

fruit; for whereas all the eastern species have very long appendages to the seed, which are no doubt instrumental in its dispersion, these appendages are very short in the Madagascar species, and are wholly absent in the Seychelle one; which thus presents a case analogous to that of the prevalence of wingless insects on oceanic islets. Lastly, the Seychelle Islands species further differs from all others in the structure of its ovary and capsule.

To sum up, deviation from the type of the genus commences on the western confines of the principal centre of its distribution, namely in Ceylon; and the initial deviation, that met with in the Ceylon species, is the slightest, but is propagated (so to speak) westwards, equally characterising the two African islands Pitcher-plants, which again deviate still further from the type; the maximum deviation, however occurs, not in the great sub-continental Island of Madagascar, where the endemic species has a considerable range; but in the very small oceanic Archipelago of the Seychelles, where the only native species is confined to the one mountain summit of one island of the group!

The only other fact that struck me as bearing upon this subject of distribution is, that though present in the Seychelles, the genus *Nepenthes* is absent from the Mascarene group (Mauritius, Bourbon, and Rodrigues). This is only one instance of the broad distinction that exists between the vegetation of these Archipelagos, and which is in some way connected with the fact that the Mascarene group is volcanic, the Seychelles group formed of granite and quartz. Coincident and perhaps co-ordinate with these phenomena of plant distribution, geographical position, and geological structure, are the facts that the flora of the Seychelle Archipelago is more Asiatic, and the florulae of its several islets very uniform; whilst the florulae of the islets of the Mascarene Archipelago differ wonderfully, and in their totality are more African than Indian. The flora of the Mascarene group may hence be regarded either as a very ancient outlying province of the African, or as consisting of a more modern assemblage of plants, derived at various periods from Africa, but subsequently much altered by causes operating in the several islets; or more probably its peculiarities are attributable to both causes. Long as the Mascarene and Seychelle islets have been colonised, under Dutch, French, and English rule, their floras are still very imperfectly known; so much, however, of Mascarene botany is known, as to show that its relations with those of the Seychelle group and Madagascar, and the relations of all these with India and Africa, are most complicated, and present one of the most puzzling problems in Phytogeographical Science.

Royal Gardens, Kew, Dec. 18 J. D. HOOKER

THE author of the notice which appeared in a recent Number of NATURE is probably unaware that a minute analysis of the "water" found in the pitcher of *Nepenthes* was made a few years since by Dr. Völcker. For full particulars I will refer your correspondent to "Annals and Magazine of Natural History," 27, 4, 128, and "Phil. Magazine," 3, xxxv., 192; but I may perhaps be allowed to give the results of the analysis. My extract is from Liebig and Kopp's "Annual Report, &c." "The liquid was generally clear and colourless, rarely yellowish, and reddened litmus. That which was collected from different plants gave respectively 0.92, 0.91, 0.87, 0.58, 0.62, and 0.27, per cent. of residue, which contained in 100 parts 38.61 per cent. of organic matter, consisting chiefly of malic acid with a little citric acid, 50.02 of chloride of potassium, 6.36 soda, 2.59 lime, 2.59 magnesia."

During the early part of the present year I was led to suspect the presence of some form of tanno-gallic acid in the tissue of the stalk, and the kindness of a chemical friend enabled me to verify my conclusions; but no quantitative analysis has, to my knowledge, been made beyond the one I have referred to.

Hull, Dec. 1

H. POCKLINGTON

#### Cockroaches

THE facts mentioned by your correspondent, Mr. Arthur Nicols (in your number of Dec. 8), are notorious to all West Indians. A friend of mine was marked for life by these things on board a ship coming home from Jamaica.

As for their scent, if you crush one in England it smells evil enough; and I don't doubt Aristophanes's sharp Greek nose had found that out. I have known bread, &c., in the West Indies uneatable from being run over by the small dark Cockroach of England, *Blatta orientalis*; while the great pale species, *B. occidentalis*, is utterly unbearable.

C. KINGSLEY

#### EARED SEALS AND THEIR HABITS\*

THIS paper, which forms the first number of the second volume of the "Bulletin of the Museum of Comparative Zoology at Harvard College in (Transatlantic) Cambridge," is one of great zoological importance, and likewise of much general interest. The Eared Seals, a group of marine Carnivora, which form a well-marked division of the Pinnipedia, distinguished by the possession of a small external ear-conch and other peculiarities, are still very imperfectly known, although of late years they have attracted the attention of several eminent naturalists. Unfortunately, however, the great variations which occur in the sexes and different ages of these animals, have not been sufficiently appreciated by those who have studied the few specimens of them preserved in European museums. The consequence has been that numerous artificial species have been manufactured upon stray skulls and imperfect skins, which have exhibited what were really only individual differences. Moreover, what is worse than this, under the prevailing mania for coining new generic names, more genera of Eared Seals have been established than the number of species which actually exist in nature. Foremost amongst these offenders, we regret to say, has been one of our own countrymen, who, in a recent article published in the "Annals of Natural History," has subdivided, on the most trivial characters, the family *Otariidae* into four sub-families and ten genera! We shall see how much more reasonable and consonant with nature are Mr. Allen's views on the arrangement of these animals.

Mr. Allen commences his paper by an Introduction, in which he discusses at some length the writings of preceding authors on this subject. He then proceeds to set forth his own views, distinguishing first of all the Eared Seals from the two other families of the Pinnipedia (the true seals and the walrus), and afterwards the different genera and species of *Otariidae*, in a very neat and perspicuous manner. Mr. Allen is only able to recognise eight species of these animals, and considers two of these rather doubtful. Four of them belong to the "Hair-seals," or "Sea-lions," which have no under fur, and four to the smaller "Fur-seals," or "Sea-bears," which have a dense under coat, and furnish the seal-skin cloaks so much now in fashion with English ladies. The well-known "Sea-lion" in the Zoological Gardens belongs to the former group—being a female of the Southern Sea-lion (*Otaria jubata*).

Mr. Allen next begins to treat at great length of the North Pacific species of Eared Seals, of which he is able to give us a full and excellent account from the specimens in the Museum to which he is attached, together with those in other American collections. These North Pacific species are the Steller's Sea-lion (*Eumetopias Stelleri*), Gillespie's Hair seal (*Zalophus Gillespii*), and the Northern Fur-seal (*Callorhinus ursinus*). Of these three animals such full particulars are given that it seems scarcely possible that there can be any more confusion respecting them. But the most remarkable part of the present memoir is perhaps the account of the extraordinary habits and customs of the Northern Fur-seal, given from Captain Bryant's observations of these animals, on the Pribyloff Islands, off the Northern part of Alaska Territory. As is the case in other known species of Eared-Seals, there is an enormous discrepancy in the size and weight of the two sexes, the weight of the female being rarely more than one-fourth of that of the full-grown male.

The Fur-seals resort to the Pribyloff Islands during the summer months for the purpose of breeding, and in St. Paul's Island, where Captain Bryant made his obser-

\* "On the Eared Seals (*Otariidae*), with detailed Descriptions of the North Pacific Species." By J. A. Allen. Together with an Account of the Habits of the Northern Fur Seal (*Callorhinus ursinus*). By Charles Bryant. With Three Plates. 8vo. 108 pp. (Cambridge: University Press. 1870.)