

CORRESPONDENCE

THE DENT LINE IN LANCASHIRE

SIR,—The recent announcement (von Estorff, 1950, p. 1448) that the deep test on the Lancashire coast, 2½ miles west of the earlier one at Formby, has revealed the Carboniferous to lie nearly 4,000 feet structurally higher in the new boring than in the old, seems to support my view (Turner, 1949, p. 295) that the Dent Line passes southwards through the Formby area beneath the New Red cover. Mr. H. R. Lovely (1950, p. 541) on behalf of Mr. P. H. N. White, appears to agree that gravity results are not irreconcilable with this view. He appears troubled, however, by the necessity of a rather sharp bend southwards of the Dent Line to reach Formby. Such bends, nevertheless, are present elsewhere in the Line, notably in the Stainmore country and where the Line crosses the Craven Faults. The hypothesis of the Line's continuation into South-West Lancashire seems to relate the fascinating results of the deep tests to the broader scheme of Variscan tectonics in Northern England in an intelligible fashion.

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RED SEA RIFTING

SIR,—It is all too seldom that geologists associated with oil exploration lift a corner of the curtain of secrecy and from their hoard of scientific information cast out a few crumbs to the waiting academic sparrows. Professor Tromp's paper (*Geol. Mag.*, Nov.–Dec., 1950, p. 385) is therefore welcome, especially now that Professor Gregory's book is thirty years old. But what a strange list of references: seven Tromps, two Germans, and an American, the last three only for publications of a purely general nature. The reader would hardly realize that British, Egyptian, and French geologists have been working on these problems for fifty years, and between them long ago produced a picture which any amount of drilling can merely touch up.

After reading Professor Tromp's paper I turned to such few works by members of the Geological Survey of Egypt as are readily to hand on my own shelves and found, as I thought, that nearly every point made in the first three parts of the paper (not the fourth, purely speculative part) is to be found there, published from twenty-five to fifty years ago. For instance:—

1. Progressive transgression from the north during the Mesozoic and Lower Eocene "(Tromp, 1950)". This was clearly enunciated by Hume, 1916 (Oilfields Region Memoir, p. 52), and is obvious from Hume's work over fifty years.

2. Doming and faulting with consequent unconformable overstep of the Middle Eocene across denuded Cretaceous in the north. How can the author put "Tromp, 1949" against this? Has he never walked over the Abu Roash dome and especially the Jeran el Ful ridge with Beadnell's splendid memoir of 1902, where the Middle Eocene unconformity is set out so clearly in text, sections, and map?

3. Northward recession of the sea after the Oligocene and northward migration of facies "(Tromp, 1950)". This was clearly stated by Beadnell

in 1905 (Fayum memoir, p. 71) and again is obvious from the accumulated work of Hume, Beadnell, and others.

4. Large erosional hiatus at base of the Miocene (Middle Miocene?) in the Gulf of Suez, indicating strong tectonic movements followed by a long period of erosion in pre-Miocene time “(Tromp, 1949 and 1950)”. Hume in 1916 (Oilfields Region Memoir, p. 40) traced in detail the great unconformity at base of the Middle Miocene as shown by the overstepping *Pecten submalvinæ* Beds across all older formations including Archæan, and Beadnell (1924, Qosseir-Wadi Ranga Memoir, p. 32) stressed the importance of these movements.

5. Post-Miocene N.W.–S.E. faults cutting across the grain of the older folds. Pointed out by Moon & Sadek, 1921 (North Sinai Memoir, pp. 52–3).

6. Probable continuation of the movements to present day. Stated by Beadnell, 1924 (Qosseir-Wadi Ranga Memoir, p. 32).

7. Middle Pliocene transgression in Gulf of Suez region. Observed by Moon & Sadek, 1921 (op. cit., p. 53).

It is to be hoped that Professor Tromp is aware of all this literature and much more, if, as he promises, he is to give us a “*compilation of the macrostratigraphy of Egypt*”. The astonishing second sentence of his opening paragraph raises grave doubts.

Three points put forward seem new and important :—

A. The existence of Jurassic Nubian Sandstone in Southern Egypt.

B. That the Red Sea was closed at both ends during the gypsum period. If so the existence of beds with *Barbatia*, *Venus*, *Diplodonta*, and *Corbula* in the gypsum is difficult to account for.

C. That Egypt as a whole was rising continuously throughout the Miocene, Pliocene, and Pleistocene. This seems difficult to reconcile with the well-known Upper Pliocene transgression to 180 m. above present sea-level in the Nile Valley.

May we have the evidence for A and the explanations of how the difficulties mentioned under B and C are to be disposed of ?

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LINATION IN SCHISTS S.E. OF THE GREAT GLEN

SIR,—In 1937 I published (*Quart. Journ. Geol. Soc.*, xciii, 581–620) the first results of a study of the structural petrology of some Moine Schists. These results showed that the well-known “direction of stretching” (lineation) marked a *b*-axis of the fabric and pointed to the conclusion that “the Moine Schists were brought to their present state of regional metamorphism by a deformation acting along approximately south-west and north-east lines”. At that time my attention was mainly directed to the area north-west of the Great Glen, but study of the existing maps and literature had already convinced me that a similar significance could be attached to much of the lineation in rocks south-east of the Glen, not only in the Central Highland Granulites but also, in part, in rocks mapped as Dalradian. On the basis of an examination of a few isolated specimens, I ventured to include in a “General map of lineations believed to represent *b*-axes” (*ibid.*, p. 594, Fig. 5), two further groups of symbols, one around Strath Spey and another near Struan and Kinloch Rannoch. The recent “Notes” by Dr. D. B. McIntyre (*Geol. Mag.*, lxxxvii, 1950, 331–6, 427–432) now afford interesting detailed evidence in confirmation of this conclusion. “The direction of movement is clearly perpendicular to the lineation and not parallel to it, as Hinxman assumed. The ‘striping’ is a *b*-lineation.” Dr. McIntyre also concludes that in his specimens the sense of movement was towards the south-west. On the basis of our present (imperfect) knowledge of the fabric of the schists of the Northern Highlands as a whole I would have arrived at the