CARNIVOROUS PLANT NEWSLETTER OF AUSTRALIA

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.

Well it's great to see the c.p. material starting to roll in, now to the point where we can start thinking of increasing the newsletter size. It's surprising how well known the C.P.N.A. has become in its short life so far, for we now distribute copies in nine different countries around the world, which should help pave the way for friendships to develop and collections to grow. Remember we have many fine c.p's growing here in Australia, plants that are sought after by c.p. enthusiast's throughout the world, many of whom would be only to willing to swap plants with you.

We are surprised to find little use being made of the Trading Post section, perhaps many of you having only small collections, hate the thought of parting with your few spares. If this is the case then how about offering other species for trade. I believe we should be a little flexible in the Trading Post, for a while at least. The only stipulation being that c.p's must be at one end of the trade, e.g. we would not advertise say, ferns for ferns, but would ferns for c.p's. Give it a try you maybe surprised at the results.

This issue we welcome 32 Japanese c.p. growers to our numbers and would hope to look towards some excellent c.p. information from these gentlemen for the C.P.N.A. The Insectivorous Plant Society of Japan numbers 500 members and growers from this country are recognized as the leaders in c.p. culture throughout the world.
Our special thanks go to Mr Isamu Kusakabe of Tokyo, who has helped promote the CPNA in his country.

We have added a small questionaire to this issue to enable us to evaluate your thoughts on the lay-out etc, of the newsletter to date. We have received a, few letters from those who would like to see the format changed aw y from the U.S.A. C.P.N. to a style of our own. We must admit we did tend to follow along the lines of the U.S.A: C.P.N. at the start and perhaps those few are right.
We will leave it to you to decide.

We have recently received a copy of the newly formed English C.P. Journal and would like to congratulate them on their excellent and original publication,

A list of C.P. Clubs and Societies overseas is included in this issue for those who may wish to join them.

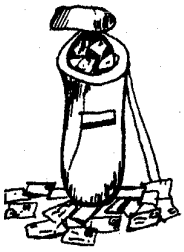
Good Growing,

Editors.

.....

FRONT COVER NEPENTHES MIRABILIS, HABITAT NORTH OLD & ASIA.

C.P. LETTERBOX.



FRANK LUDRICKS & TONY DUNNE OF SYDNEY WRITES : We would like to pass on some very interesting magazine articles that may interest readers. Most of these magazines and books can be found at your local library. They are : National Geographic : May 1961 'Plants that eat Insects' by Paul A. Zahl. Shows Venus Flytraps, Drosera's and Sarracenia's: National Geographic : May 1964 .(?) 'Malaysia's Flowers & Insect-trapping Plants'. Shows Nepenthes.
National Geographic : December 1976. 'Bizarre and Beautiful' by Paul A. Zahl. Shows Cephalotus & Drosera's. Australian Natural History - March 1974. 'Australian Carnivorous Plants', by N.S. Lander. Shows Nepenthes, Cephalotus, Drosera's and Bladderwort. Scientific American : 'Carnivorous Plants' by Yolande Heslop-Harrison. Deals with more scientific aspect of c.p's: - digestion, secretion, movement, etc. Darwin, Charles : 'Insectivorous Plants'. Lloyd, F.E. 'Carnivorous Plants'. Rica Erickson, 'Plants of Prey'. Excellent for classifying Aust plants.

SYD MADER OF ADELAIDE WRITES : Recently I made a West Australian wild flower tour for 14 days. We had a free day during our trip in Perth so I hired a Avis rental car and headed for Bullsbrook East. Being a stranger to W.A. I got bushed a few times before getting on to the right track. When I arrived at Ken & Susans nursery I was welcomed with great pleasure. After a cup of coffee and a little chat I was shown the nursery and given some very helpfull tips. After making a few purchases which were recommended by Susan and given a few hints, I experienced a feeling that anyone who ever has a few hours to spare while in W.A. to make a trip to Bullsbropk East and to see for themselves how Ken & Susan grow their plants, it is more than what one could learn from reading a book on c.p's. The plants I purchased were sent to me and arrived in perfect condition. Thanks again Ken & Susan for your great hospitality.

GEORGE SERGEANT OF SURREY, ENGLAND WRITES : The tuberous Drosera's do represent something of a challenge to the enthusiast, and my experience in this field is rather limited so far. However, I have a number of Drosera gigantea raised in 1969 from seed obtained from King's Park and have not found them at all difficult to manage using a capillary mat watering system and a peattvermiculite compost. I also have seedlings of D.auriculata, macrantha and whittakerii, also one small specimen of D. zonaria which is now in the bulbous state and seems to be doing alright. Here's wishing success to your enterprise.

JOHN GRAHAM OF BRISBANE WRITES : In Brisbane recently (15 & 16th of September), the Orchid Species Society presented their Annual Spring Orchid Show, which also included a special c.p. display. The c.p. section included many beautiful Nepenthes, Sarracenia (which were just emerging from dormancy), Drosera and others. One exhibit that particularly caught my eye was a large tray of Drosera aliciae, a South African species. It was a good effort for those involved (including John James & Dr. Lavarack) and c.p's well deserve the space, something which they haven't been getting. Here in Australia, where we have c.p's in abundance, it seems a shame that we haven't yet had one plant show devoted entirely to c.p's. I think it would be a prospect well worth undertaking.

C.P. LETTERBOX

JANICE EMMINS OF VICTORIA WRITES : I would like to express my appreciation for the issues of CPNA I received. As a newcomer to this field I found your newsletter informative and helpful and look forward to a continued association with your group.

IAN TRANTER OF CANBERRA WRITES : Would it be possible for CPNA to survey its members as to the numbers of each species of native c.p's they have under cultivation? This would give an idea ease of cultivation, and an indication of which species need to be studied with an aim towards eventual cultivation. Does anyone know if any c.p's are under threat of extintion? If so, we should do our best to preserve their habitat, at least until we can maintain a viable population under cultivation.

