Petroleum Res. J. Vol. 15 (2003): P. 57-64, 2 Figs.

Three New Ostracode Species of Buntonia and Protobuntonia from the Upper Cretaceous of Iraq

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ثلاثة أنواع جديدة من طائفة الإستراكود، جنس بنتونيا وبروتوبنتونيا ضمن الكريتاسي العلوي بالعراق

جنان محمد طه البشير

أمكن التعرف ضمن التكاوين التابعة للتوروني العلوي والسانتوني بوسط وجنوب العراق على ثلاثة أنواع جديدة من طائفة الاستراكودا، هي بنتونيا إبن البيطاري وبنتونيا إبن رشدي وبروتوبنتونيا كازيبنسيس.

لقد تم تدوين نوع إبن البيطاري ضمن الكريتاسي العلوي بإيران، كما تمت، إضافة إلى دراسة تصنيف الأنواع موضوع الدراسة بالتفصيل، مناقشة نطاقهم الطبقي وتواجدهم.

Abstract: *Buntonia ibnalbaitari, and Buntonia ibnrushdi, two new Ostracode species of Buntonia, and Protobuntonia khasibaensis, a new species of Protobuntonia, are recorded from the Upper Turonian-Santonian formations of central and southern Iraq. Buntonia ibnalbaitari is also found in the Upper Cretaceous (Coniacian - ?Santonian) of Iran. Their taxonomy have been studied in detail and stratigraphic ranges and occurrences have be discussed.*

INTRODUCTION

The material examined in this study comes from subsurface cuttings and cores obtained from two drilling oil wells by the Iraqi National Oil Company, South Rumaila well-104, and East Baghdad Well-3; and three wells of the Basrah Petroleum Company (B.P.C.), Ghalaisan Well-1, Safawi Well-1, and Kifl Well-2 (Fig. 1). The samples studied are taken from the Upper Cretaceous Formation of the Khasib shaley and detrital limestones, the Tanuma fissile shale, and the Sadi marly limestone. The Khasib Formation is underlain uncomformably by the Mishrif or Kifl formations.

The Upper Cretaceous sequence is marked by a faunal break indicated by a first appearance of many ostracode genera and species, some of which are new, such as the new species of *Buntonia* and *Protobuntonia*: and disappearance of the older genera and species of the underlying strata of Cenomanian-Lower Turonian age.

The new species are described in details and their stratigraphic ranges are discussed (Fig. 2).

Repository

The Holotype specimens and the paratype specimens have been deposited with the author's collections. An internal catalogue numbering system has been used for these specimens.

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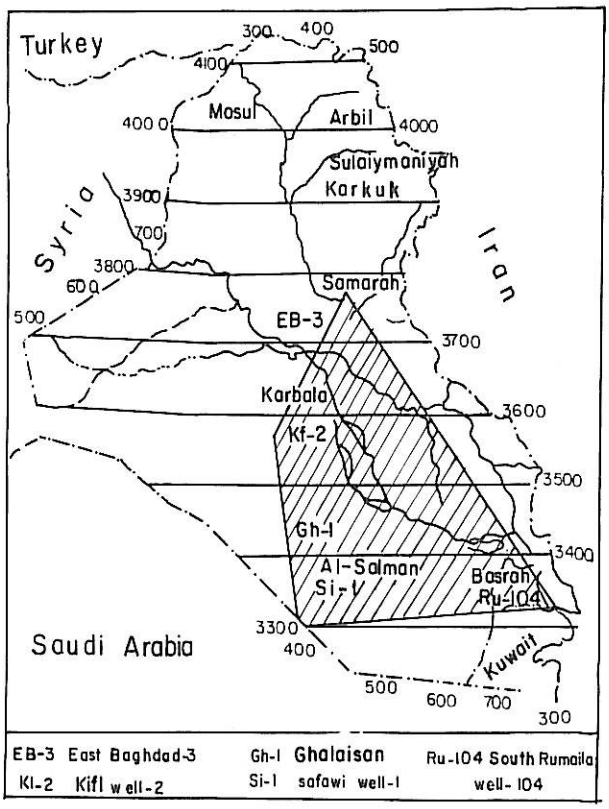

Fig. 1. Location map.

Systematic Description:

Subclass	OSTRACODA	Latreille, 1806
Order	PODOCOPIDA	Muller, 1894
Suborder	PODOCOPINA	Sars, 1866
Superfamily	CYTHERACEA	Baird, 1850
Family	TRACHYLE-BERIDIDAE	Sylvester-Bradley, 1948
Subfamily	BUNTONINAE	Apostolescu, 1961

Genus *Buntonia* Howe, 1935

Buntonia ibnalbaitari sp. Nov. pl. 1, figs. 1-7.

