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Contents :—

	PAGES
Notes and Comments (Illustrated): —Natural History Magazines, Still Another New Magazine, British Rhizopoda and Heliozoa, Rare Diatoms, Permian Footprints in Nottinghamshire, A Yorkshire Cave Relic, Bradford and Natural History	65-69
The Lesser Grey Shrike near Whitby: an Addition to Yorkshire Avi-Fauna —Thos. Stephenson	70
An Addition to the Yorkshire List of Lepidoptera —T. Ashton Lofthouse, F.E.S.	70
On the Necessity for the Amateur Spirit in Scientific Work —G.W. Lamplugh, F.R.S., F.G.S.	71-80
Birds requiring Protection in Yorkshire —Riley Fortune, F.Z.S.	81-86
Sheffield's Trough Fault —Cosmo Johns, M.I.Mech.E., F.G.S.	87-89
Neolithic Remains on the Northumberland Coast —C. T. Trechmann, B.Sc.	90-91
<i>Brythræa pulchella</i> Fr. —P. Fox Lee	92
Lincolnshire Freshwater Mites (Illustrated) —C. F. George, M.R.C.S.	93-94
Old English Forests	95-97
Notes on Some Speeton-Clay Belemnites (Illustrated) —T. Sheppard, F.G.S.	97-99
Field Notes	94, 100
Reviews and Book Notices (Illustrated)	69, 80, 86, 91, 101-103
Northern News	89, 103-104
Illustrations	66, 68, 93, 98, 102
Plates II., III., IV., V., VI., VII., VIII.	

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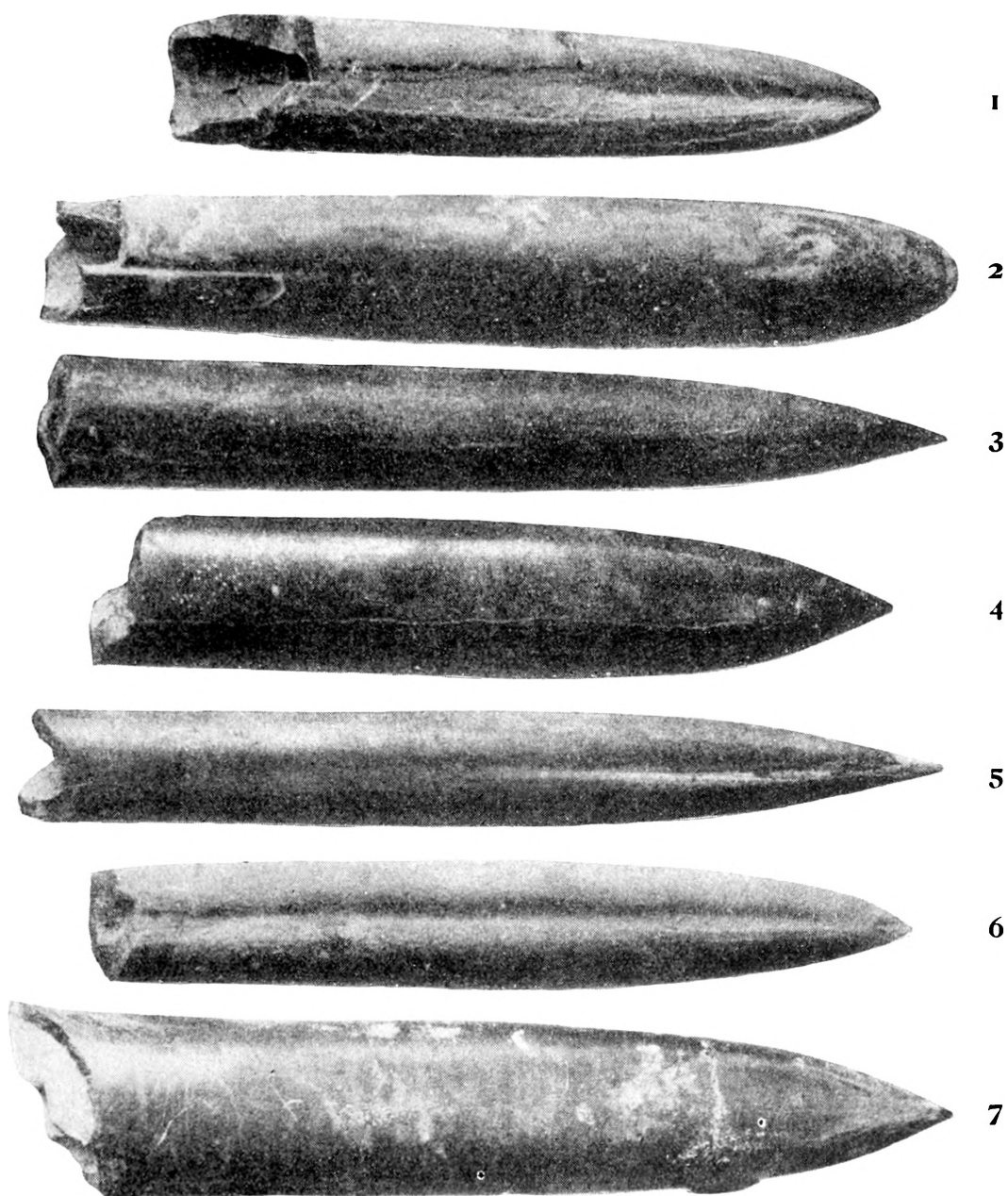
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Deformed Specton Belemnites.



