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a reprint from .....GUIDEBOOK TO THE GEOLOGY AND ECOLOGY OF ST. CROIX: H. G. Multer & L. C. Gerhard, eds. (1974) Special Publication No. 5, West Indies Laboratory, Fairleigh Dickinson University, P.O. Box 4010, Christiansted, St. Croix, U.S.V.I. 00820. 304 pp.

Temperate Zone Influence on Tropical Forest Land Use: A Plea for Sanity

F. R. FOSBERG

Before the impact of Western culture, the carrying capacity of the lowland humid tropics for human populations as measured by "standing crop" or sheer numbers varied enormously from place to place, but was generally low. A few areas favored by rich volcanic ash soils, such as Bali, Mexico, and Guatemala, or by annually renewed floodplain soils, as the Nile, Indus, and Ganges valleys, became densely populated and evolved civilizations characterized by advanced social stratification and division of labor, complex technologies, and highly elaborated religions. These civilizations and populations have waxed and waned; some have disappeared entirely and been replaced by others; generally, however, these developments have been restricted to the same favorable regions. Such areas, unfortunately, form only a very small part of the tropical zone.

The vast preponderance of the tropics shows no evidence of ever having had more than an extremely low population density. The carrying capacity of the typical lowland rain forest is, as very well shown by Meggers (1971), very low indeed. She demonstrates that the Amazonian tribes have evolved cultural adaptations which, in pre-European times, restricted the sizes of the populations to the limited capacity of the rain forest environment to support them.

That the same sort of adaptation prevailed in the African equatorial forest is suggested by Turnbull's descriptions (1961, 1965) of the still-existing hunting-and-gathering culture of the Pygmies of the Ituri Forest in the Congo. The situation in Africa is complicated by long-standing pressures from outside peoples. The extent of the "derived savanna" zones along the margins of the rain forest (Keay 1959), generally regarded as forest converted to savanna by human activity, may be evidence of these measures. Where the agricultural practices originated that resulted in this change is not obvious, but they have been very destructive. The rain forest adjacent was, in pre-European times, and still is—to the extent that any rain forest is left—sparsely populated. Its carrying capacity, on a sustained basis, is very low. Mangenot (1955) has noted the appearance, from the air, of small circular areas of different vegetation in the Ivory Coast rain forest that may have been clearings made by small shifting human groups. He reports occasional potsherds, scattered *Elais* trees, and other indications of human presence in the rain forest, seen during ground explorations.

The low potential of the humid tropical forest is no surprise to those who have spent much time in it. However, there are some who are deceived by its incredible luxuriance and even urge plans for its "development" to feed the ever-increasing population of the world.

Several factors combine to bring about the low level of fertility of humid tropical soils. The most important is probably long-continued leaching of mineral nutrients by the high rainfall of typically humid tropical areas. Bases and even silica have been washed out of the upper layers of typical tropical soils and either deposited in the deep subsoil or carried away by the streams. What remains is a

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GEOMORPHIC CYCLE ON ALDABRA — HYPOTHESIS

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ABSTRACT

The surface of the elevated coral atoll, Aldabra, in the western Indian Ocean, and of other similar islands, is generally regarded as of two types, a rough, very dissected surface locally called "champignon" and a flat surface "platin". In reality, there exists on the island a complete series of stages from one of these extremes to the other. A key to the relationship between the two extreme types was found in the abundant occurrence of very flat-bottomed solution basins. Study of these and of surfaces developing from their coalescence, led to a hypothesis that relates all the surfaces and land-forms on the island in a definite geomorphic cycle, linked to changes in relative sea-level, temperature changes, differential CO_2 tension, recrystallization, possibly alteration from aragonite to calcite, and presence of humic acids produced by mangroves. This hypothesis has not been subjected to any attempts at experimental proof, but is supported by a considerable amount of data from direct observation.

Although there is a maximum of only about 18 m relief above low tide level on Aldabra, and the substratum is only limestone, the surface shows an extraordinary diversity of land-forms. There are reef-flat, sand and boulder bars lying on the reef flat, transverse ridges on inner reef flat, probably representing the last remnants of an intermediate terrace now almost eroded away, deeply notched and undercut intertial cliffs, beaches, storm beaches, beach ridges, dunes, and an assortment of shallow water and intertidal lagoon features. None of these are particularly pertinent to the present discussion, though a total geomorphological theory for the island must include and account for them all.

The main surface of the island, above the lip of the "visor" or overhanging projected edge at the top of the intertidal cliffs, is a platform or terrace, probably originally flat or with broad low ridges paralelling the coasts. On the outer edges of this have been laid the storm beaches and dunes mentioned above - a continuing process, contemporary with the erosion that has produced the solid rock land forms to be described next.

19. Past, Present and Future Conservation Problems of Oceanic Islands

F. R. FOSBERG

OCEANIC ISLANDS may be defined as those which have never been connected with any continental land mass. Basic to the special conservation problems of these islands is the nature of their biota. On oceanic islands there is no likelihood that there will occur a balanced, broadly diverse but coherent assemblage of plants and animals which have evolved in equilibrium with one another and with their environment and which fill all ecological niches in a complete ecosystem. On the contrary, the original stocks from which these biotas evolved were assembled by chance, from individuals or propagules that came by long-distance dispersal over the ocean, and that were able to establish themselves and to survive in new habitats. In the cases of at least some islands, the new habitats were open ones, where competition was minimal and where any organism that was physiologically able to tolerate the new habitat had a better than normal chance to survive, propagate itself, and perhaps give rise to new evolutionary lines, possibly radiating into more than one ecological niche.

Biotas assembled in this fashion have been subjected to a strong filtering effect. Large herbivores and the carnivores that would subsist on them are missing or very rare as are many parasites and predators that are limited in their host or food possibilities to one or few species. Groups that for any reason are poorly adapted to crossing water barriers are under-represented. Total numbers of species are likely to be small, and total numbers of original stocks that were successful much smaller. The proportions of locally evolved species are usually higher as the distance from continental land increases, even though the total numbers of species may be smaller. Likewise, since most oceanic islands are basaltic volcanoes either with or without partial or complete coral limestone caps, the sub-strata, too, tend to have fewer variations and less complexity than is usual in similar areas on continents.

Thus, the diversity inherent in oceanic island ecosystems tends to be very low compared with continental ecosystems of the same size and topographic complexity. It is a fairly generally accepted ecological principle that the stability of an ecosystem is directly related to its total diversity. Thus

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ON PRESENT CONDITION AND CONSERVATION OF FORESTS IN MICRONESIA

F.R. Fosberg

National Museum of Natural History — Smithsonian Institution

Abstract

Most of the Micronesian forests have been seriously altered and degraded by man, both pre- and post-European contact. All lowland forests, except possibly those of the steep limestone islands of Palau, mangroves in some of the Carolines, and a few strand types in the drier atolls in the Northern Marshalls have been changed so that any reconstruction of their original nature can only be conjecture.

Reasonably good examples of montane forest still exists above 600 m in Ponape and Kusaie, though the palm forest in Ponape was subject to severe cutting for cabbages in World War II and the placing of an installation has seriously damaged the cloud forest on the summit of Mt. Matante, Kusaie.

Forest types which may be regarded as "natural", even though they result from modification of original forest by man, still exist on Guam, Rota, Alamagan, and possibly to a very limited extent on Spain, in the Marianas, on Babeldaob in the Palaus, on Yap, Truk, Ponape and Kusaie, and on a few of the atolls in the Carolines. Otherwise, the forests are dominantly of exotic species, either planted (e.g. coconut) or spontaneous (e.g. *Leucaena leucocephala*). All of these should be studied and examples preserved for this purpose, at least of the types that contain indigenous species.

Except for the pre-European Marshallese, neither the Micronesians nor their foreign rulers — Spanish, Germans, Japanese, British, and American — have been very conservation-conscious. There has, since World War II, been a certain amount of conservation talk, but no effective conservation policy, in the Trust Territory Administration. Several reserves, e.g. "70 Islands" in Palau and Pokak and Bikar Atolls in the Marshalls, have been set aside by administrative action, but there is no assurance that these are at all secure from future administrative action and no measures are in effect to protect them. Guam has set aside a number of "Conservation Reserves" and there is considerable local interest in their protection. The general picture, except on Guam, is not encouraging.

