

and of the fault inferred from the seismic evidence is so close, that there can be little doubt that the earthquake was due to a slip along this fault.

The nature of the shock, the sound-phenomena, time-relations, and after-shocks are described in detail, and some account is added of the earthquakes of 1890 and of sympathetic earthquakes in the valley of the Findhorn. There were two distinct slips in rapid succession, with continuous slight motion between them, the second being greater in amount and extending over an area which probably overlapped, even if it did not entirely include, that within which the first took place. The great slip reached nearly from Loch Ness to Inverness, and was greatest at a point about half-way between. The three chief after-slips resulted in an extension of this area in both directions along the fault-surface, the extension to the north-east being small, while that to the south-west amounted to 6 miles or more. In addition to this migration of the focus, there was also a continuous decrease in the depth of the focus. The earthquakes provide no evidence with regard to the direction of displacement along the boundary fault. There can be little doubt, however, that Loch Ness is still growing; but it can hardly be determined whether the lake is now contracting in area, or whether it is gradually pushing its way outward to the sea.

3. "The Wood's Point Dyke, Victoria (Australia)." By Frederic Philip Mennell, Esq., F.G.S.

This dyke is intrusive into a belt of Silurian (Upper Silurian) strata which strike in a direction somewhat west of north, and extend beyond Walhalla on the south. Wood's Point is about 75 miles east of Melbourne. It may be taken as typical of the intrusions associated with the Silurian rocks of the Victorian gold-fields. Brown, original hornblende is the dominant constituent, but it is rarely idiomorphic; augite, three varieties of felspar, micropegmatite, and ilmenite are also present in a microcrystalline or cryptocrystalline groundmass. The rock is called a hornblendeporphyrite. In certain varieties cordierite occurs, and is accounted for by derivation from the adjacent shales. The reefs in the Silurian and Ordovician rocks usually occur at or near the contact with intrusive rocks. At Wood's Point the reefs are nearly horizontal, traversing dykes and shales, the junction usually marking the occurrence of rich ore. The author notes the "almost invariable association of gold in this class of deposit with rocks containing original hornblende."

CORRESPONDENCE.

THE CRYSTALLINE LIMESTONES OF CEYLON.

SIR,—As one of the unfortunates who are unable to attend the meetings of the Geological Society, I crave permission to make a comment on the interesting paper on "The Crystalline Limestones of Ceylon" read on the 12th March by Mr. Ananda K. Coomára-Swámy. The author and all his critics profess themselves more or less puzzled

by the phenomena described. No mention is made of a theory which would, I think, remove the chief difficulties mentioned. I suggest that the true explanation is deformation *plus* chemical segregation. The author rejects deformation (1) because the minerals are not deformed. But this is not to be expected in a rock which has undergone advanced metamorphism. The author assumes that the minerals are original, whereas the rock may have been transformed, as in the Malvern Hills, where some of the gneisses are entirely composed of secondary minerals, and show no trace of the deformation which was evident enough in an earlier stage of the metamorphism. The author objects (2) that the minerals whose distribution are the chief cause of the foliation are not "such as to have been produced" by earth-movements. I cannot see why. During the reconstruction of the rock the segregation of the carbonates of lime and magnesia may well have been accompanied by the crystallizing out of the accessory lime and magnesia silicates. The hypothesis I have suggested accounts for three facts which appear to have caused considerable perplexity, viz.: (1) the isolated masses of granulite, (2) the lenticular form of some of the granulite masses (one would like to know if any of the limestones are lenticular), and (3) the subordination of the limestone to the silicate rocks. The theory of the origin of limestones by segregation from plutonic rocks during deformation, as in the case of the crystalline limestones of Bodwrog and Porth Treacstell in Anglesey (Report Brit. Assoc., 1887, p. 706), has not yet, I think, received the consideration it deserves.

C. CALLAWAY.

CHELTEHAM.

ON THE OCCURRENCE OF *SCALARIA COMMUNIS* IN THE RAISED BEACH ON THE THATCHER ROCK, AND OF *PECTEN MAXIMUS* AND *VENERUPIS*, SP., AT HOPE'S NOSE.

SIR,—In the year 1888 I published in the Transactions of the Devon Assoc. a list of shells found in the Raised Beach on the Thatcher Rock in Torbay.

In due course I sent a reprint to my friend and colleague the late Mr. D. Pidgeon, F.G.S., which Mr. Pidgeon took the practical and ingenious course of returning to me crowded with copious comments and criticisms. As Mr. Pidgeon took the extreme line of denying the genuineness of the Raised Beaches, and I did not feel disposed to seriously entertain this objection, I laid my friend's notes on one side and forgot all about them.

Last Easter, in looking for a copy of my paper for a friend joining the excursion of the Geologists Association to the Gower Caves, I found Mr. Pidgeon's returned copy. In it I discovered a rather important fact, viz., an additional shell to what I believe is already the record list for any one Raised Beach, viz., *Scalaria communis*. Mr. Pidgeon also added his initials to *Aporrhais pes-pelecani*, a species before certified by Mr. J. T. Marshall. *Scalaria communis* makes the grand total of species from the Thatcher beach 44, a total which made Mr. Pidgeon remonstrate, "there are a great