PAUL WARE OF SYDNEY WRITES : In September last, my wife and myself took a holiday over in W.A, a combined visit to relatives and to look for c.p's. On reaching our destination a short inspection of the surrounding bush revealed D. bulbosa, which was in so much profusion that it was difficult to walk without stepping on them, D. stolonifera and D. glanduligera. On other visits to local swamps with a local c.p. grower, we also found Byblis gigantea, D heterophylla, D. hamiltoni, D. gigantea, more D. bulbosa and D. glanduligera plus a few un-named species and Polypompholyx. While in W.A. we paid a visit to Exotic & Bizarre plants at Bullsbrook, we were given the guided tour by Ken & Susan of their hothouses to see all their healthy c.p's. After visiting Ken & Susan hothouses I have come to the conclusion that hot-house grown c.p. grow much better, as you can readily control the humidity for them, where as with mine, which are grown outside they are still healthy but seem to lack a certain luster. I am now in the process of constructing a hot-house.

JIM FORREST OF 19 FAIRVIEW PLACE, TE PUKE, NEW ZEALAND WRITES :
I would be very happy to act as a c.p. adviser for New Zealand growers and invite any local growers with any problems or who may need advice, to drop me a line and I'll do my best to help. Everything is starting to move over here after a mild (for us) but wettest winter for many years. I have not had time to repot all my plants yet, though I see flower spikes on many of the Sarracenias. I actually managed to get some flowers on my Utricularia menziesii which was a bit of a thrill. My D. whittakeri has flowered very well and my D. planchonii is about to follow. There are no sign of flowers on my W.A. drosera's though the tall growing species have made a lot of growth so far. Another first in flower is an Pinguiculia latea. I'm fond of Pinguiculia's but have found it's difficult to get viable seed of most species. My Nepenthes are becoming far to large and I plan to have a go at raising them in hanging baskets and keeping them well pruned and, smaller.

EDITORS : Nice hearing from you Jim. Perhaps you could drop us another line with a feature on your beautiful N.Z. alpine Drosera which most Australian growers find difficult to grow.

DFL & DENNIS STOCKS OF BRISBANE WRITES : I would like to ask other readers views on light requirements for c.p's. I have Cephalotus, Dionaea, Sarracenia and Nepenthes species growing under two gro-lux tubes at an average of 16 hours a day. All are growing vigorously. It is interesting to note however, a Cephalotus growing indoors with absolutely no sunlight contact and the only light available is that from a southern window, is vigorous and healthy but shows smaller pitchers with a far more compact growth than those under the gro-lux. All plants are growing in German peat & sphagnum moss mixture, watered with distilled water.

CONT.

C.P. LETTERBOX.

JOSEPH CANTASANO 2717 JERUSALEM AVE, N. BELLMORE N.Y. U.S.A. 11710. WRITES : In August of 1976 I collected hundreds of North American Drosera seed from my green-house. I placed all the seed into a clear plastic box full of cotton, then put it into the deep freeze. Just this August 1979, I happen to come across the seed I had forgotten. Not thinking that any would germinate, I placed the lot in my bog in the back yard. Three weeks later more than 90 percent had germinated that was some surprise. Three years in a deep freeze may have some effect on the seedlings so I'll keep you posted on the growth of the seedlings.

I have been growing Nepenthes for about six years and have now over 130 Nepenthes in my green-house and thought I would like to share the following with you. For the last three years I have been growing my Nepenthes in a very cool green-house, every winter the temperature has been 40 deg F to 45 deg F at night and 60 deg to 65 deg F during the day. As spring gets closer and the temperature gets warmer my plants start to grow at a very fast rate, and I have noticed that the pitchers are much larger and more colourful than compared to Nepenthes that have been kept at controlled temperatures throughout the winter. Also most plants grow about 5 to 7 feet high over a seven month period, from March to Sept, (USA Summer). Also remember Nepenthes need plenty of humidity to reach their growing peak. To end, I would like to say I would be happy to correspond with any of your members who may have any questions or problems relating to these wonderful plants.

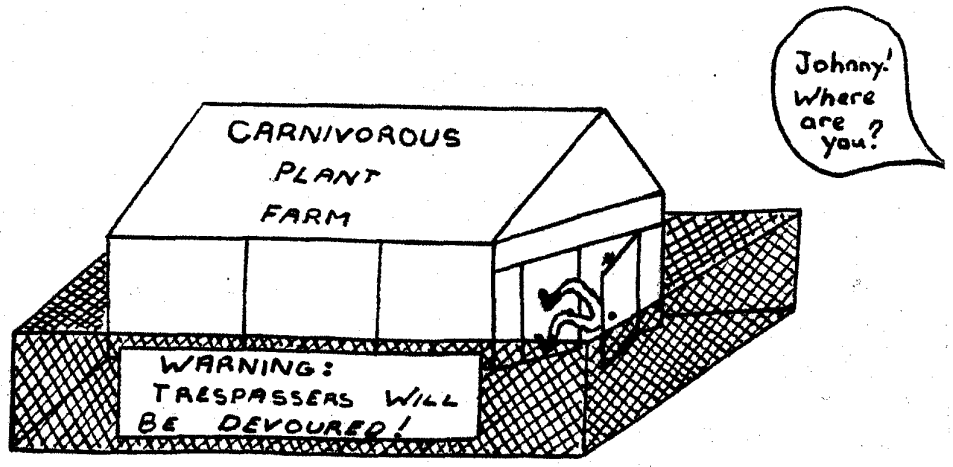
Let me also say that I can see your CPNA growing into a very fine publication, you may rely on my help and backing 100 percent. Merry Christmas and a happy new year to everyone.

CARTOON CORNER.