Micronesia as used here, includes the Marianas Islands, the Caroline Islands, the Marshall Islands, the Gilbert Islands, and the isolated islands, Wake, Marcus, Nauru and Banaba (Ocean), located in the northwest quadrant of the tropical Pacific except for the Gilbert Islands, Nauru and Banaba, which lie slightly south of the equator.

Although we have no way of knowing positively what the nature of Micronesian vegetation was 4000 and more years ago, before man colonized the island groups in the northwest quadrant of the tropical Pacific, we can safely conjecture that it was almost entirely forest. Some

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SUCCESSION AND CONDITION OF ECOSYSTEMS

By F. R. Fosberg

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(Received for publication on May 5, 1967)

The concept of "plant succession," or better, "vegetational succession," has, since its introduction by Cowles (1899) about the beginning of the twentieth century and its elaboration by Clements (1916) and Tansley (1935), been a perennial subject of discussion and a frequent matter of controversy. Whittaker (1953) summarized various views in a comprehensive and penetrating discussion which, however, focussed on the concept of climax, the terminal or stable stage of succession, in the Clementsian scheme, rather than on the succession process, itself.

It would, of course, be best to commence this discussion with a definition of succession. However, this is, after the basic question of whether or not such a process exists, the matter at issue in most of the earlier writing. Our own ideas must be clarified a bit before a definition can be attempted intelligently.

Briefly, the main issues are: (1) whether or not all vegetational change should be included under the term succession; or whether only increase in vegetation complexity, only progress toward a more stable state, or only "autogenic" change (that is the development of new stages as a consequence of the influence on the habitat of the plants in earlier ones); (2) whether observed changes are only different aspects due to variations in the time required for maturation of different members of the original species composition of the flora colonizing the bare or unsaturated habitat when the process started, or the changes result from successive invasions of species previously unable to colonize. The matter of the validity of interpreting contemporaneous spatially separated stands as members of a succession in time has been a fertile source of dispute. Confusion has resulted from failure to distinguish, in discussion, between "primary succession," that starting with newly available unvegetated substrata, and "secondary succession," that starting after destruction or degradation of existing vegetation on substrata already influenced by previous vegetation and containing seeds persisting from it.

Even a brief study of the history of these discussions should indicate that the subject must be a complex phenomenon, or a complex of phenomena. So complex and intricate, as well as so extensive, have such phenomena been as to make it impossible for one man to examine

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SOUTH INDIAN SAND CAYS

by D. R. Stoddart and F. R. Fosberg

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ISLAND NEWS AND COMMENT

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13. Vascular Plants—Widespread Island Species

F. R. FOSBERG

It is usually the rare, localised species and narrow endemics on small islands that are the most likely to be threatened with extinction and to be most in need of protection. Probably very few of the widespread weedy species, which are aggressive and easily dispersed, have been exterminated by man's activities. Widely distributed species may be uniform or polymorphic. They may consist of discrete populations, recognisable morphologically, or the polymorphism may conform to no discernible geographic pattern. Local populations may be sharply bounded or may blend imperceptibly into one another. They may be genetically or geographically isolated, or both, to varying degrees. Insular populations have their own special kind of geographical isolation, by water barriers of different widths and effectiveness. Ordinarily if such local populations have describable morphological or physiological differences, it is reasonably safe to assume that they differ genetically.

It is these genetic differences that make the conservation of widespread species a matter of concern. While the narrow endemic that is the traditional object of concern on endangered species lists may be composed of a few biotypes, genetically very similar, a widespread species may have scores, hundreds, or even thousands of such biotypes. It may represent an enormous gene pool.

Ecologists are now in fairly general agreement as to the desirability of maintaining as much diversity as possible in ecosystems, as diversity favours stability, as well as preserving options for the future. Diversity is made up of genetic heterogeneity within the component species as well as of numbers of species from a wide range of phyla. Genetic diversity is the raw material of adaptability and of evolution. Taking a long view of a changing world, it is clear that many species will disappear, regardless of the efforts of those who work to save them. This has been true throughout the history of life. Only the time span has changed. In the past, the rates of evolutionary differentiation have been such, and the diversity of genetic material suffi-

Reprinted from A. B. Costin and R. H. Groves,
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in a special form or "legal" language, i.e. telegraphic latin. The type specimen has in fact scientific value, if it shows details which complete the often short original description. The type species, not being a species selected as really typical, has no inherent scientific value.

The most serious difficulty arises however from the somewhat illogical combination of a priority principle and "posteriori" interpretations. The latter are at most speculative, since nobody can be sure what an old author would do or decide if living today, knowing present day rules and being aware of the vast new materials now available. The fact that even the members of the International Committee quite frequently cannot agree, does show that the Rules are already too complex and that no Rules can justify such "a posteriori" and speculative interpretations. To cite at least one example, in the 1972 Report (Taxon 22: 313 1973) on subdivisons in *Pinus*, I would consider that the interesting statement of LOUDON 1838 referred to the distinction of two subordinated infrageneric levels, which may be considered or not as scientifically correct, but it is mere speculation to try to decide if that author, if living today, would use the ranks of subgenus, section or subsection. There has been comparatively little change in what should be considered a genus or a species, but regarding all other ranks the situation is quite different if one compares modern use with that of one hundred years or more ago.

I submit the arguments and the conclusions reached, drafted in the form of three groups of proposals, to a scientific discussion, though not strictly in the form possibly required for such proposals, and hope that others may enter into a discussion, or that the members of the International Committee may take notice of them, if they consider them as of some interest. These members represent a group of competent taxonomists, and thus their opinion is of considerable value. Any subsequent approval by a general meeting of an International Congress may seem a correct and democratic procedure, but in fact represents essentially a vote of confidence, or the contrary, in the competence of the Committee. The majority of those participating in these general meetings, either do not want to express any opinion or cannot do so, since they are specialized in other fields of botany.

It is also not my intention to discuss bibliography in order to see, where similar or contrary opinions have been already stated, since this would increase the size of this publication tremendously. Since examples were cited for the orchid family, it became necessary to refer repeatedly to papers published recently by one author, namely GARAY who has devoted himself quite extensively to apply the Rules to that family interpreting them as rigidly as possible. However I shall close my paper with a citation from a very interesting paper by HOLTTUM who has expressed some similar opinions, though in a lesser degree (Taxon 20: 527-531 1971): "Nomenclature is the servant, not the master of taxonomy. Nomenclature has no significance apart from the corpus of taxonomic knowledge; it cannot be considered "in vacuo"."

THE PROPOSED RETYPIFICATION OF *DOLICHOS* L. A REVIEW*

*E. Westphal***

Dolichos L. (Linnaeus, 1754) was originally composed of 12 species (Linnaeus, 1753). Though over a hundred species have been referred to *Dolichos* since that time, at present many botanists want to reduce that number very considerably.

* This article is the gist of a paper read at the meeting of the section for Plant Taxonomy and Plant Geography of the Royal Netherlands Botanical Society. It was prepared in the Lab. for Pl. Tax. and Pl. Geogr., Agr. Univ. Wageningen.

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** Dept of Tropical Crops, Agricultural University, Wageningen.

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Miscellaneous notes on the flora of Aldabra and neighbouring islands: III*

F. R. Fosberg‡

Summary. During studies of plants of the Aldabra Group (Aldabra, Assumption, Cosmoledo and Astove atolls) and nearby areas of the Western Indian Ocean Region, in the course of preparation of a flora of the group a number of novelties have come to light and critical notes have accumulated. These include new species of *Maillardia* and *Malleastrum*, new varieties in *Calophyllum* and *Flacourtia*, a transfer in *Lagrezia*, reductions in *Lagrezia*, *Acalypha*, *Euphorbia* and *Plumbago*, observations in *Ipomoea*, and distributional extensions in *Lagrezia*, *Poupartia* and *Ehretia*, as well as those in genera where new species are described.

