X. STRAY ECOLOGICAL NOTES

1. Scarcity of fruit setting. In some Malesian plants from the rain-forest it is striking that fruit setting on the inflorescence is very late. Many flowers, sometimes hundreds, are produced without ever setting fruit and the entire inflorescence may finally bear but very few fruits situated at the end of a stalk which is often densely covered with bracts. This suggests a discrepancy of correlation between vegetative and reproductive growth which appears unbalanced.

Such a balance can easily be upset artificially, by removing the ovaries of flowers after anthesis. I remember having this demonstrated in our private garden with a cultivated foxglove, Digitalis purpurea, which grew so long that I had to use a chair to stand on for reaching the top of the raceme which became thinner and thinner, but still went on producing flowers until the frost in end November put an end to the experiment. By then the raceme was about two metres long.

On a small scale regularly flowering but not fruiting, bract-covered inflorescences can be observed in several species of Kopsia, in Lepiniopsis, in some Celastraceae, also in Hydnophytums. Such inflorescences do not attain very large dimensions.

In other genera, e.g. in Mucuna, Strongylodon, Galearia macrostachya, a Dysoxylum (BRUN 200, 5802), Chisocheton medusae, and some Rubiaceae (BRUN 192, BSIP 2940), such bract-covered, pendent inflorescences attain showy dimensions of one or more metres. They are classified among the flagelliflorous type. Among the geocarpous type I have observed a similar phenomenon in some Ficus.

The question is why no fruits are produced earlier; is the very long inflorescence really a specific character of its own or is it secondarily due to some deficiency in pollination and/or fecundation? It could be of course that the earlier flowers do not carry a well-developed ovary, as I observed in the 2-3 lower flowers of Solanum mammosum. It could also be that many lower flowers are functionally male. But the other possibility, viz deficiency of pollination, might equally well be the cause. It is well feasible that in the rain-forest plant species arise which do not suit already existing pollinating insects and have difficulty in maintaining themselves, with the result that pollination occurs very rarely and remains a mere matter of chance. Only in a later evolutionary stage newly evolved insects may specialize on such plants. Generally new plant species will precede the origin of insects adapted to them. The intervening period is of course a dangerous one for the plant which can maintain itself vegetatively, but as to producing fruit only in a haphazard way. One can guess that many newly evolved plant species may have not been able to overcome this period of not

having a suitable pollinating agent and must have succumbed, so to say, in the cradle.

This is all theorizing of course and the reason for this note is to stimulate botanists resident in the tropics to examine the genitals of such plants and carry out artificial pollination in order to check whether indeed the lower flowers of such inflorescences are fertile, both to pollen and to ovules.

2. Fire resistance in grassland plants. It is often assumed that in fire-climax grasslands it is especially the geophytic plants which possess the greatest advantage of fire-resistance. Next come those with "hard-shelled" seeds. e.g. several Leguminosae (for example in Malesia Mimosa invisa, Albizzia lophantha) which can easily stand swift running grassfire. There may be, however, many other perennial plants which cannot only survive by a rhizome but also by seed. In a burned grassfield near Ceriale, N.Italy, I collected the charred inflorescences of Dianthus carthusianorum, the fruits of which are more or less protected by bracts and calyx. I found that seeds germinated freely.

3. Contamination of 'floras' in beach-drift. I have formerly published some records of drift seeds in Java in which it was very clear that many seeds, for example acorns from the hills, can occur together in great profusion with those of true lowland and shore plants. I have observed the same in Corsica, 10 km S. of Ajaccio, where seed of Lathyrus latifolius, Glaucium, and Phillyrea angustifolia were found together with cupules of Fagus sylvatica. The latter only occurs there in the fairly remote high mountains and the cupules must have come down to the beach with a stream at some 6 km distance from the place where I found them. If such drift enters the fossil record lowland and mountain plants from the hinterland occur together and this may become a problem for the palaeontologist's notion of the palaeoclimate.

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VARIA

Theobroma fossilium Berry (1929) appeared to be the forepart of a reptilian jaw; the bony structure was mistaken for the pulp and the teeth for the seeds.

(J.Wash.Ac.Sc. 36, 1946, 353).