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The Quaternary Geology of East Anglia

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The Red Crag Formation (Pre-Ludhamian to Thurnian, tentatively Praetiglian to Tiglian B) was deposited in structurally-controlled basins. After a regression, it is followed unconformably by the Norwich Crag Formation (Antian/ Bramertonian to Baventian, tentatively Tiglian C1 to C4c). A regression during the Baventian led to the formation of shoreface gravels (Westleton Beds) and intertidal clays (Easton Bawents Clay) at the mouth of the Bytham River which flowed from the English Midlands. The Chillesford Clay was similarly formed at the mouth of the proto-Thames.

Sands and gravels in north-eastern Suffolk and eastern Norfolk, characterised by the inclusion of pebbles of quartz, quartzite and Welsh volcanic rocks, have previously been considered deposits of the proto-Thames (Kesgrave Formation). However we now know these to be largely marine, and a new formation, the Wroxham Crag, has been set up within the Crag Group. This includes the Bure Valley Beds and Weybourne Crag of earlier authors, and is of Pre-Pastonian to Pastonian age. The transgressions at the bases of the Red, Norwich and Wroxham Crag formations are tentatively correlated with reflectors at the base of the Westkapelle Ground, Smith's Knoll and Winterton Shoal formations of the southern North Sea.

The BGS East Anglia team are currently completing the resurvey of the classic Cromer area of North Norfolk, and this is leading to a considerable revision of our ideas on the glacial stratigraphy. Traditionally a North Sea Drift Formation and a Lowestoft Formation are recognised, with the latter overlying the former, but both being Anglian (Oxygen Isotope Stage 12) in age. Within the North Sea Drift Formation there are three tills (Happisburgh, Walcott and Cromer diamictons of Lunkka). However our mapping is demonstrating that the Lowestoft Formation passes into the North Sea Drift Formation, and most likely equates directly to the Walcott Diamictite. Thus we have abolished the term North Sea Drift Formation: the middle third of it clearly should be termed Lowestoft Formation, the lowest third we term Corton Formation, since it correlates with that formation at Corton in Suffolk, and the uppermost third requires a new formation name.

The splitting up of the North Sea Drift Formation raises doubts as to the Stage 12 age of all of the deposits, and unfortunately little direct evidence is currently available. It is still possible that the Corton and Lowestoft formations both date from Stage 12, but alternatively they may

be from stages 12 and 10, or 14 and 12. The third formation is however most likely of Stage 6 age, confirming that a major glaciation did reach the United Kingdom at this time.

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