belonging to the following five families: Dicruridæ, Vangidæ, Campophagidæ [*lege* Campephagidæ], Laniidæ and Prionopidæ. The peculiar genus *Aerocharis* is here in the Vangidæ, but should constitute a family by itself—Aerocharidæ.

The genus *Edolius* is synonymized with *Dicrurus,* and *Abbottornis* with *Artamia;* while the several subdivisions of *Lanius* (*Fiscus, Enneoctonus, Phoneus* and *Otomela*), which have not even consistent color characters for their separation, are all given full generic rank. The generic name *Telophorus* Swainson is very properly given a place instead of *Pelicinius* Boie; but no satisfactory generic characters for the group so designated are given to separate it from *Chlorophoneus,* or either of these from *Laniarius.* The name *Tschagra* Lesson is used for the group commonly known as *Telephonus* Swainson, but this should be called *Pomatorhynchus* Boie, as contended by Dr. Reichenow.

Only a single species—*Vanga griseipectus,* from southern Madagascar—is described as new. Our author considers *Laniarius abbotti* inseparable from *Laniarius nigrifrons,* but it seems to us to be distinct. Likewise all the readily recognizable subspecies of *Dicrurus adsimilis* (here called by the preoccupied name *Dicrurus afer*) are ignored.

On the eight colored plates fourteen species, including the one here first described, are figured. These plates are by Mr. H. Grönvold, and remind us not a little of the work of the late Mr. J. G. Keulemans.

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BOTANICAL NOTES

ANOTHER AFRICAN PLANT ENUMERATION

A SHORT time ago the writer reviewed Muschler's "Flora of Egypt",[1] and referred particularly to the absence of certain plants, or types of vegetation from the region included in that work (the lower Nile Valley, southward to Nubia), and now we have a contribution from South Africa which permits of some striking contrasts. This second publication is a "First Check-List of the Flowering Plants and Ferns of the Transvaal and Swaziland," by Professor Joseph Burtt-Davy and Mrs. Reno Pott-Leendertz,[2] constituting a 66-page octavo pamphlet, in contrast with the two volumes by Muschler. Yet in this little pamphlet we find enumerated 3,264 species, against 1,632 in the larger work. Moreover, the geographical area covered by the South African pamphlet (117,000 square miles) is less than half that covered by the Egyptian book.

Running rapidly through the check-list, the following numerical data attract attention. There are here recorded 97 species of ferns, including one *Marattia,* 5 Hymenophyllaceae and 78 Polypodiaceae. One finds also of *Equisetum* 1, *Lycopodium* 6 and *Selaginella* 5 species. The conifers are represented by *Podocarpus* (3 species) and *Widdringtonia* (1 species).

Of the grasses there are 146 native and 44 introduced species, the former including such genera as *Andropogon* (11 species), *Panicum* (19), *Eragrostis* (25), while of the sedges there are given 105 species (*Cyperus,* 27; *Scirpus,* 12; *Carex,* 10). Four palms are listed, and 189 Liliaceae (but no *Lilium*), with such genera as *Anthericum* (31 species), *Aloe* (17), *Scilla* (22) and *Asparagus* (13). Iridaceae with 79 species is notable for its 28 species of *Gladiolus.* So too we may note the 123 species of Orchidaceae (*Habenaria,* 23 species; *Disa,* 18 species; *Eulophia,* 31 species).

To give an opportunity for comparison we may mention further that there are 275 species of Leguminosae (*Acacia,* 33; *Crotalaria,* 12; *Indigofera,* 29) and 52 species of Euphorbiaceae. Anacardiaceae include 43 species (*Rhus,* 36); Tiliaceae, 25 species (but no *Tilia*); Violaceae, 2 species (*Viola,* 1); Ericaceae, 11 species (*Erica,* 10); Asclepiadaceae, 156 species (*Asclepias,* 28); Convolvulaceae, 62 species (*Convolvulus,* 14; *Ipomoea,* 37); Labiatae, 103; Scrophulariaceae, 138; Acanthaceae, 108; Cucurbitaceae, 230. Of Compositae there are 304 species (*Vernonia,* 14;

[1] SCIENCE, December 20, 1912.