Flacourtiaceae

Flacourtia ramontchii *L'Her.*, Stirp. Nov.: 59–62, t. XXX, XXXB (1785).

The *Flacourtia indica* complex can certainly be aggregated into one species, as Merrill (Int. Rumph. Herb. Amb.: 377 (1917)) and Sleumer (in Fl. Mal. I, 5: 76–77 (1954)) have done, if all the connecting forms are considered; and if this variation were random, with no geographic patterns, we would be left with no acceptable alternative. Plants from the Malagasic part of the wide range of this complex tend to have leaves subacute to obtuse and with obscurely crenate margins, while those in Asia tend to have them acuminate and with more strongly serrate, crenate, or dentate margins. In both areas they are mostly very thorny, and the fruits may be large or small.

L'Héritier provided both a description and two excellent plates of his Madagascan *F. ramontchii*, based on specimens collected by Poivre and by Commerson. The plates were obviously drawn from different plants, XXXB is stated to be from the Commerson specimen, the other, XXX, is presumably based on that of Poivre, though this is not specifically said.

T. XXX is of a plant with axillary thorns and scattered prickles [sic] on the internodes. The leaves are broadly ovate to oblong-elliptic or oval, subacute, shortly petiolate, the margins inconspicuously crenate. Flowers are terminal and solitary or in few-flowered terminal racemes, these sometimes on rather short lateral branches; no really axillary racemes are shown. The dried (?) fruit is broadly cylindric, subtruncate at both ends, longitudinally 7-ribbed and about 1 cm in diameter, the seeds pyriform. The plant shown in plate XXXB has fewer and much longer thorns, no prickles, leaves much more coarsely crenate-serrate, fruit much larger, globose, seeds broadly obovoid, not at all stipitate.

If the specimen shown in t. XXX, presumably the Poivre one, were made

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‡ Smithsonian Institution, Washington, DC. 20560, U.S.A.

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REEF ISLANDS OF RAROTONGA

by D. R. Stoddart

LIST OF VASCULAR FLORA

by F. R. Fosberg

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A NEW MICRONESIAN TERMINALIA (COMBRETACEAE)

F. R. Fosberg and M. V. C. Falanruw

During botanical exploration of the northern Marianas in 1972, a most unexpected discovery was a new species of Terminalia from Asuncion Island. It is described here.

TERMINALIA ROSTRATA Fosberg and Falanruw, n. sp.

Arbor partibus juvenalibus ochraceis tomentosis vel sericeis, foliis obovatis brevipetiolatis spicis elongatis, fructibus teretibus umbonatis non alatis non compressis.

Tree to 8 m tall, 50 cm diameter of trunk, young growth, petioles, spikes yellowish tomentose, branchlets with proximal several cm slender, 5 mm thick, without leaf scars, distal portion with densely crowded large leaf and superposed inflorescence scars, about 9-10 mm thick, branching apparently "terminalioid;" leaves broadly obovate-cuneate, to 20 x 12 cm, apex rounded-subtruncate to very slightly acuminate or retuse, mucronulate, base cuneate, then abruptly contracted to a thick petiole about 5-7 mm long, 5 mm thick, principal veins 8-12 on a side, not exactly opposite, lower pairs and uppermost ones weak, main ones arching upward to near margin, network of several orders, mostly not prominent, upper surface of blade glabrous except tomentose basal part of midrib, lower surface sparsely yellowish pubescent, densely so on midrib, more so toward base; spike when mature 16 cm long, tapering, portion distal to main fruit scars slender, yellowish tomentose; flowers about 2-3 mm long, broadly campanulate, throat 3 mm wide, with recurved ovate acutish lobes about 1.5 mm long, stipitate base tomentose to glabrate, throat externally sparsely pilosulose, glabrate, within densely and stiffly bearded; stamens 10, filaments subulate, strongly exserted, glabrous, anthers oval, about 0.5 mm long; style slightly more exserted than stamens, slightly curved, then strongly hooked at apex; fruit 37 x 20 mm, very slightly pedicellate, pedicel and extreme base sericeous, body subcylindric, scarcely at all compressed, base slightly cordate-4-lobed, apex forming a somewhat compressed beak about 1 cm long with 2 slight keels running about 1 cm down fruit from edges of beak, texture hard, woody, surface smooth, brown when dry, fruit floats in fresh water.

The leaves resemble those of T. catappa, but with pubescence like that of T. samoensis; the fruit is not like that of any Pacific species. The plant is unfamiliar to Dr. A. C. Smith

Plants of Southeastern Polynesia. 3.

F. R. Fosberg[1] and M.-H. Sachet[1]

Abstract

In this paper are presented critical notes and records of species of *Ophioglossum* (Ophioglossaceae), *Waltheria* (Sterculiaceae), *Alyxia* (Apocynaceae) and *Morinda* (Rubiaceae), a new varietal combination and two new varieties in *Alyxia stellata*, and a discussion of the generic separation of *Ochrosia* and *Neiosperma* (Apocynaceae).

Ophioglossum pendulum var. **falcatum** (Presl) Fosberg, Occ. Pap. Bishop Mus. 23:29, 1962.

O. pendulum L. f. var. *pendulum* is common at low and moderate elevations in Tahiti. A collection from 1100 m elevation, south of Orohena, *MacDaniels 1533* (US) is perfectly typical var. *falcatum*, apparently the first record of this variety from the Society Islands and from southern Polynesia. It is by far the commoner form in the Hawaiian Islands. The typical form, var. *pendulum*, with long pendant sterile parts of the fronds is common in Tahiti but very rare in Hawaii.

Waltheria tomentosa (J. R. & G. Forst.) St. John, Nat. Can. 98:573, 1971.[2]

Lophanthus tomentosus J. R. & G. Forst., Char. Gen. 14, 1775; 28, pl. 14, 1776.

Waltheria lophanthus Forst. f., Prodr. 47, 1786.

It is surprising that no one had made this transfer. Of course, the application of the "Kew Rule" would have made it inappropriate prior to the formulation of the modern International Rules of Botanical Nomenclature at the Vienna Congress in 1905. However, there seems to be no reason for not now taking up the oldest available epithet for this plant.

This species is still to be found on the dry sides of most of the Marquesas and on the smaller, low dry islands of the group.

Alyxia R. Br., Prodr. 469, 1810, nom. cons.

Gynopogon Forst., Char. Gen. 18, 1775; 35, pl. 18, 1776, nom. rejic.

Shrubs or more usually woody vines, sparingly lactiferous; leaves opposite or whorled; flowers small, in few-flowered axillary cymes, sepals free or almost so,

[1] National Museum of Natural History, Smithsonian Institution, Washington D. C. 20560.

[2] St. John, Le Naturaliste Canadien 98: 561–581, 1971, has shown that there exists an earlier edition of the Forsters' Characteres Generum . . . , printed and bound in folio size, with different pagination from the generally known quarto edition of 1776, and published between Nov. 29 and Dec. 22, 1775. Thus names originally published in this work date from 1775 rather than the usually cited March 1, 1776. Only two copies of this earlier edition are known, one in the British Museum library, the other at the Linnean Society, London.

Micronesica 10(2):251-256: 1974 (December).

today for a "money-conscious" administration to misconstrue the extra time that ultimately will be available for greater student-faculty contact as instead an opportunity for staff reduction. The latter could be a costly proposition for schools where such cutbacks in staff result in a serious erosion in the quality and diversity of basic programs.

