majority of cases to pay the travelling expenses of the referee. I am aware that disputes cannot always be settled in this way; but the three sections I have named are so clear and simple, that a third party can hardly fail to come to an immediate decision, and we should select a person whose award would carry weight. If Mr. Blake refuses this challenge, I will offer to take any competent geologist to the sections, and to forfeit five gunieas to a hospital if I fail to convince him.

CH. CALLAWAY.

November 20th, 1891.

"CONCRETIONS" IN MAGNESIAN LIMESTONES.

SIR,—There is another possible method, besides those suggested by Messrs. Garwood and Jukes-Browne, by which the globular and pseudo-coralline and other forms so remarkable in the Magnesian Limestone of Durham may have originated—the mechanical; and this is slightly alluded to by Professor Sedgwick (page 92).

Many years ago a friend presented me with a considerable series of specimens obtained from the neighbourhood of Sunderland; their examination seemed to indicate that their forms were due to mechanical action, but it was difficult to imagine how the principle on which a school-boy's marbles, "alleys, tors and commoners," are formed from cubical fragments of stone, could have been applied by natural means; nor did a visit to the extensive quarries at Fulwell, north of Sunderland, assist in solving the problem. The promontory on which Tynemouth Castle stands may possibly help to afford a solution. The strata forming the base of the cliff consist of Coal-measure Sandstone, on which rests a bed composed of angular fragments derived from the same, and over this the Permian Limestone has been deposited. This Limestone is full of cavities resembling in appearance some examples of vesicular trap.

I would suggest that during the formation of the limestone, and whilst it was still in a more or less plastic state, gases evolved from the decomposition of vegetable matter forming beds of Coal made their way through the basement beds of limestone. Such vesicles as occur at Tynemouth might be expected to have been formed under these conditions, and it is quite possible that the globular forms of the so-called "concretions," which occur near Sunderland, may have originated from a similar cause, though under somewhat different circumstances, such as the amount of gas evolved; the amount to which the lately deposited limestone had consolidated, etc. Whatever was the cause of the fashioning of the globular masses, the same must have been the instrument by which the coral-like forms were shaped.

I much regret being so circumstanced that I could not conveniently carry out a series of experiments to determine the possibility of the globular forms being due to the cause suggested. The only rough attempt made was so far satisfactory that the passage of carbonic acid, generated beneath clay in a plastic state, resulted in the production of many small rounded forms.

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