(*Reprinted from Nature, Vol. 190, No. 4781, p. 1100 only, June 17, 1961*)

Geological Age of the Sandringham Sands

THE Sandringham Sands, up to 100 ft. thick, form the basal member of the Cretaceous System in Norfolk and rest unconformably on the Jurassic (Kimmeridge Clay); their position in the Cretaceous time-sequence and their stratigraphical relations with other early Cretaceous deposits have hitherto remained in doubt owing to lack of palæontological data. Excavations near Abbey Station, West Dereham, Norfolk (Nat. Grid Ref. 53/65549969), made in connexion with the Fenland Flood Relief Scheme, have provided new sections in the Sandringham Sands from which officers of the Geological Survey and Dr. G. P. Larwood of the Sedgwick Museum, Cambridge, have collected a large suite of fossils indicative of a Berriasian (Infra-Valanginian) fauna new to Britain.

The fossils occur as clustered moulds in nodular masses of hard, grey-brown, glauconitic sandstone with carbonized plant debris, about 30 ft. above the base of the formation. Twenty-eight genera of Mollusca have been identified, mostly lamellibranchs, *Astarte* (*Neocrassina*), *Pholadomya*, *Panopea*, *Hartwellia*, *Isocyprina*, *Thracia*, *Myophorella* and *Isodonta* predominating. Cephalopods are represented by well-preserved examples of the ammonite *Hectoroceras*, described by Spath[1] in 1947 from S.W. Jameson Land, East Greenland, and by numerous hollow moulds of belemnite guards, including those of *Acroteuthis*. Some of the lamellibranch and belemnite species occur also in the Spilsby Sandstone (Berriasian) and superjacent Neocomian strata in Lincolnshire; others, such as the species of *Hartwellia*, *Isocyprina* and *Isodonta*, have their closest parallels in the Upper Jurassic (there is no previous record of *Isodonta* in the British Cretaceous, for example). Many of the shells were ravaged by the boring polyzoan *Graysonia*, only recognized recently in the Cretaceous faunas of Britain[2].

The fossiliferous sandstone is followed within a few feet by the Lower Greensand (Aptian–Lower Albian), this determination being suggested by a rolled specimen of the ammonite *Deshayesites* found among the excavated material. This means that any equivalent of the Snettisham Clay (Barremian) of north Norfolk or the Valanginian–Hauterivian sequence of Lincolnshire is either absent or is present only in greatly attenuated form.

It is now clear that the Sandringham Sands are wholly or in part of Berriasian age and that in the West Dereham area the hiatus at their top is probably as great or greater than that at their base. It is not yet possible, however, to say precisely where this fossil band in the Sandringham Sands fits in with the fragmentary Berriasian successions in Lincolnshire and Yorkshire. In the Spilsby Sandstone there are three distinct ammonite-levels, all characterized by forms of *Subcraspedites*; the lowest, with the sub-genus *Paracraspedites*, is thought to be more or less contemporaneous with the basal Berriasian of East Greenland[3]. *Subcraspedites* is found both above and below *Hectoroceras* in East Greenland, so that the most likely position of the Norfolk *Hectoroceras* fauna is a horizon within or just above that of the Spilsby Sandstone.

Dr. Larwood is preparing a preliminary stratigraphical account of the section. The Geological Survey material referred to above is being further examined.

R. CASEY

Geological Survey of Great Britain
and Museum of Practical Geology,
Exhibition Road,
South Kensington, London, S.W.7.

[1] Spath, L. F., *Medd. om Grønland*, **132**, No. 3 (1947).
[2] Casey, R., *Palæontol.*, **3**, 573 (1961).
[3] Donovan, T. D., *Medd. om Grønland*, **155**, No. 4, 146 (1957).

Printed in Great Britain by Fisher, Knight & Co., Ltd., St. Albans.