[2] *Annals Transvaal Museum,* 1912.

Helichrysum, 59; *Senecio*, 36; *Aster*, 3; with no *Solidago*, and no *Helianthus*).

Of trees there are many species, but nearly all belong to genera unfamiliar to northern readers. Thus while there are two willows (*Salix*), one *Celtis* and 13 species of *Ficus*, there is no *Pinus, Picea, Abies, Ulmus, Fraxinus, Acer, Juglans, Quercus, Fagus, Castanea, Betula* or *Alnus*.

The authors are to be congratulated upon having brought out so creditable a list of the plants of their country, and we may express the hope of the botanists of the northern hemisphere that they will be encouraged to follow it soon with a descriptive manual.

GREENE'S "CAROLUS LINNAEUS"

At the Linnaean bicentenary memorial exercises held in Washington Dr. Edward Lee Greene gave a notable address (now issued in a little book of 91 pages by the Cower Company of Philadelphia) in which he discussed with rare perspicacity and scientific sympathy the life of "the matchless Swede," Linnaeus. In it he discussed the lineage and childhood of Linnaeus, his school, college and university years; his journey to Lapland; journey to Germany and Holland; his practise of medicine in Stockholm; appointment to be a professor at Upsala, and his influence upon botany. Under the last head Dr. Greene says:

> It will be difficult to bring the average botanist of to-day to a realization of how great an epoch in botany Linnaeus created when he began examining the stamens of every plant, with the purpose of ascertaining into what one of his twenty-four proposed classes of flowering plants each generic type must fall. And though it be true that the classes and orders of Linnaeus fell into disuse three quarters of a century ago, it is true to-day that every botanist, from the mere beginner in taxonomy to the most accomplished master of it, if he have a new and unknown plant in hand for determination, makes his final appeal to stamens and pistils. . . . In this procedure every botanist who lives is distinctly a disciple of Linnaeus.

The last chapter of the little book, on Linnaeus as an evolutionist, was prepared two years later (1909) and brings out the fact that the great botanist was by no means the believer in the "fixity of species" that we have been led to believe. After quoting from the "Philosophia Botanica" which "excludes every idea of a possibly evolutionary origin for any species of plant," Dr. Greene says: "And yet, Linnaeus was an evolutionist," and proceeds to quote later statements which indicate that as the years went on he came to the view that some species may have been derived from preceding species.

The book should be in the hands of every teacher of botany, and we may add zoology, also, since there is a short but very suggestive chapter by Dr. Wm. H. Dall on Linnaeus as a zoologist.

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SPECIAL ARTICLES

MAGMATIC DIFFERENTIATION AT SILVERBELL, ARIZ.

In the course of a study of the ore-deposits of Silverbell, Pima County, Ariz., some interesting facts bearing upon magmatic differentiation were noted. A detailed description of this district has been published,[1] but as that paper is largely devoted to problems in economic geology, it seems advisable to summarize here the facts of interest to petrologists. The region described consists of a complex of late Mesozoic or early Tertiary intrusives entirely surrounding detached blocks of highly metamorphosed limestone. The igneous rocks in the order of intrusion are (1) alaskite, (2) alaskite porphyry, (3) granite, and biotite granite porphyry, and (4) quartz porphyry (dacite porphyry?). Many complex flows of basic composition are found just outside the area studied. The chief problem is the origin of the biotite granite, which is believed to represent a differentiation product of the magma from which the alaskites came.

The alaskite is a light gray rock, consisting almost entirely of quartz and orthoclase, the grains averaging about a half a centimeter in diameter. It contains a little plagioclase, and very rarely shows biotite or hornblende. It is bounded on one side by the later intrusion of

[1] *Bull. Amer. Inst. Min. Eng.*, May, 1912, pp. 455–507.