

## Decapod crustaceans from the Kimmeridgian of Bure (Meuse, France)

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### Abstract

Wells being dug at Bure, France, in strata of Kimmeridgian age have uncovered a diverse fauna of reptant decapods.

### Introduction

ANDRA, the French National radioactive waste management agency, is currently constructing two large wells at Bure (Meuse, France) with diameters of 5 to 6 m and an expected final depth close to 500 m, in order to create an underground research laboratory. Recently, depending on progress of construction, three of us (CC, VH, BL) have been collecting fossils from the site, from deposits extracted in slices of about 2 m in thickness. The construction of these wells represents a unique opportunity to compare various subsurface observations (sedimentology, paleontology, geochemistry) on a single vertical, similar to an outcrop. Strata which have provided decapod crustacean remains are all of Kimmeridgian age (*Cymodoce* Zone or *Mutabilis* Zone [Marnes à exogyres inférieures] up to the ?*Autissiodorensis* Zone [lower part of Calcaires du Barrois]; compare Groupe Français d'Étude du Jurassique (1997)). All material is housed in the collections of the Museum-Aquarium at Nancy, under registration numbers MAN 11700 to 11762.

### Systematics

The material comprises the following taxa:

Superfamily Thalassinoidea Latreille

Family Axiidae Huxley

Genus *Etallonia* Opper (= *Protaxius* Beurlen)

*Etallonia isochele* (Woodward, 1876). (Fig. 1)

About thirty specimens are available from the *Cymodoce* up to the ?*Autissiodorensis* zones; propodus flat ( $L/l = 1.8-2.15$ ), shape rectangular, finger triangular, stocky and quite regularly oriented downwards; chela subcheliform; dactylus 1.5 times longer than finger. In 50% of specimens fingers show a tubercle at mid-length; we suggest this to possibly represent a sexual character. In associated pairs, anisochely is very moderate, similar to the type specimen.

During preparation, several propodi developed a color pattern when water, acetone or a protective varnish coating was applied. This pattern showed the two following extremes :

- an 'atoll-like' ornament, often centered on small pits (setae insertions?);
- a 'flame-like' ornament, associated with very weak elevations.

As preserved, propodi are flattened on bedding planes; occasionally two chelipeds of the same individual are found associated. Calcification decreases from the propodus to the carpus and merus; the latter is rarely preserved. Of the remainder of the animal nothing is ever preserved. In some cases,

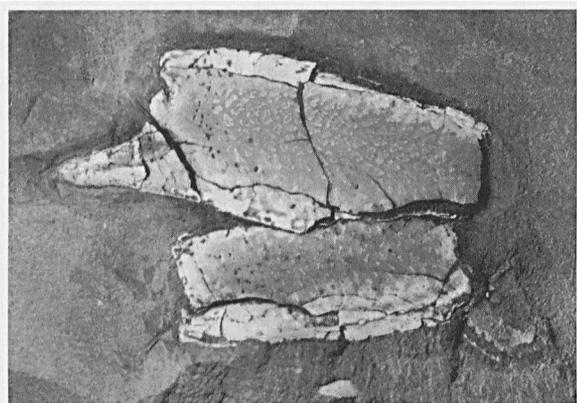


Fig. 1. The axiid *Etallonia isochela* (Woodward, 1876), associated pair of chelipeds (MAN 11718) with preserved colour pattern (length of propodus 17 mm), PAX 1013 (1), co-ordinates  $x = 823.151$ ;  $y = 1091.639$ ;  $z = 339.56$ ; Kimmeridgian (*Eudoxus* Zone, *Contejani* Subzone).

fossils are disturbed and remains scattered by the action of scavengers and/or burrowers. Color pattern preservation is consistent with low-oxygen levels as deduced from other factors (pyrite, organic matter content).

Superfamily Paguroidea Latreille  
 Family Paguridae  
 Genus *Palaeopagurus* van Straelen

*Palaeopagurus* sp.

A single rectangular propodus is available from the *Mutabilis* or *Eudoxus* Zone, convex externally, with a short and triangular finger; inner surface of finger concave (spoon like); ornament consisting of tiny tubercles, perforated by setae insertion pits. About ten depressions lining up on external side of finger; a large, circular tubercle at base of finger. Five low, imperforate tubercles on external side of articulation of dactylus. This may represent an undescribed species of *Palaeopagurus*.

Infraorder Astacidea Latreille  
 Family Erymidae van Straelen  
 Genus *Eryma* von Meyer

*Eryma* cf. *babeau* (Etallon)

The posterior portion (right-hand side) of a largely incomplete cephalothorax is here attributed to *Eryma babeau* with a query. Size, orientation, and arrangement of preserved portions of furrows as well as density and nature of ornament actually are close to *E. babeau*, and especially to the specimen described as *E. leblanci* (= *E. babeau*) by Sauvage (1891, pl. 4, fig. 6). The present specimen is from the upper *Cymodoce* or lower *Mutabilis* Zone.

*Eryma ventrosa* (von Meyer)

A posterior fragment of a cephalothorax is available, dorso-ventrally compressed and preserving portions of pereopods, and a ?cheliped. Size, course of furrows, and ornament allow this specimen to be compared with the lost syntypes of *E. villersi* (Morière), illustrated by Morière (1883, pl. 1), a junior synonym of *E. ventrosa* (von Meyer) (see Förster, 1966). Several fragments of chelipeds, one of which is remarkably similar to a specimen illustrated by Carter (1886, pl. 16, fig. 3) are also available. This material is from the *Eudoxus* Zone, *Caletanum* or *Contejani* Subzone.

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