This brings me to a thought foremost in my mind; namely, is Audio-Tutorial the only means of achieving the advantages that are potentially inherent in its adoption? That is, are there other "systems in which the student could work successfully at his own pace and in a manner that is basically independent? The answer is yes. Vuke (1964) noted that "if one wanted to modify the (Audio-Tutorial) technique and eliminate the expense of the tape playback equipment, the instructions could be programmed on printed materials." The Position-Programmed approach represents an effort in that direction in which the student is provided with programmed written materials, in lieu of the taped materials for Audio-Tutorial, and pertinent illustrative material (Abell, 1969). In the Auto-Tutorial approach (Bowen, 1968; Bowen, 1969), the use of pertinent do-it-yourself laboratory experimentation is integrated into programmed printed materials in a manner that provides a "learn through doing" learning experience in living biology. Such experiences can be structured into week-long modules which, not only serve to coordinate lecture and laboratory material, but make feasible the use of open laboratories and multi-media enrichment in *non* Audio-Tutorial situations.

LITERATURE CITED

Abell, D. L. 1969. New patterns of laboratory instruction. CUEBS Working Papers, 1:2-8.
Bowen, W. R. 1968. An auto-tutorial approach to teaching biology. Amer. Jour. Botany, 55(pt. 2):740.
Bowen, W. R. 1969. *Experimental Cell Biology*. Macmillan Co., New York.
Ehrle, E. B. 1971. Avoiding the audio-tutorial mistake. BioScience, 20(2):103.
Gering, R. L. 1972. Individualized instruction in education today. Ward's Bulletin, 11(83):1.
Hahn, T. C. 1971. Audio-tutorial instruction: A case study. BioScience, 21(15):814-819.
Postlethwait, S. N. 1967. Teaching tools and techniques: An audio-tutorial approach to teaching. Pacific Speech, 1(4):57-62.
Postlethwait, S. N., J. Novak, and H. Murray. 1964. *An integrated experience approach to learning, with emphasis on independent study*. Burgess Publishing Co., Minneapolis.
Vuke, G. 1964. Book review (*Plant Science — A Workbook with an Audio Program Approach*, by S. N. Postlethwait). Amer. Biol. Teacher, 26(7):528.

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Reflections after the Symposium on Systematic Biological Collections, July 6-8, 1972

F. R. Fosberg
Falls Church, Va.

The basic task of the science of systematic biology is, of course, to construct a system or classification of organisms that will arrange them according to as nearly natural or evolutionary relationships as possible and that will accommodate all species that exist or have existed on the earth. Such a classification will provide a framework on which can be arranged all information that is or becomes available about any and all of these organisms. This is, or course, a continuing responsibility and is the scientific *raison d'etre* of systematic biology. It is the aim of most of the research activities of the workers in the field, and, in a rational intellectual culture, would provide ample justification for the expenditure of whatever financial resources were needed to do it at a modest but steady rate.

However, our culture is neither basically rational nor intellectual, but, rather, is motivated by economic factors or by drives generally translatable into economic terms. This means that to get even minimal continuing support, the results coming from systematic botany must be translatable into economic values because direct, understandable benefits must accrue to the people, who ultimately provide the money. To put is crudely, the man-in-the-street, the average voter and tax-payer, couldn't care less about the scientific aims of systematic botany, in fact, would not know the meaning of the term if he heard it. Therefore, it is very improbable that his representatives who control government expenditures would likely provide much support for it, regardless of our persuasion.

However, information about plants and animals is a salable commodity. Society needs more and more of it, and will continue to. Everyone — from agriculturists to drug manufacturers, military men, timbermen, medical men, ecologists, amateur gardeners, wildlife managers, county planners, and many others — needs biological information of diverse sorts at one time or another. Such information is produced by biologists of all sorts, and any one of them can supply the products of his own specialty. However, the biological classification, product of systematic biology, provides a ready access to all such knowledge that can be associated with a taxon or systematic group.

This classification is the basic system of access to and retrieval of information whether the mechanism of storage and retrieval is a cross file or index, a book, a computer, or a human mind. Without it, biologically organized information would be an impossibility. It is as yet, an imperfect creation. It must provide a natural arrangement of up to 5,000,000 to 10,000,000 species, living and fossil, many of them not even known yet.

C.R. Conf. Int. Cons. Nat. Res. Madagascar
IUCN N.S. Suppl. 36: 152-155, 1972.

Communication 19 Status of floras of Western Indian Ocean Islands

F. R. Fosberg
H.-H. Sachet

The western half of the Indian Ocean is liberally beset with islands, ranging from Madagascar northwest to Africa, with Zanzibar, Mafia, Pemba and, north to the Seychelles and Socotra, northeast to the Laccadives, east to the Maldives and Chagos groups. Ceylon is to the east of these, but its floristic relationships are with India and Malaysia, not at all with Madagascar. Hence, except to say that we are presently concerned with a revision of its flora, we will disregard it in the present context.

The principal groups of islands in the western Indian Ocean are the Laccadives, Maldives, and Chagos, oriented north to south, west of India and Ceylon; Socotra, the Seychelles, and Mascarenes, with a liberal sprinkling of small coral islands occupying a broad area between the Seychelles and Mascarenes, east of the longitude of Madagascar; the Aldabra and Comoro groups northwest of Madagascar; and Zanzibar, Pemba, Mafia, and Europa just off the African coast.

The floras of these islands may be analyzed into four principal phytogeographic elements : a Malagasic, an African, and Indo-Pacific, and an old endemic one (essentially of groups whose relationships are not clearly understood). These are represented in different proportions in the floras of the groups and islands, somewhat in proportion to their geographic positions in relation to the presumed source areas as well as to their elevations. A few observations on these relations will be offered here as an orientation for a discussion of the conservation situation and to relate it to the Malagasy picture but this is not the time or place for an attempt at a complete analysis.

The Laccadive, Maldive, Chagos, Amirantes, and most of the scattered small islands are sea-level coral atolls. These have poor floras of almost entirely Indo-Pacific affinities, so far as is known. Collections available from some of them are meager, indeed. Their vegetation has been largely replaced by coconut plantations, and some species may have been lost. There are very few endemic species on truly sea-level atolls. However, any remnants of natural, indigenous vegetation that remain should be carefully protected, so that any local species may survive and so that all information on the original nature of these islands may not be lost.

The flora of Socotra is largely African, but with a very strong endemic element. We have not studied it and cannot comment on its status. The island is very dry and there are strong xeromorphic adaptations and many unusual forms.

The Name of the Octopus Tree

F. R. Fosberg*

Brassaia Endlicher (Araliaceae) is a genus of several Australasian species, possibly too close to Schefflera to be maintained. Harms (1894) combined the two but they have usually been kept separate. Monographic studies now in progress by D. G. Frodin may settle this question. One species is a common ornamental in many tropical countries.

Routine checking of the author and place of publication of the name of this species raised two questions. The name in common use is Brassaia actinophylla. This has, by several recent authors, been ascribed to Ferdinand von Mueller and, alternatively, to Endlicher. The Index Kewensis lists Brassaia actinophora Endl. and Brassaia actinophylla F. M., accepting both names as though they were different species.

In his Fragmenta 4: 121, 1864, Mueller describes the species, citing plants from Palm Island and Rockingham Bay, Australia, but does not indicate that the species is new. On page 89 of Endlicher and Fenzl's Novarum Stirpium Decades (1839), Endlicher describes the genus Brassaia and the species Brassaia actinophylla as new, making no mention of B. actinophora. He cites plates 104-106 of his Iconographia Generum Plantarum, in a part of this work that had not yet even been published. The names are accompanied by adequate descriptions and are unquestionably validly published here. Brassaia actinophylla also appears in the index, but in a "Conspectus" or table of contents at the beginning of the Novarum Stirpium Decades, the spelling B. actinophora is used. This seems undoubtedly a lapsus, as it refers to the species described as B. actinophylla on page 89. In Endlicher's Genera Plantarum, Suplementum 1: 1415, 1840, he again describes Brassaia, here referring to the Iconographia, plates 114-116. These plates as well as 104-106 are of completely different plants and no plate of Brassaia appears anywhere in the volume. The parts where the plates of these numbers appear were published in March 1841, well after the date of the Novarum Stirpium Decades.

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Plants of Southeastern Polynesia. 2.