Once again the standard of the cartoons has been of such a high quality we have found great difficulty in selecting the best, so much so, that we have decided rather than pick the best each time we will just print them in order of arrival to us and award the prize to the sender.

Editors.

This issues cartoon comes from 14 year old Andrew Hawkins of Rylstone, N.S.W.



SIMILARITIES BETWEEN TWO NEPENTHES.

By John Graham.

Although my own knowledge of Nepenthes (or my collection, for that matter) is not extensive, I have noted a very evident similarity. between two of my plants. They are N. kampotiana and N. soendji. N. kampotiana is a lowland species endemic to Indo-China, while N. soendji is a plant of whose origin I am not sure of, although I think the original cutting came from France. I shall now attempt to describe these plants to you but I have also included sketches as I am not to good at descriptions.

In N. Kampotiana the leaves are elliptic (elongated oval) in shape with denticulate (toothed) margins. They have a petiole which is sheathed at its base. On my own plant, the leaves are 10 cm long and the petioles are 2 cm. They are light green in colour, with a light pinkish shading. The tendrils are cylindrical, not spiralled at all and are a darker pinkish green than the leaves. This colouring gets lighter as the base of the pitcher nears. The tendrils are the same length as the leaves. The pitchers are cylindrical in shape, usually without ribs, leaving two dark brown lines where they should be. The mouth's peristome (ribbed rim) is not perfectly circular, but has an inward bump between the rib markings. This gives the peristome a slight W shape. The lid is orbiculate (circular), rising slightly on either side, then sinking to form a depression in the middle which continues almost to the spur (see sketches C & D for a clearer piture). the spur is divided into two downward hooks roughly 3 mm long. The entire pitchers on my plant measure 6 cm and are yellowish - green.

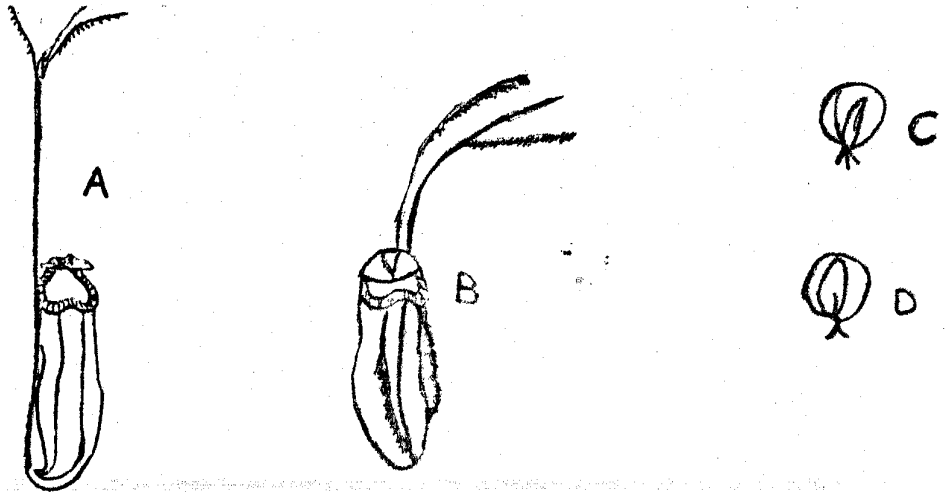
N, soendji is a similar plant to N. kampotiana with only a few differences. The leaves are a darker green with a much lighter pink shading and are about 2 cm longer. Tendrils are shorter (7 cm) and its pitchers have ribs which are light purple. While N. kampotiana's spur is divided into two, N. soendji's spur goes one step further and is divided into three. Otherwise, N. soendji is virtually the same as N. kampotiana.

My own conclusions regarding this similarity is that N. Soendji is perhaps a hybrid of N. kampotiana, or it's just an aberrant form of the species. As I am not an expert on Nepenthes, I am probably wrong, but if any Nepenthes growers know anything about this relationship (if any), perhaps they could send their replies to C.P.N.A.

Key to sketches :- A. pitcher of N. kampotiana; B. pitcher of N. soendji;

C. lid & spur of N. soendji, D. lid & spur of N. kampotiana.

NOTE :: A & B are 1/2 size; C & D are full size.



ANOTHER DROSERA PELTATA VARIANT.

By Tony Dunne & Frank Ludriks.

In Rica Ericksons book, "Plants of Prey", there is one variant of D. peltata mentioned.; D. peltata var. gracilis, described as "a softer, more slender and smaller plant .in all its parts. This variety is found in Victoria and Tasmania. We think we have hit upon a different growth form of D. peltata, which we think may be a new undescribed variant of this plant. Let us explain our discovery.

One day, in autumn 1978, while investigating several sites for possible stands of D. peltata, we chanced upon a stand of a very unusual form of D. peltata basal rosettes (the two different rosettes are compared in Fig. 1.
Where as D. peltata basal rosettes have rotund leaves on broad stalks, these basal rosettes had very distinctive kidney shaped leaves on broader stalks. There were also more than double the amount of these leaves on this rosette than on ordinary D. peltata basal rosettes.

We then decided to collect several specimens and over the next few weeks observed this unusual plant. As we anticipated, it grew the characteristic D. peltata tall stem with ear shaped leaves attached via fine stalks; but what we noticed was that this plant was a much stockier and more robust plant than the ordinary D. peltata plant. We were surprised at how this plant flowered when only 7-10 centimetres tall in contrast to D. peltata which flowered when approximately 20-25 cm tall. Another unusual feature was that the basal rosette of leaves was still present at the time of flowering, where as the basal rosette of D. peltata is gone by this stage.

As per usual, this plant went into dormancy in the middle of spring, so we decided to wait and observe its habit during the autumn and winter of this year. It exhibited the same characteristics of habit this season as well, so we were assured that its growth form was not due to environmental influences.

