IX. ON THE COLLECTING AND PREPARATION OF UTRICULARIA SPECIMENS

The taxonomic study of this genus is, and always has been, severely hampered by the almost universal incompleteness of the material available in the herbarium. The vast majority of herbarium specimens, at least of the terrestrial species which comprise some 70% of the genus, consist of inflorescences alone, i.e. without vegetative parts. The aquatic species fare little better and although specimens are often more complete they are usually badly prepared so that vital characters such as the specifically characteristic branching of the foliar organs is completely obscured. Furthermore, in view of the very delicate nature of both the floral and vegetative parts, especially the complex and often very small traps, drying is rarely as satisfactory as preservation in liquid. This latter method, which has been increasingly used in recent years, can however produce relatively useless specimens if the incorrect liquid preservative is used. Having personally collected some 25% of the 180 known species both in Europe and the tropics of Africa and America the author feels qualified to offer some advice on the preparation of specimens of this genus for taxonomic study.

1) Dried specimens — Aquatic species should be put into a suitable receptacle (at least 0.5 m square) full of clean water about 15-20 cm deep. Gentle agitation will cause the vegetative parts to assume their natural position. A sheet of paper, either thin and suitably supported on a rigid sheet of metal or thicker and unsupported, is then carefully introduced beneath the floating plant and very gradually raised out of the water so that the plant eventually lies on the paper with all of its parts in their natural positions. The whole should then be dried as rapidly as possible in a ventilated press. Additional separate inflorescences (and infructescences) may of course be dried normally. Terrestrial species often have no very obvious vegetative parts as they are usually beneath the substrate. However it is the experience of the author that they are in fact almost always present and may be found by carefully removing a small piece of the substrate with the inflorescence. Gentle agitation in water may wash away the sand, soil or mud and these vegetative parts are again best displayed by 'floating out' as for the aquatic species. If, as is frequently the case, the substrate is bound together by filamentous algae or the subterranean parts of other plants, the vegetative parts are difficult to separate and display, at least in the field, and in such cases the whole should be pressed.

2) Liquid preserved specimens — These may either completely replace or (preferably) supplement dried specimens. Collection is as for the latter but the whole plant should be

placed immediately into the preserving liquid. Ordinary FAA is often used but is not satisfactory: it produces brittle specimens which often break into small pieces. The ideal preservative is a mixture of about 50-55% alcohol with 40% water and 5% glycerine (the higher percentage of alcohol is desirable with wet aquatic species). The glycerine may be omitted if not available or even added later. It is most important that the receptacle be completely filled with liquid. Such collections, suitably protected against breakage and leakage may be safely and legally transmitted by air or through the post as the liquid specified is not inflammable.

The collection, however preserved, should aim to be as representative and copious as possible and it is of particular importance that in addition to numerous flowers fruits and seeds be represented wherever possible. Two or more terrestrial species very frequently grow together with their vegetative parts intimately mixed in the substrate making it imperative that at least part of the collection consists of inflorescence and vegetative parts still connected although it is quite acceptable to accompany these with separate supplementary inflorescences. Finally it is important, as with any plant collection, to record the corolla colour, which in many species is somewhat or even very variable.

Kew, September 1976 P. Taylor

PLANTS TALKING ABOUT THEIR STRUGGLE FOR LIFE

Hello, said the Pine to the neighbouring Larix,
in winter you are ugly without foliage.
Said Larix, I acted according to Darwin's intention,
and finally followed his new invention,
to make more easy my struggle for life,
though I see that, with needles, you also survive.
The same niche we occupy in Taiga and Alp,
so, why should I have pleaded for Darwin's help?
Obviously we are both equally well adapted to life;
I forgot that in patio ludens there is no such strife;
but I am proud to express an evolutionary whim.
To which is dedicated this botanical hymn.

v.St.