F. R. Fosberg and M.-H. Sachet

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P H Y T A

Vol No. 1 - February, 1976

B O T A N I C A L S O C I E T Y

P E R A D E N I Y A C A M P U S

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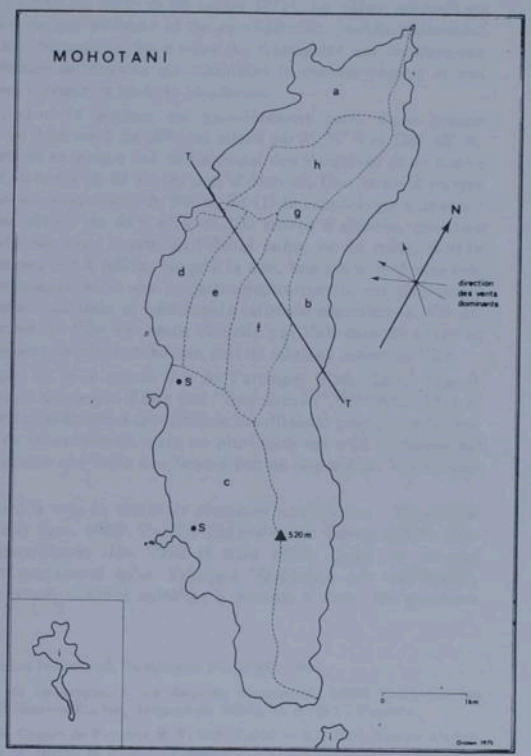
TOME XVI N° 6 / NUMERO 193 / DECEMBRE 1975



Ipomoea indica taxonomy: a tangle of Morning Glories

F. R. Fosberg

Fosberg, F. R. 1976 05 06: Ipomoea indica taxonomy: a tangle of Morning Glories. *Bot. Notiser 129*: 35–38. Stockholm. ISSN 0006-8195.

The correct name of one of the widespread tropical wild and cultivated Morning Glories is determined to be *Ipomoea indica* (Burm.) Merrill, based on *Convolvulus coeruleus* Rumphius. This is lectotypified by *Convolvulus indicus flore violaceo* Besler, Hort. Eyst. Or. 13 Fol. 8 figure 2, 1613. Three varieties of this species are distinguished and the combination, *Ipomoea indica* var. *acuminata* (Vahl) Fosberg, made.

F. Raymond Fosberg, Department of Botany, Smithsonian Institution, Washington, D.C. 20560, U.S.A.

Two of the common large-flowered, often cultivated tropical *Ipomoea* species are characterized by lanceolate or lance-acuminate sepals about 1.5 to 2.5 cm long. They are readily distinguished, though most of the characters that separate them are really not very constant.

One of them is *Ipomoea nil* (L.) Roth, with, as constant features, lanceolate but not or only slightly acuminate sepals with stiff straight patent hairs on the basal parts of the sepals. It usually but not always, has prominently trilobate leaves. There have been rather few difficulties with the nomenclature of *I. nil* except for occasional confusion with the other species under discussion.

The second species is commonly called *Ipomoea indica* (Burm.) Merrill, *Ipomoea congesta* R. Br., *Ipomoea insularis* (Choisy) Steud., or, if interpreted very broadly, *Ipomoea acuminata* (Vahl) R. & S. or *I. cathartica* (Poir.) Steud.

I first learned, in Hawaii, to call this plant *Ipomoea insularis*. Then, mainly on the basis of Merrill's authority but also on a very cursory examination of the plate that it seemed ultimately to rest on, that of *Convolvulus indicus flore violaceo* Besler, Hortus Eystettensis Classis Aestivalis Ordo 13 Fol. 8, II, 1613, I took up *I. indica* (Burm.) Merr.

In all of my Micronesian work I have used *I. indica* without serious question, in the face of more general use of *Ipomoea congesta* R. Br. on the strength of van Ooststroom's authority. He rejected *I. indica* as of doubtful typification, but without a detailed discussion.

In recent years van Ooststroom has taken up *Ipomoea acuminata* (Vahl) R. & S. 1819 (non R. & P. 1799) for this species, advising E. H. Walker (in litt.) that this was the correct and older name, acceptable since the earlier *I. acuminata* R. & P. is illegitimate. I strongly questioned this, since an earlier homonym prevents the use of a later one even though the earlier one is illegitimate (ICBN Art. 64). However, on the basis of this I have taken occasion to re-examine the entire matter before publication of the Convolvulaceae for the Flora of Micronesia, especially since all of the recent and current principal experts on Convolvulaceae reject *Ipomoea indica*. They do not question the priority of the epithet *indica*, but do question its application to the plant in question and whether it can be satisfactorily typified (van Ooststroom 1940 pp. 500–503, O'Donell 1959 pp. 134–139, Verdcourt 1957 p. 231, Austin 1975 a p. 192, Powell 1975, Austin 1975 b).

Merrill, in taking up *Convolvulus indicus* Burman and transferring it to *Ipomoea* merely

GEOGRAPHY, ECOLOGY, AND BIOGEOGRAPHY

F. R. FOSBERG

ABSTRACT. Geography is distinguished from other earth sciences as the discernment and delineation of landscape patterns, interpreting the structures and processes that give rise to them, and developing an understanding of their significance in biological and human terms. Ecology is the study of ecosystems, especially local ones, as contrasted with regional, continental, or global ecosystems, which are better treated as part of geography. Biogeography is a subscience of geography comprising the components of geography that are principally concerned with biological organisms. KEY WORDS: *Agriculture, Biogeography, Botany, Chorology, Earth sciences, Ecology, Environmental influences, Fauna, Fisheries, Flora, Forestry, Physiology.*

I am a botanist—by training and interest a systematic and floristic one, but with a strong inclination toward vegetation science, ecology, and ecosystem theory. I also have a habit of meddling in any other field that sufficiently interests me, including geography, which interests me very much. Some people call me an ecologist or a conservationist, though I have had little or no formal training in these fields, but I have a strong interest in both.

It is a bit presumptuous for a person nominally belonging to one discipline to discuss the nature and subject matter of another, and perhaps three times as presumptuous for him to discuss the relationships between three other disciplines. It might also be said that discussion of the meanings of such terms as geography, ecology, and biogeography is a mere semantic argument, and therefore, presumably, of no importance. On the other hand, it may be held that what is under discussion is the nature and structure of a segment of science, itself, surely a matter of legitimate interest to anyone who professes to be a scientist.

Some of my ideas, including the belief that geography is one of the most important of all sciences, are familiar to some of you. I have occasionally needled you on the subject of what geography should be doing—that you could very properly be devoting major attention to the field that the name geography suggests—the description of the earth. Taken in its widest sense this excludes only astronomy, astrophysics, cosmology, and like sciences. Physiology, psychology, and theology may likewise be disregarded, though they may at times have a bearing on geographical matters.

Geography in this broad meaning merits the remark that Frank E. Egler once made about the Anglo-American concept of ecology—it is a fit subject for an encyclopedia, but far too inclusive for a scientific discipline. If this be so, then what is, or should be, the scope of geography? I have heard many opinions and little agreement among geographers on this subject. Some of them want to keep the earth and everything in it as their subject matter. Others are afraid of such an enormous assignment. Still others are only interested in certain aspects of it, such as man.

Ecology has a similar problem, unless restricted as some, especially Continental European, ecologists do, to a study of the environment of organisms. The Anglo-American school and, I find, many others, like to regard it as the study of the relationship between organisms, including man, and their environment—the "subject for an encyclopedia."

It is not unimportant that these questions be resolved. The ability to communicate clearly demands it. Perhaps as important considerations, also, are interdepartmental harmony, facility to justify requests for support, a suitable basis for interdisciplinary cooperation, a clear formulation of research goals, and, above all, an adequate framework for organizing and understanding the results of geographic and ecologic research.

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A New Name and Combinations in the Gesneriaceae *

by

WILLIAM L. THEOBALD AND DONALD A. GRUPE

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chological perspective. He argues that any type of educational change, be it the new math, the new physics, busing, decentralization, integration, etc., must consider the nature and structure of the school setting.

Deschooling Society. Ivan Illich. Harper & Row. $5.95.