So far we have only found stands of this form of D. peltata in two disjointed locations, the first being in a northern Sydney suburb, and another 130 kilometres to the west in the region of Cox River. We are looking forward to a flower comparison of D.peltata and this variant by the Sydney Herbarium, and we hope to write further reports about this variant in the neat future.

FIGURE 1 - comparison of basal rosettes.

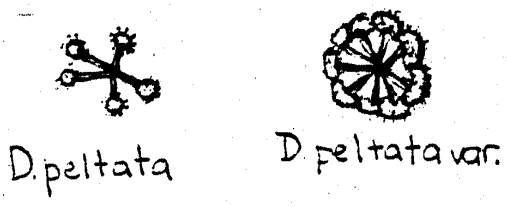
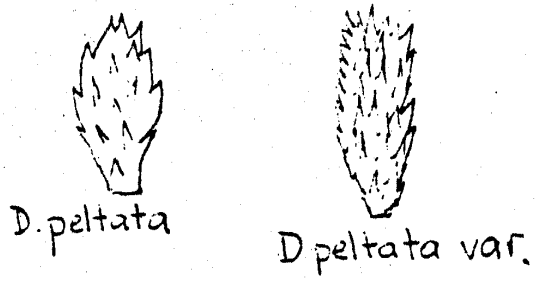


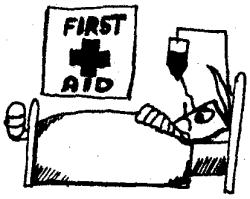
FIGURE 2 -comparison of sepals, (D.peltata var. sepals hairier than those of D. peltata).



Very interesting comments Frank & Tony. We will be looking forward to further reports from you on this species next year.

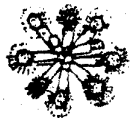
Editors.

FIRST AID.



JOHN GRAHAM OF BRISBANE WRITES This problem I have only noted on Cephalotus Follicularis and Drosera burmanni. I do not know the cause, but the plants seem to start growing leaves, and pitchers, which gradually get smaller and smaller, until only the tiniest ring of leaves is left. The ring eventually dies. I have tried repotting with out success. Do you have a solution?

ANSWER I have noted that the life span of D. burmanni can be limited to several years. D. burmanni does produce an abundance of seed which will provide you with D. burmanni continuously.
Cephalotus does have a tendency to produce smaller pitchers and then die back completely indicating the plant has died. Nine times out of ten, it will start growing again and flourish as before. The only explanation we can offer for the die-back is extreme changes-of enviroment or perhaps the location in which the plant is situated is not suitable. Do not discard the plant but keep watering and it is more than likely to reappear and grow again.

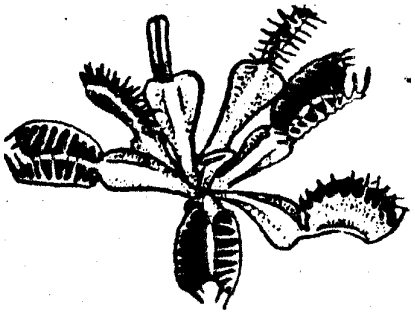


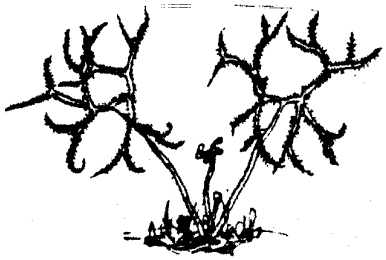
SPECIAL NOTE

This issue we are fortunate to have received from Mr Frank Monk, Manager of Astor Records, Perth branch, to coincide with the release of Steve Wonders new L.P. 'Journey Through The Secret Life of Plants', two L.P. records and two cassettes to give away.
It is an excellent record and features amongst the songs, 'The Venus Flytrap and the Bug'.
Giving the matter a great deal of thought, we have decided the fairest way would be to run a competition. The object is to write a short article for the newsletter on any subject concerning c.p's, e.g. plants, field trips, experiments, collections, environmental concern, etc. Write ups will be judged more on the informative side than the accurate, to give the novice growers a chance.

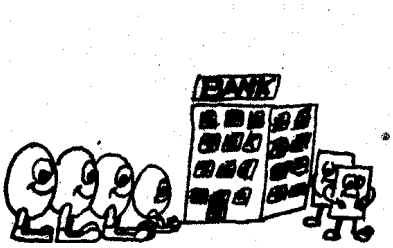
To take the onus of choosing the winners off us, we ask you to send your article in to John Emerson.
12 Arthur St,
Port Pirie. S.A.
5540.
The closing date for this particular section is the 31st, January, 1980.

D. binata var. multifida





D. binata var. multifida (Extrema)'



SEED BANK.

Finally the bank is becoming a viable concern. Since the last issue I have received many orders and answered over 100 inquiries. With the profits received so far, I intend to approach the U.S. C.P.N. Seed Bank and other overseas sources to build up our stocks of seeds.
It is great to see that members are going out and collecting our native seeds and contributing them freely to the bank. My thanks to those who have donated seed to date, we have some really rare species now but still need more, so keep up the good work.

Steve.

DONORS (1979)

Steve Clancy	50	Fred Howell	135
Scott Cummings	120	Allen Lowrie	76
Tony Dunne	40	Steve Jackson	200
Rheinhard Frenzer	257	Phill Mann	220
John Graham	109	Joe Mazrimas	130
Exotic & Bizarre	200	John Turnbull	223

SEED BANK INVENTORY.

As of November 1st, 1979.

