stratification on either side of it. But I do not perceive that Mr. Wood attributes this effect to the supposed faults, either at Bulchamp or at Hitchin.—I am, yours faithfully,

O. FISHER.

ELMSTEAD RECTORY, COLCHESTER.

ARE THE CORALLINE CRAG OF SUFFOLK AND THE BLACK CRAG OF BELGIUM CONTEMPORANEOUS DEPOSITS?

To the Editor of the GEOLOGICAL MAGAZINE.

DEAR SIR,—In 1864 I communicated a short paper to your excellent Magazine on the Crags of Suffolk and Belgium. I was led from a comparison of the lists of Mollusca, mainly, I confess, by the "percentage method," to associate the Red and Coralline Crags of Suffolk with the Yellow Crag of Antwerp, regarding the Grey Crag and Black Crag as anterior deposits. Mr. Godwin-Austen, in a most instructive memoir published in the Quart. Journ. Geol. Soc. No. 87, August, 1866, deals with the question of the Crags in a comprehensive and philosophical manner, rejecting conclusions derived from percentage calculations, and regarding rather the conditions and relations indicated by the nature of the deposits and general aspect of the fauna, which he has lately examined himself in Belgium. I have read this memoir with great pleasure and profit, and am quite prepared to regard the Grey Crag of Belgium as owing its apparent distinctness from the Yellow Crag to the presence of redeposited Black Crag fossils. But there is one point on which I would ask for further elucidation. Mr. Godwin-Austen says (p. 238), "The corresponding conditions on the English and Belgian areas of the Crag sea are the Red Crag and the Scaldésien (Yellow and Grey Crags); both are 'remanié' accumulations." "The Red Crag was from the break up of a neighbouring Bryozoan sea-zone, the Scaldésien from ooze depths. Any comparison of the fossil contents of the 'Coralline Crag' and of the 'Crag noir' must be subject to the consideration of differences which result from depth and condition of sea-bed." From this I gather that the Coralline Crag in Suffolk is considered to represent the Black Crag of Belgium, and to be contemporaneous with it. If this is the case (apart from the objection that the fauna of the Black Crag has an aspect so distinct from that of the three other Crags—explained by Mr. Godwin-Austen as the result of differences of depth), how is the occurrence of the teeth of species of sharks and Cetacea in a "remanié" condition in *both* of our Crags to be accounted for? Specimens of the teeth of *Carcharodon megalodon* and *Rhinoceros* in a worn condition have been obtained from the *base* of the Coralline Crag. No specimens of fish or Cetacean remains occur in our Coralline Crag in an unworn, unrolled condition as they do in the Black Crag. Whence, then, did the abundant "remanié" Cetacean and shark fauna of our Red Crag come? from what deposits are they derived? The answer which I have before suggested to these questions, which I do not think are considered by

Mr. Godwin-Austen, is, that the Coralline Crag was not contemporaneous with the Black Crag. The Black Crag is an older deposit of the Crag sea, which had its representative in Suffolk, and from which first the Coralline (in but very small numbers), and then the Red Crag, has derived its sharks' teeth and Cetacean bones, as have also the Yellow and Grey Crags of Antwerp. Though the conditions of the deposition of the Coralline Crag differ greatly from those of the Red Crag, it does not follow, without further evidence, that they were conditions contemporaneous with those under which the Black Crag of Belgium was deposited.

I have ventured to make these few observations, in relation to the views of so eminent a geologist, chiefly with the desire that some one may offer a better answer to my questions.

Very truly yours,

E. Ray Lankester.

Christchurch, Oxford, *January* 11, 1866.

THE LOWER CARBONIFEROUS ROCKS OF NORTH WALES.

To the Editor of the Geological Magazine.

Dear Sir,—In connection with this subject, it may interest Mr. Green and others of your readers if I subjoin an extract from a paper on the "Mountain Limestone of North Wales," read by me before the Oswestry Field-club, on June 4, 1861, and published in the proceedings of that Society.

"The Yoredale series, which, in Yorkshire, presents an alternation of beds of shale, limestone, sandstone, and coal, is not represented in North Wales. unless we regard the uppermost beds of limestone and shale and the lowest fossiliferous layers of Millstone-grit in our neighbourhood as occupying the same horizon, viz., lying between the limestone proper and the coarse and unfossiliferous grits."

Such was the suggestion I offered nearly six years ago, still I think it would be unwise to interfere with the nomenclature of the "Survey" in this respect, especially since the change in North Wales from calcareous to arenaceous matter is much more sudden and permanent than it is further north, and also while some Mountain Limestone fossils extend from the base of that formation to the top of the grit, yet at varying horizons along the belt these become associated with plants and other fossils of the Coal-measures. I would also observe that the top coarse beds of Mr. Green's section are very local in their occurrence, and give place in the neighbourhood to those of a much finer texture.—I am, Sir, yours truly,

D. C. Davies.

Coneygreen House, Oswestry, *January* 11, 1867.
