

one which has consisted mainly of olivine, she maintains that this appearance is far more consonant with partial differentiation of the original magma, followed by fluxional movements and flow-brecciation. It is not that a mass of amphibolite passes into one of serpentine, but that a specimen of the latter is occasionally streaked by the former.

By comparison with other serpentines of the Vosges and elsewhere, which are admittedly developed from olivine rocks, so much likeness is found between them and the Rauenthal mass, that the origin must be similar.

2. "On two Boulders of Granite from the Middle Chalk of Betchworth (Surrey)." By W. P. D. Stebbing, Esq., F.G.S.

The author notices cases of occurrence of boulders in Chalk which have been previously described; and records the occurrence of two boulders which were obtained from the Chalk of the zone of *Terebratulina gracilis*. The larger weighed 7 lb. 7 oz., and measured 5".8 × 6".25 × 4".125, and consisted of decomposed granite; valves of *Spondylus latus* and *Serpula* were still attached. The other, also granite, though of a different character, weighed 3 lb. 12 oz., and measured 3".6 × 5".8 × 4".5. Professor Bonney has furnished a description of the microscopic characters of the two boulders, which are possibly of Scandinavian origin. The author discusses the mode of transport to their present position, and favours the agency of floating ice.

3. "Coal: a new Explanation of its Formation; or the Phenomena of a New Fossil Plant considered with reference to the Origin, Composition, and Formation of Coal-beds." By W. S. Gresley, Esq., F.G.S.

The author argues that the brilliant black laminae in coal and similar materials to those which form these laminae, which are found in earthy coals, shales, and clays, point to the former existence of an aquatic plant, having the general shape of the modern *Platycerium alcicorne*, which grew *in situ*. He believes that much coal was formed by this aquatic "coal-plant," which grew amongst the mechanical sediments and the debris of the terrestrial vegetation which accumulated on the floors of sheets of water.

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## CORRESPONDENCE.

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### THE GREAT SUBMERGENCE "AGAIN."

SIR,—Has Mr. Dugald Bell adopted this title to show his surprise that the so-called "Submerger" has not been extinguished by his numerous writings on the subject?

Unless I have completely misunderstood the tenour of these communications, Mr. Bell formerly attached great importance to the supposed absence of high-level shelly Boulder-clay in the South of Scotland, as favouring his view that the Drift was due to *land-ice*; hence his strenuous endeavours to prove that such shelly beds did not

exist. These endeavours have proved futile, for, while a Committee, after sinking a well or enlarging an old one—I forget which—at Chapelhall, near Airdrie, have been enabled to say that they found no shells in the Drift where a previous observer had reported their presence, other observers have been discovering in Ayrshire large deposits of Boulder-clay in which shells occur, often even possessing their epidermis. What adds pungency to the fact is, that these large beds of Boulder-clay are exposed in numerous natural sections that were open to the eyes of glacialists and others interested, who failed to see that they contained marine shells—being perhaps stricken with an ice-sheet blindness—while time and money were being consumed in sinking wells elsewhere and finding nothing.

Now that large deposits of shelly Boulder-clay have been found to exist in Ayrshire at various heights, from sea-level up to 1062 feet, my friend Mr. Bell is not inclined to attach so much importance to their presence. In fact, he says, “the value of the Ayrshire sections as proofs of submergence has yet to be determined. My own opinion, frankly, is that it is *nil*.”

As regards the suggestion that the Muirkirk beds have been laid down by a Frith of Clyde glacier, I can only point out that the hypothetical course of such a glacier does not correspond with that of any map I have yet seen which professes to give the lines of glacial flow in Scotland. It is really too bad to ask geologists to grant phenomena as due to the devious courses of masses of land-ice when such hypothetical courses have to be amended from day to day to fit in with the progress of discovery, and often involve the most surprising contradictions.

T. MELLARD READE.

PARK CORNER, BLUNDELLANDS,  
February 3, 1897.

#### GENERAL SEQUENCE OF THE CARBONIFEROUS ROCKS.

SIR,—I feel deeply obliged to Mr. Etheridge for calling attention to an omission in the Introduction to my Monograph on the British Carboniferous lamellibranchs. I am sorry to say that in my table of the general sequence of Scottish Carboniferous rocks, the upper and middle groups of the Carboniferous Limestone series are also missing. How these lapses have come about I am unable to say, for I have the most distinct recollection of inserting these groups in their correct position in my MSS. Of course I am convicted of great carelessness in the reading of the proof, for which there is no excuse.

WHEELTON HIND.

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#### OBITUARY.

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WE regret to announce the deaths of Dr. Bernhard Lundgren, Professor of Geology in the University of Lund; and of Professor Constantin Baron von Ettingshausen, the distinguished Palæobotanist of Graz, Austria. We hope to give some account of these eminent men in the next number of the Magazine.