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A new genus and species of necrocarcinid crab (Crustacea, Brachyura) from the Upper Cretaceous of England

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Abstract

A new genus and species of necrocarcinid crab from the Upper Turonian of Kent, England, is allied to, and may possibly be derived from, the well-established genus *Paranecrocarcinus* Förster, 1968. It represents only the eighth species of crab to be described from the English Upper Chalk (Upper Cretaceous).

Key words: Chalk, Upper Cretaceous, England, Brachyura, Necrocarcinidae

Introduction

Apart from the sandy Cenomanian deposits, particularly as exposed at Wilmington, Devon, which have yielded twentyfour species (Wright & Collins, 1972), occurrences of crabs from the English Chalk Upper Cretaceous) are exceedingly scarce. Only three species, *Notopocorystes normani* (Bell, 1863), *Necrocarcinus woodwardi* Bell, 1863, and *Diaulax oweni* (Bell, 1850) have been described from the Cenomanian Chalk Marl of Kent, Sussex and the Isle of Wight, and *Paranecrocarcinus biscissus*? Wright & Collins, originally described from the Cenomanian Sands of Wilmington, has been recorded from the Cenomanian Limestone of Seaton Devon (Wright, 1997), three species have been described from the Upper Chalk. Hitherto, the oldest, *Hemioon circumviator* Wright & Collins, 1972, comes from the Upper Turonian, *Holaster planus* Zone of Surrey. *Cretacoranina schloenbachi* (Schlüter, 1879) is from the Coniacian, *Micraster cortestinudinarium* Zone of Hampshire and *Caloxanthus purleyensis* (Withers, 1928) is from the same zone of Surrey. *Cretacoranina schloenbachi* is known elsewhere from the Coniacian of Germany (Wright & Collins, 1972).

The discovery of *Shazella abbotsensis* gen. and sp. nov. therefore, not only provides a welcome addition to the crab assemblage of the English Chalk, but considerably extends the range of English necrocarcinids from the Upper Aptian to the Upper Turonian. While virtual absence of typical anterolateral spines and dorsal carinae could jeopardise placement in the Necrocarcinidae, the new species has much in common with smoother species of *Paranecrocarcinus*. Prominent among these are *Paranecrocarcinus libanoticus* Förster, 1968, present among the aforementioned Wilmington crabs, as well as Lebanon, its type-locality, and *Paranecrocarcinus vamburgeni* Fraije, 2002, from the Maastrichtian of The Netherlands. While the damaged frontal area of *Shazella* gen. nov. gives no indication of postrostral slits - a diagnostic character of *Paranecrocarcinus* - the postfrontal constriction sufficiently distinguishes *Shazella* from *Paranecrocarcinus*, from which it may have been derived. Superficially similar to some members of the Dynomenidae, *Shazella* is immediately distinguished by its orbital fissures.

Stratigraphy

Coming as it does from a fallen chalk boulder on the foreshore, the precise stratigraphic position of the specimen is unknown. However, a nannofossil analysis of the surrounding matrix indicates a probable age of CC12-13, i.e. equivalent to the *lata-planus* macrozones of the Middle to Upper Turonian.

Systematic description

Infraorder Brachyura Latreille, 1802
? Section Podotremata Guinot, 1977 s. Guinot and Tavares, 2001
Superfamily Uncertain
Family Necrocarcinidae Förster, 1968

Remarks: In his discussion preceding description of *Corazzatocarcinus hadjoulae* (Roger, 1946), from the Cenomanian of Hgula, Lebanon, Larghi (2004) concluded

that characters possessed by that and other well preserved species assigned to Necrocarcinidae,' exhibit some key characters more typical of the Podotremata than Eubrachyura [de Saint Laurent, 1980],' and questionably assigned the family to the Podotremata.

Genus *Shazella* gen nov.

Type species: By monotypy, *Shazella abbotsensis* gen. et sp. nov.

Diagnosis: Carapace subhexagonal in outline, constricted behind orbitofrontal margin; lobes moderately demarked; cervical furrow well developed, branchiocardiac furrow weak; dorsal surface bilaterally granulated.

Range: Upper Turonian or, possibly, Middle Turonian.

