

Southern India and Ceylon, and the highest points of which we recognise in the volcanic peaks of Bourbon and Mauritius, and in the central range of Madagascar itself—the last resorts of the mostly extinct Lemurine race which formerly peopled it. When Wallace, whose utterances on this subject everyone must read with the greatest interest, puts forward a former junction of Madagascar with Africa as beyond doubt—a junction which, however, must have terminated before the inroad into Africa of the more highly organised mammals—everyone will allow this opinion to be at all events well founded. But when he proceeds to state that the fauna of Madagascar is manifestly of African origin, his assurances are based upon very slender grounds. In truth the individuality of the fauna of Madagascar is so unique that even that of New Zealand can hardly be compared with it. Wallace's attempted parallel between Madagascar and Africa, and the Antilles and South America is, in our eyes, sufficiently disproved by the occurrence in the Antilles of Trochilidæ, one of the most characteristic forms of South America. But in Madagascar not one single one of the genera most characteristic of Africa occurs. This originality of the fauna is much too pronounced to allow Madagascar to be treated of only as a 'sub-region' or as an 'aberrant part' of the Ethiopian region."

To prove this position, Dr. Hartlaub in his interesting introduction to the present work, recapitulates the points in which the avifauna of "Lemuria" approximates to that of India and diverges from that of Africa."

"But the negative evidence," he adds, "is still stronger in the same direction. The groups of Musophagidæ, Coliidae, Lamprotrornithinæ, Buphagidæ, Capitonidæ, Indicatoridæ, Bucerotidæ, and Otidina, so eminently characteristic of Africa, are entirely absent in Madagascar, besides the genera *Gypogezanus*, *Helotarsus*, *Coracias*, *Crateropus*, *Irisor*, *Bradyornis*, *Dryoscopus*, *Laniarius*, *Telephonus*, *Prionops*, *Platystira*, *Saxicola*, *Picathartes*, *Balenceps*, and others, which are remarkably rich in individuals and species in Africa. Besides this, Larks and Chats, which in the African fauna are specially prominent on account of their numerous forms as well as regards their individual and specific abundance, are only represented by a single species in Madagascar itself, and in the rest of the sub-region not at all.

"In conclusion," Dr. Hartlaub adds, "if we take a glance at the families of the Madagascar sub-region as compared with those of Africa, four of these (Meditæ, Paictidæ, Eurycerotidæ, and Leptosomidæ) are peculiar, whilst the Diurnal Accipitres, Pigeons, Honeyeaters, and Cuckoos, are richest in species. In a considerable degree this is also the case with the orders Grallæ and Anseres. As contrasted with Africa the Fringillidæ, Meropidæ, and Sturnidæ (represented by only one genus), are extraordinarily poor. On the other hand, the Coraciidæ, Laniidæ, Artamidæ, Turdidæ, Muscicapidæ, Pycnonotidæ, and Lusciniidæ, are remarkable for their peculiarly modified types, and the Sittidæ, which are quite unrepresented in Africa, for the anomalous form *Hypherpes*."

Such are Dr. Hartlaub's matured views on a subject which he has long had before him, and is, above all persons, qualified to speak.

In concluding our notice we have only to thank him on the part of ornithologists for his convenient and useful volume, and to wish that the Avifauna of many other countries were treated of in a similar manner.

#### OUR BOOK SHELF

*Pollen*. By M. P. Edgeworth, F.L.S. Illustrated with 446 figures. (London: Hardwicke and Bogue, 1877.)

MR. EDGEWORTH informs us in the preface that this work is a considerably altered edition of a paper laid

before the Linnean Society last year, but withdrawn by the author, on account of his omitting to notice the work of other botanists, British and foreign, on the same subject. The work chiefly consists of plates with the explanations and a list of forms of pollen figured by other authors, as well as some general remarks on the forms of pollen in different families. The figures are all drawn to scale, are fairly done, and there can be little doubt that the microscopist who loves pretty objects will promptly avail himself of Mr. Edgeworth's assistance in following up the subject. Very much valuable information is given in this book and it cannot fail to be useful to the scientific botanist. We feel, however, that Mr. Edgeworth does not wholly command our confidence on account of certain blunders he makes. Most of the German botanists have their names misspelt. Thus he always calls Purkinje "Purjinke," Naegeli "Nagili," Rosanoff "Romanoff," Pollender "Pollenden," Luerssen "Leursen." Surely if Mr. Edgeworth had been familiar with the writings of these men, he from merely seeing their names on their papers, would not have blundered so strangely. Then we feel rather doubtful about his references as we have failed to find any paper by "Nagili" in Pringsheim's "Jahrbücher," vol. iii. Naegeli's name does not occur at all in the index to the first ten volumes of Pringsheim's "Jahrbücher." The third volume of the "Jahrbücher" was published in 1863, while Naegeli's paper on the development of the pollen was published at Zurich in 1842. We think the student would hardly find the papers of "Purjinke in Latin," "Fritsche in German" "Pollenden Bonn." Why not refer to the proper title of the book or paper? Pollender has published two papers on pollen, at Bonn, one in 1867, in quarto; another in 1868, in folio. To which does Mr. Edgeworth refer? Then surely it is too late in the day to describe the pollen of the pine as consisting of "2 grains of pollen connected as it were by a broad band" (p. 8); or the pollen of some Acanthaceæ as existing "in a peculiar coil, which can be unwound," in both cases the peculiar development of the extine being overlooked. Altogether, then, the work has slightly disappointed us, but perhaps we should not judge so much by the blemishes we notice in it, as by the undoubted worth both to the amateur and scientific botanist of the figures and references.

*Die Auster und die Austernwirthschaft*. Von Karl Moebius. (Berlin: Wiegandt, Hempel, and Parey, 1877.)

MUCH has been said and more has been written about oysters and their culture. Astonished by large figures many writers wished to astonish their readers in a similar way, and to induce the coast population of all civilised countries to undertake the culture of enormous masses of this most costly of all molluscs. Thus a belief has been widely spread that wherever there was a coast and seawater, oyster-beds could be established and quantities of oysters could annually be obtained without much trouble. The little book we have under notice is therefore well timed. It reduces to their proper and reasonable measure all ideas on this subject in speculative heads, and, as the author owns himself, it will for that reason be hardly welcome to these would-be oyster cultivators. But it will be all the more so to biologists, proprietors of oyster-beds, and the educated public generally, since it contains valuable details of the biology, the peculiarities, and the life-conditions of oysters. It will, we have no doubt, also find a favourable reception amongst those government departments of the various states of Europe and America, whose duty it is to superintend the oyster-fisheries and the natural oyster-beds, since it will offer them a reliable basis for their judgment in adopting or rejecting measures relating thereto. Prof. Moebius gives a very able account of the artificial oyster culture in France, and of the attempts made in this country to introduce the French