Pedagogy of the Oppressed. Paulo Freire. Herder & Herder. $5.95.

Two bold and provocative books that are critical of our social values and institutions and at the same time call for revolutionary change. In his attack against compulsory schooling, the one all-embracing dogma of our times, Illich argues that universal schooling is economically unfeasible, socially divisive, and that it subordinates learning to teaching. He concludes that schools must be phased out, and suggests that the educational functions of a "deschooled society" can be better carried out through learning and educational webs.

Paulo Freire advocates a new pedagogical theory which will liberate the individual, particularly the "oppressed," from the dehumanizing influences of the existing educational institutions. This theory entails the active and reflective participation of the learned, and the latter's consciousness of his oppressed status. The theory was successfully applied in the education of illiterate peasants in Latin America.

LEONARD W. DOOB

Power and Society in Africa. Jacques Maquet. McGraw-Hill. $2.45.

An anthropological analysis of the institutionalized and non-formalized interpersonal relations of traditional African societies which, like groups everywhere, once provided or still provide their peoples with rules more or less adapted to the realities of the environment, the cultural heritage, and the pressing challenges of the present and future. Broadly but cautiously, often with the aid of typologies, the experienced, astute author guides the reader through the colonial period and into the perplexities of independence. The power relations obviously persist and affect contemporary Africa. The book contains, not unexpectedly, kinship diagrams, but it also offers over five dozen penetrating black-and-white photographs.

Sentences Children Use. Paula Menyuk. M.I.T. $1.95.

A technical analysis of studies dealing with acquisition of language by normal and deviant children between the ages of 2 and 7, with special emphasis upon the ways in which they absorb or try to absorb the syntax of the speech patterns through which they become socialized. The non-specialist may be bored or baffled by the elusive theorizing, but with patience he will realize afresh how incredibly miraculous it is that children can ingest and then forever after be affected by the structure of their native language. And new vistas, such as the generative view of Chomsky which is made to pervade this summary because it seems able to subsume so many of the facts, merit acclaim by anyone wishing to grasp both children and himself.

Understanding and Counseling the Suicidal Person. Paul W. Pretzel. Abingdon. $5.95.

A popular but sufficiently dignified account of what is known, or what we think we know about "people who kill themselves," the title of Chapter 1. And so the views of philosophers, psychologists, psychiatrists, physicians, sociologists, and clergymen are cleanly summarized 'mid statistics and anecdotes. It is to be doubted that their combined efforts produce a "science of suicidology," rather we are driven to the author's own studiously modest viewpoint, obtained from the Viennese Sage, that "suicidal behavior has a multiplicity of motivations and appears to be best understood in terms of the specific person." "Preventing suicide," another chapter heading, is therefore no easy task, and the advice therein given is both banal and useful.

Governing without Perspective: An Irish Perspective. Richard Rose. Faber & Faber. $6.

A truly comprehensive dissection of the struggle in contemporary Northern Ireland between two subcultures to which the somewhat misleading labels of Catholics and Protestants are usually applied. That struggle is first explained historically and then described minutely within the bizarre political structure imposed upon Ulster when the rest of Ireland became independent in 1920. The reactions of a carefully selected sample of over a thousand persons to a well designed survey in 1968 provide considerable "perspective" concerning values, beliefs, and attitudes. As the book's title suggests, the facts and fantasies of this tragic problem are admirably related to more general political theory. No easy solution to the conflict either in the short or long run is offered because there is none, and the account ends with a pessimistic thump.

Race and Intelligence. Edited by Ken Richardson and David Spears. Penguin. $1.45.

A reexamination by a group of British psychologists, educators, biologists, and sociologists of the ancient, controversial problem of heredity and environment as they relate to man's behavior, achievements, and status. The collection of essays is by and large so well organized that they appear to have originated in a single skull possessing knowledge of recent investigations and of the ethical and political issues they raise. Yes, of course, all of us are a product of both our genetic and cultural heritage, but the weight to be assigned the two factors varies so dramatically from person to person and from situation to situation that the issues here lucidly set forth must be perennially assessed.

The Analysis of Subjective Culture. Harry C. Triandis. Wiley. $16.95.

A sustained effort to grasp "a cultural group's characteristic way of perceiving its social environment" (which is the definition of the semi-neologistic term, "subjective culture") by interviewing samples of Americans, Greeks, Indians, Japanese, and nationals in other European and Asian countries. Careful research of this type requires writing that employs special jargon (pardon, theoretical constructs) and statistical analyses that cannot be grasped or learned with dispatch. The ensuing generalizations, however, are usually worth the painful struggle.

RICHARD BEALE DAVIS

Who Are the Major American Writers? A Study in the Changing Literary Canon. Jay B. Hubbell. Duke. $11.75.

A perceptive evaluation of reasons for American literary reputations as well as a history of changing styles or fashions in critical estimates. A fine work by a veteran literary historian.

The Papers of Benjamin Franklin. Vol. 15, January 1, 1768, through December 31, 1768. Edited by William B. Willcox. Yale. $17.50.

The Papers of Thomas Jefferson. Vol. 18. November 1790 to March 1791. Edited by Julian P. Boyd. Princeton. $20.

The Papers of James Madison. Vol. 7, 1783-1784. Edited by William T. Hutcherson and William M. E. Rachal. Chicago. $16.

Three new volumes in three superbly edited series of letters and other materials written by and to our founding fathers. The first volume of Jefferson in several years, this again contains great reasoned head-note essays on a variety of subjects, with of course the Jefferson-Hamilton struggle beginning to assume gigantic proportions. Madison is here completing his first period as a delegate to the Congress of the Confederation, and Franklin is shown at work in London as British ministry and colonies continue on their collision course. All eminently readable and informative.

Early Negro Writing 1760-1837. Edited by Dorothy Porter. Beacon. $20.

This well-selected collection of rare early Negro writing has been gathered by an expert and includes dozens of significant social, educational, and political documents as well as belles-lettres.

Fifteen American Authors before 1900. Edited by R. A. Rees & E. N. Harbert. Wisconsin. $12.50.

Articles in American Studies 1954-1968. A Cumulation of the Annual Bibliographies from AMERICAN QUARTERLY. Edited by Hennig Cohen. Pierian. 2 vols. $24.

Two useful research tools for the Americanist are these volumes, the first, evaluating significant authors not included in *Eight American Authors*, makes a choice of writers hard to quarrel with. *The American Quarterly* volumes are more suggestive than inclusive in their representation, but they can never be overlooked in pursuing a dozen areas of our civilization.

Virginia: The New Dominion. A History from 1607 to the Present. Virginius Dabney. Doubleday. $12.

The History of the Province of New-York . . . to 1762. William Smith, Jr. Edited by Michael Kammen. 2 vols. Harvard-Belknap. $25.

The New York history, a beautifully edited edition, is already a classic, with facts and opinions blended in an account still very much alive. Dabney's *Virginia* is already the standard, and may perhaps become the classic, one-volume history of the first colony-state. It may well be taken as a model of concise, lucid prose.

Hawthorne and the Historical Romance of New England. Michael Davitt Bell. Princeton. $7.50.

Hawthorne's Early Tales, A Critical Study. Neal Frank Doubleday. Duke. $7.75.

(continued on back cover)

The woody Rubiaceae of Aldabra Island (Indian Ocean)

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The Rubiaceae of Aldabra have appeared baffling, even to one who claims some special knowledge of the family. The herbaceous members have been dealt with in another paper (Kew Bull. 33: 136-140, 1978). The woody species, of which there are eight, require some more detailed comment than is appropriate in the flora, and one troublesome new species should be described, and placed on record.

With two exceptions these species are principally components of the mixed scrub vegetation type, common on the "platin" and "pavé" limestone surfaces. This is a sclerophyllous scrub and many of its members show a striking similarity in habit, leaf form and texture, presumably related to the severe climate and drainage environment in which they live, perhaps also to the highly calcareous substrate. A related problem is that many of the available specimens were collected when not at their best, as much of the field work has been done in dry seasons, or, as in the 1968 field season, when expected rains failed. Hence the characters useful in taxonomic investigations are not well exhibited.

