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The Geological Society of Norfolk exists to promote the study and understanding
of geology in East Anglia, and holds meetings throughout the year.



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**A STATISTICAL RE-EXAMINATION OF THE LITHOLOGY AND FACIES
VARIATION IN THE CHALKY BOULDERCLAY
OF NORFOLK AND SUFFOLK**

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ABSTRACT

Cluster Analysis and Principal Component Analysis are used as a statistical approach to classification of Anglian tills from Norfolk and Suffolk. Two forms of till classification were attempted. The first, based on variables that define gross lithology - particle size class and carbonate content - is essentially a traditional approach. The second uses the same data but expresses it as ratios of total carbonate or non-carbonate fractions and magnetic measurements of the fine sand fraction. Cluster Analysis of the former data set identifies distinct facies that can be readily associated with previously recognised tills. It is clear that some units of the North Sea Drift Group are linked with the Breckland Drifts, while other units of the North Sea Drift Group are linked with the Chalky Boulderclay. In contrast, Cluster Analysis of the ratio and magnetic variables results in poor differentiation of till facies.



**STRATIGRAPHY OF THE EAST ANGLIAN CHALKY BOULDERCLAY
PLATEAU BASED ON STATISTICAL DIFFERENTIATION
OF TILL FACIES**

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ABSTRACT

This paper analyses stratigraphically the results of two forms of Cluster Analysis used to differentiate between lithologies and facies of the Chalky Boulderclay in Norfolk and Suffolk (Corbett, 2001). The primary aim is to establish the local stratigraphy for borehole sites on the Chalky Boulderclay plateau. Stratigraphic sections of the boreholes deeper than 20 m show a marked contrast in pattern between fades derived from Cluster Analysis of Measured Variables (M clusters) and those derived from Ratio/Magnetism variables (R clusters). M clusters show no obvious stratigraphic pattern. In contrast, R clusters identify a fairly consistent set of units. An upper unit - predominantly Marly Drift, a lower unit - predominantly of Chalky Boulderclay, and a middle unit - a variant of the Marly Drift with inclusions of Chalky Boulderclay. A distinguishing feature of the Marly Drift variant is the high concentration of magnetic minerals.



**GEOPHYSICAL DEMARCATION OF THE SALINE INTRUSION
AT CLEY-NEXT-THE-SEA, NORTH NORFOLK**

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ABSTRACT

The position of the saltwater intrusion into the coastal chalk aquifer at Cley-next-the-Sea, north Norfolk, UK, is established using the Transient Electro-Magnetic method. The geoelectric sections derived permit construction of a simple conceptual model in which six distinct hydrogeological units are recognised. These are the intrusion itself; fresh, brackish and highly saline groundwater zones; confining Holocene deposits and a freshwater lens in Blakeney Eye. The intrusion, which is no deeper than 50 m below sea level within 1600 m of the coast, is affected by pumping from an inland borehole.



**A NOTE ON THE OCCURRENCE OF *ECHINOCARDIUM CORDATUM*
FROM THE RED CRAG, PLIOCENE, EAST ANGLIA**

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ABSTRACT

*The occurrence and distribution of **Echinocardium** in the Red Crag is described and discussed in relation to accompanying molluscan assemblages and interpreted sedimentary structures.*



**A SHORT NOTE ON THE DISTRIBUTION OF
ECHINOCYAMUS PUSILLUS IN THE RED CRAG**

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#INTRODUCTION

Echinocyamus pusillus is an irregular, gnathostome, clypeasteroid sea urchin that has attracted the attention of collectors on account of its 'cute' appearance - its small size, and its widespread distribution in the Red Crag. It is extant today, being commonly called the 'dwarf green urchin' or 'pea urchin'. It is found commonly offshore around British Isles, being a generally boreo-lusitanic species, and knowledge of its habitat and ecology can therefore be directly applied to the Crag.

The body of **E. pusillus** is short, about 10-15 mm at most, with very short, close, dense spines and in life is a grey to green colour. It lives off-shore from below extreme low water spring tide (ELWS) down to 500 m, but is sometimes found on the low shore or may be washed up onto the shoreline. It inhabits coarse sand or gravel and, in particular, shell gravel, where it nestles down between the shells to protect itself from currents. It has sucker discs on its tube-feet to help it move among the shell gravel.

No formal abstract available for this paper.

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REPORT OF SOCIETY FIELD MEETINGS IN 2000

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SUMMARY

To improve attendance at field meetings the Society organised field meetings jointly with the Suffolk Naturalists Geology Group under the auspices of Bob Markham. The following reports refer only to these joint meetings, although there were others that Society members were able to attend, some of which have been reported in the Society Newsletters. An account of the Society's 50th Anniversary geological excursion to Bawdsey is given in Dixon (2000).

The Gipping Valley (June), Pleistocene succession in the Great Blakenham chalk and clay pits.

West Runton (July), Woman Hythe to 300m west of Wood Hill, paleoenvironmental interpretation, fossil collecting and mechanics of the deformation of the Contorted Drift.

Covehithe (August), The Baventian clays and the Westleton Beds sands and gravels.

“Two Islands” visit (September), Joint meeting with Essex Local Group of the Geologists’ Association and the Essex Rock and Mineral Society. The inlier ‘island’ Red Crag at Buckenay Farm, Alderton. Coralline Crag ‘island’ at Sutton Knoll.

No formal abstract available for this paper. (Summary accounts of field trips, 2001)

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