

together with an additional 69 feet, mostly of clay, subsequently cut through, were, for reasons given, assigned to the Wealden series and probably to the Hastings beds. The results of these additional details went to show (1) that, though the Lower Greensand itself was rather thicker at Chatham than at Dover, comprising two divisions, the Folkestone and the Sandgate beds at the former place, and only the Sandgate at the latter, the Lower Cretaceous beds, as a whole, were much thinner at Chatham, owing to the disappearance of the Wealden series; and (2) that in passing to the eastward the Weald clay thinned out before the Hastings beds, instead of the reverse, which was previously suggested.—The Strood and Lydd sections were merely of importance as furnishing details. The paper concluded with some remarks on the best site for additional borings at Dover, in order to prove the deeper-lying rocks.

CORRESPONDENCE

THE FFYNON BEUNO CAVE.

SIR,—So much interest has been shown in the Ffynon Beuno Cave, and especially in the determination of the age of the bed from which Dr. Hicks and Mr. Luxmoore obtained the flint implement, that I trust you will allow me space in the *GEOLOGICAL MAGAZINE* for a few remarks on the mammalian remains which have been found, and concerning which, as it seems to me, Dr. Hicks is under a misapprehension. In a note to Dr. Hicks's paper, published in the December Number of this *MAGAZINE* (p. 567), he alludes to a remark made by Prof. Hughes on the same subject (November, p. 492), and says: "Prof. Hughes's palæontological argument is found on examination to be almost equally inapplicable, as a very large proportion of the animals occur in the Norfolk Forest Bed, which is acknowledged by all to be of Pre-Glacial age. The fact that some others have not been found in the caverns probably indicates that they did not migrate into the area."

The evidence to be derived from the list of mammals given by Dr. Hicks on p. 571 would certainly lead one to the conclusion that the deposits, from which they were obtained, were of Pleistocene age. It is quite true that most of these species have been found in the Pre-Glacial Forest Bed of Norfolk, and it is probable that others of them will yet be found; although at present the Lion, Reindeer, and Woolly Rhinoceros are conspicuously absent from the Forest Bed fauna. On the other hand, the whole of these Ffynon Beuno cave mammals are met with in acknowledged Pleistocene deposits. And further, it must be remembered, that the forms which are common to the Ffynon Beuno cave and the Forest Bed are those which link on the Forest Bed to the Pleistocene times; and not those which are characteristic of the Pre-Glacial fauna. This brings us to another, and perhaps the most important point, and that is the entire absence of characteristic Pre-Glacial forms from the Ffynon Beuno cave.

Some of the most characteristic species of the Pre-Glacial Forest Bed are *Rhinoceros Etruscus*, *Trogontherium Cuvieri*, *Myogale moschata*, *Elephas meridionalis*, and several large Deer such as *Cervus Sedgwickii*,

C. verticornis, *C. poligniacus*, *C. Savinii*, etc., and the finding of any one of these forms in the Ffynon Beuno deposit would be strong evidence in favour of its Pre-Glacial age; but not one of them has been found.

With regard to the stratigraphical evidence of the age of this deposit, I have nothing to say: but the mammalian fauna would certainly lead one to assign to it a Pleistocene and not a Pre-Glacial origin.

E. T. NEWTON.

PHOSPHATIC NODULES OF THE SALT RANGE, INDIA.

SIR,—Dr. H. Warth, of the Indian Civil Service, writes from Dehra Dún, under date 17th Nov. 1886, referring to certain nodules of Phosphate of Lime, which he found in overlying shales associated with the Salt Range Coal at the localities of Pid, Dandôt, etc. He speaks of these phosphatic nodules as being “nearly equal in purity” to the “bed” of phosphate of lime at Mussoorie Hill-station, which, so far as I am aware, he was the first to notice in this connexion; having sent me some samples from the locality nearly a year ago.

From this locality, it would seem some inferior specimens had been sent home for examination, by order of Government, the London results giving only one-ninth of the quantity of phosphoric acid found by Dr. Warth’s own analysis of better specimens. As to the Salt Range nodules which he has also analyzed, I extract from his letter, viz. :—

“Analysis of phosphatic nodules with hemispherical pores all over the surface from the Pid, Dandôse Colliery, etc., in the Eastern Salt Range; scattered in the shales which overlie the Eocene Coal Seam, and sometimes replacing shells.

	Insoluble silica, etc.	4	per cent.
(P ₂ O ₅)	Phosphorus pentoxide	30	”
(CO ₂)	Carbon dioxide	4	”
(SO ₃)	Sulphur trioxide	2	”
(Cl)	Chlorine	trace	
(Al ₂ O ₃)	Aluminium Oxide	trace	
(FeO)	Ferrous Oxide.....	2	”
(MG)	Magnesium Oxide	2	”
	Balance, Calcium Oxide, water, organic matter and loss	56	”
		100	”

The importance of the occurrence of the valuable mineral phosphate of lime in India leads to the hope that Government will take steps to have the Himalayan limestone zones specially explored with regard to such deposits and to their worth.

A. B. WYNNE.

OBITUARY.

HENRY MICHAEL JENKINS, F.G.S.

BORN 30 JUNE, 1841; DIED 24 DECEMBER, 1886.

WE have to record with deep regret the loss of a valued friend and sometime colleague in the Editorship of this MAGAZINE (1865), who has passed away at the close of the old year whilst still in the prime of life, with the hope of at least many more years of work before him.

Henry Michael Jenkins was born at Fairwater Mills, Ely, near Llandaff. His father, Mr. John Jenkins, an energetic and clear-