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THE PLIESTOCENE HISTORY OF WEST NORFOLK

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ABSTRACT

The stratigraphical relationships of the various Pleistocene deposits of West Norfolk are discussed and the field evidence which enables part of the Pleistocene history of the area to be deduced is described. Three cold periods, represented by the Chalky - Jurassic till, the Lower Tottenhill Gravel and the Hunstanton till, can be recognized. These were separated by temperate periods during which the Nar Valley Beds and the Hunstanton raised beach were deposited. Comparison of the West Norfolk sequence with those of the adjacent areas of southern Fenland and Lincolnshire suggests that the Pleistocene history of the area may be more complex than has been previously supposed and that the Pleistocene deposits exposed around the edge of Fenland at the present day provide only a fragmentary record of the history of the period.

(Presidential address, 1977)
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THE INFLUENCE OF CHALK FRACTURES UPON THE VALLEYS OF NORTH AND WEST NORFOLK

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INTRODUCTION

The orientation of fractures within the Chalk of Norfolk have been measured at each of the outcrops located within the county. These outcrops are concentrated in the west of the county, near the northern coast and within the larger river valleys elsewhere. To the east of Norwich the Chalk becomes increasingly obscured by Crag deposits, the most easterly in situ exposure being at Postwick, about 6 km. to the east of the city.

Over much of central Norfolk the Chalk is covered by glacial deposits often exceeding 20 metres in thickness. These deposits, which consist in the main of boulder clays, tend to remove any influences of the underlying Chalk upon the present topography. Thus in seeking evidence for the influence of chalk fracture patterns on valley alignments, the five areas used as examples are all in the west and north of Norfolk.

No formal abstract available for this paper.
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THE PLEISTOCENE SUCCESSION AT CORTON, SUFFOLK

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INTRODUCTION

The importance of exposures in Quaternary sediments at Corton cliffs has long been established (Trimmer, 1858; Gunn, 1867; Blake, 1890), and their regional significance is indicated by their designation as type site for the Corton Sands and Lowestoft Till (Baden-Powell and Reid-Moir, 1942; Baden-Powell, 1948, 1950) and the Anglian Glacial Stage (Mitchell et al., 1973). Despite this importance, description of the sediments and stratigraphic relationships have hitherto been qualitative (Baden-Powell, 1948, 1950; Blake, 1890, Gunn, 1867), restricted to particular stratigraphic units (Ranson, 1968, West and Wilson, 1968), or preliminary in approach (Banham, 1971). This report gives the results of systematic study of sediments and sedimentary relationships at present exposed.

No formal abstract available for this paper.

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REPORT ON A FIELD MEETING AT DOBB'S PLANTATION, WROXHAM (TG 273 158)

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SUMMARY

The decision to attempt a dig in this area was taken because of the special interest of the Icenian Beds in the Bure Valley. At one time there were a number of pits near Belaugh, Wroxham, Coltishall and as far up the valley as Aylsham. Many of these pits were originally worked for chalk and the overlying beds, mainly pebbly sands, were dumped back into the pit. The pebbly sands were shelly in parts and it was noted that the bivalve, **Macoma balthica** *was present in the upper beds only. For this reason early writers suggested that there was an overlap of the Norwich and Weybourne Crags in this area.*

The area chosen was a small tributary valley of the Bure, Dobb's Beck, with a line of several pits, now overgrown, marking the outcrop of the Chalk. The most southerly of these, Limekiln Hole, alongside Dobb's Lane, was recorded by Woodward, (1881) who noted casts of shells in ironstone. He noted that the next pit, "three furlongs to the north" showed shells in abundance and gave the following section:

			Feet
	3.	*Pebbly Gravel with shells up to the surface.*	*6*
Under Crag.	*2.*	*Laminated Clay.*	*1/2*
	1.	*Shell Bed, sand and Gravel.*	*2*
Chalk and Flints.			

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A SECTION IN THE "BURE VALEY BEDS" NEAR WROXHAM (TG 273 158)

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SUMMARY

The section was excavated in September 1977, a description of which has already been given (Cambridge, 1978). The History of Research on the Bure Valley Beds.

