

FLORA OF THE KERMADEC ISLANDS.

UPWARDS of thirty years ago Sir Joseph Hooker published an account of the botany of Raoul or Sunday Island, one of the Kermadec Group (Journal of the Linnean Society, i. pp. 125-29), founded upon a small collection made by McGillivray and Milne, naturalists attached to H.M.S. *Herald*. This collection consisted of forty-two species, of which twenty were flowering plants, and the rest ferns and lycopods: and the most interesting circumstance connected with it was "the identity of most of the flowering plants, and all but one of the ferns, with those of New Zealand."

In 1885, Mr. J. T. Arundel presented to the Kew Herbarium a collection of fourteen species from Meyer, a small rocky islet about a mile and a half north of Sunday Island. Poor as it was, it contained half-a-dozen plants not previously known from the group, though they are all included in the collection referred to below.

Since then, no further light has been thrown on this insular flora, until the quite recent appearance (Transactions of the New Zealand Institute, xx. pp. 151-81) of a paper by Mr. T. F. Cheeseman, Curator of the Auckland Museum, New Zealand, a copy of which was kindly forwarded to the writer. Mr. Cheeseman was permitted, through the kind offices of Mr. Percy Smith, the Assistant Surveyor-General of New Zealand, to accompany the expedition despatched last year for the purpose of formally annexing the group to the colony of New Zealand. If Mr. Cheeseman has not succeeded in exhausting the botany of the Kermadec Islands, which, of course, is hardly probable, the undiscovered species cannot materially affect the question of the origin of the vegetation. But before giving the results of his investigations, it will be useful to indicate the position and extent of the islands.

There are four islands lying at great distances apart, between 29° 10' and 31° 30' S. lat., and stretching in a south-west and a north-east direction, like New Zealand itself, the nearest point of which is between 500 and 600 miles distant. Raoul or Sunday Island is the largest and the farthest from New Zealand, being twenty miles in circumference, and about 640 miles from Auckland, and a little less than that distance from Tonga. Macaulay, the next in size, is sixty-eight miles to the south-west of Sunday Island; and Curtis and L'Espérance, still farther to the south-west, are little more than rocks. The expedition failed to land on the last-named island, and the visit to Curtis Island was of very brief duration, hence the botany relates almost exclusively to Sunday and Macaulay Islands.

The group is of volcanic origin, and the greatest elevation in Sunday Island is 1720 feet, while Macaulay nowhere reaches quite half that height.

Altogether Mr. Cheeseman collected 115 indigenous vascular plants, eighty-four being phanerogams and thirty-one cryptogams, and only five of them were regarded as endemic. In addition to the foregoing, twenty-six species of naturalized plants, chiefly European weeds, were observed or collected.

Of the 115 indigenous species, no fewer than eighty-five are also found in New Zealand, though only fourteen of these are absolutely confined to the two localities. Forty-four species are found in Norfolk Island, forty of which also occur in New Zealand, and only two are apparently confined to Norfolk Island and the Kermadecs. Forty species extend to Lord Howe's Island, but thirty-four of these are also in New Zealand, and none of the peculiar plants of Lord Howe's Island reach the Kermadecs. Seventy-six of the species are common to Australia, sixty-three of them being also in New Zealand, and none of them otherwise peculiar to Australia. Lastly, forty-seven are found in Polynesia, and thirty-one of these also occur in New Zealand.

The foregoing data, as Mr. Cheeseman observes, point unmistakably to New Zealand as the source of the greater part of the flora of the Kermadec Islands. How the plants reached these islands is an interesting question. Mr. Cheeseman is prepared to admit a former north-western extension of New Zealand; but, after a careful examination of the evidence, he arrives at the conclusion that the Kermadec Islands have always been isolated, or, at least, have not formed part of any other land since the Secondary period. Spores of the ferns may have been conveyed by winds; and ocean currents and birds, it may well be conceived, have operated in stocking the islands with flowering plants. Most of the birds are New Zealand species, and the presence of Kauri logs, of different dates and brands, stranded on various parts of the beach, is convincing evidence of the direction of ocean currents. Moreover, the composition of the flora strongly supports this theory.

Sunday Island is the only one of the group on which there is anything approaching arboreal vegetation, and this, with the exception of a small area of the crater, is clothed with forest from the sea-shore to the tops of the highest peaks. The prevailing tree is *Metrosideros polymorpha*, one of the most characteristic trees of Polynesia, especially of the smaller islands, reaching the Sandwich, Marquesas, and Pitcairn Islands; but this particular species does not occur in New Zealand nor in Australia.

Next to the *Metrosideros* in abundance and conspicuousness is a palm, which Mr. Cheeseman thinks may be identical with the Norfolk Island *Rhopalostylis Baueri* (*Areca Baueri*). In some places this grows gregariously, forming large groves.

Ferns are everywhere abundant, varied, and luxuriant; and the endemic tree-fern, *Cyathea Milnei*, is very plentiful, and handsome withal, rising to a height of 50 or 60 feet. Prominent among the New Zealand trees are *Corynocarpus laevigatus*, *Myoporum laetum*, *Melicope ternata*, *Meliclytus ramiflorus*, and *Panax arboreum*. *Cordylone terminale*, the widely-spread Polynesian "Ti," and *Pisonia Brunoniana*, *Pittosporum crassifolium*, *Coprosma acutifolia*, and *C. petiolata*, natives of New Zealand, are other elements deserving of notice.

The herbaceous vegetation includes no plants with very conspicuous flowers, but there are two orchids—namely, *Acianthus Sinclairii*, a native of New Zealand, and *Microtis porrifolia*, which also inhabits both New Zealand and Australia.

Macaulay Island was entirely covered with a beautiful sward of natural grass, supposed to be composed of a species of *Poa* and an *Agrostis*, but in the absence of flowers they were indeterminate.

Students of botanical geography will find much more that is interesting in Mr. Cheeseman's valuable paper, from which I have extracted the principal facts.

W. BOTTING HEMSLEY.

DIGITI MINIMI DECESSUS.

[Sent by a Correspondent.]

THE following lines appeared in the *Guy's Hospital Gazette* of October 13. The correspondent who sends them to us suggests that they may fitly find a place in NATURE, *à propos* of the controversy on "Prophetic Germs."

"Man is losing his little toe, . . . and can do without it."
—MR. CLEMENT LUCAS, in his opening lecture.

If thou must go, thou feeble, foolish digit,

Fain would I speed thy slow, degenerate way!

I daily feel a disagreeable fidget

Whenever I've occasion to display

Thy doubtful outline, and thy form chaotic

(Born of a taste in boots, perhaps erotic).