

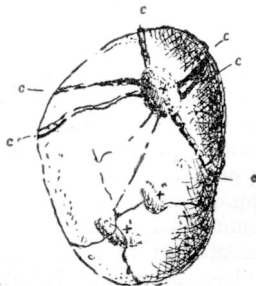
## CORRESPONDENCE.

## THE INDENTATION OF THE BUNTER PEBBLES.

SIR,—In “Annals of British Geology,” 1892, p. 52, is a review or abstract of a paper entitled “The Trias of Cannock Chase,” by T. M. Reade. In this abstract we read, “The indentation of the pebbles he considers to be the result of contact-solution, the water being retained at these spots by capillary action.”

Now, whether this theory of the origin of the pittings or little surface dimples on some of these pebbles is a probable one or not I do not discuss, but a specimen of one of the Cannock Chase pebbles I happen to possess (picked up by myself in the ballast on the London and North-Western Railway, near Lichfield, about eleven years ago) bears unmistakable evidence that the indentations upon it were produced by a squeeze or pressure; for this reason one end of the pebble (a reddish-brown quartzite, by the way) is not only severely fractured into four or five pieces, but is also miniature faulted. The lines of fracture radiate from typical indentations or dimples upon opposite sides of the pebble. Here, then, at all events, is an actual instance of a Bunter pebble not only indented by other pebbles in contact with it *in situ* in the conglomerate, but it is evident the pressure upon its sides was great enough to split it and dislocate its fragments. The once-open cracks, so produced, are now filled with calcite, which acts as a cement, holding the several portions of the pebble together. This fact supports the physical or mechanical origin of the indentations of the Bunter pebbles. Can Mr. Reade adduce *evidence* in support of the chemical theory, of which it does not appear he gave any in his paper?

Here is a sketch of one side of the particular pebble I refer to.



x = One of the indentations  $\frac{5}{16}$  in. long.

x' x' Lesser indentations with finer cracks in contact therewith.

c, c, c, cracks in pebble, now filled with calcite.

NOTE.—Corresponding indentations on opposite side in a larger one than this.

ERIE, PA., U.S.A., 7th February, 1895.

W. S. GRESLEY.