

Thus these three species appear to the present author to form a natural, closely related group. I therefore propose that the Section Prolifera should be abandoned and *D. prolifera* C. T. White should be included in the Section Archnopus.

The position of *D. indica*, included in Archnopus by Diels, is less certain, but it would appear to be less closely related to *D. adela*e and *D. schizandra* than is *D. prolifera*. Obviously some careful study is needed to determine a natural system of classification for these and related species.

The origin of these three species raises some interesting problems. Each species is apparently restricted to a small area, in the case of *D. prolifera* and *D. schizandra* a single catchment; in the case of *D. adela*e to a small area which possibly constituted a single catchment in a time of lower sea levels.

It has been shown (Kershaw, 1974) that the climate in this region is emerging from a period of high rainfall. It is

possible 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.

#### REFERENCES

- Diels, L. 1906. Droseraceae in A. Engler, Das Pflanzenreich Heft 26.  
Kershaw, A.P. 1974. A long continuous pollen sequence from north eastern Australia. *Nature* 251: 222, 223.  
White, C.T. 1940. A new type of Sundew from north Queensland. *Victoria Naturalist* 57: 94,95.

(Received 11/14/78)

## **\*On Growing *Drosera lusitanica*, The Portuguese Dewy Pine**

by Adrian Slack

The Portuguese Sundew, or Dewy Pine as it is called in that country, is a very different plant from other carnivorous plants. With its semi-shrubby habit, crowded linear red-glanded leaves, and clustered corymbs of 1" wide bright yellow 5 petaled flowers, it is an attractive plant, and it is not surprising that many people have tried their hand at growing it. There have been many instant failures amongst which must be included some of my own early attempts, while "success" has not often lasted for more than 2 years. Indeed, a belief has grown up amongst some growers in the

U.S.A. that the plant is a biennial. It does, in fact, grow to a ripe old age in its native homes in S. Spain, Portugal and Morocco, where it is generally a plant of dry rocky hills in coastal regions, and therefore requires a rather different growing technique to any employed on your other plants. Here is one method that works.

First, its basic hates are: wet collar, poor drainage, poor light and, especially, root disturbance. Never transplant it; it may survive this maltreatment for months, only to make a sudden departure; a strange truth only discovered after many trials and losses. If you mist your

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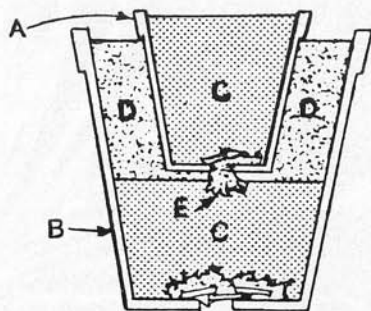
other plants, be sure to protect this plant with a canopy when doing so.

Always start from seed rather than from a plant. In this way you know that everything is right from the start. It is important to sow in spring, thus giving your stock a chance to develop woody stems by autumn. All your pots *must* be of clay, this method depending upon their porosity. Take a  $4\frac{1}{2}$ " clay pot; and stick a protruding wick of sphagnum moss in the drainage hole. I like to put one large crock over this, allowing some sphagnum to be just visible to its side. A little sphagnum is now placed to form a thin cover on the crock. Fill the pot to within  $\frac{1}{4}$ " of the top with a compost of 2 parts of lump-free granulated moss peat, 2 parts John Innes Potting Compost No. 2, and  $1\frac{1}{2}$  parts of well washed sharp horticultural sand (not grit). Firm it, but not as if you were making a cement block!

