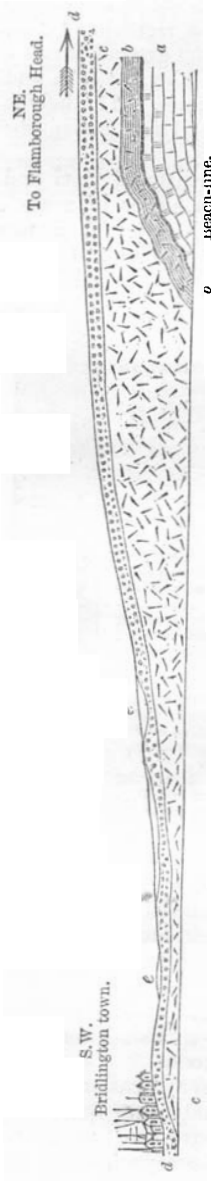


Section at Bridlington (length about 10 furlongs).

*a.* Chalk.
*b.* Base of Boulder-clay, consisting of a black clay, with abundant small chalk-detritus; 10 feet.
*c.* Purplish black clay, with occasional stones, being the ordinary Boulder-clay of the coast of South Yorkshire; 80 feet where thickest in section.
*d.* Ferruginous gravel; from 6 to 15 feet.
*e.* White chalky marl, in deep indentations in *d*.

## CORRESPONDENCE.

### THE BRIDLINGTON CRAG.

*To the Editors of the* GEOLOGICAL MAGAZINE.

As your correspondents from Bridlington have not furnished you with any explanation of the geological position of the so-called 'Crag' of that place,* I send you a section, taken by me during the early part of the present summer. It will be seen that about a mile north of the town, the base of the Boulder-clay (or Upper Drift) is brought up by an abrupt upheaval of the Chalk, upon which the clay rests. This clay (forming, with its capping deposits, the whole of the Holderness country) dips towards Bridlington Harbour; and there the gravel and overlying marl come down to the beach. The base of the Boulder-clay, where brought up, consists of a bed of dark clay, abounding in small chalk-detritus; but, so far as I could detect, it yields no fossils, and has nothing whatever like 'Crag,' or any sandy bed, underlying it. The section is interesting in many respects; amongst others, in showing the disturbances on this part of the Yorkshire coast to have begun subsequently to the deposition of the Boulder-clay (*c*), and prior to the overspread of the gravel (*d*); and to have been renewed after the deposition of the white marl (*e*), resting upon it, a deposit probably identical with those described by Phillips as yielding fresh-water remains at various points on this coast. A sand or gravel is shown by borings to be present under the clay further to the south, extending from Hull eastwards along the Hull and Withernsea Railway to the sea. That bed, however, I regard as indicating the occurrence, at this part of Yorkshire, of the upper series of the Lower Drift, which covers

* See GEOLOGICAL MAGAZINE, No. 2.

great part of Norfolk, Suffolk, and Essex. It is certainly possible that this bed might reach to Bridlington, and be abruptly overlapped by the clay, between the harbour and the place where the Chalk is forced up north of it, as the Lower Drift is undoubtedly overlapped by the Boulder-clay at various places along its inland border, in the more southern counties; but the dip of the Boulder-clay towards the harbour militates against the Lower Drift, even if present under the clay, coming up at that place. On the whole, I can see no other tenable conclusion than that the so-called 'Bridlington Crag' is, either a fossiliferous bed of the Boulder-clay (or Upper Drift), or else the base of the gravel that rests upon the clay, and extends inland to the foot of the Wolds, round by Beverley to the Humber, and is fossiliferous at Paull's Cliff, where I collected a few of the existing Bridlington shells.

The bed of cretaceous flint gravel referred to in Young and Bird's 'Geol. Surv. Yorksh. Coast' I take to be the stratum *b* in the annexed woodcut, although that bed is not really gravel.

Mr. S. P. Woodward, in his list of 'Shells from the Newer Pliocene or Norwich Crag,'* includes, not only Mollusca from the Bridlington bed, but also from Chillesford, and from Weybourne, Cromer, and Mundesley, the marine beds of all of which, I think, can be shown to be in no way connected (in structure) with the Norwich Crag, but to form horizons in the Lower Drift; while the Bridlington bed, assuming it at the lowest—namely, the base of the Boulder-clay, is separated from the Norwich Crag by the Lower Drift deposits, possessing, where they occur, an aggregate thickness of not less than 250 feet.—Your obedient servant, SEARLES V. WOOD, Junr.

## MISCELLANEOUS.

HONOURS CONFERRED ON MEN OF SCIENCE.—H. M. the Emperor of Austria has been pleased to confer the Knighthood of his Order of St. Leopold on W. K. Haidinger, M. & Ph. D., &c., Director of the Geological Survey of Austria and of the Imp. Roy. Geological Institute of Vienna, 'in acknowledgment of his distinguished scientific exertions and his successful superintendence of the Imp. Geol. Institute.' The same distinction has been conferred on Professor Martius, of Munich, and on Professor Noeggerath, of Bonn, on the occasion of the celebration of their semi-centenary scientific careers. The Knighthood of the Imperial Order of Francis-Joseph had been conferred (on the 6th of last August) on Director Hohenegger, since deceased.—COUNT M.

M. L. HOHENEGGER, born at Meunningen (Bavaria) in 1807, died, after a short illness, on August 25 this year. Having filled sub-

* A Sketch of the Geology of Norfolk, by the Rev. J. Gunn, F.G.S. (Reprinted from White's County Directory, 1864, pp. 13, &c.)