1973-*Buntonia* IRC_{33}, Grosdidier, pl.8, fig. 70 a-e.

Material: Total number of specimens are six. In Kifl Well-2, five specimens from the Tanuma Formation; In South Rumaila Well-104, one specimen has occurred in the base of the Sadi Formation.

Name: is named with reference to Abd Allah Ibn Al-Baitar , the celebrated Arab botanist in the twelfth century, who wrote two books which have made his name famous.

Diagnosis: A species of *Buntonia* with a smooth surface; three longitudinal ridges, the ventral being thick, a fourth short ridge is present between the median and the ventral ridge; one eye tubercle; a very narrow depressed anterior behind and parallel to the distinct anterior marginal area.

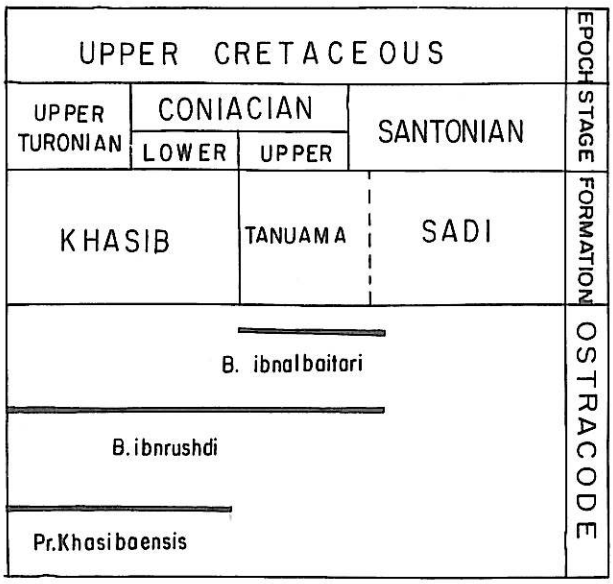

Fig. 2. Stratigraphic range chart of Bintonia ibnalbaitari, bintonia ibnrushdi and Protobuntonia khasibaensis.

Holotype: Femal carapace, BM(NH)OS12940, pl. 1, fig.1.

Paratype: J.T. 121, and H.T. (123-124).

Type locality and horizon: Kifl Well-2; Tanuma Formation, Upper Coniacian, at depth of 4370 ft.

Stratigraphic range: Upper Coniacian – Santonian.

Description: Carapace small, pear-shaped in lateral view. Greatest length is about the middle. Anterior margin is broadly and evenly rounded; posterior margin truncates in left valve, subrounded in the right valve. Dorsal margin is nearly straight; ventral margin is slightly concave typically turned upwards at posterior end. Left valve with pronounced posterior margin truncates in left valve, subrounded in the right valve.

Dorsal margin is nearlyh sraight; Left valve with pronounced posterior cardinal angle. No eye tubercle could be observed. The left valve is larger than the right.

A distinct and thickly developed marginal rim extends around the anterior margin continuing along the ventral margin. A very narrow depressed anterior area is present behind and parallel to the anterior margin rim.