Now sow two or three seeds in the pot. Germination is usually good unless the seed is old. Sow these in the central area, but  $\frac{3}{4}$ " apart, and they should be  $\frac{1}{8}$ " deep. Gently firm. Place the pot in  $1\frac{1}{2}$ " of soft water till the surface becomes damp. Allow it to drain, and place a sheet of glass over the top to cut down evaporation, placing a dark object over this to completely cut out the light. I never apply bottom heat, finding my coolhouse temperature, which has a minimum of about  $47^{\circ}\text{F}$  at that time, adequate for germination within about 6 weeks time. The pot is regularly inspected, and if there is any sign of the compost becoming dry, it is watered using the immersion technique described — one must never water from the top. The moment the first seedling germinates, the glass is removed. The pot is now placed in a very sunny position in the greenhouse close to the glass. One has to be careful with the watering. This is not a bog plant, and will not thank you if you stand the pot permanently in water, on

the other hand it will be fatal if you allow the pot to dry out. If you are out for the day, always water it if you think there is a chance of its drying out while you are away, and always by immersion. If more than one seed germinates, retain only one, carefully tweeking out the unwanted ones without disturbing your selected one.

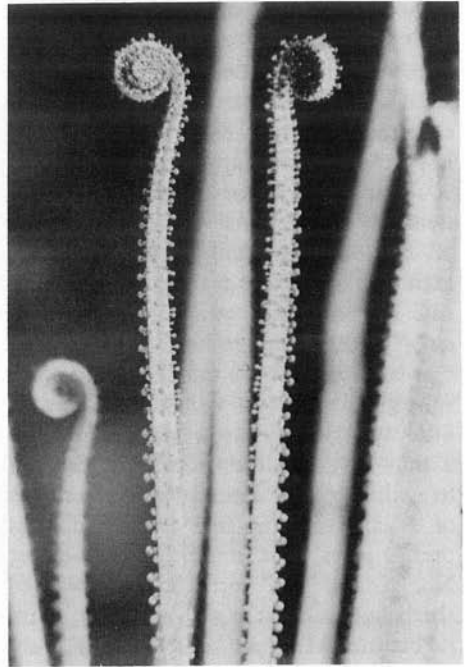
When the young plant is in its sixth leaf the root system is sufficiently developed to proceed with the next stage. Select a 7" or 8" pot and place three or four potsherd crocks over the drainage hole, and lightly cover these with sphagnum moss. Over this, sufficient of the above specified compost is placed and firmed, so that when the  $4\frac{1}{2}$ " pot, complete with plant, is placed upon it, the rim of this pot is  $\frac{1}{2}$ " above that of the larger. Now put in a thin layer of sphagnum moss over this, so that when the smaller pot is again placed firmly on it, it is now about  $\frac{3}{4}$ " proud of the larger. Hold the  $4\frac{1}{2}$ " pot in the centre of the larger one, and pack more sphagnum moss between the sides of the two to within  $\frac{1}{3}$ " of the rim of the latter. Now water the sphagnum moss between the pots well, and place the pot in a sunny position in the coolhouse near the glass.



- A  $4\frac{1}{2}$ " pot
- B 7" pot
- C compost
- D sphagnum
- E sphagnum wick

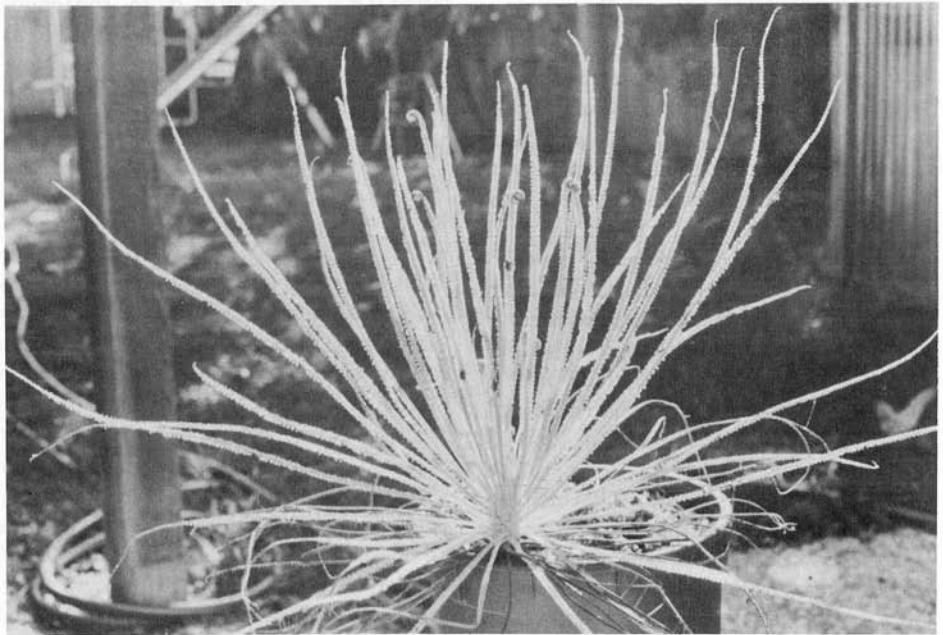
The sphagnum acts as a reservoir which allows only sufficient water for the plants needs to percolate through the permeable walls of the inner pot, leaving its raised top, and thus the base of the stem, relatively dry. Normally one should only water via the sphagnum, without wetting the surface of the centre pot. However, when summer growth becomes vigorous, and the weather is hot, it does no harm to apply water to both pots when the plant is mature. Never do this after September, or in cool summer weather. One has to be especially careful not to over-water the moss during the period of minimal growth which follows flowering, and when the plant is at its most delicate. The time to water is when the moss feels dryish but not crisp; however, one needs to be extra observant then, for if the roots are allowed to dry out at any time the plant will almost certainly die.

