

Beyond the record of the appearance of these parts, and the expression of our hope that the author will speedily hasten the completion of his work, the usefulness of which will be greatly increased thereby, we have nothing to add to our previous notice.

LETTERS TO THE EDITOR.

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Spiny Plants in New Zealand.

IN Mr. Wallace's recent work on "Darwinism," reference is made to the absence of spiny and prickly plants in oceanic islands in disproof of Prof. Geddes's theory that spines are an indication of the ebbing vitality of a species. Mr. Hemsley's remarks on the subject are quoted, and an explanation of the occurrence of spines in our only species of *Rubus* and in *Aciphylla* is given. In regard to the former it is stated (p. 433, colonial edition):—"In New Zealand the prickly *Rubus* is a leafless trailing plant, and its prickles are probably a protection against the large snails of the country, several of which have shells from two to three and a half inches long." The explanation seems to me to be a very unsatisfactory one, and indeed to be quite incorrect. The snails referred to (*Placostylis bovinus*, *Paryphanta Busbyi*, and *P. Hochstetteri*) are very uncommon; I do not know that they occur at all in the South Island. The *Rubus*, on the other hand, is everywhere a most abundant and aggressive plant, springing up especially in bush clearings, whether made by fire or by the axe alone. It is also incorrect to speak of it as a leafless trailing plant. Sir Joseph Hooker, who is the first authority on the New Zealand flora, has united all the forms of *Rubus* found in these islands into one polymorphic species, and even the most inveterate species-makers have never yet successfully disputed his dictum. It must, however, be acknowledged that four if not five very distinct varieties are included under the common name of *Rubus australis*. Of these only the variety *cissoides* of the "Flora Novæ-Zelandiæ" is leafless, its leaves being reduced to prickly midribs. All the other forms are leafy, some densely so, and these are by far the most abundant.

The true explanation of the prickles is most probably that they serve as climbing organs. No doubt all the developments of the epidermis in the larger species of the genus *Rubus* served primarily for protection against grazing animals. This is evidently the case in the common raspberry. But even in the various forms of the European blackberry or bramble, the prickles seem to help the plants in their scrambling growth to overtop those shrubs among which they grow. This is very evidently the case with our New Zealand bramble, or "bush-lawyer," as it is suggestively termed. It is a plant which grows especially at the edges of the bush or in clearings, and it quickly climbs over the plants among which it lives. If we take hold of a petiole (the stems have no prickles) we find it provided on the under side with a line of strong prickles, all curved downwards so as to give them good holding power. Their catch is further improved by the sharp bend in a direction opposite to their curvature which the petiole and petiolules take. One has only to attempt to pull a "lawyer" down from the plant on which it is climbing to see that the snail-hypothesis is not the correct one.

Any explanation of the formidably spinous leaves of *Aciphylla* is at the best hypothetical. Perhaps the theory that they may have gained their spines to prevent them from being trodden down or eaten by the Moas, is as good as any other. In a paper on the origin of the New Zealand flora, published in vol. xiv. of the Transactions of the N.Z. Institute, I have made reference (p. 496) to the scarcity of spiny and prickly plants. It is there shown that in cases where such defensive modifications occur the plants are either wide-spread in their distribution, having probably, before spreading into these islands, acquired their characters in other regions where they were of service; or that they belong to genera having extensive distribution. I have also pointed out that in pungent-leaved plants, such as species of *Leucopogon*, *Archeria*, &c., the strictly endemic species have lost the pungent tips. The same remark holds as to the barbed

spines of *Acena*, which serve to distribute the seeds, probably by mammalian agency. Of the seven described species two have a wide distribution outside of these islands, and have strong barbs. Two endemic species have the barbs not so well developed, while in the other three species—also endemic—they are wanting altogether.

Can anyone offer any suggestion as to the formidable nature of the stinging-hairs of our common nettle—*Urtica ferox*? In *U. incisa* and *U. australis* the stinging-hairs are few in number and feeble in their urticating properties. But *U. ferox* is a species confined, as far as I know, to these islands, and it has developed a formidable array of large and very poisonous hairs. It is worthy of remark that though so strongly protected in one direction it is particularly liable to insect attacks, it being often very difficult to find a perfect leaf. I cannot suggest any adequate explanation.

GEO. M. THOMSON.

Dunedin, N.Z., May 14.

Drowned Atolls.

AS Captain Wharton speaks of the Macclesfield Bank as the so-called "drowned atoll" of the China Seas, it may be interesting to note that in the recent survey of it there were found no less than 15 genera, including 27 species, of living corals growing in depths from 21 to 44 fathoms, the dredge at each haul always bringing up living specimens, and of these only four were found growing on the more shallow rim of the Tizard Bank.

P. W. BASSETT-SMITH.

As my opinion is that all the submerged atolls are in vigorous growth, I concur, of course, in Mr. Bassett-Smith's view, in the paragraph above, that the term "drowned," as indicating "dead," is a misnomer; and I inserted the words "so-called" to express this. The examination of the Macclesfield and Tizard Banks strongly supports this view.

W. J. L. WHARTON.

The Essex Bagshots.

MR. H. W. MONCKTON has done good service in calling the attention of geologists to the section through Brentwood Common (NATURE, vol. xlii. p. 198); and I am glad to say that I entirely agree with the interpretation of the section which he has suggested. The classification of all these beds as "Lower Bagshot" is in fact but a repetition of the error committed in former years in the Newbury country (see *Q. J. G. S.*, vol. xlv. pp. 178, 179). Lithological and palæontological evidence now concur to prove what seemed to me in the highest degree probable when the discovery of fossils in the Bagshot Beds at Frierning was announced in the new edition of the "Geology of London" last year, and what I suggested on general grounds three years ago (see *Geological Magazine*, March 1887, p. 115); namely, that in the Essex area there is an attenuation of the lower sands implying a transgressive relation of the "Bagshots" to the London Clay, such as has been shown by me (*Q. J. G. S.*, vols. xliii. and xlv.) to occur along the northern margin of the Bagshot area from Englefield Green to Farley Hill, south of Reading.

A. IRVING.

Wellington College, Berks, June 30.

A Remarkable Appearance in the Sky.

THE remarkable appearance in the sky noted by your correspondent in NATURE of June 26 (p. 198), as observed in Sussex, on night of 17th inst., was also well seen here. I enclose sketches which afford an approximate idea of the phenomenon as observed on both the 17th and 25th inst. The former was the first conspicuous occurrence here this season of those "luminous boreal night-clouds," of which sketches have been forwarded to NATURE by the writer for some years past, but from another locality of residence at a higher elevation. This may account for failure of earlier observation during the present year. The luminous forms have become less definite, the outlines being faint and nebulous, as contrasted with the bright and definite cirro-form cloudlets seen when first noted, at considerably higher altitudes above the northern horizon.

Kensington, June 28.

D. J. ROWAN.