

of instances where sterility occurs in all degrees, with a few exceptional instances where secondary distinctions have been able to develop without being associated with the primary distinction. So that, on the whole, I cannot but candidly consider that all the facts relating to the sterility of natural species are just what they ought to be, if they have been in chief part due to the principle which I am advocating. Mr. Darwin appears to have clearly perceived that there must be some one principle serving to explain all these facts—so curiously related, and yet so curiously diverse. For he says, and he says most truly, "We have conclusive evidence that the sterility of species must be due to some principle quite independent of natural selection." I trust I have now said enough to show that, in all probability, this hitherto undetected principle is the principle of physiological selection.

(To be continued.)

#### RED SUNSETS AND VOLCANIC ERUPTIONS

THE great volcanic eruption in New Zealand raises anew the question of the connection between volcanic eruptions and sunset phenomena arising from attenuated matter in the upper regions of the atmosphere. The theory that the noteworthy sunsets about the end of 1883 were due to the Krakatao eruption has been questioned on the ground that, in many parts of the world, these red sunsets have continued until the present time, though not with the same intensity as in 1883. Beautifully variegated sunsets have always been very common in this country. The result was that the sunset phenomena of 1883 did not appear to us as anything new in kind, but only as an intensification of something with which we were already familiar. In order to reach a decisive conclusion we must have observations made in regions where the upper atmosphere is exceptionally free from vapours or other attenuated matter. The advent of such matter can then be detected when it could not be detected at other places. Among such regions I would suggest South Africa, especially the Cape of Good Hope. During my brief residence there in November and December of 1882, nothing was more striking than the extreme whiteness and purity of the western twilight. If such a twilight is there the rule during the whole year, then any diffusion of volcanic vapour in the upper atmosphere must produce a very striking effect. I would therefore suggest to observers in that region the value of precise information on this point, especially with a view of learning to what extent, and within what time, the red sunsets of 1883 disappeared, and whether any such phenomena now reappear as the result of the volcanic eruption in New Zealand.

S. NEWCOMB

#### MR. FORBES'S EXPEDITION TO NEW GUINEA

NATURALISTS will be glad to learn that a collection of natural history objects has been sent to England by our countryman Mr. H. O. Forbes, who has been doing good work on the Astrolabe Mountains in south-eastern New Guinea. Unfortunately a lack of proper support appears to have greatly crippled the efforts of this energetic traveller, who fears that he may be compelled to abandon his proposed expedition to Mount Owen Stanley, the ascent of which was the primary object of his explorations on leaving England. The disaster which befel Mr. Forbes at Batavia, where the boat with all his equipment for the expedition was capsized and everything lost, will be fresh in the recollection of our readers (see NATURE, vol. xxxii. p. 552), and it is only by the utmost display of courage and energy, and by a large pecuniary sacrifice on his own part, that Mr. Forbes has been able to fit out an expedition to New Guinea from Brisbane. It is to be hoped that the great Societies of

this country and Australia will not allow this expedition to come to an end for lack of funds. Mr. Forbes has shown what he can do in the cause of science, and a little timely help would now enable him to conduct the work of exploration on which his soul is bent and bring it to a successful issue. It is not generally known in this country that during his last expedition to the Malay Archipelago he expended more than 600*l.* of his own money in endeavouring to render his expedition more complete, and nothing but a little generous encouragement is needed to enable him to sustain the serious pecuniary loss which has befallen him in his attempt to reach Mount Owen Stanley. At the time of writing, we hear that there is a prospect of Australia coming to the rescue and aiding Mr. Forbes towards the attainment of his object, and we trust that England will also do something for a man who, as an explorer and a naturalist, has reflected credit on his country.

The district recently explored by Mr. Forbes has been visited before by Mr. Goldie and Mr. Hunstein, the latter of whom has procured some remarkable novelties among the Birds of Paradise, which have been recently described by Dr. Finsch and Dr. Meyer (*Zeitsch. Ges. Orn.* ii. pp. 369-391). Hunstein has indeed penetrated further than Mr. Forbes was able to do on the present occasion, as the latter has as yet only worked the Sogeri district from a height of 1000 to 5000 feet, and this only in the rainy season.

Among the many interesting species found by Mr. Forbes in the Sogeri district may be mentioned *Harpyopsis nova-guineæ*, Salvad, *Charnosyna stella*, Meyer, *Psittacella pallida*, Meyer (scarcely to be distinguished from *P. brehni* of Mount Arfak), *P. madaraszii*, Meyer, *Eos incondita*, Meyer, *Parotia lawesi*, Ramsay, *Lophorina minor*, Ramsay, *Paradisornis rudolphi*, Meyer, *Amblyornis subalaris*, Sharpe, *Paradisea raggiana*, Sclater, *Microdynamis parra*, Salvad (*Rhamphomantis rollesi*, Ramsay), *Melidectes emilii*, Meyer, *Rallacula rubra*, Schlegel, and many other notable species, amongst which are two which appear to be undescribed, viz.,

*Melirrhophetes batesi*, sp. n.

*M. similis M. ochromelani*, Meyer, sed fasciâ supraculâri cervina distinguendus. Long. tot. 9'3, culm. 1'35, alæ 4 8, caudæ 4'2, tarsi 1'15.

*Pseudogerygone cinereiceps*, sp. n.

*P. similis P. flavilaterali*, Gray, ex Novâ Caledoniâ, sed minor, et rectricibus haud subterminaliter albo-fasciatis distinguenda. Long. tot. 3'4, culm. 0'4, alæ 1'9, caudæ 1'2, tarsi 0'65.

It was a little unfortunate for Mr. Forbes that Mr. Hunstein should have visited the Horse-shoe Range so shortly before the arrival of the former in New Guinea, but it says much for the complete way in which Mr. Forbes does his work of exploration, that he should have obtained specimens of nearly every one of the new species discovered by Mr. Hunstein. Unfortunately the Birds of Paradise were out of colour at the time of his visit, but the specimens sent are of great interest, as showing the moults and changes of plumage in these birds. Of the extraordinary species known as Prince Rudolph's Bird of Paradise (*Paradisornis rudolphi*) with blue wings and blue flank-plumes, Mr. Forbes secured only one, apparently a female. As these surprising novelties have been discovered in the Astrolabe Range, which has an elevation of less than 5000 feet, what prizes and discoveries may not be awaiting the explorer if he reaches Mount Owen Stanley with an altitude of 13,000 feet? May he succeed!

R. BOWDLER SHARPE

#### THE PERSISTENT LOW TEMPERATURE

IT is seldom that the weather maintains such a decided persistency for temperatures below the average conditions. Week after week passes, and the thermometrical