

how Hordwell Church has had to be rebuilt inland, and who remembers how the old site of the churchyard is near the edge of the present cliff, will be surprised to hear that in this part the coast is not receding at all.

I may perhaps be allowed to take the present opportunity of recording one or two new facts concerning the interesting Oligocene strata of the Hampshire basin. A year or two ago I discovered a single vertebra of a true Cetacean in these strata, and the bone was described by Prof. Seeley. Prof. van Beneden has now recorded the discovery of vertebrae, similar in many respects to the British specimen, in strata of the same age at Helmstedt. These two examples are probably the oldest known non-zenodont Cetaceans. Hitherto no Bryozoa have been recorded from the British Oligocene; but recently Mr. F. Chapman, one of the staff of the Geological Laboratory here, has found on oyster shells from Colwell Bay a form regarded by Mr. Vine as identical with the *Membranipora Lacroixi*, which Mr. Busk found encrusting shells from the London Clay.

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THE MIDDLE HEADON MARINE BED AT HORDWELL.

SIR,—Mr. H. Keeping, of Cambridge, has asked me to send an account to your MAGAZINE of some work we have been doing together at Hordwell Cliff, Hants; viz. the re-opening of the Middle Headon Marine bed.

This bed has not been seen *in situ* here for upwards of thirty years, it having been obscured by talus from the superincumbent gravel, and its exact position has been disputed.

The earlier writers on this subject state that it underlies many feet of freshwater strata. This appears to be an error due to the fact that the bed seen by them was a slip close to the shore. Mr. Keeping opened the bed in its true position many years ago, and has now succeeded in finding it again. The spot selected by him for the digging is situated on the west side of a pathway down the cliff called "Paddy's Gap," about 600 steps to the east of the boundary bank between the Hordwell and Newlands estates, which is marked on the road running close to the cliff by a gate-lodge.

A pit eight or ten feet deep having been sunk through the talus, the following section was obtained:—

1. Soil, 1 foot.
2. Gravel, 25½ feet. The gravel immediately over the Tertiary beds is stained a very dark brown colour, with iron oxide.
3. Whitish sand, 1 foot to 1½ ft.
4. Marine bed, 1 foot to 1½ ft. Sand and comminuted shells, containing an abundant fauna chiefly of small and minute species of mollusca, estuarine and marine, including such common and characteristic species as the following:—*Pisania labiata*, *Murex sex-dentatus*, *Cancellaria muricata*, *C. elongata*, *Scularia lavis*, *Nerita aperta*, *Neritina concava*, *Cerithium*

pseudo-cinctum, *C. ventricosum*, *Ostrea velata*, *Cytherea incrasata*, *Cyrena pulchra*, *Corbicula obovata*, etc.; while the characteristic and purely marine fauna of the Brockenhurst zone is almost entirely absent.

5. Light bluish-green clayey sand, in which specimens of *Paludina* and *Unio* were found.

The position of the marine bed was estimated to be at least 13 ft. above the shore.

About a third of a mile to the east, near Westover Lane End, there is a slight upthrow, showing the *Unio* bed, and also about 10 feet of the underlying green clays; it was under this that the previous writers had placed the Middle Headon marine bed, instead of above it.

A sufficient quantity of the bed excavated was thrown out to enable geologists to identify it for many years to come. I also had some of it brought away to work for the small species.

The pit was inspected by Professor Boyd Dawkins, and by Messrs. H. Willett, of Brighton, and T. W. Shore, of the Hartley Institution, Southampton. These gentlemen were quite satisfied as to the position of the bed. I must add that Mr. Willett, with characteristic generosity, has defrayed the expense of the excavation. Mr. Shore also gave help.

OTTERBOURNE, NEAR WINCHESTER,
October 1st, 1883.

JOHN W. ELWES.

OBITUARY.

JOACHIM BARRANDE.

BORN 1799: DIED 1883.

We regret to record the death of this veteran palæontologist, who, since about 1845, has devoted himself to the investigation of the geology and palæontology of his adopted country, Bohemia. Born in France and educated in Paris, he was early attached to the Bourbon family and went into voluntary exile with them in 1830, taking up his abode thenceforth in the city of Prague. His labours in elucidating the Silurian System of Central Bohemia extending over nearly 40 years have resulted in the production of 22 massive quarto volumes of text, and admirably executed plates of fossils, probably the most elaborate and costly work ever produced by a single worker. (We shall give a full account of Barrande's labours, with his portrait, in our next Number.—*EDIT. GEOL. MAG.*)

We have also to record the death, in his 75th year, of THE REV. DR. OSWALD HEER, Professor of Botany in the University of Zurich—the well-known palæobotanist, and author of the admirable work entitled "*Urwelt der Schweiz*" (Zurich, 1865), published in this country by Mr. James Heywood, F.R.S., in 1876, under the title of "*The Primæval World of Switzerland*" (translated by W. S. Dallas, F.L.S., Sec. Geol. Soc.). Dr. Heer is the author of nearly 100 papers on Palæobotany and Entomology.