D. anglica. D. burkeana. D. burmanii (Taiwan). D. capensis (narrow). D. capensis 20. D. dielsiana 10. D. erythrorhiza. D. heterophylla 3. D. intermedia. D. linearis x rotundifolia. D. filiformis var filiformis. D. spp (Golden leaf sundew) var major. D. linearis. D. macrophylla 3. D. peltata. D. peltata (Pink Flower) 5. D. planchonii. D. rotundifolia. D. spathulata (Aust). D. spathulata (Mauve) 20. D. spp montana. D. from W.A. mix 7. D. from USA mix 5. Sarracenia flava 4. S. leucophylla. S. mixed. S. purpurea 5. S. purpurea ssp venosa 4. Byblis liniflora 2. Cephalotus follicularis. Nepenthes khasiana. N ampullaria 10. N. mirabilis. Pinguicula caerulea 19. Pinguicula vulgaris.

ORDERS.

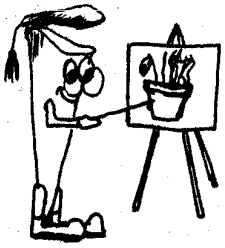
Cost of seed $ .50 per packet.

Any number of packs may be purchased, but only one per species may be bought. List the seeds you would like, and also an equal number of substitutes in case stocks are low. Please clearly print your name and address and send check or money order to:::

C.P.N.A. Seed Bank.
c/- Steve Jackson.
478 Mitcham Rd,
Mitcham. Victoria.
3132.

All correspondence except seed orders, must be accompanied by a s.a.e. For further information see Volume 1 of C.P.N.A.

BEGINNERS PAGE.



DIONAEA MUSCIPULA - THE VENUS FLYTRAP

By Robert W. Riedl.

The first written account of the Venus Flytrap dates back to about to about 1765 when John Bartram discovered the plant in North Carolina while visiting the American colonies. He collected specimens which he sent back to England for further studies.

John Ellis, a leading botanist of that time, is credited with first discribing and naming the plant. Carl Linnaeus, the 18th century founder of modern biology, called the Flytrap "a miracle of nature", and, in correspondence with John Ellis in 1768, he remarked at one occasion : "though I have doubtless seen and examined no small number of plants, I must confess I never met with so wonderful a phenomenon".

There is even fascination in its scientific name - Dionaea muscipula. Some writers think that the plant was named after Dione, wife of Zeus and mythological mother of Venus, the goddess of love. Others assume that the name has its origin in Dionaea, one of the numerous synonyms of Venus, and has subsequently led to the common name - Venus Flytrap. But in more romantic moods I am sometimes inclined to think that John Ellis' intended name for the plant (and John Ellis like most of his contemporaries was profoundly familiar with Greek and Roman mythology) might have been Dianaea and the originally hand-written "a", the third letter in Dianaea, could have been misread for an "o" in later days and thus unwittingly, but in error, been perpetuated. "Dianaea" derives from Diana, the Roman goddess of the hunt, of destruction and of death. And, "muscipula" is the Latin word for a type of trap which was commonly used during Roman days to ensnare small animals like-mice, voles and dormice in gardens, fields and granaries. Thus Dionaea muscipula might have been named, and if, then most appropriately so, after the Goddess of Death equipped with the tools of destruction.

Dionaea muscipula is the sole species of its genus. A number of forms differing somewhat in appearance have been repeatedly recognized in recent years. Dionaea occurs quite localized in scattered coastal savannah of south-eastern North Carolina and neighbouring eastern South Carolina in an approximate landward radius of about 120 km around Wilmington, N.C.

Various theories have evolved about the possible reasons why the Venus Flytrap is found nowhere else on earth but in this tiny area. One theory makes the claim that the Flytrap's development, particularly its insect-digesting ability, is the result of natural selection suited to this particular area which is characterized by a unique microclimate and soil type. The weather is favourable most of the year for plant growth, except for a few cooler months which elicit dormancy and rest. And the acid, marshy soil in which the plant is found has its unique properties which are different from other areas and soil types by being noticeably deficient in nitrogen and many other nutrients usually required by most plants. But through its ability to catch insects and to utilize their body components the Flytrap has developed the ability to colonize a specific niche in the environment which by its specificity is antagonistic to plant life in general and therefore low in competition.

Another theory, perhaps a bit far-fetched, postulates that the Venus Flytrap is the result of mutation caused by radiation. There is ample geological evidence indicating that coastal areas of the Carolinas have been bombarded in prehistoric times by extensive meteoric showers, and meteors are generally very intense sources of radiation.

A third theory postulated by Dr. B.W. Wells of North Carolina State University, and this is the one I myself find most convincing, makes the claim that Dionaea muscipula once has had a much wider distribution in North America, but during the last ice-age has become almost extinct by an unfavourable climate and the push south by glacial ice. The plant managed to survive on Cape Fear peninsula in the Carolinas, which was beyond the most southern extent of the ice, and since then has only had time to migrate about 120 km from that point.

CONT.

Let us take a brief look at Dionaea muscipula. The traps, its most unique feature, consist of two clam-shell-like halves. Around the margins are numerous guard hairs and minute nectar glands. Normally the trap is in a 45 - 60° open position when undisturbed. The inner surface of each trap half has normally three trigger hairs which, when properly stimulated, initiate trap closure. Insect prey is attracted to the trap by its bright colouration and secretion of nectar and, when the insect brushes against one or more of the trigger hairs, the trap is sprung. Innitially, the trap closes quite rapidly until the guard hair intermesh, effectively incarcerating the prey. The slower, secondary phase of closure results in the margins sealing tightly together so that the whole trap becomes a flattened, stomach-like pouch. If live prey - not a drop of rain or wind-blown debris - has been caught, digestive fluids are now secreted into the interior of the closed trap. It appears that certain chemical compounds like amino acids which emanate from the prey stimulate the secretion of these digestive fluids rich in proteolytic enzymes. Digestion is completed after 3-5 days depending on the environmental temperature and the size of the prey. Afterwards the trap re-opens and the dry, chitinous insect remains are usually removed by wind or rain.

Each trap may be mechanically stimulated to close about a dozen times before it will no longer respond. If no prey has been caught the trap will re-open a few hours later. It will trap and digest three to four insects before the trap has exhausted itself and withers. New traps are grown more or less continuously throughout the growing season.