My first "success" lived for something in excess of seven years. In those days I



*Drosophyllum lusitanicum*

Photo by Joseph A. Mazrimas



*Drosophyllum lusitanicum*

Photo by Joseph A. Mazrimas

used almost the same method, but the outer pot was filled entirely with sphagnum without any compost. I examined this after the plant died, and found the moss below the smaller pot to be filled with black drosophyllum root, and it seemed fairly evident that the nutrient in the smaller pot must have become exhausted. For this reason I give my plants

the secondary dose of compost in the base of the outer pot, and as those members who saw the 4 year plus specimen at our Royal Horticultural Society Show exhibit will realize, this method does seem to work. Another of our members, Timothy Heneage, decided to try the same technique, and I must admit, with reluctance, his best plant is rather larger than mine!

## Review of Recent Literature

Dixon, K. W. and J. S. Pate. Phenology, Morphology and Reproductive Biology of the Tuberous Sundew, *Drosera erythrorhiza* Lindl. Aust. J. Bot. 26 : 441-454 (1978)

*D. erythrorhiza* grows near Perth, Western Australia from autumn to late spring and aestivates by underground tubers from Nov. - Feb. Each tuber sends up a stem terminated at the soil surface by a rosette of parent tuber during mid-winter. Other daughter tubers are produced higher up the stem, extended radially from shoots that swell terminally to produce tubers.

*D. erythrorhiza* rarely produces flowers and only after specific fire requirements and propagation from seed is extremely rare. Reproduction is mainly by daughter tubers whose number varies with the clone and undergoes a cyclic rejuvenation over a sequence of seasons. There are periods of intensive daughter tuber production alternating with periods of minimal reproduction.

Johnson, P. H. 1979. Venus's Flytrap. Gardening 1 : 34-39.

A good popular article on the plant, written mainly from a conservation angle. There is one text error: Seeds of

*Dionaea* do NOT require stratification prior to germination since the seed matures in late spring to early summer. The article also features nine full color photos by Donald Schnell, Jerome Wexler and David Thomas.

Murry, R. E. and L. E. Urbatsch. 1979. Preliminary reports on the flora of Louisiana. III. The families Droseraceae and Sarraceniaceae. Castanea 44 : 24-27.

This report documents the occurrence of Sarracenias (*S. alata*, *S. purpurea* and *S. psittacina*) and Droseras (*D. capillaris*, *D. brevifolia* and *D. intermedia*) and distributions (dot maps) as they naturally occur in the state.

Pate, J. S. and K. W. Dixon. Mineral Nutrition of *D. erythrorhiza* Lindl. with special reference to its tuberous habit. Aust. J. Bot. 26 : 455-464 (1978)

The parent tuber supplies more than 80% of the nitrogen, phosphorus, potassium, magnesium, sodium and zinc in the leaf rosette while calcium is almost unchanged. The new season's tubers are also very efficient in acquiring these elements especially phosphorus