Reports of the Geological Survey of New Zealand.

THE issue of an index to the Reports of the Geological Survey of New Zealand, from 1866 to 1885 inclusive, enables us to see at a glance how large an amount of valuable material has been accumulated by the staff of this Survey, under its accomplished and energetic Director, Sir James Hector. Several editions of the useful geological map of the colony have appeared, the latest dated 1885; and the volumes containing the yearly reports of progress are now eighteen in number. Monographs on the palæontology of New Zealand are stated to be in preparation, and there are, besides these, museum and laboratory reports, meteorological returns, and miscellaneous publications. The difficulties felt in correlating the strata of so isolated an area as New Zealand with the rocks of other districts must always be very great, and it is therefore not surprising to find that warm and animated discussions are taking place among the different geologists of the colony as to the age and relations of some of the fossiliferous deposits. We may feel assured that the solution of these questions will be fraught with important results having a direct bearing upon some of the most difficult problems that now confront geologists.

First Lessons in Geometry. For the Use of Technical, Middle, and High Schools. By B. Hanumanta Rau, B.A. (Vepery: Printed at the S.P.C.K. Press, 1888.)

THIS is a second edition, revised and enlarged, of a very good book for those who are beginning the study of geometry. Much stress is laid all through on the construction and careful drawing of the figures, and great pains seem to have been taken by the author to make his meaning as clear as possible by means of simple examples, thereby inducing the reader not to learn the propositions by heart.

The volume is well arranged as regards the order of the subjects, and teachers, as well as taught, will find in it a good amount of useful information.

LETTERS TO THE EDITOR.

[*The Editor does not hold himself responsible for opinions expressed by his correspondents. Neither can he undertake to return, or to correspond with the writers of, rejected manuscripts intended for this or any other part of* NATURE. *No notice is taken of anonymous communications.*]

Dissemination of Plants by Birds.

I FULLY agree with Dr. Guppy that birds may have effected much more in the distribution of plants than is generally admitted, and I think it is most desirable that his suggestion respecting the examination of the contents of the crops of birds shot at sea in high southern latitudes should be carried out. At the same time I am of opinion that his explanation of the probable origin of the vegetation of the distant islands in the South Atlantic and South Indian Oceans is insufficient to account for the endemic element, unless we suppose a former belt of vegetation in a higher latitude than these islands, which is now extinct. Assuming the existence of such a belt of vegetation at some remote period, it would not be difficult to explain the relationships between the floras of America and Australasia, as well as the presence in these islands of plants not known to exist elsewhere.

Pringlea antiscorbutica, the Kerguelen cabbage, is the most remarkable of the endemic plants. As a genus, it is as well characterized as the majority of the genera of the Cruciferæ; but, what is more significant, it has no near ally in the southern hemisphere, being most nearly related to the northern genus *Cochlearia*, differing from it more in habit of growth than in any structural peculiarity. It is one of the commonest plants in the islands, from Prince Edward Group to the Macdonald Group, and produces seeds in great abundance.

Lyallia kerguelensis is, so far as is known, confined to Kerguelen Island. It is one of the degraded types of the Caryophylleæ-Polycarpeæ, and nearly related to the Andine genus *Pycnophyllum*, and the North Mexican genus *Cerdia*.

To my mind there are other difficulties in the way of such a derivation of this insular vegetation as that suggested by Dr. Guppy, but I will not enter into them here, as it would occupy too much space. W. BOTTING HEMSLEY.

On the Reappearance of Pallas's Sand Grouse (*Syrrhaptes paradoxus*) in Europe.

THIS bird suddenly reappeared at the end of April of this year at different localities of Central Europe, not having migrated so far since 1863. A. R. Wallace, in his important work, "The Geographical Distribution of Animals," published in 1876, figured this sand grouse among the characteristic birds of Mongolia (vol. i. p. 226, plate 3), and remarks:—"A curious bird, whose native country seems to be the high plains of Northern Asia, but which often abounds near Pekin, and in 1863 astonished European ornithologists by appearing in considerable numbers in Central and Western Europe, in every part of Great Britain, and even in Ireland." Vol. ii. p. 337, the same author says in the work quoted:—"*Syrrhaptes* normally inhabits Tartary, Thibet, and Mongolia to the country around Pekin, and occasionally visits Eastern Europe. But a few years back (1863) great numbers suddenly appeared in Europe, and extended westward to the shores of the Atlantic, while some even reached Ireland and the Faroes."

Mr. Wallace, speaking here of the geographical distribution of *Syrrhaptes*, has in view the two species of the genus, viz. *S. paradoxus*, Pallas, from Tartary and Mongolia, and *S. tibetanus*, Gould, from Thibet; whereas in the following sentence, treating of the extraordinary migration, only *S. paradoxus* appears to be meant. At least I am not aware that the second species has ever been observed in Europe.

Two years later not one bird of those that immigrated in 1863 appears to have been observed again here; they may have died, or been cruelly killed, or may have returned to their native steppes. No special notice having been taken of their movements, we did not learn the reason of that uncommon migration, nor the rapidity of their wandering, nor whether they returned to Asia or not.

The reappearance of the sand grouse in large flocks, consisting apparently of innumerable individuals, now gives us the opportunity of watching their movements in detail. This should be done everywhere, and for this reason I communicate the following notes, comprising all that I have learned till to-day about it. I am sure that many more observations will have been made in these days, and perhaps those who can add something to the following list will do so through the columns of NATURE. Observers should especially try to find out whether there are specimens of *S. tibetanus* among them.

April 21, Plock, Poland. On the same day specimens on the River Pilica, near Radom, and in the market of Warsaw, Poland.
,, 24, at 5 p.m., near Pirna, Saxony.
,, 25–26, in the night, near Leipzig, Saxony.
,, 26, Kalisch, Poland.
,, 27, 3 p.m., near Grossenhain, Saxony; on the same day several flocks there.
,, 27, 4 p.m., near Pirna, Saxony.
,, 27, Brandenburg, Prussia.
,, 27, Elbing, Prussia.
,, 27, near Leipzig, Saxony.
,, 28, near Leipzig, Saxony.
,, 28, Kuchelberg, Silesia.
,, 28, Czerwinsk, Poland.
,, 28, Warscha, Poland.
,, 29, Cernowitz, Bohemia.
On the last days of April near Görgémy, Transylvania, and near Königstein, Saxony.
May 1, near Grossenhain, Saxony.
,, 1, Liobschütz, Saxony.
,, 1, Niederfaulbrück, Silesia.
,, 2, Ratzeburg, Holstein.
,, 2–3, in the night, near Grossenhain, Saxony.
,, 3, near Grossenhain, Saxony.
,, 3, near Bautzen, Saxony.
,, 3, near Schneeberg, Saxony.
,, 3, near Friedeberg, Silesia.
,, 4, near Grossenhain, Saxony; several flocks.