To stimulate the closure of the trap, any one of the trigger hairs must be touched at least twice, or any two hairs must be touched at least once in succession. Somebody once called the Venus Flytrap the only plant in the world which can count. The mechanism of trap closure is still a matter of some conjecture, but as early as 1876, the English scientist Sir John Scott Bourdon-Sanderson, described electromotive properties in the traps of Dionaea. According to him, "there is a definite electrical discharge that occurs in the Venus Fly-trap when the inner surface of the trap is stimulated. This action potential runs a course characteristic of animal nerve reactions" and results in the closure of the trap.

How can Dionaea muscipula be successfully grown in cultivation? I am not making the claim that my method is the only one which is blessed with success, but it is a method which has worked very well for me over a number of years, and the novice to CP growing may wish to use it as a base line in his own attempts to grow and enjoy Dionaea.

Living in the warm temperate, central south-east of Australia with a climate not unlike the one of the coastal Carolinas, my Dionaea plants are grown all the year around in bright sunlight in the open. I use plastic pots provided with additional aeration holes or home-made containers made out of plastic mesh which are filled with live, green sphagnum moss (the commercially available dried sphagnum is quite suitable for this purpose as it will usually start to grow again a few weeks after it has been re-exposed to moisture and sunlight) which are about one third submerged in good quality water (in areas with alkaline, high hardness or high dissolved solids water, rain water or distilled water must be used). The Dionaea rhizome (root stock) is buried slightly in the moss. Mature (maturity is reached when the plant is about 4 years old), well-grown plants start to flower in early summer. The numerous flowers grow on a 20-30 cm scape. They are actinomorphic (individual flower parts are capable of bisection vertically in two or more planes into similar halves), have white petals, and are about 1.0 to 1.5 cm in diameter. The various flowers on each scape open successively. On any one flower the pollen-bearing anthers usually mature a few days before the stigmas (the female part of the flower which receives the pollen during fertilisation). If two or more plants are in flower simultaneously, the scapes are simply brought together and the open faces of two flowers from different plants are lightly brushed against each other with a circular motion to effect mutual transfer of adequate pollen to the stigmas and subsequently fertilisation.

BEGINNERS PAGE CONT.

This process amy have to be repeated on consecutive days to ensure success. If only one plant is in flower, one pollen-bearing anther from a newly opened flower can be plucked out and lightly rubbed over the stigma of an older flower to effect successful fertilisation. If fertilisation has occurred, tiny, black, pear-shaped seeds mature in about 5 8 weeks. The seeds ripen exposed and should only be harvested once the scape begins to wither. They should be sown immediately onto the surface of short-tufted sphagnum if the ambient temperature is not less than 18 deg C or stored in the refrigerator to retain seed viability for future sowing. Germination takes place after about one month.

During winter Dionaea requires a complete period of dormancy. All temperate plants (and many from the tropics) have a definite period of dormancy during which the plants simply stop growing for some time each year. Dormancy can be considered a protective response to seasonal changes that might otherwise injure an actively growing plant. The stimuli which elicit dormancy in Dionaea are probably environmental changes involving a period of decreased daylight, cooling and drying. Dormancy of Dionaea grown in Sydney usually starts late in May or early in June, many of the mature trap leaves begin to wither and no new ones are formed any more. Now the plants must be kept a little drier and cool, and Dionaea growers in tropical areas should remove the plants from their pots, wrap them together with a few strands of sphagnum into a plastic bag and place them for at least 8 weeks in the refrigerator (do-not freeze) before they are replanted. If Dionaea is denied the annual dormancy period by too much water and warmth, especially during a reduced photoperiod, the loss of the plant is almost inevitable.

Dionaea is reasonably free from pests, but if aphids or caterpillars do become a nuisance at certain times of the year, a water-based pyrethrum spray can be effectively used without damaging the plant.

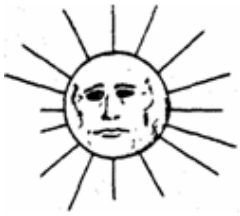
And now a final thought about Dionaea. Since about the turn of the century largely because of man-made habitat changes (agriculture, pastoral industry, draining of swamp land etc), Dionaea muscipula is drastically decreasing in numbers throughout a shrinking range which is none too large to begin with. Earlier reports document a far more extensive range in the Carolinas than one can report today. Nowadays we have come to accept the idea of compassionately welcoming people from far away places of this globe in our midst, people whose existance and identity has been threatened by the destructive elements of mankind, could we not give a new home range also to the weak, the vulnerable, to the threatened species of other forms of life, to Dionaea muscipula, which Charles Darwin awarded the title of "most wonderful plant in the world" when he completed his study of carnivorous plants in the 1870's? Could we not accommodate Dionaea muscipula in other suitable parts of the world without disturbing the ecology, and by doing so, would we not actively allow the most fascinating form of plant life to continue to grow, undisturbed, in the wild places of this earth?

POINT OF INTEREST.

The photographic work for the C.P.N.A. is carried out by Ian Sergeant of Perth. Ian has now compiled a. quite extensive collection of c.p. photographs and would like to offer for sale to C.P.N.A. members, colour prints from post-card size, up to poster size.

The work Ian has done for the C.P.N.A. to date, has been of an exceptionally high quality, and anyone buying photo's off Ian would be more than satisfied with the results.

For further information, write direct to: Ian Sergeant.
3/268 Holbeck St,
Doubleview. W.A.
6018.



BUILDING YOUR OWN

Solar Water Distiller

by Scott A. Richardson
(333 N. Bender Ave., Covina, CA 91724)

When I moved my carnivorous plants out of the sealed aquaria and into a small greenhouse, I knew there would be both advantages and disadvantages. On the bright side, I could give them more sun because the greenhouse was ventilated; they would also be able to catch more insects by themselves. I found, however, the major disadvantage was that they needed more water than before because of the added ventilation.