Speeton Belemnites.

the rector was outlawed. John, the chaplain of Hackness, in 1312, knowingly received unlawfully hunted venison and was fined £1 6s. 8d. And so on. Right through the volume are interesting details, valuable alike to the naturalist and antiquary. 'The Royal Forests of England' should be on every naturalist's shelves.



NOTES ON SOME SPEETON-CLAY BELEMNITES.

T. SHEPPARD, F.G.S.
Hull.

PERHAPS one of the best arguments in favour of the necessity of the amateur spirit in scientific work, referred to by Mr. G. W. Lamplugh on another page, is a piece of work now before us, which will particularly appeal to Mr. Lamplugh on account of his former researches on the same ground. I refer to an admirable paper by Mr. C. G. Danford, entitled 'Notes on the Belemnites of the Speeton Clays.'*

The Speeton Clay were first referred to by Young and Bird, in 1822, as the 'Upper Shale,' and from it they figured a few specimens. Phillips, in his well known work on the Yorkshire Coast, a few years later, gave a much more complete account of the beds, with figures of fossils therefrom. In 1868-70, Prof. Judd published some papers in the *Quarterly Journal of the Geological Society*, in which he sub-divided the beds by the aid of the Ammonites. But all these works were eclipsed by a paper by Mr. G. W. Lamplugh, then an amateur, with a little leisure time. Mr. Lamplugh carefully collected from, and measured the different beds, and by the aid of the belemnites they were sub-divided into more or less definite divisions. Mr. Lamplugh's ability, and the exceptional opportunities he had for studying the clays, left us almost without hope of adding much to our knowledge of the fauna of the Speeton Series. A few years later however Mr. J. W. Stather, in the 'Transactions of the Hull Geological Society,' described a section south of the ravine from which he had obtained some specimens which were

* In the 'Trans., Hull Geol. Soc.' vol. III. part I., 1906, with 4 plates. This paper may also be had separately from Messrs. A. Brown & Sons, Ltd., Hull, price 1/6.

new to Mr. Lamplugh's lists. A circumstance certainly well worthy of record. After that, the Speeton Clay did not appear to have the attraction for geologists that its reputation merited. Rain and frost and sea played havoc with the section—large landslips occurred, and when, three or four years ago, a few of us visited the section, we found a huge mess resembling an enormous cauldron of sooty, soppy pudding, such as could not be adequately described without some association with his satanic majesty! It was certainly then thought that not in our time would the section be 'presentable' again, and nothing short of a miracle would enable anyone to add anything new relating to the zones and their fossils.

Soon after this, Mr. C. G. Danford took up his residence



Slipped Mass of Speeton Clay.
(From 'Geological Rambles in East Yorkshire'.)

at Reighton Hall, close by—with most beneficial results to geological science—and to the Hull Museum! As a result of almost daily visits to the section, combined with a perseverance and patience and enthusiasm which did one good to witness, Mr. Danford has not only been able to make order out of muddle and puddle, but he has been able to demonstrate that the zones are by no means so sharply defined, and the range of certain belemnites is by no means so restricted as was previously supposed. He has also added considerably to what was known of the palæontology of the beds. Some of the belemnites he has found were little suspected—though they are now known to occur in some numbers, and several are of by no means small size. It is quite probable that four or five are new to science. Mr. Danford's acquaintance with foreign literature on

the subject has enabled him to compare his specimens with those found in the Neocomian strata on the continent—the result being, that with regard to the Speeton belemnites and their nomenclature local geologists will have to begin *de novo*.

In order however, to put the Speeton belemnites on a proper footing, Mr. Danford's paper is accompanied by four beautiful collotype plates, upon which twenty-six of the typical belemnites—common and rare alike—are figured. Previously some of the belemnites had not been figured at all. Others were in different out-of-the-way publications which were difficult of access. The Hull Society is certainly to be congratulated on enabling geologists for the first time to see the illustrations of the Speeton belemnites together, and the plates are so well executed that identification is quite an easy matter.

The two plates accompanying these notes are from photographs of the specimens which Mr. Danford has placed in the Hull Museum. The number of specimens figured in the memoir under notice is much greater. The first plate (No. V.) shows a number of deformed belemnites. Such examples are by no means common. A deformed specimen from the chalk of Flamborough was figured in this magazine for May, 1904. In one particular bed of the Speeton Clay, however (the *ewaldi* zone) such abnormal specimens are not uncommon, that is to say, to collectors of Mr. Danford's kind. As will be seen from the photograph, some of the guards of these old time cuttlefishes have evidently been damaged at an early stage in the life of the animal. One or two look suspiciously as though some denizen of the Neocomian Sea had taken a bite at these cuttlefishes, and thus abnormally 'shaped their ends.' Others have similarly suffered, either from damage or disease. The specimens figured are:—1. *B. puzosi*. 2. *B. ewaldi*. 3. From the *B. lateralis* beds. 4. From the *B. brunsvicensis* beds, probably *B. speetonensis*. 5. *B. jaculum*. 6. *B. ?* 7. *B. minimus*. 8. *B. ewaldi?* Nos. 2, 3, 7, and 8 are probably post-mortem deformities; the remainder are obviously guards which have been damaged and healed during the life of the animal.

The other plate (No. VI.) illustrates some of the specimens of more particular interest, described by Mr. Danford. The species represented are, in order, 1. (? New). 2. *B. obtusirostris*. 3. *B. brunsvicensis*. 4. *B. jaskowi*. 5. *B. speetonensis*. 6. *B. absolutiformis*. 7. *B. subquadratus*.