

## CORRESPONDENCE.

## THE DIVISION OF THE UPPER CHALK.

SIR,—Mr. Jukes-Browne's article under this heading in the April number divides itself naturally into two parts, one dealing with the personal aspect, the other (not altogether impersonally) with the scientific aspect.

As for the personal aspect, the position is as follows: Certain observations as to faunal changes within the old zone of *A. quadratus* were judged at the time of the publication of "The Zones of the Chalk in Hants" not to amount to evidence of zonal breaks; they were therefore treated as indicating the existence of subzonal breaks, whose exact position and nature were then not yet ascertained. A large body of further observations enabled me to define the exact position and nature of these breaks and showed that one of them was of zonal importance, involving the proposal of a new zone. Mr. Jukes-Browne announced this intended proposal of mine in such a form that the natural inference was that it was a mere reshuffling of the data already published—the last thing I desired, and forced upon me by some one else's unauthorized version of my unpublished work.

As for the scientific aspect, some of the points originally raised (or which could be raised on his reply) are not of sufficient general interest to justify further elaboration. Of the broader points, what was expressly stated to be a fact concerning the Yorkshire cliffs is now admitted to be an assumption; and the tabulation of records from the old zone of *A. quadratus* in Sussex under the new zone of *O. pilula*, a representation of fact, is now admitted to be based on an assumption which happens to be false, there being at least 100 feet of the restricted zone of *A. quadratus* exposed in the Sussex cliffs. Surely it is not very "captious" to object to these assumptions being presented as established facts. Mr. Jukes-Browne was *not* told by me that he "had no right" to make the assumption as to Yorkshire. He is entitled to make any assumption; his grounds for making it are then a legitimate subject of criticism.

Several broad points seem to go by default, e.g. that the highest Yorkshire chalk is so far North-German in its apparent affinities that its nomenclature should be North-German rather than Anglo-Parisian, and its fossils should not be mixed up with those of the Anglo-Parisian chalk of Sussex; or again, that records from Yorkshire, where no chalk of the restricted zone of *A. quadratus* is admitted to be preserved, cannot logically be used to prove the absence of certain species in that epoch. If this were logical it could be proved that in Kent all the common fossils of the Chalk died out in the zone of *Marsupites*.

Mr. Jukes-Browne now writes of a "Yorkshire zone of *A. granulatus*", a zone quite novel to me. It would be interesting to know where to find a definition of this zone and how it is distinguished from the zone of *O. pilula* or *Scaphites binodosus*, or again, from Dr. Rowe's "local zone of *Inoceramus lingua*".

Mr. Jukes-Browne's challenge to me to prove that *A. granulatus* does occur in the restricted zone of *A. quadratus* is really irrelevant.

I have not stated that *A. granulatus* does occur there, and if I could not point to an undoubted *A. granulatus* from a horizon at which any Belemnites are most exceptional occurrences it would not prove that *A. granulatus* never occurs there, as assumed by Mr. Jukes-Browne. It so happens that the challenge can be met out of his own mouth. He says: "With respect to Sussex I relied on the published records, according to which . . . in the cliffs between Seaford and Brighton . . . *A. granulatus* occurred through at least the lower 150 feet." As the zone of *O. pilula* is only from 100 to 110 feet thick in the Sussex cliffs (and does not exceed 105 feet at Seaford), *A. granulatus* at 150 feet must be well up in the restricted zone of *A. quadratus*. Specimens of *A. granulatus* occurring at 120 feet would be equally, though less deeply, in the restricted zone of *A. quadratus*.

R. M. BRYDONE.

27 TWYFORD MANSIONS, W.

#### THE LEICESTERSHIRE AND SOUTH DERBYSHIRE COAL-FIELD.

SIR,—I shall be much obliged if any readers of the *GEOLOGICAL MAGAZINE* can inform me of the whereabouts of a collection of Coal-measure fossils, chiefly plants, made by Edward Mammatt, author of *Geological Facts*. He was the first man, as a pupil of William Smith, to put into practice for Carboniferous zonal work the principle that strata are characterized by their organic remains. A detailed coloured section is given in his work, with the position of fossils found indicated. Moreover, these fossils are figured in his work, but unfortunately in the state of lithography at that time accuracy was not possible, and it would be necessary to examine the originals in many cases to be sure what fossil is intended. So valuable is this record, since the sections are now bricked in, that the information the fossils could afford would be of the greatest assistance to me in further working out the palæontology of this coal-field. Mammatt was a friend of the late Professor A. H. Green, who surveyed part of the district, afterwards going to Oxford.

Inquiries were made amongst several colleagues when my preliminary account of this coal-field was communicated to the Survey memoir on this coal-field, published in 1907, but I was then unable to obtain any information. Since I am hoping to revise this account, which was drawn up before the work had gone very far, and as I have a good deal of additional information, any facts of importance that may be known to readers of this Magazine will be cordially welcomed.

When the above-mentioned account was written, reliance had to be placed upon certain data which may, after a fuller study of the question, have to be read in a new light, in spite of the fact that my friend the late Mr. Fox-Strangways and I were satisfied with them at the time. It is in this connexion that Mammatt's sections are specially interesting.—Yours truly,

A. R. HORWOOD.

LEICESTER MUSEUM.

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