The fossiliferous, pebbly sands and gravels of the Bure Valley were separated from the Norwich Crag by S.V. Wood and F.W. Harmer because of the occurrence of **Macoma balthica**. *They regarded them as lower glacial and in 1866 gave the name Bure Valley Beds. Harmer, (1894) wrote: "The late Mr S.V. Wood and I have classed the Bure Valley Gravels as the lowest horizon of the Glacial Series. H.B. Woodward of the Geological Survey regards them as belonging to the Crag period." They were recognised as marine, "the pebbles water-worn and rounded . . . of a dark red colour."*

On the other hand Prestwich, (1871) divided the Icenian into Norwich Crag, Chillesford Clay and Westleton Shingle. He regarded most of the fossiliferous beds, with or without **Macoma balthica** *as Norwich Crag. His Chillesford Clay, which Harmer also considered represented a well marked horizon, is not now recognised outside the type area near Chillesford and Aldeburgh in Suffolk. Reid, (1890) commented "such laminated clays are characteristic of the Pliocene (sic) beds of Norfolk, they are not confined to one horizon, they were not all deposited at one particular time and their absence is not necessarily the result of denudation". Much of Prestwich's Westleton Shingle in the area would be classed with the Bure Valley Beds.*

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DEPOSITS MARGINAL TO THE RED CRAG BASIN

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INTRODUCTION

Several deposits, such as the Creeting Beds, lying to the west of the main Red Crag basin have been assigned a Red Crag age and a marine origin by many workers. A recent examination of these deposits has shown that some previous assumptions may be unfounded, and that the age and origin of some beds is doubtful. This brief contribution is in part a review of previous major work on these deposits. It also serves to introduce some quantitative results, which were all too lacking in the earlier literature. It will become apparent, moreover, that a great deal of work still needs to be carried out before firm conclusions can be reached or should be accepted.

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GRAVITY MEASUREMENTS IN THE WASH BY THE UNIVERSITY OF EAST ANGLIA

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INTRODUCTION

The aeromagnetic map of southern Britain (Institute of Geological Sciences, 1965) shows a prominent magnetic anomaly situated over the Wash. The anomaly reaches a peak to peak (positive) amplitude of over 200 gamma and is one of the more distinct individual features in the complex belt of anomalies extending from Central England to North Norfolk. These magnetic anomalies are derived from sources within the sub-Mesozoic floor, and the relationship between the gravity and magnetic anomalies is of considerable geophysical interest. Gravity data for the mainland area has already been compiled by the Institute of Geological Sciences (Gravity Survey Overlay Sheet No. 12), but the Wash was not included. In view of the prominence of the Wash magnetic anomaly we have extended the land gravity survey to include the Wash, and the method and results of the survey are presented in this note. The gravity measurements were made in 1972 and 1973, and further measurements have subsequently been made by the Institute of Geological Sciences. Our work is part of a programme of geophysical and geological studies of the sub-Mesozoic geology in East Anglia, and a preliminary account has already been published (Chroston and Sola, 1974).

No formal abstract available for this paper.

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MARINE OSTRACODA FROM THE QUARTERNARY NAR VALLEY CLAY, WEST NORFOLK

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INTRODUCTION

In the Nar Valley, west Norfolk a complex of Quaternary sediments includes a marine clay called the Nar Valley Clay, first described as Nar Valley Brickearth (Rose, 1865). This clay lies or appears to lie between two tills, Lowestoft Till (Anglian) and so-called Gipping Till (Wolstonian); Turner, (1973, p.14) for discussion. This deposit has been known to contain marine microfossils for over a century and a note listing ostracods and foraminifera was published in 1865 by T.R. Jones. More recently the palynology of the Nar Valley Clay has been studied by Stevens, (1960) using material from boreholes located between East Winch and Narford Hall. On the basis of pollen and by means of comparison with then newly described pollen spectra from the Hoxnian interglacial site at Hoxne, Suffolk (West, 1956) a Hoxnian age was assigned to the Nar Valley Clay. In 1971 a number of slides containing calcareous microfossils, collected by Stevens from her borehole samples, were passed to one of us (ARL) by Professor B.M. Funnell for description. No sediment was then available and as the slides contained only a small number of ostracods with foraminifera, microscopic gastropods and lamellibranchs, echinoderm spines and occasional charophyte oogonia the material was put aside for later study. Recently a rich sample has become available, collected from a reservoir site at East Winch (TF 690 150) by P.G. Cambridge and passed on by Professor Funnell. Further samples were also collected in the East Winch area in 1975 by Mr. H. Evans and given to J.E. Robinson. In view of the recent resurgence of interest in Quarternary ostracods and foraminifera as a result of work in and around the North Sea, the available Nar Valley Clay fauna are listed and discussed.

No formal abstract available for this paper.

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