Derivation of name: The diminutive familiar of Sharon. In honour of Mrs Sharon Williams, for her many years of patience concerning her husband's palaeontological researches.

Shazella abbotsensis gen. et sp. nov.
(Fig. 1)

Diagnosis: As for genus.

Material: Holotype. A carapace IC306. Williams Collection, Department of Palaeontology, The Natural History Museum, London, from the ? Middle / Upper Turonian, *lata-planus* macrofossil zones of Abbot's Cliff, between Folkestone and Dover, Kent. Grid Ref. TR280 385.

Derivation of name: From the type-locality.

Description: Carapace subhexagonal in outline; front missing, but length estimated to be a little less than wide (c. 87.0 percent), weakly arched in longitudinal section, the highest point about the mesogastric lobe, and more strongly downturned in front; the branchial region is divided into three almost equal parts, with the median part marginally depressed. The orbitofrontal margin takes up rather more than a half of carapace width (56.0 percent). Probably ovate orbits are forwardly directed. A C-shaped notch in thin, raised upper orbital margins and a more or less infilled notch precedes a triangular outer orbital spine recurving into a marked constriction before a weakly convex anterolateral margin, bisected by a shallow cervical notch. There is a very small, upwardly directed marginal spine at the lateral angle; weakly convex posterolateral margins curve boldly to rounded posterior angles and the median portion of the posterior margin is deeply concave. From shallow gastric pits set about one third distant from the front, the deep cervical furrow is transverse and biconvex at the base of the mesogastric lobe; it is wider round the protogastric lobe, then becoming much weaker, runs outwards and forwards, and recurves round a small, circular hepatic region. Contrastingly weak branchiocardiac furrows, slightly convergent upon the cervical furrow, divide and encircle the epibranchial lobes. The anterior process of the triangular mesogastric region tapers to the base of the rostrum. A semicircular line of granules at the base of each protogastric lobe and lining the anteromedian process, encloses a larger tubercle loosely surrounded by granules, The rather wide, subrhomboidal urogastric and lingulate cardiac lobes are separated by a shallow depression and by deep grooves from the branchial regions: the epimeral adductor muscle scars being only a little more deeply incised. Posterior angles of subrectangular mesobranchial lobes intruding between the uro/cardiac lobes terminate in a tubercle. There is a median tubercle on the hepatic and a pair on the epibranchial lobes, a small median urogastric granule and an anterior pair of larger ones on the cardiac region. Lines of sharp granules pendant from the cardiac region define a smooth intestinal region. Other granules of varying sizes are more or less laterally scattered over the dorsal surface.

Fig. 1. *Shazella abbotsensis* sp. nov., Cretaceous ? Millde / Upper Turonian, *lata-planus* macrofossil zones of Abbot's Cliff, near Folkestone, Kent. Dorsal view. Scale bar = 1 mm.

Discussion: *Shazella abbotsensis* differs from all other known members of Necrocarcinidae by the virtual absence of anterolateral spines, the marked constriction behind the orbitofrontal margin and the absence of median and lateral dorsal ridges. These, latter, are less conspicuous in some species assigned to *Paranecrocarcinus* and in this respect most closely resemble *Paranecrocarcinus libanoticus* (Förster, 1968), *Paranecrocarcinus vanburgeni* Fraije, 2002, or smoother forms among the variables of *Paranecrocarcinus quadriscissus* (Noetling, 1881) figured by Fraije (2002). All these species have a similarly rounded carapace outline and general agreement in

disposition of lobes - particularly the rather broad urocardiac region. Development of anterolateral spines is another variable character in *Paranecrocarcinus*; for instance, the spines being reduced to little more than granules in *P. libanoticus*. However, the (apparent) absence of rostral slits, the prime distinguishing character of *Paranecrocarcinus*, precludes *Shazella* from inclusion in that genus.

A broad postfrontal depression, together with a more posteriorly positioned cervical furrow and well spaced, paired tubercles readily distinguish *Paranecrocarcinus biscissus*. *Corazzatocarcinus hadjoulae* differs primarily in having small, sharp anterolateral spines and a bilateral ornament of tuberculate and/or unadorned ridges.

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