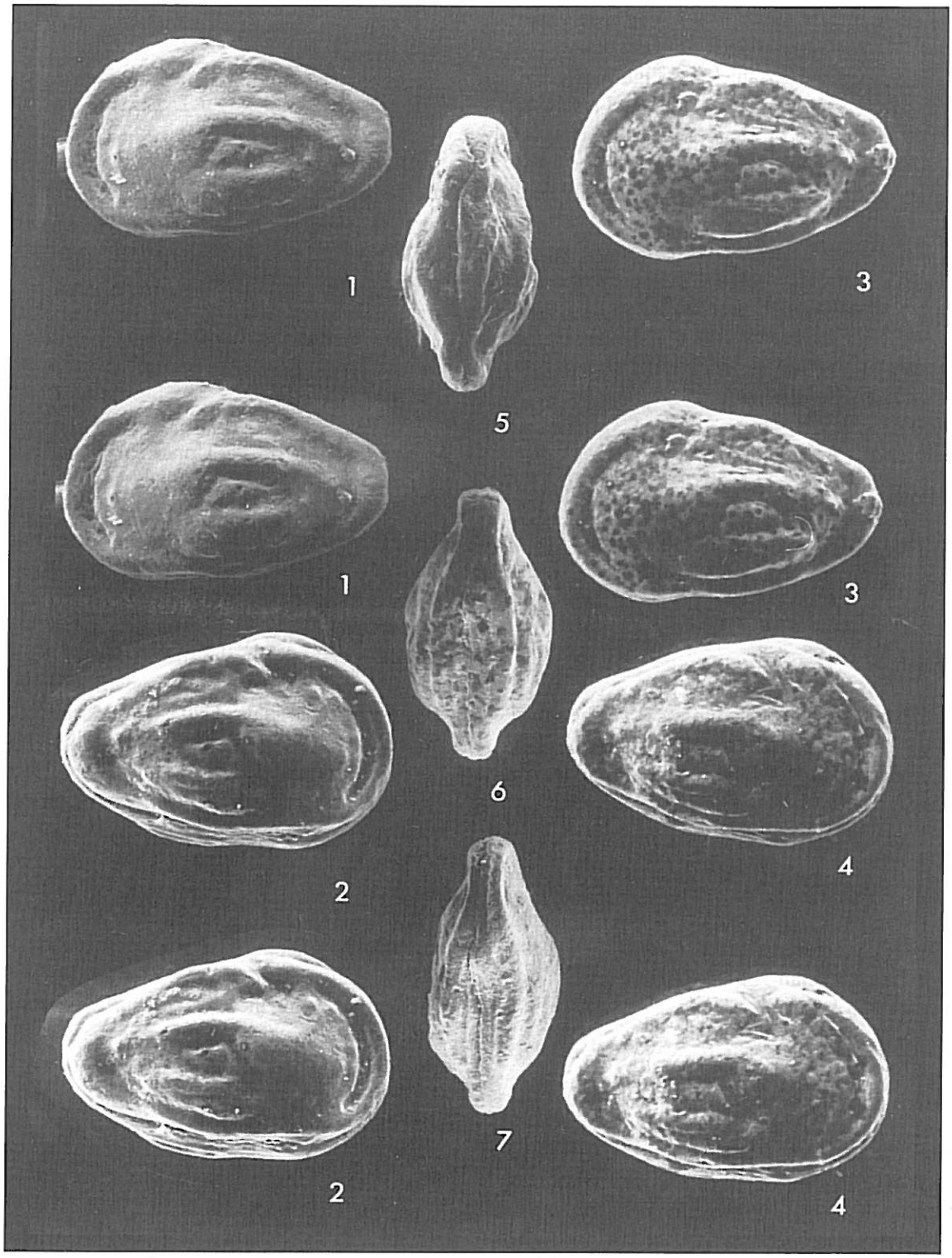

Plate - I

Buntonia ibnalbaitari sp. nov

All specimens are from the Tanuma Formation of Kifl Well-2.

Fig. 1. Female carapace, left valve, external, lateral view, (holotype OS 12940); stereoscopic paired photographs; 4370 ft; x103.
Fig. 2. female carapace, right valve, external, lateral view, (paratype J.T. 123); stereoscopic paired photographs; 4380 ft. x104.
Fig. 3. Female carapace, left valve, external, lateral view, (paratype J.T. 123); stereoscopic paired photographs; 4380 ft, x104.
Fig. 4. Female carapace, right valve, external, lateral view, (paratype J.T. 124); stereoscopic paired photographs; 4375 ft; x104.
Fig. 5. Female carapace, external, dorsal view, (paratype J.T. 124); 4375 ft; x92.
Fig. 6. Female carapace, external, ventral view. (paratype J.T. 123); 4380 ft; x90.
Fig. 7. Female carapace, external, ventral view, (paratype J.T. 121); 4360 ft: x92.

Main surface ornamentation consists of three pronounced longitudinal ridges; dorsal, median and ventral. The ventral ridge is thick and slightly swollen, begninning in the antero-ventral area, and fading at about three quarters of the length towards the posterior. A fourth short ridge present between the median and ventral ridges and bears a prominent pore cone.

The areas between the longitudinal ridges appear compressed. The entire surface of the carapace is smooth; a few very small pore cones and papillae are present in the posterior area at the ends of the median and ventral ridges, with faint ones in the anterior area and no internal details were seen.

Dimensions: (in mm)

		L.	H.	W.	L/H.
BM(NH) OS 12940	Female (Holotype)	0.490	0.315	0.260	1.555
J.T. 121	Female	0.490	0.330	0.240	1.484
J.T. 123, 124	Female	0.490	0.333	0.260	1.484

Discussion

Grosdidier (1973) illustrated forms which he called *Buntonia* IRC_{33} from the Santonian-Coniacian ? of the Coastal Fars Province in Iran which are identical to *Buntonia ibnalbaitari* sp. nov.