In addition to these local sources of difficulty, the classification of the Rubiaceae, especially of the Ixoreae and related tribes, has undergone some drastic overhauling by Bremekamp, Verdcourt and recently by Tirvengadum, which is probably not yet finished. The distinctions between the genera Pavetta, Tarenna, Ixora, Myonima and others seem very tenuous, even after the lengthy exposition by Bremekamp in his monograph of the genus Pavetta L. (Fedde, Repert. 37: 1-208, 1934). This is not an appropriate place to go into these problems, but it does seem advisable to describe the Aldabra species in more than ordinary detail and to discuss their peculiarities. This study casts some doubt even on the assignment of the genus Tricalysia A. Rich. to the tribe Ixoreae. The development of the fruiting placenta, with the seeds deeply embedded in it, suggests that it might equally well go into the Gardenieae, though not all characters support this.

To make the account of the nomenclature complete, all the woody species of the Aldabra group are listed and described with their synonymy and notes of interest, even though, as in Guettarda speciosa and Canthium bibracteatum, no particular taxonomic difficulties are evident. Guettarda speciosa proves to be clearly heterostylous.

Miscellaneous notes on the flora of Aldabra and neighbouring islands: VII.*
Eugenia elliptica var. *levinervis (Myrtaceae)*

F. R. Fosberg‡

Summary. Eugenia elliptica Lam. is discussed and a new variety described.

One of the very local plants on Aldabra Atoll is a shrubby *Eugenia* of the group sometimes segregated as the genus *Jossinia* Commerson ex DC. *Jossinia*, at least as I know it, does not seem separable, even sub-generically, from *Eugenia* L. sensu stricto, as typified by *E. uniflora* L. *Jossinia* has not been typified, to the best of my knowledge. According to the description its type should have polyspermous fruits. Those species that I have examined seem to be usually monospermous.

I originally referred the Aldabra plant to *Eugenia cotinifolia* Jacq., because of its similarity to Mascarene plants so-named in several herbaria. However, the origin of Jacquin's specimen is highly dubious, though likely to be American, and his plate is not much like the Aldabra plant. The latter resembles a group of African species, especially one which has been called *E. bukobensis* Engler. The latter name seems to be illegitimate because of the citation of *E. cotinifolia* var. *elliptica* (Lam.) Baker ex Engler in synonymy. This constitutes a clear indirect reference to *E. elliptica* Lam., an available validly published legitimate name for a Mascarene species. Hence *E. bukobensis* cannot be used. Our plants seem, however, reasonably close to *E. elliptica*, differing principally in the less prominent venation and in having only 1–2 rather than 4–7 pedicels at a node. It is, therefore, described as a variety of that species, found, so far as known, only on Aldabra, where it is very rare and local.

Eugenia elliptica *Lam.*, Encycl. Méth., Bot. 3: 206 (1789). Type: Mauritius, *Commerson* (P-LA? not seen).

E. cotinifolia sensu Baker, Fl. Maur. Seych.: 114 (1877) pro parte, quoad no. 5, *E. elliptica* (treated as a variety but the combination not made).
Eugenia cotinifolia var. *elliptica* (Lam.) Baker ex Engler & Niedenzu in Engler, Pflanzenw. Ostafrikas, C: 287 (1895).
Jossinia elliptica (Lam.) DC., Prodr. 3: 232 (1828).
Eugenia bukobensis Engler, Notizbl. Bot. Gart. Berlin 2: 290 (1899) nom. superfl. illegit.

var. **elliptica.**

This is known from Mauritius and probably is more widespread. It is

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Miscellaneous notes on the flora of Aldabra and neighbouring islands: VIII.*
Hedyotis subgenus *Oldenlandia (Rubiaceae)*

F. R. Fosberg‡

Summary. Hedyotis corallicola and *H. prolifera* are described as new; *Oldenlandia lancifolia* var. *brevipes* Bremek. is transferred to *Hedyotis*. The combination *Hedyotis sieberi* is also published for the first time.

The Aldabra plants that have been referred to *Oldenlandia* L. have given trouble to everyone who has had to deal with them (see discussion below under *Hedyotis prolifera*). Bremekamp (1952, see below), in his monograph of the African species of *Oldenlandia*, did not include the Mascarene species, making a modern identification difficult. In the present paper two new species are described and one previously known African variety is recognized. Since I prefer to accept *Hedyotis* in a very broad sense, these species and the variety are placed in that genus.

Hedyotis *L.*, Sp. Pl.: 101 (1753); Gen. Pl.: 44 (1754).

Oldenlandia L., Sp. Pl.: 119 (1753). Gen. Pl.: 55 (1754); Bremekamp, Verh. K. Nederl. Akad. Wetensch. Natuurk. II, 48(2): 1–297 (1952).

Habit various. *Leaves* opposite (rarely whorled), entire; stipules interpetiolar, low-triangular to somewhat sheathing, entire or pectinate. *Inflorescence* axillary or terminal, cymose or thyrsoid, or flowers axillary in close verticels or solitary; flowers sessile or pedicellate, usually 4-merous. *Corolla* salverform to funnelform, tube short to somewhat elongate, cylindric, dilated upward, or somewhat urceolate. *Stamens* usually attached below sinuses, rarely basal. *Style* with 2 branches stigmatic on inner faces. *Fruit* a capsule, globose, turbinate, cup-shaped or somewhat compressed, crowned by persistent calyx, disk flat or elevated, with dehiscence loculicidal, septicidal, or both, rarely indehiscent; locules 2 with axile more or less fleshy placentae covered by seeds, these various, usually angular by compression, rarely angles winged, hilum superficial or in a pit.

Pantropical, some temperate species, many African and Asiatic species.

Key to species of Hedyotis in the Aldabra group

1. Flowers strictly axillary, pedicels predominantly one at a node:
2. Leaves sharply pointed, scabrous, not tending to be crowded
lancifolia var. **brevipes**

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Miscellaneous notes on the flora of Aldabra and neighbouring islands: IX.* The native Aldabra *Solanum*

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Summary. Solanum aldabrense C. H. Wright is discussed and reduced to varietal rank under *Solanum indicum* L.

Solanum aldabrense C. H. Wright, a member of the widespread complex usually called *S. indicum* L., has generally either been maintained as a distinct localized species or has been regarded as a synonym of *S. indicum*. After some study and comparison it is here regarded as a variety of *S. indicum*, endemic to Aldabra and nearby islands, as discussed below. It seems closest to the forms found in Ceylon rather than those on the African mainland.

Solanum indicum *L.*, Sp. Pl.: 187 (1753).

var. **aldabrense** (*C. H. Wright*) *Fosberg* comb. nov.

Solanum aldabrense C. H. Wright in Bull. Misc. Inf. Kew 1894: 149 (1894); Schinz in Abh. Senckenb. Naturf. Gesellsch. 21: 89–90 (1897); Voeltzkow in Abh. Senckenb. Naturf. Gesellsch. 26: 551 (1902); Hemsley in Bull. Misc. Inf. Kew 1919: 126 (1919); Bitter in Fedde, Repert. Sp. Nov., Beiheft 16: 110 (1923); Fosberg in Phil. Trans. Roy. Soc., B, 260: 218, 225 (1971); Renvoize in Phil. Trans. Roy. Soc., B, 260: 231 (1971) & in Kew Bull. 30: 151 (1975). Type: Aldabra, *Abbott* (K, holotype).
Solanum indicum sensu Hemsley in Bull. Misc. Inf. Kew 1919: 126 (1919).

