects for the plants to trap and for me to observe. It is interesting to watch how insects act when feeding on a pitcher's nectar, oblivious that their death is close at hand. It was even more interesting, perhaps amazing, when I observed a group of house flies employ a method of escape from the pitchers. Well, maybe not so much escape, but more like a temporary stay of execution.

When I noticed a large number of house flies around my *Sarracenia* collection, I decided to sit and watch for a while. One fly started feeding on the outer surface of a pitcher of *S. alata* x *flava*. He explored the upper portion of the pitcher, lapping up nectar as he went, until it was eventually enticed to the underside of the lid (fig A). As the fly drank his fill, he kept a firm grip on the lid's underside by clasping the hairs present in this zone. Unfortunately for the fly, they point downward, so he had but one decision, which he took. Moving down, he soon entered the waxed, smooth zone and began slowly sliding, at a rate of about 1 mm per second (Fig B). To my surprise, he kept feeding calmly, regardless of his perilous situation. Soon he began grasping for a foothold and turned around, with only his head showing above the rim (Fig C). "Now you've had it", I thought. I was just about to move away to tend to my *Drosera* collection, when to my amazement, the fly flew out of the pitcher and landed on the lid (Fig D). I immediately sat back down and watched him. He repeated this astounding performance for me six times, but, as was inevitable, his lust for sweet nectar got the better of him and he, became another victim. I suspected that the reason why he didn't keep escaping perpetually was that he allowed himself to slide too far into the pitcher before taking off. The further down he slid, the narrower the pitcher became, so he had less room to fly in.

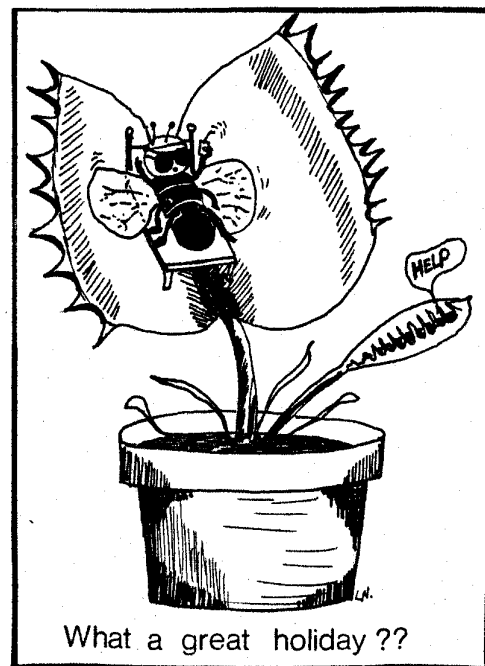
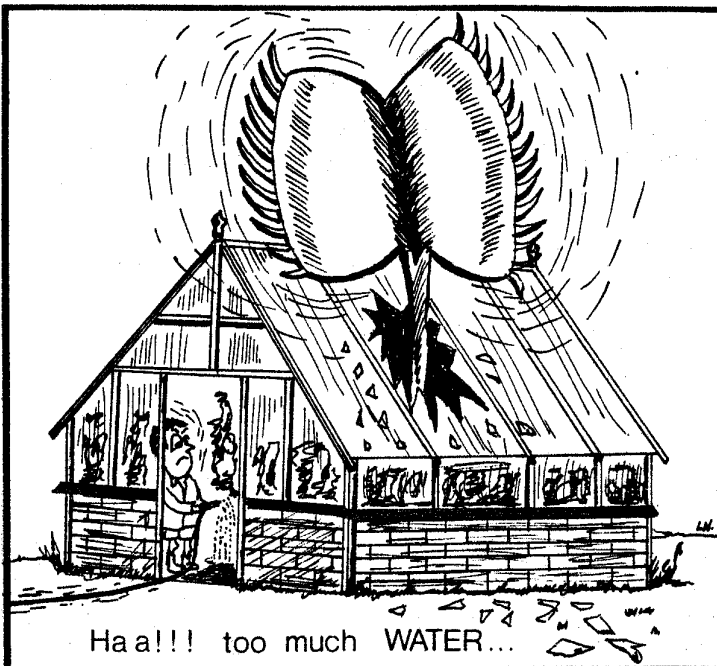
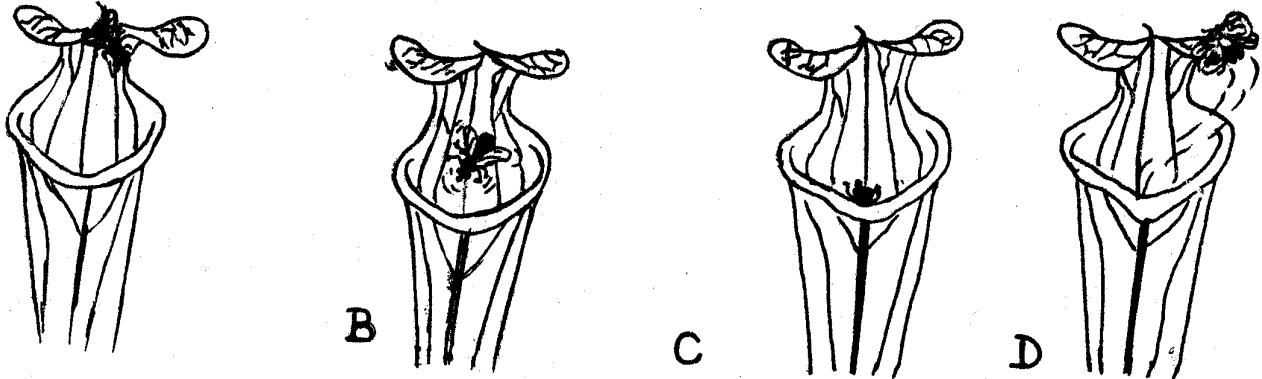
I soon discovered that my theory was correct when I observed other flies on a plant of *S. alata* x *oreophila*. These flies hardly ever allowed themselves to slip more than 1 cm below the rim. If by chance they did allow themselves to slip too far, they would be sensible about their escape. Instead of trying to fly out and risk crashing they made a series of 5 mm jumps until they found a safe foot-hold above the rim. When they fed on the waxed zone of the pitcher, they continuously moved their feet which seemed to slow sliding. Despite these precautions, they eventually got careless and through some mistake, they plummeted into the depths of the pitcher. It seemed that most flies were 'dare devils', because no matter how many times they were almost trapped, they always returned to rob the pitcher's nectar. Some of these mighty escapologists repeated their trip up to 30 times before capture.

