Bulletin of the Geological Society of Norfolk

No. 23 (1973)

Published April 1973

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ISSN0143-9286

A STATE OF CONFUSION IN NORFOLK PLEISTOCENE STRATIGRAPHY

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INTRODUCTION

In the days of Clement Reid (l890) the Pleistocene started near the top of the Cromer Forest Bed Series, at the point where the oncoming of cold conditions was indicated by the presence of arctic plants (Arctic Freshwater Bed of Clement Reid). Nowadays the Pliocene / Pleistocene boundary is placed at the base of the Red Crag, so that the Pleistocene includes the thick series of marine sands and silts which comprise the Red, Norwich and Weybourne Crags. However, here I revert to Reid's definition, and discuss the stratigraphy of the glacial part of the Pleistocene, i.e. later than the Cromer Forest Bed Series. Suffice it to say that there is also a state of confusion in the Forest Bed and Crag part of the Pleistocene, with the sequence of climatic stages and their correlation with the continent not yet clearly defined.

The lower limit of the glacial Pleistocene can be taken for our purpose to be the top of the Cromer Forest Bed Series. The boundary between the Cromer Forest Bed Series and the earliest tills can be seen around the coast from Sheringham to Corton. The upper limit can be taken to be the glacial deposits and periglacial phenomena associated with the last (Devensian, i.e. Weichselian) glaciation. These glacial deposits include the Hunstanton Till of the north Norfolk coast, and the periglacial phenomena include the stripes and polygons of the Breckland and the frost mounds of central and west Norfolk. The form of these effects is closely related to the present topography, indicating that there has been little change since the last glaciation.

The problem which concerns us here is what happens between these limits. How many glacial advances were there, and what did each advance deposit?

No formal abstract available for this paper. (Presidential address, 1972)

Bull. geol. Soc. Norfolk (for 1973) **23**, 3-9. (Published April 1973)

A POSSIBLE MECHANISM FOR INVOLUTIONS IN THE NAR VALLEY

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INTRODUCTION

Involutions are a common feature of periglacial areas, and normally occur in the finest grades of sediment. Those of the Nar Valley are distinctive because they occupy a surficial zone in which intensely weathered Carstone has been reduced to a mass of blocks in a matrix of sand. The involutions, which lie dominantly within this weathered mass, appear to have partially lifted joint blocks of Carstone away from their attachment to in situ bedrock. Some involutions also appear to have been affected by solifluction which has resulted in collapsed involuted forms.

No formal abstract available for this paper.
Bull. geol. Soc. Norfolk (for 1973) **23**, 11-24. (Published April 1973)

THE BASE OF THE CARSTONE AT HUNSTANTON

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INTRODUCTION

The familiar rusty-brown Carston of Hunstanton Cliffs needs little introduction to the student of East Anglian geology. The details of the lithology of the Carstone and of its junction with the overlying Red Chalk have received considerable exposure in the geological literature. By contrast, the base of the Carstone and the nature of its contact with the Snettisham Clay, because of its poorly exposed position low down on the foreshore, has rarely been described. Even the few accounts that do exist leave considerable doubt as to where the Carstone ends and the underlying clays begin.

This account cites the interpretations of the Hunstanton Carstone by a number of authors from Rose, (1862); Wiltshire, (1869); Lamplugh, (1899) to re-examination by Casey (1961) of the old collections from the phosphatic nodule bed, together with the ammonite assemblage shown by Mr. H. Le Strange (Hunstanton) to be composed of two fauna, both lower Aptian in age, from the Zones of **Prodeshayesites fissicostatus** *and* **Tropaeum bowerbanki.**

No formal abstract available for this paper.

Bull. geol. Soc. Norfolk (for 1973) **23**, 25-34. (Published April 1973)

EARTH SCIENCE TEACHING AT THE OPEN UNIVERSITY

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INTRODUCTION

In the middle of 1969 a small group of Open University academics and administrators had to decide how to prepare degree courses which could be taken by students working largely independently at home. In science, nine faculty members had the additional problem of how to provide adequate practical science experience to students working at home. In addition the two geologists amongst them had to begin to think how to teach Earth Science 'at a distance' and in particular how to provide adequate field and practical experience for students wishing to study in the Earth Science area.

In less than two years the system of teaching was devised, and if success can be judged by the Open University's current enrolment of 42,000, sales of its materials and their use in other educational establishments, and numerous visitors to the campus, then we have been successful. Our system works well, but it is by no means perfect, and so it is constantly evolving, and we hope improving.

To many people, television would appear to be the medium for such instruction, but in reality the amount of TV time (less than 10 per cent of the student's workload) makes it almost useless on its own. The success of our system is due to the degree of integration achieved between all the components of our courses. This paper outlines how the problem of teaching Earth Science at a distance was overcome.

No formal abstract available for this paper.

Bull. geol. Soc. Norfolk (for 1973) **23**, 35-49. (Published April 1973)