

## CORRESPONDENCE

### FRANCIS BACON AND CONTINENTAL DRIFT

It is a favourite opening gambit of lecturers and writers on the subject of continental drift to attribute the first inklings of the concept to Francis Bacon, and the notion that his *Novum Organum* of 1620 was the first work to point out the "jig-saw" fit of the opposed coasts of Africa and South America is now very firmly entrenched in the literature. The attribution of the idea to Bacon is evidently false, however, and it arises only from a careless reading of the text. The shape of the two continents is mentioned—but only briefly—in Aphorism XXVII of *Novum Organum*, Lib. II, where Bacon is concerned with analogies and resemblances in nature. He draws a parallel, for example, between the roots of a tree and its branches, and between the beaks of birds, and the teeth of animals. Then, with the same idea in mind, he points out that the Old and New Worlds both taper southwards, and that Africa and South America display a further general similarity in their outlines. Here he does not seem to have been comparing the opposed coasts of the two continents, but rather their corresponding coasts. He in fact offers no discussion of the subject, but it appears he was merely suggesting that a feature such as the "horn" of East Africa may be likened to the "shoulder" of Brazil, or the Gulf of Guinea to the Peru-Chile bight. Various of Bacon's commentators have pointed out that he was *not* suggesting a "jig-saw" fit of Africa and South America, but geologists—and others—persist in attributing to Bacon the germ of the idea of continental drift.

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### TONSTEINS

SIR,—Mining geologists working in the West Midlands coalfields will welcome D. L. Salter's paper on "New Occurrences of Tonsteins in England and Wales" (*Geol. Mag.*, 101, p. 517-9), because of the promise these remarkable thin beds offer for providing numerous stratigraphical marker horizons for which tonsteins have been used for many years in the coalfields of Continental Europe. With this declared interest in tonsteins as stratigraphical marker beds, it is not surprising that mining geologists in the Staffordshire, Shropshire, and Warwickshire coalfields have been concerning themselves with testing the stratigraphical utility of tonsteins at several horizons in the Coal Measures sequences of these coalfields.

Salter's paper raises once again the question of what one may reasonably include under the term tonstein. This term has apparently been accepted by most British coalfield geologists without much reservation though difficulties of definition are alluded to; it usually conjures up a picture of a thin bed having specific stratigraphical value over a wide area. Several workers in this field, notably Scheere (1955, p. 9), have reminded us that the term in its literal sense means neither more nor less than argillaceous rock, but since it has been shown that thin distinctive beds of tonstein in the coalfields of Continental Europe have precise and widespread correlation value, deserving a stratigraphical status little less than that of faunal bands, then clearly the term in its literal sense is unfortunate. That it is a form of kaolinitic mudstone is certain, but so are the majority of seatclays which themselves are noted for their lateral persistence—even greater than the coals which usually overlie them; since seatclays usually occur in every cyclothem, unless they can be specifically "labelled" their stratigraphical significance is diminished. The same can be said of coals and even marine bands; when they occur too frequently, some special diagnostic feature or association with other beds