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**TEMPORARY CHALK EXPOSURES IN EAST NORFOLK,  
(UPPER CAMPANIAN, ZONE OF *BELEMNITELLA*  
*MUCRONATA SENSU LATO*) 1989-1990.**

*Paul S. Whittlesea*

8 Eaton Old Hall, Hurd Road, Eaton,  
Norwich, Norfolk, NR4 7BE, UK.

**ABSTRACT**

*The results of investigating two temporary Chalk sections at Drayton and Whitlingham (near Norwich) are reported. Results from Drayton confirmed the expected stratigraphic position and improved knowledge of the fauna in these beds. Integrating the Whitlingham exposure into the local Chalk stratigraphy required a reassessment of data obtained from other temporary sections in the vicinity, several of which were in glacial erratics. It is now concluded that the Whitlingham section exposed the youngest beds of the Paramoudra-1 division of the **mucronata** zone. No extant section exposes the whole of these beds. Fossils recovered from this site substantially improve previous knowledge of the fauna in these beds. Both sites produced samples that yielded new invertebrate species (not described formally here) together with further specimens of some rare taxa known previously only from their holotypes.*



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**THE PALAEOECOLOGY OF TWO CHALKS IN  
THE UPPER CAMPANIAN OF NORFOLK, ENGLAND**

*Paul S. Whittlesea*

8 Eaton Old Hall, Hurd Road, Eaton,  
Norwich, Norfolk, NR4 7BE, UK.

**ABSTRACT**

*A detailed palaeoecological interpretation of two temporary sites in the zone of **Belemnitella mucronata sensu lato** (Upper Cretaceous, Upper Campanian) is presented. Comparison of the faunal composition of these sites indicates that environmental conditions were significantly different. Drayton is interpreted as a warm, shallow water environment, liable to frequent, low-volume sediment influxes that smothered large areas of the sea floor, preserving a succession communities. The dense, moderately diverse fauna was dominated by a suite of mostly small species belonging to a pioneer community. Whitlingham is interpreted as being a cooler, deeper water environment than Drayton, which was liable to regular (though not necessarily frequent), high volume sediment influxes that preserved a sparse, high diversity, mature community. No single phylum dominated the faunal community.*



## HOLOCENE VEGETATION AND SALINITY CHANGES IN THE UPPER BLYTH ESTUARY, SUFFOLK.

*D.S. Brew*<sup>1,\*</sup>, *A.G. Mitlehner*<sup>2,+</sup> and *B.M. Funnell*<sup>1</sup>

<sup>1</sup> School of Environmental Sciences,

University of East Anglia, Norwich, Norfolk, NR4 7TJ, UK.

<sup>2</sup> Postgraduate Unit of Micropalaeontology, Department of Geological Sciences,

University College London, Gower St., London, WC1E 6BT, UK.

\* Present address: British Geological Survey, Keyworth House, Nottingham, NG12 5GG, UK.

+ Present address: Department of Botany, The Natural History Museum,  
Cromwell Road, London, SW7 5BD, UK.

### ABSTRACT

*The Holocene environmental history of the upper Blyth estuary, Suffolk, has been determined using stratigraphic evidence from pollen and diatoms. The succession is dominated by biogenic deposits, with an initial phase of peat deposition about 5000 <sup>14</sup>C yrs BP. An early phase of open freshwater conditions was succeeded by a mixed woodland community dominated by alder, oak and hazel. This was followed by a decrease in the representation of arboreal pollen and an increase in herb pollen, indicating a further period of open conditions. A tentative date of 3000 pollen yrs BP is assigned to this event based on the decline in *Tilia*. The appearance of significant aquatic pollen indicates the development of damper conditions followed by an increase in the numbers of estuarine herb taxa, reflecting higher water levels which culminated in the deposition of clay. During this transgressive phase an initial rise in groundwater level created fresh / brackish water conditions followed by marine submergence of the area. The present-day inland saline penetration (and tidal limit) in the Blyth estuary is the maximum achieved at any time during the Holocene. This contrasts with Broadland where the maximum penetration occurred about 2000 <sup>14</sup>C yrs BP. Variations in coastal physiography causing locally reduced tidal ranges in Broadland are thought to explain this difference. The sequence of events in the upper Blyth estuary is provisionally correlated with events further downstream.*