Cont.

The Great Escape... Almost, Cont.

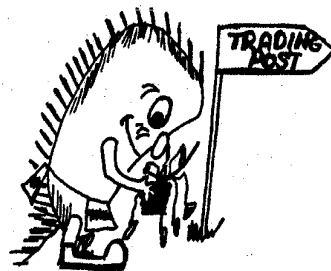
The effectiveness of this escape method is dependent on the structure of the pitcher, however. For example, once inside the pitcher of *S. psittacina* (or its hybrids), there is no escape because of its 'lobster-net' device. Flies that I observed examining the pitchers of *S. rubra* x *minor* couldn't use the escape method because of the overhanging lid (inherited from *S. minor*). When they attempted it, they just slammed into the lid and fell into the pitcher. I've found that the flies generally prefer relatively open-mouthed, deep pitchers to any others' in my collection.

Their definite favourites are *S. alata* x *flava*, *S. oreolata* (*alata* x *leucophylla*) and *S. alata* x *oreophila*. Whether the *S. alata* parentage has anything to do with their preference, I can't be sure. I have also noted another method of escape. One pitcher on *S. alata* x *flava* was so full of insects that it was tilted at a 70 deg angle. When another fly tumbled inside, he simply crawled out because of the angle! I wouldn't really call that escape, but class it as cheating!



TRADING POST.

BUY TRADE SELL



When sending in Want Ads, please print clearly name and address in order to eliminate mistakes. Please mark clearly whether you wish to Buy, Trade or Sell. Adverts from commercial sources will not be accepted except where a private collection is involved.

Keep strictly to your trade agreements and where possible answer all replies promptly.

.....

G. Nieuwenhoven. 15 Robin Terrace, Hope Valley. S.A. 5090.
Would like to obtain *Drosera schizandra*, *Drosera hamiltoni*, *Drosera regia*, *Drosera cistiflora* and *Sarracenia minor*, offers *Drosera whittakerii* for trade or will buy any of the plants wanted.

.....

RON DENT . 3 GORDON ST, ALEXANDRA. VIC. 3714.
Wishes to purchase 2 plants of *Darlingtonia californica*.

.....

CAMERON JOHNSON. 6 LOMA LINDA GVE, NORTH BALWYN. VIC. 3104.
Would like to purchase a plant of *Sarracenia flava* and *Drosera cistiflora*.

.....

STEPHANE HUGENTOBLER. 4 RUE DES BOSSONS, CH 1213 EENEVE. SWISSE.
Would like to obtain *Byblis gigantea* and *Drosera whittakerii*. Willing to buy or trade. Please write for further information.

JOHN GRAHAM. 8 WARUDA ST, BRACKEN RIDGE. QLD. 4017.
Wants to trade for W.A. *Drosera pygmies*, W.A. tuberous *Drosera*, *D. planchonii*, *D. whittakerii*, South American & native *Utricularia*, *Nepenthes*, *Byblis gigantea*. John has both C.P's and Bromeliads for trading as follows : *D. capillaris*, *D. burkeana*, *D. capensis*, *D. binata varmultifida*, *D. fififormis*, *D. spathulata*, *D. montana*, *U. longifolia*, *U. subulata*, *U. uliginosa*, *Nepenthes kampoiana* & *N. gracilis* cuttings, *Tillandsia mallemonitii*, *T. schiediana*, *T. 'Nezmisso'* (*mallemonitii* x *recurvata*), *Aechmea gamosepala*, *A. pineliana*, *A. orlandiana*, *Acanthostadys strobilaeae*, *Nidulorium*, *Vriesea* & *Neoregoilia* species.

.....

SUSAN HATLEY. WANDENA RD, BULLSBROOK EAST. W.A. 6084.
Would like to trade tuberous *Drosera* for *Drosera villosa*, *D. proliferata*, *Pinguicula gypsicola*, *P. caerulea*, *P. lusitanica*.

.....