Prickly *shrub* to 1 m, rarely 2 m tall, intricately branched and spreading. Stems sparsely or subsparsely minutely stellate-pubescent, prickles broad-based, somewhat recurved, short, varying in number but apparently always some present. Leaves elliptic to very broadly ovate or sub-orbicular, 3–4·5(–5) × 2–3·5(–4) cm, apex usually obtuse, rarely bluntly subacute, base truncate to obtuse, sometimes somewhat decurrent on petiole, margins sinuate to broadly 2–3-lobed, much more deeply lobed on young plants or fast-growing shoots, on young plants querciform with secondary lobing on lobes, blades green but plentifully stellate-pubescent, more so beneath, variably sparsely prickly on both surfaces, the prickles narrower-based and straighter than those on stems, bases blackish purple, distally yellow; petiole 1–2·5 cm, usually with 1–5 recurved prickles, prickles on plant 1–3 mm long, some plants with very few. *Inflorescence* a slender helicoid cyme or perhaps more

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Miscellaneous notes on the flora of Aldabra and neighbouring islands: X.*
The Aldabra *Clerodendrum (Verbenaceae)*

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Summary. Clerodendrum minutiflorum Baker is reduced to a variety under *C. glabrum* E. Meyer.

The rather common shrub described by Baker as *Clerodendrum minutiflorum* seems to fall well within the limits of the widely distributed African *C. glabrum* E. Meyer. Its usually coarser habit and other minor characters seem to justify its retention as a variety.

Clerodendrum glabrum *E. Meyer*, Comment. Pl. Afr. Austr. 1: 273 (1838), Fosberg in Phil. Trans. Roy. Soc., B, 260: 218, 225 (1971); Renvoize in Phil. Trans. Roy. Soc., B. 260: 230 (1971), & in Kew Bull. 30: 151 (1975). Type: South Africa, Basche R., *Drège* (LUB, holotype†; K, PRE, isotypes, not seen).

An extremely variable African species with a very wide distribution, extending over the whole of southern Africa, north to Angola in the west and north through East Africa to Kenya and Uganda; missing from Madagascar but possibly represented there by *C. humbertii* Moldenke, which seems similar in many respects. *C. glabrum* is found in one of its forms on Chole Island, near Mafia.

This species varies widely in leaf size and shape, as well as in the density and nature of the indument of the young parts, inflorescence, and flowers. *C. minutiflorum* Baker seems to fall well within this range of variation, so that it is appropriate to combine the two. The only feature noted in which they rather consistently differ is in the margin of the calyx, which in African specimens has prominent triangular to triangular-acuminate lobes, while in Aldabra material it is from subtruncate to minutely denticulate or with very low obtuse scarcely denticulate lobes. This, with a tendency toward wider, sometimes even subcordate, leaves, seems to warrant maintaining it in varietal rank. A number of varieties have been proposed for mainland African plants, mainly on leaf characters, but none matches this island population.

var. **minutiflorum** (*Baker*) *Fosberg* comb. nov.

Clerodendrum minutiflorum Baker in Bull. Misc. Inf. Kew 1894: 150 (1894); Schinz in Abh. Senckenb. Naturf. Gesellsch. 21: 90 (1897) & Voeltzkow in Abh. Seneckenb. Naturf. Gesellsch. 26: 552 (1902); Hemsley in Bull.

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Miscellaneous notes on the flora of Aldabra and neighbouring islands: XI.* Critical notes on *Euphorbiaceae*

F. R. Fosberg**

Summary. New taxa in *Euphorbia* and *Phyllanthus* are described and combinations in *Margaritaria* are made for the first time.

The *Euphorbiaceae* are relatively well-represented in the Aldabra Group, and all but one or possibly two of the native taxa seem to be endemic. In this paper *Phyllanthus anomalus* (Baill.) Muell.-Arg. and *Phyllanthus cheloniphorbe* Hutch. are transferred to *Margaritaria*, the latter as a variety of the former. One new species and one new variety are described in *Phyllanthus* and the variation in *P. casticum* Willemet f. is mentioned and the large Aldabra *Phyllanthus* is referred to it. Two new species are described in *Euphorbia* subgen. *Chamaesyce*.

Euphorbia mertonii *Fosberg* sp. nov., planta herbacea perennis glabra caulibus pluribus prostratis e radice perenni tegetem laxam efformantibus; folia ovalia vel late obovata vel oblonga 10 × 5 mm perpurpurea, stipulis subulatis 2–4 interpetiolaribus; cyathia 1–1·5 mm in ramulis brevibus terminalia, lobis fimbriatis, ovariis late-oblongis valde cernuis lobatis; capsula 1–1·2 × 1·2 mm, semine salmoneo ovoideo-quadrangulari obtuso lateribus transverse rugosis. Typus: Aldabra, *Fosberg* 49045 (holotypus US; isotypi G, K, MO, NY).

Prostrate *herb*, entirely glabrous, forming a loose mat from a strong taproot, probably perennial; stems several to many from root-crown, wiry, slender, branched, glabrous, up to 35 cm long, greenish to purplish, drying glaucous. *Leaves* maroon-purple, oval to broadly obovate, or somewhat oblong, up to 10 × 5 (rarely 12 × 8) mm, apex rounded, base notably obliquely rounded to subcordate, margins entire to obsoletely serrulate, venation obscure except for the midrib and one pair of veins arising somewhat above base; petiole 1–1·5 mm long; stipules subulate from broadish base, 2–4 on a side, or variously grown together into 2 or 1 with several subulate processes on margin. *Cyathia* borne terminally or on uppermost nodes, 1 or several on small branches, sometimes as many as 5–6 on a branch, campanulate, just over 1 mm long and wide, reaching 1·5 mm, on pedicels 1–3 mm long, fertile branchlets usually with strongly reduced leaves; lobes of margin of cyathia triangular to lanceolate, fimbriate or slightly so, glands 4–5 disk-like to reniform, with a very narrow whitish margin. *Ovary* broadly

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WHAT'S HISTORY TO HIM OR HE TO HISTORY THAT THE SYSTEMATIST SHOULD BOTHER

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The sytematist writes on a label "the glory and the nothing of a name". Some systematists insist that names are but handles, impersonal and non-aligned names. What is history to him? *Dolichos lablab* – have you ever wondered what mind left us that name? The Law of Priority actually binds systematics to history. In his search for the oldest valid name the systematist confronts history with something between annoyance and resignation. To verify the type specimen and to verify the publication of the name, he has met history. In the thickets of synonymy he met history – for example, the grass *Cynodon dactylon* (L.) Pers. has twenty-one synonyms; *Agrostis hiemalis* (Walt.) B.S.P., at least thirty. History is work. It requires more work than it used to, but today we have more answers. History is insurance: against wrong association, wrong inference, and ultimately the wrong decision. Really, history is a servant.

WHAT ARE SOME OF THE HISTORICAL PROBLEMS?

Firstly, to determine with accuracy the place of collection of the critical type specimen (Ewan, 1937). Boundaries have often shifted, and there are repetitive place names: Barbuda and Barbados, Granada and New Granada (Howard, 1977: 106). Merrill remarked to me that old gazetteers are essential tools for the taxonomist. There are changes that have transpired with time: for example, Marietta, way up the Mississippi on the Ohio River, was once a port for West Indian trade in the late 18th century. Until I perceived that fact I was puzzled that William Bartram could have drawn the West Indian cucurbit, *Momordica charantia* L., and I remembered that his father, John Bartram, likely met with it at Marietta (Ewan, 1968: 54). Nariño, once a Departmento of Ecuador, was so labelled by William Jameson; today the specimens fall in the Colombian flora (Ewan, 1948: 232). On the contrary, William Lobb's collections from "Peru" were really Ecuadorian from Loja (ibid.: 235). Some place names (fincas most likely) such as "Monte del Moro" on Purdie's labels are persistent problems, yet with the Colombian flora markedly differentiated in the three cordilleras it is important to know the origin of a specimen (Ewan, 1948: 90).

ACCIDENTS OF TRANSPORT

What do Candle-nut (*Aleurites moluccana* (L.) Willd.) which bears an Hawaiian name 'Kukui' and is thoroughly naturalized, and the Piñon pine (*Pinus edulis* Engelm.) have in common? Both were transported by Man: the Candle-nut taken north to Hawaii by the Polynesians, and the Piñon carried by the Indians north to Larimer County,

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