Occurrrnce

This species is known from the Upper Coniacian of Kifl Well-2, Santonian of South Rumaila Well-104; and from the Coniacian ?- Santonian of the Coastal Fars Province in Iran.

Buntonia ibnrushdi sp. nov.
Pl. 2, figs. 1-6

Name: Named after Abdul-Walid Ibn Rushid, a great Arab philosopher of Spain and who was celebrated in mediaeval Europe as Averrose of the twelfth century.

Diagnosis: A species of *Buntonia* with longitudinal rows of puncta in the central area; the rest of the valve is smooth. The eye tuberule is weakly developed. A slight ventral-lateral swelling is present. A thin marginal rim is present along the anterior and ventral margin. A distinet small node is situated on the poistrrior cardinal angle of the left valve.

Holotype: Male carapace, BM(NH) OS 12966, pl. 2, figs. (1-2)(5-6).

Paratype: J.T. 126 – J.T. 127.

Material: A total of 6 specimens have been found in the South Rumaila Well-104. five specimens from the Sadi.Tanuma and Khasib Formations, and one specimen from the uppermost beds of the Mishirf Formation(as contaminant).

Type locality and horizon: South Rumaila Well-104. Khasib Formation, Upper Turonian, depth of 2416m.

Stratigraphic range: Upper Turonian-Santonian.

Description: Carapace pyriform , male more elongate; greatest length passes through the central point. Anterior margin is broadly rounded; posterior margin is truncate; dorsal margin is slightly sinuous; entral margin is almost straight to weakly concave, with a very faint convexity centrally in the male. Dorsal and ventral margins converging strongly towards the posterior. Posterior cardinal angle of left valve is distinct and bears a small node. The left valve is larger than the right. The eye tubercle is weakly developed. Sexual dimorphism is pronounced. The central area appears swollen. A thin marginal rim is present along the anterior margin continuing along the ventral margin to the postero-ventral corner. The lateral surface has 7-9 longitudinal rows of pits or puncta in the central area of the valve; faint ribbing is developed between the median and ventrally placed puncta. A slight ventro-lateral swelling is present; the rest of the surface is smooth. In ventral view the ventro-marginal rim is seen. Internal details could not be observed.

Dimensions: (in mm)

		L.	H.	W.	L/H.
BM(NH) OS 12940	Female (Holotype)	0.630	0.330	0.260	1.909
J.T. 127	Female	0.540	0.305	0.282	1.770
J.T. 130	Female	0.610	0.380	0.305	1.605

Discussion

The species described by Sayyab (1956) as *Eohuntonia Seminuda* from the Upper Cretaceous strata of the Arabian Gulf Coast shows a close resemblance to *Buntonia ibnrushdi* sp. nov. in shape and outline, but differs in details of surface