Unfortunately, the water here in Southern California is very hard and mineral-laden, so I was forced to buy distilled water which becomes slightly expensive at $ .10 a half gallon, not to mention the inconvenience of constantly getting it. Distilling my own water seemed to be the answer, but the question was how. One possibility was to boil tap water on the stove and condense it, but, being somewhat energy conscious, I knew there must be a better way. That's when I decided to invent a solar water distiller that would be simple to build and maintain. The idea I hit upon utilized the old aquaria I had left over. I remembered how the moisture inside the aquaria would condense on the sides and drip down when the sun hit them. That is the basis for my design. The distiller consists of a 10 gallon aquarium propped up about 10deg on one end. This will let the condensed water fall down to the lower end of the aquarium. A black 8" x 10" photographic developing tray full of tap water is put inside the aquarium and leveled. A piece of glass is then put over the top to seal the aquarium. The sealed aquarium is then positioned so that it will receive as much direct sun as possible.

The principle on which it works is that the black photo tray absorbs the sun's rays and converts them to heat thus heating the water to between 135 and 150 deg F. The water begins evaporating and, eventually, the air inside the sealed aquarium becomes saturated with water vapor. The water begins to condense around the sides and forms droplets which fall to the shaded bottom of the aquarium under the photo tray. This is distilled water, made using only the sun's rays. I collect this water by squeezing it up with a baster or an auto battery bulb and then store it in jugs.

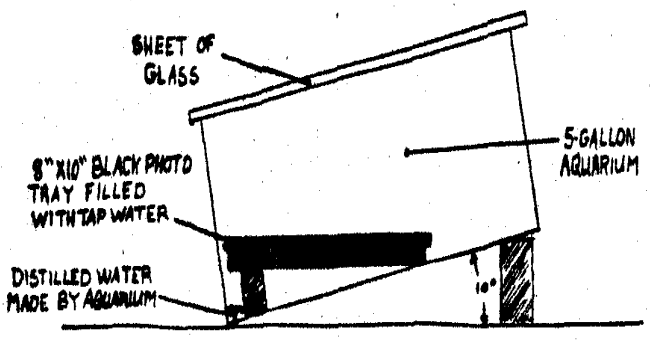
By using this method, I can distill between 10 and 16 oz. of water per aquarium each day. Presently, I have three solar distillers operating, and they give me nearly all the water I need. The mineral crust that develops in the photo trays attests to the fact that the minerals have been left behind. This crust, incidentally, should be cleaned out periodically. I used 10 gallon, "bargain" aquaria 10-1/2" wide, 12-1/2" deep, and 20" long. The photo trays are standard 8" x 10" black plastic and are available at photo stores. Be sure to use black trays as they will get the water hottest. The tray is placed about 1/4" away from the walls of the aquarium in order to let the condensed water fall to the bottom.

Efficiency of the solar water distiller will depend upon the time of the year and the amount of sunlight it receives. I will be happy to receive any comments or questions about the solar distiller.

Published courtesy

C.P.N. USA.

Vol V1, No 4, P, 70.



WORLD CARNIVOROUS PLANT CLUBS AND SOCIETIES.

C.P.N. (USA). The Fullerton Arboretum. Biology Dept, C.S.U.F.
Fullerton, C.A. U.S.A. 92634.
Published Quarterly. Subscriptions $7-00

CARNIVOROUS PLANT SOCIETY. (Britain).
Arnecote Park, -Bicester, - Oxfordshire.
0X6 ONT. England.
Published Twice Yearly. Subscriptions $3-50

POTOMAS VALLEY CARNIVOROUS PLANT SOCIETY.
1705 N. Quebec St, Arlington. VA.
Published Twice Yearly. Subscriptions $4-00

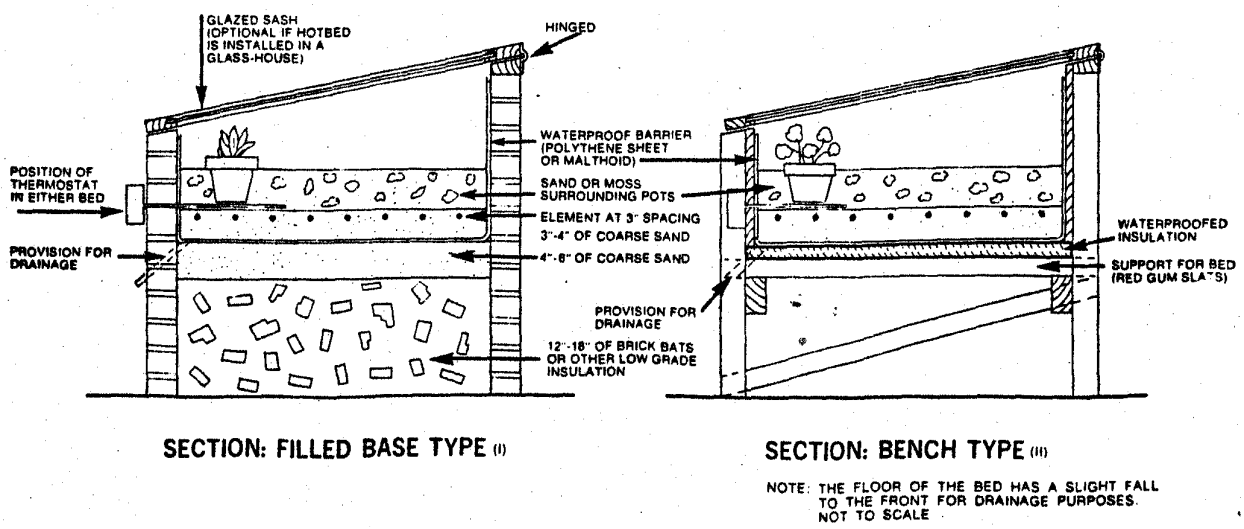
All subscription prices are Quoted in local currencys.

