

## SUBSIDENCES AT BLACKHEATH.

SIR,—A friend has just sent me the report of the committee for the exploration of the subsidences of Blackheath.<sup>1</sup> The description of the locality by Mr. Holmes is very clear; and the arguments for an archæological explanation of the phenomenon well put. There is one point, however, that is not mentioned. I would ask, are these occurrences a new feature at Blackheath? It appears that *one* occurred in April, 1878, and *two* in November, 1880. It is hardly probable that three should have occurred within so short an interval from causes which, if they be those suggested by Mr. Holmes, must at any rate have been in operation for at least centuries; and no such event have happened before.

I have not examined this locality, but Mr. Holmes' excellent diagram renders that hardly necessary.

I have given some attention to phenomena of this kind. In 1858 I examined, and described in the *Journal of the Geol. Soc.*,<sup>2</sup> a most remarkable but too little known collection of natural conical pits on Affpuddle and Piddletown Heaths in Dorsetshire. The stratification is there very similar to that at Blackheath, but the depth to the chalk surface probably less. The pits may be counted, I suppose, by hundreds. The larger ones are marked by small circles on the Ordnance Map. It is evident that the sinking of the soil is in constant progress, for there are recent shallow step-like depressions round the edges of many of the pits, and I have been assured by old residents in the neighbourhood, that a well-shaped pit once suddenly appeared, and its sides afterwards fell in. There is, then, evidently a constant cause at work, and its result continually manifested. Is there any evidence of this being the case at Blackheath? Apparently not. The cases, therefore, are probably not analogous; and this would be sufficiently accounted for by the greater depth of the chalk at Blackheath, and the nearness of the water-level in it to its upper surface; so that "pipes" would not be produced in the chalk beneath the Tertiaries.

But I have also described another instance of a natural pit formed quite recently, where, as far as I know, none had ever been formed before; and in other respects having points of similarity to those at Blackheath. This occurred in 1861 at Lexden, near Colchester. It is described in this *MAGAZINE*.<sup>3</sup> The points of similarity appear to be; (1) The novelty of the occurrence; (2) The depth of the chalk below the surface; (3) The chalk being covered by an impervious stratum (London clay); (4) The surface of the chalk being below the water-level of the district; (5) The recent establishment of works in the neighbourhood, pumping water from the chalk.

By sending these remarks I do not presume to controvert the archæological view taken of the case, for I have no special knowledge

<sup>1</sup> Blackheath: Edgar Neve; 1881.

<sup>2</sup> Vol. xv. p. 187, 1859. It need hardly be said that the views there given on denudation are out of date.

<sup>3</sup> Vol. II. No. 9, p. 101. (The diagram being inverted is corrected at the end of No. 10, facing p. 192.)

to bring to bear on that side of the question. But I have thought it worth while to recall attention to the Loxden subsidence, and to my remarks upon it.

O. FISHER.

HARLTON, CAMBRIDGE, 11 Dec. 1881.

JUKES AND THE SUPPOSED LAURENTIAN ROCKS IN DONEGAL,  
IRELAND.

SIR,—From a letter that I have received, it would appear that some question my statement in the letter on the “Lower Palæozoic Rocks of Wexford,” that *Jukes first suggested the possibility of there being Laurentian rocks in Donegal*. I find that new men in new countries, who do not take the trouble to learn what others have previously done, often bring forward “new discoveries,” which, although new to them, are well known and old to those acquainted with the country. The present question appears to be a case in point. It must be about twenty years ago when Jukes first suggested that some of the rocks in Donegal were possibly of Laurentian age, and when King, of Galway, made a similar statement in reference to the Connemara rocks. At all events, when I was sent to the West Galway district about the year 1863, I was specially instructed on this point, because it was supposed that possibly Laurentian rocks might be found in Galway, Mayo, and Donegal. While working in North-west Connaught from 1863 to 1871, I have over and over again discussed the probability of Laurentian existing in the above-named counties with Jukes, King, Melville, Harkness, and all other geologists who visited me during those years, among whom was Prof. Hull. I suspect that even Sir R. I. Murchison, in the papers published in the *GEOL. MAG.* about that time, also mentions Mr. Jukes’ suggestion as to the Laurentian age of some of the Donegal rock, but I cannot here refer to those papers. I therefore believe that I am quite justified in stating as I have done in the first chapter of the “Geology of Ireland,” and in my late letter to the *GEOL. MAG.*, that any credit due is due to Prof. Jukes, until some one works out the question in detail; which has still to be done. At present even the age of the associated rocks with those suggested to be Laurentians is uncertain. They may be of the same age as those at Creggaunbaun, south of Clew Bay, which have been proved by Syme to be Upper Silurians; or they may be Cambro-Silurians; or in part they may be, as suggested by me in the paper read before the Royal Irish Academy, “On supposed Cambrians in Cos. Tyrone and Mayo,” Cambrians; or, as does not appear improbable, if the statements made in reference to the Donegal rocks are correct, all the rocks of the country may belong to one sequence, the supposed Laurentians being a portion that is more metamorphosed than the rest; and as in many other metamorphic regions, brought down by a fault or faults into a juxtaposition with less altered rocks.

The latter suggestion is a very natural one, when we consider that on account of a similar position of rocks, a portion of the rocks of West Galway are said to be of Laurentian age. Now, in West