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ON WEST AFRICAN PTERIDOPHYTES AND THEIR TAXONOMIC PROBLEMS

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Although the history of discoveries in West African pteridophytes dates back to the end of the 17th century, and although quite a number of collectors gathered a considerable amount of specimens in West Africa, during all these years since, West African pteridology counted really only two principal specialists: Mme. TARDIEU-BLOT, and the late A. H. G. ALSTON. Many descriptions and larger regional studies have to be accredited to the two botanists mentioned. West African ferns, of course are mentioned in general works and monographs, such as HOOKER & BAKER's "Synopsis Filicum" or COPELAND's "Genera Filicum". Others, in case of wide geographical distribution are cited again in works dealing with other regions (such as Central, South and East Africa). And some regional studies have been published by ALSTON (in EXELL 1944), ADAMS & ALSTON (1955), HARLEY (1955, 57), AKE ASSIE (1963), KUNKEL 1962—70), TARDIEU-BLOT (1964) and others. But really no occasion is known of students of ferns and fern-allies having been able to travel in West Africa and to collect and study just and only pteridophytes.

The study of West African pteridophytes has been neglected. Other plant families are more important, because of their commercial, medicinal or alimentary properties. This is not the fault of students working in ferns but mainly the lack of grants available for such purposes. Besides this, as we all know: strict regional studies may cause increase of synonymy. However, more regional studies are urgently needed, too, if we think only in the case of the Nimba Mountains, in the Liberia-Ivory Coast-Guinea triangle, with its very rich plant life (over 100 species of pteridophytes alone!) but already badly destroyed by mining operations before a proper inventory took place.

We believe pteridophytes to be the oldest surviving group of vascular plants. Most species show a wide area of distribution, and local endemics (frequent in some families of phanerogams) seem to be rare in ferns. A considerable amount of species of living ferns and fern-allies are known form America and Africa and Asia, and all specimens of such taxa seem perfectly identical, without noticable variation. This is the case in species like *Lycopodium cernuum, Psilotum nudum, Ophioglossum reticulatum, Osmunda regalis, Dicranopteris linearis, Lygodium microphyllum, Microlepia speluncae, Histiopteris incisa, Acrostichum aureum, Xiphopteris serrulata, Phymatodes scolopendria, Pleopeltis lanceolata, Microsorium punctatum, Ne-*

phrolepis biserrata, and species of *Thelypteris* (or *Cyclosorus,* as one still tends to call them). These are plants showing a pantropical distribution.

Other species, however show extreme variability. For example *Asplenium aethiopicum,* which was the "*A. praemorsum*" of American pteridologists, "*A. furcatum*" of South Africans, and "*A. canariense*" of Macaronesian studies, without considering here minor or local synonymy. The problems round these critical species still remain. *Asplenium adiantum-nigrum,* of African lists, might be *A. onopteris* — if the latter is considered as a "good" species. Liberian material of *Asplenium preussii,* another example, differs very much from the material collected in the Cameroon mountains and even from Nigeria. And the West African *Asplenium unilaterale* seems to have little in common with material from East Asia, of this same species.

These were a few names only, and may be some of the questionable species mentioned have been properly investigated during recent years. But problems remain, especially when approaching the systematics and the nomenclatural field of the study. Beginning with the systems of classification as such: whom to follow? Copeland was revolutionary in certain fern families, but very conservative in others, especially in the Pteridaceae and Aspidiaceae of his classification. Alston, in his study on West African pteridophytes (1959) recognized already nine families for the two "groups" sensu Copeland, for West Africa, and other authors and in a wider geographical sense (Ching, Pichi Sermolli) added over ten more family splittings. — Some authors like to "put" together again, adhering to almost Hookerian conservation politics.

Splitters against lumpers, and there seems to be no way of reasonable agreement. Whom to follow? — Personnally speaking, I prefer splitter groups because they guarantee a "quicker turnover" of monographs, urgently needed for any study, systematical in a wide sense, or regional.

Generic problems are many, too, mentioning only *Cyclosorus* and *Thelypteris, Loxoscaphe* and *Asplenium, Microsorium* and *Phymatodes, Xiphopteris* and *Ctenopteris, Blechnum* and *Lomaria, Lastreopsis* and *Ctenitis,* and so on. And the African situation — if one may call it such — becomes quite difficult if we think of the unstable position of (for example) *Ceterach* and *Phyllitis* in Europe. Or, on the other hand, of the splitting of the genus *Lycopodium* sensu latior in the "Flora Europaea". Not forgetting the case of *Lycopodium cernuum,* a very common tropical fern-ally: It was described under its above-used name by Linnaeus, in 1753, and became *Lepidotis cernua* (L.) Beauvoir in 1804 (as accepted in the "Flora Europaea"); and now we have the choice between *Palhinhaea cernua* of Franco & Vasconcellos (1967) and *Lycopodiella cernua* of Pichi Sermolli (1968).

Variability in species of West African ferns is very much unknown to us. Some monographs give certain data on recognition of subspecies and varieties but these are often ignored in other works. It seems perfectly clear that any transitional stage between two given types of environment, for example the borderline between swamp and forest or forest and savannah,

will produce variability in species. The tropical climate of West Africa permits many species to flourish but there is great diversity in microclimate, elevation, geology and topography and therefore enormous possibility for variation within the species. We have to deal with oecotypes on one hand, and true morphological variability on the other. But on forms and varieties we know little, and the range of oecotypes is more or less totally unknown. The knowledge of each of these factors would help in the better understanding of the "species".

Another, quite important problem arises when considering hybridization in ferns. Certain forms found or described are suspected hybrids but only few studies have been carried out dealing with the cytology of West African pteridophytes (i. e. MANTON, in ALSTON 1959). In Europe almost more hybrids are known than true species, especially in genera like *Dryopteris* and *Asplenium*. No major differences are to be expected in West Africa, and future studies may reveal the presence of a large number of hybrids, clearing up certain apparently intermediate forms.

The last problem to be mentioned is the lack of communication. Lack of communication between collector and collector, collector and specialist, and between specialists themselves. Agreement could be reached easier and earlier, disharmony could be avoided, and more and efficient results could be offered. Furthermore, larger institutions should accepts the existance of smaller ones, and the setting-up of working groups on special regions or plant families remains desirable.

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