Note on the Ham Hill Stone.[1]

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THE celebrated building stone of Ham Hill, near Yeovil, offers but little attraction to the collector of fossils, for he may hammer away in the quarries all day long, without obtaining any palæontological reward; but the stone is not without geological interest, for it differs considerably from the ordinary beds of the Inferior Oolite, and its precise position in that series has been a subject of some discussion.

The ordinary beds of the Inferior Oolite comprise an upper division of marly, oolitic, and iron-shot limestones; and a lower division of sands (known as the Midford Sands) with impersistent bands and large concretionary masses of calcareous sandstone. The Ham Hill stone is mainly composed of sand and comminuted shells. In considering its relation to other divisions of the series, we must, of course, remember that however persistent the ordinary or characteristic features of a formation may be in our country, such features after all are but local portions of the original formation; and with regard to marine deposits, were the full record of each period preserved and open to our inspection, it would no doubt exhibit as much diversity as do the sea-bottoms at the present day.

In the case of the Ham Hill stone, we picture a shoal of shifting sands and broken shells, such as may be found in many areas of the English Channel or the German Ocean; and we are thankful, while searching for fossils, to recognise

(1). Communicated by permission of the Director General of the Geological Survey.

even the fragment of a Pecten or an Oyster. After contemplating the rock, and endeavouring to picture the conditions under which it was formed, it is but natural to inquire into its precise position in the Inferior Oolite series, and to ascertain what others have said upon the subject. Unfortunately, a study of the literature is likely at first to create a feeling of perplexity, for those who have written about the Inferior Oolite of the Yeovil district, have not agreed in the correlation of its members with those in other parts of the West of England; nevertheless, by the aid of personal observation, we may extract the truth from the several Geological papers, and ultimately restore comfort to our minds.

Mr. Charles Moore (to whose papers we naturally turn for information on the Lias and Oolites of Somersetshire) has given the best account of the strata at Ham Hill; but he did not enter into the question of their exact equivalents, as his object was simply to show the intimate connection between the so-called Midford sands and the limestones of the Inferior Oolite, in opposition to the view of Dr. Wright, that the sands should be grouped with the Upper Lias.[1] On the Geological Survey Map, the Ham Hill stone is coloured the same as the Inferior Oolite Limestone; but Mr. Bristow, who originally surveyed the area, has expressed the opinion that the stone is the equivalent of the upper part of the Midford, or Inferior Oolite sands, which contain thin and interrupted beds of limestone.[2] This is the true view of the case, and Professor Buckman claimed to have been the first to point it out.[3] Thus, layers of stone, like Ham Hill stone, appear in the Sands in the railway cuttings near Yeovil Junction, and in some of the deep road-cuttings or "hollow-ways" of Babylon Hill. Lately, Mr. W. H. Hudleston has drawn particular attention to one of these layers, opened up in a pit at Stoford,

(1). Moore, *Proc. Somerset Arch. Soc.*, vol. xiii.
(2). Damon's *Geology of Weymouth, etc.*, 1844, p. 219.
(3). *Proc. Somerset Arch. Soc.*, vol. xx, p. 162.

west of Yeovil Junction. This shelly-layer yielded *Trigonia angulata, Tancredia, Ammonites (Harpoceras) Moorei,* and *A. radians.*[1] These shelly limestones may be traced in places to the south and south-west of Yeovil, and there is a large quarry, in stone similar to that of Ham Hill, at North Perrot, east of Crewkerne.

Although the Ham Hill stone is, as a rule, devoid of recognizable fossils, I have obtained several specimens of *Rhynchonella cynocephala* in the beds exposed on the eastern side of the outlier, in a quarry about half-a-mile south-west of Montacute Church, and this discovery has since been confirmed by the Rev. H. H. Winwood. This fossil corroborates the stratigraphical evidence that the Ham Hill stone belongs to the upper part of the Midford or Inferior Oolite Sands.[2] While Professor Buckman recognized the true position of the Ham Hill stone in reference to the Inferior Oolite series of the neighbourhood, he was not justified in grouping the upper part of the Sands at Yeovil with the lower part of the Inferior Oolite limestone of the Cotteswold Hills. His son, Mr. S. S. Buckman, has pointed out that although the limestones of Dorset are comparatively thin, yet palæontologically they represent the whole of the Inferior Oolite limestones of Cheltenham, and yield the same succession of Ammonite-zones; a succession confirmed by the more recent observations of Mr. Hudleston. Hence the Sands below the Inferior Oolite limestone in Dorsetshire, Somersetshire, and Gloucestershire are approximately the same, and the term Midford Sands, given to them by John Phillips, is applicable to all these areas.

(1). *Proc. Geol. Assoc.*, vol. ix, p. 190.

(2). As mentioned in my Notes on Brent Koll, a variety of *Rhynchonella cynocephala* occurs at a higher horizon in the Cotteswold Hills. *Bath N. H. and A. F. C. Proceedings*, vol. vi, No. 2.