DESIGN OF AN ELECTRICALLY OPERATED PROPAGATING BED.

(A) FILLED TYPE.
In this method of construction, the bed or beds are built up with brick or concrete walls erected from ground level. Hollow bricks or concrete bricks, using light-weight aggregate, are recommended because of their thermal insulating qualities. After the four walls have been built up to about three feet high, the interior is filled with broken bricks or concrete or any other cheap filling from 12" to 18" depth. Dry, coarse sand is poured in to afurther depth of 4" to 6" and tamped down to leave a smooth flat surface sloping slightly towards the front of the bed.

(B) BENCH TYPE.
In this method of construction, timber shelves are used for the bench top which forms the base of the propagating bed. The bench is built at a height of about two feet with its surface made of one-inch thick hardwood or red gum boards tightly fitted together. The sides of the bed should be of the same material, well protected from water by a coat of bitumastic paint to prevent warping of the timber.
An alternative material for construction of the bed is a preservative receptive timber such as the Pinus Radiata. This timber must be commercially pressure treated with metal-chrome-arsenic waterborne preservatives, which become insoluble in the wood after treatment.

CONSTRUCTION OF AN ELECTRICALLY OPERATED PROPAGATING BED



SECTION: FILLED BASE TYPE (I) **SECTION: BENCH TYPE (II)**

NOTE: THE FLOOR OF THE BED HAS A SLIGHT FALL TO THE FRONT FOR DRAINAGE PURPOSES.
NOT TO SCALE

NOTICE.

It has been brought to the attention of the C.P.N.A. that the number of plants being brought into the country illegally is in-creasing. This is in no way pointed directly to c.p. growers but covers the importing of all species of exotic plants throughout Australia.

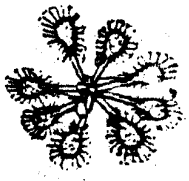
The editors stress growers to give thought to accepting plant material sent from overseas direct and not through the correct channels. Not only do you risk the penalty of being caught and having your much prized plants destroyed, there is also the chance of introducing un-wanted pests and diseases into our country. The following is taken from the Nursery Plant Newsletter,' Edited and published by the Western Australian Dept of Agriculture.

GENERAL PROVISIONS FOR IMPORTING PLANT PROPAGATING MATERIAL INTO AUSTRALIA FROM OVERSEAS.

The main provisions and restrictions that apply to the import of plant material from overseas are described here. Further details can be obtained by contacting the Plant' Inspection Services at the Department of Agriculture.

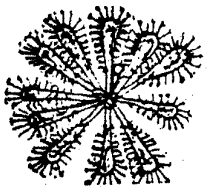
If you wish to import plant material you must first obtain written permission from the Plant Inspection Services of the Dept of Agriculture. Permits are not normally issued for ornamental plants or varieties of ornamental plants readily available in Australia. Material imported under permit, other than from tissue culture in sealed flasks, must be grown in post entry quarantine in the insect proof glasshouse at South Perth for at least one growing season of not less than three months. A condition of the permit for plants grown in post-entry quarantine is that the material must be used for propagation and not for resale. Repeat importations are not permitted. Plants and bulbs are inspected bya qualified pathologist at least three times during their growth in post-entry quarantine. If the plants are free of disease, they are released to the importer on payment of the fees specified in the Quarantine regulations.

Fees for care of plants in the Government Nursery are;
$25-00 per consignment plus 400 per plant released from quarantine.



D. spathulata (Kansai Type)

AUSTRALIAN PLANT & SEED SOURCES.



D. spathulata (Kanto Type)

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

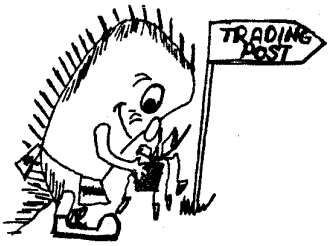
****

EXOTIC & BIZARRE PLANTS. Wandena Rd, Bullsbrook East. W.A. 608[1]4.	SEND $ .20 STAMP	Dionaea-Nepenthes Pinguicula-Drosera Sarracenia Cephalotus-and 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. U.S.A.

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

TRADING POST.



BUY TRADE SELL

When sending in Want Ads, please print clearly name and address, in order to eliminate mistakes. Full botanical names should be submitted with all ads, Where a new grower is uncertain of correct name, common name may be sent in but will be correctly named in advert.

Please mark clearly whether you wish to BUY, SWAP or TRADE. 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.

JOHN GRAHAM. 8 WARUNDA ST, BRACKEN RIDGE. BRISBANE. 4017.
Would like to buy Sarracenia psittacina, S. minor & Hybrids. Drosera arcturi, D. pygmaea, D. auriculata, D. whittakeri, D. petiolaris, D. binata var dichotoma, D. binata var extrema, D. villosa any N.T. Urticularia, Nepenthes cuttings, seed & Drosera seed of those named above.

BERNARD LE PAGE. BOX 13, NEERIM SOUTH. VIC. 3831.
Wishes to buy Drosera drummondii, d. macrophylla, D. prolifera and D. sulphurea.

KIM BENNETT. 153 CLONTARF RD, HAMILTON HILL. W.A. 6163.
Will swap native Aust seeds for any c.p's. Also wishes to buy Sarracenia psittacina, S. purpurea venosa, S. leucophylla x minor, S. catesbaei, S. alata, S. rubra, S. purpurea gibbosa, Nepenthes mirabilis, Utricularia, and Byblis liniflora.

SUSAN HATLEY. WANDENA RD, BULLSBROOK EAST. W.A. 6084.
Would like to obtain plants of Nepenthes species for private collection. A full plant inventory will be sent to those interested in trading.