VIII. DOMATIA

These small structures in nerve axils at the underside of leaves have given food to various theories and have been nonetheless in phytographic and taxonomic neglect almost from the beginning. That was in 1887, when the Swede A.N.Lundstroem published an extensive paper, in which he explained domatia as structures intended to accommodate mites - hence the word acarodomatia - which latter would in turn benefit the plant by cleansing the leaves from fungus spores. Lundstroem arrived at this hypothesis on the strength of ideas current in that time, about the existence of symbiotic relations between ants and plants; it was in the heydays of teleology. A closer investigation left little of the illusions about mutual benefit between ants and plants, but such critical interest was never focused on the supposed relation between mites and plants.

Recently I could grow a few domatia-bearing species under acari-free conditions; the plants with their domatia did as well as in the open. Yet it is hard to prove that Lundstroem was wrong, but a combination of the experiment, the well-known fact that domatia are inhabited by acari as often as not, and the origin of the hypothesis make it very unlikely that mites will creep into domatia for other reasons than a natural preference for shelter in small holes. All other (physiological) explanations are unconvincing, too, and so for the time being an explanation is lacking - provided that such an explanation would be necessary.

The functional concept of domatia has induced people to discern them, anywhere leaves offer places where mites can find shelter, e.g. in the recurved leaf base of Dioscorea species. But since a function has never been proven, such an ecological concept is of no use. There are a few correlating morphological features: domatia are spatial structures bound to nerve axils (they may be found collaterally with 2-3, or also basally of the nerve insertion; the new Zealand Hebe townsonii is a single exception in having non-axillary domatia), at the underside of leaves.

Their occurrence (as here defined) is limited to woody dicotyledons - it is unknown why. Domatia are found in about as many species of Rubiaceae as in all other families together. There are many families where they occur. They seem to be absent - another intriguing feature - from arid countries. Knowledge on their physiology is even scantier than anatomical data. Their development takes place when the leaf has attained about 1/6 to 1/3 of its length.

The types of domatia hitherto acknowledged: pits, pockets, domes and hair-tufts are connected by so many intergrades (sometimes in one plant or one leaf) that it is more sensible

to give up the distinction as such and instead take the above-indicated types for elements of which a domatium may be composed, singly or in combinations. In view of these intergrades, the fact of the presence of domatia seems of greater importance than their shape or vestiture. They may occur in nerve axils of the 1st, 2nd, and 3rd order.

There are scattered records in literature where species are credited with domatia as a character. A herbarium test revealed that constancy of occurrence varies widely from species to species, in a way comparable with that of hairs. So far as we can judge, all records of domatia in literature up to now must be regarded with great caution. Which means that their value as a taxonomic character is still a potential one.

Some galls along the midrib (in Dipterocarpaceae, for instance) may easily be taken for domatia, but galls are characterized by differences in extension, according to the severity of the infection. The occurrence of domatia proper on leaves is sometimes very irregular - this too requires attention.

A general paper on the subject is now in the press. There is, however, much to discover. Plain facts on domatia are primarily needed. Therefore, these puzzling structures are recommended warmly into the interest of all botanists.

Rijksherbarium, Leiden. M.Jacobs.

VARIA

Mr. E. J. H. C o r n e r, one of the very few persons to speak with authority on both "higher" and "lower" plants, devoted a few interesting paragraphs to fungi on Mt Kinabalu (Proc.Linn.Soc.Lond. 175, 1962/62, 40-42). The fruiting season of the fungi follows a dry spell. On the lower spurs, the larger fungi were much the same as in Malaya; higher up the fungus flora is very similar to that of the oak forests of temperate Asia, which connects in turn with that of America and Europe, with an astonishing variation of discomycetes. "I began to wonder, and have come to consider seriously, whether these rich and varied oak forests of SE.Asia are not the source of many familiar temperate fungi, just as they are the source of the temperate oaks .... I found in its high forest all the common parasites of tropical plantations, such as Fomes lignosus, F.noxius, Ganoderma pseudoferreum, Poria hypolateritia, and P.hypobrunnea. So Kinabalu is well-prepared for upland cultivation."