perhaps the equivalent of younger members of the Cretaceous series, not elsewhere found in our islands, or, it may be, they must be regarded as belonging to periods intermediate between the Cretaceous and Tertiary epochs. It is greatly to be regretted that these Cretaceous deposits of the Western Highlands are so unfavourably displayed for our study as to present scarcely any facilities for the collection of their fossils; for these, if found, might be expected to throw a flood of light on some of the most obscure palæontological problems of the present day.

Although the comparison and correlation of the Secondary strata of the Highlands with those of other areas, and the discussion of the questions of ancient Physical Geography thereby suggested, are reserved for the fourth and concluding part of his memoir, the author takes the opportunity of making reference, in bringing the present section of his work to a close, to several problems on which the phenomena now described appear to throw important light. In opposition to a recent speculation which would bring into actual continuity the present bed of the Atlantic and the old Chalk strata of our island, he points to the estuarine strata of the Hebrides as demonstrating the presence of land in that area during the Cretaceous epoch. He also remarks on the singular agreement of the conditions of deposition of both the Silurian and Cretaceous strata of the Scottish Highlands and those of the North American Continent. But he more especially insists on the proofs, which we now have, that the Highlands of Scotland, as well as the greater part of the remainder of the British Islands, were once covered by great deposits of Secondary strata, and that the area has been subjected to enormous and oft-repeated denudation. He dwells on the evidence of the vast quantities of material which have been removed subsequently to the Mesozoic and even to the Miocene period, and he maintains the conclusion that many, if not all, of the great surface-features of the Highlands must have been produced during the very latest division of the Tertiary epoch, namely the Pliocene.

CORRESPONDENCE.

INDUCED STRUCTURE IN STONE.

Sir,—A very remarkable exfoliated piece of sandstone from an urn forming part of a tombstone was brought me by a mason a short time ago. It is from the base or pillar of the urn itself, and measures 9 in. by 5 in., varying in thickness from $\frac{1}{16}$ to $\frac{1}{10}$ of an inch. The outside surface had been worked and rubbed in forming the urn, and one side of the exfoliated piece consists of this worked surface perfectly preserved. The pedestal has a horizontal and vertical curvature, and when laid on the table the exfoliated piece rises fully two inches in the quickest part of the curve. I exhibited this specimen at the last meeting of the Liverpool Geological Society, when some scepticism was evinced as to its being genuine

https://doi.org/10.1017/S0016756800146539 Published online by Cambridge University Press

sandstone. I have since examined the tombstone, which is in St. James's Cemetery, and find that it is genuine stratified sandstone, which the microscope had before proved. It is of extremely fine grain, and I can detect nothing but minute grains of silex in its composition. Hydrochloric acid does not affect it. The stone, I am told, comes from somewhere near Burnley, and it evidently belongs to the Carboniferous group. The bedding of the stone in the base of the tomb shows in rusty iron streaks, and exposure discolours it in places. I have since receiving the specimen, on visiting Canterbury Cathedral, noticed that the surface of the Purbeck marble shafts inside the choir exfoliate, following the worked surface, but not nearly in so regular a manner as indeed we would anticipate from its fossil structure.

It appeared to me very remarkable that the exfoliation should follow so truly the worked surface of the stone, only varying the $\frac{1}{32}$ of an inch, especially in the case of a bedded sedimentary rock, instead of following the planes of bedding as is usually the case. I am informed it was customary to oil the stones in this Cemetery with a view to their preservation. Can this have effected it? I can find no trace of oil in it now.

T. Mellard Reade.

Park Corner, Blundellsands.

Note.—As bearing upon the above letter, we may state that Prof. Morris has for twenty years been accustomed to direct the attention of geological students to the curious molecular change produced by "dressing" stone, whether for architecture or statuary. From his careful observations it would appear that most compact stones when "dressed" seem less disposed to follow their original inclination to break up along certain planes, and exhibit a stronger tendency to exfoliate in layers parallel to the artificially-worked surface of the stone. One of his favourite illustrations was a gigantic arm of syenite or red granite, once forming part of a colossal statue of Thothmes III., discovered by Belzoni in 1818, lying in the sand in the Karnak quarter of Thebes. This arm, which now forms one of the most striking objects in the Egyptian Gallery of the British Museum, exhibits near the shoulder a tendency to exfoliate in regular concentric layers corresponding with the worked and polished surface of the limb. Mr. Mellard Reade will, we feel sure, be pleased to find that his idea of the "induced structure in stone" has the support of so distinguished an authority as that of Professor Morris.—Edit. Geol. Mag.

MISCELLANEOUS.

Marine Fossils in the "Gannister Beds."—Mr. G. A. Lebour, writing from the College of Physical Science, Newcastle-on-Tyne, to "*Nature*," announces the discovery (on the 9th Feb.) of marine fossils in the Lower Coal-measures or "Gannister beds" of Northumberland between Stocksfield Station and Whittonstall. Hitherto no marine forms had been found in this series.

Academic Honour.—At a congregation of the Senatus Academicus of the University of St. Andrews, on Saturday, February 9th, the honorary degree of LL.D. was conferred on Henry Woodward, F.R.S., F.G.S., of the British Museum.

https://doi.org/10.1017/S0016756800146539 Published online by Cambridge University Press