

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).

Thou art a shock to my æsthetic sense,
 And offerest no kind of recompense
 In way of use ; of every function shorn,
 Except to act as basis for a corn.
 When thou art gone I'll still maintain my grace,
 Still walk erect wherever I may be ;
 Still I'll belong to the athletic race,
 Waltz with the fair, and kick mine enemy !
 So *pace* Schopenhauers, and *pace* Mallocks
 When I've acquired a hypertrophied hallux,
 To monodactyle type thus simplified,
 Life shall be simpler too, and so—beatified.

* * * *

When future science forgets thee in thy prime,
 Methinks a great mind from a northern clime
 May then discuss thy remnants, and declare
 He finds a true *prophetic organ* there !

F. G. H.

NOTES.

WE lately (Sept. 6, p. 437) printed an account of the formation of the Australasian Association for the Advancement of Science. If we may judge from the newspaper reports which have now reached this country, the first general meeting of the Association seems to have been remarkably successful. The session began at the Sydney University on Tuesday evening, August 28. Lord Carrington opened the proceedings with a short speech, and then an address was delivered by Mr. H. C. Russell, the President. On the following day the sectional meetings began, and their work went on during the remainder of the week. About 110 papers were sent in by students of various branches of science, and a considerable number of them will be published in full in the first volume soon to be issued by the Association. The members had an opportunity of taking part in several pleasant excursions, and much hospitality was shown to visitors by leading citizens. At the time of the meeting there were about 850 members, and it is confidently anticipated that next year this number will be largely increased. The next meeting is to be held in Melbourne, and Baron Sir Ferdinand von Müller, the Government Botanist of Victoria, is the President-elect. In 1890 the Association will meet in New Zealand.

THE following is the list of names to be submitted, at the annual meeting (November 8) of the London Mathematical Society, for the new Council:—For President, J. J. Walker, F.R.S.; for Vice-Presidents, Sir J. Cockle, F.R.S., E. B. Elliott, and Prof. Greenhill, F.R.S. The Treasurer and Hon. Secretaries remain unaltered. The other members are: A. B. Basset, Dr. Glaisher, F.R.S., Messrs. J. Hammond, H. Hart, J. Larmor, C. Leudesdorf, and S. Roberts, F.R.S., Captain P. A. Macmahon, R.A., and Dr. Routh, F.R.S. It is proposed that the vacancies caused by the withdrawal of Lord Rayleigh, Sec.R.S., and the lamented recent death of Arthur Buchheim, shall be filled up by Messrs. Basset and Routh, as above.

H.M.S. *Jackal*, which has been engaged, under the direction of the Scientific Committee of the Scottish Fishery Board, in a cruise of physical investigation in the North Sea, recently returned to Granton. The course was along the east coast to the Orkney and Shetland Islands, and then to Bergen, Copenhagen, and Kiel. The physical work was carried on by Dr. Gibson, of the Chemistry Department of the Edinburgh University, assisted by Dr. Hunter Stewart and Mr. F. M. Gibson; and owing to the exceptionally favourable weather a large number of stations were formed at various parts of the route, at which series of temperature observations were taken, the density and alkalinity of the water determined, and samples preserved for analytical examination. Dr. Gibson had interviews with most of those conducting scientific fishery work in the countries visited, including Mr. Buch of Bergen, Dr. Paulsen, Lieut. Drechsel, Dr. Pettersen,

and Mr. Feddersen of Copenhagen, and Prof. Karsten of the Kiel Commission; and we understand these conferences may result in closer co-operation between the various countries, in regard to the method and scope of scientific fishery investigations.

THE members of the International Commission of Weights and Measures have finished their session at the Pavillon de Breteuil, Paris. The making of standard metres is progressing, and next year they will be distributed to the various Governments. The guarantee of the Bureau extends to the thousandth of a millimetre and the ten-thousandth of a gramme.

THERE are now on the books of the Institution of Civil Engineers 1614 members, 2499 associate members, 458 associates, 19 honorary members, and 939 students, together 5529, being an increase at the rate of $3\frac{3}{4}$ per cent. during the past twelve months.

A SPECIMEN of the sword-fish (*Xiphias*) was captured some days ago in Long Reach, Milton Creek, Sittingbourne, by a bargeman. The fish measured 5 feet 2 inches from end of tail to tip of sword.

AN Agricultural and Industrial Exhibition was opened at Mysore by the Maharajah on the 17th inst.

AT a recent meeting of the Bombay Natural History Society, the idea of starting a Zoological Garden in that city was mooted by Mr. H. M. Phipson, the Honorary Secretary of the Society, and was warmly taken up. It was stated that the Society has been compelled to refuse large numbers of valuable specimens of animals offered to it. All that is asked from the Government is that they shall grant a site, and it is hoped that they may see their way to do so.

DR. J. C. COX lately described, at a meeting of the Linnean Society of New South Wales, two very remarkable female figures, modelled in wax, obtained in an aboriginal camp at Miriam Vale, near the head of the Calliope River, Rockhampton. These figures are said to be the only examples of plastic art ever discovered among the Australian aborigines.

IN the Report of the Superintendent of the Adelaide Botanic Garden for the past year it is stated that the insect-powder plant (*Pyrethrum cinerariaefolium*, Trevir.), *roseum*, and *carneum*, Bibrst.), and the cheesemaker (*Withania coagulans*, Dun.), which were introduced into the Garden a few years ago, have found a congenial climate there, and have prospered wherever they were planted in the colony. Eland's Boontges (*Elephantorrhiza Burchellii*, Benth.), which has also been recently introduced, does fairly well. In winter nothing remains of this plant but the roots, which contain tannic acid. A number of cuttings from the Daira grape, a valuable species which comes from Almeria, have thriven wonderfully in the Garden. There are now in the palm-house 180 species and varieties of palms. The Museum of Economic Botany attached to the Garden has been enriched during the past year by 1795 articles, amongst the more remarkable of which was a collection sent by the Sultan of Johore, one of the specimens being a sample of sugar prepared from the cocoa-nut.

STUDENTS of the Caucasian languages will be glad to learn that the second volume of Baron Usnar's work, "The Ethnography of the Caucasus," has been published at Tiflis. It contains his "Tchetchen Language," and, in an appendix, several articles on the epics of the Caucasian mountaineers, on the study of the Caucasian languages and their alphabets, as also a translation of Schiefner's "Tchetchensche Studien," and a collection of Tchetchen proverbs and tales about Nasr-eddin, by J. Bartolomei.

IN connection with the discussion on "Valency" at the Bath meeting of the British Association, referred to in last week's NATURE, Prof. Meldola read a paper on the constitution of the