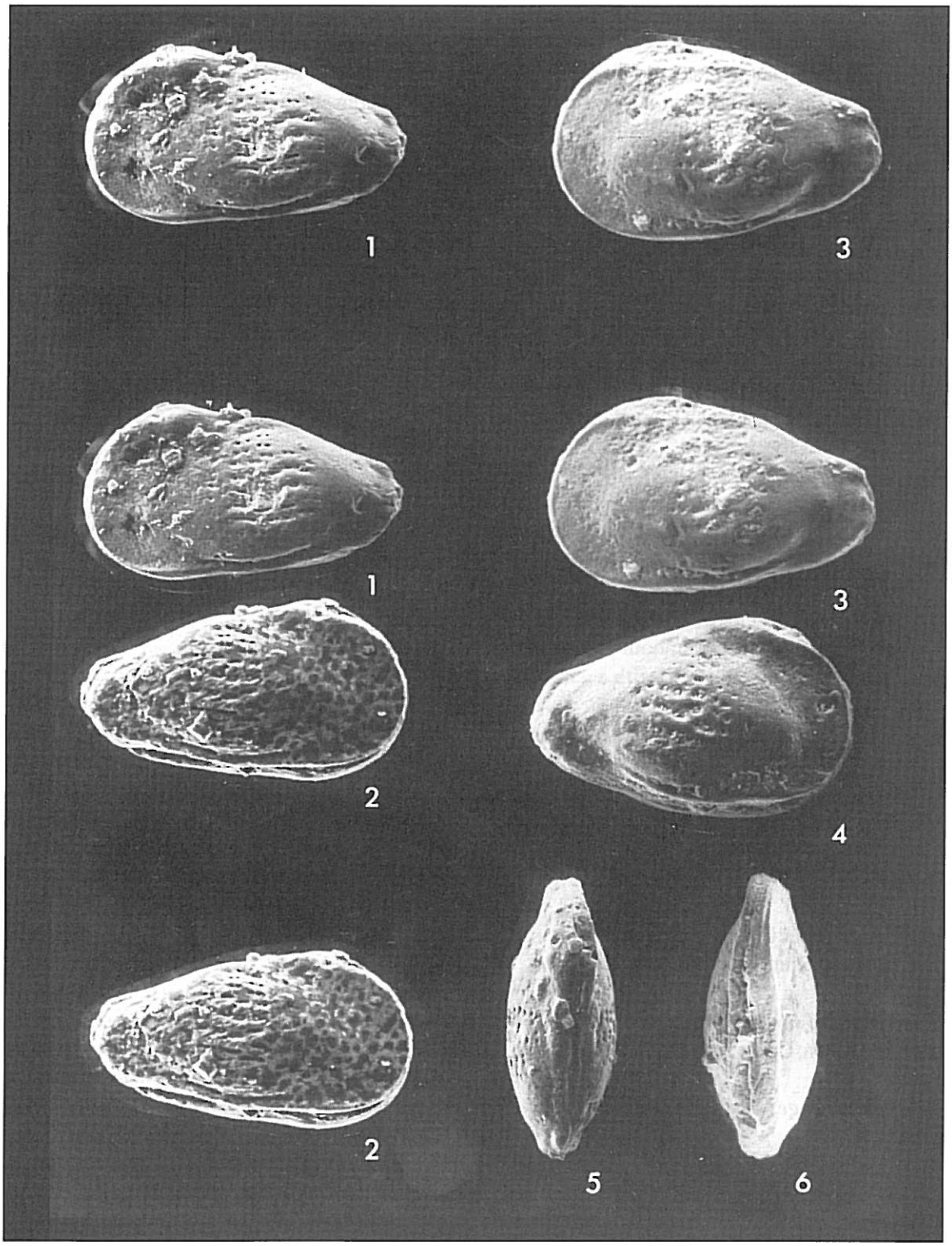

Plate - II

Buntonia ibnrushdi sp. nov.

All speciments are from the Khasib Formation of South Rumaila Well-104.

Fig. 1. Male carapace, left valve, external, lateral view, (holotype OS 12966); stereoscopic paired photographs; 2416 m; x79.

Fig. 2. Male carapace, right valve, external, lateral, view, (holotype OS 12966); stereoscopic paired photographs; 2416 m; x81.

Fig. 3. Female carapace, left valve, external, lateral view, (paratype J.T. 127); stereoscopic paired photographs; 2416 m. x95.

Fig. 4. Female carapace, right valve, external, lateral view, (paratype J.T. 127); stereoscopic paired photographs; 2416 m; x94.

Fig. 5. Male carapace, external, dorsal view, (holotype OS 12966); 2416 m; x72.

Fig. 6. Male carapace, external, ventral view. (holotype OS 12966); 2416 m; x73.

ornametation. *Buntonia ibnrushdi* sp. nov. has been placed in *Buntonia* on the basis of its external characters, no internal characters could be observed in these species so the possibility of a new genus is left for future investigation.

The species illustrated by Grosdidier (1973) as *Buntonia* IRE_9 from the Coniacian? of the Coastal Fars Province of Iran resembles *Buntonia ibnrushdi* sp. nov. in shape, general outline, in having a compressed anterior area; but differs in having a completely smooth lateral surface.

Occurrence: Known so far from the Upper Turonian-Santonian and as contaminants in the uppermost Lower Turonian of South Rumaila Well-104.

Genus *Protobuntonia Grekoff*, 1954
Protobuntonia khasibaensis sp. nov.

Name: After the Khasib Formation.

Diagnosis: A small species of Protobuntonia with a punctate surface except for a smooth area at the posterior, a very feeble eye tubercle with a shallow short sulcus behind it, a narrow shallow sulcus borders and parallel the wide antero-marginal zone.

Holotype: Female carapace, BM (NH) OS 12941, pl.3, fig. 1.

Paratype: J.T. 129 – J.T. 130.

Material: 4 specimens from the Khasib Formation of South Rumaila Well-104.

Type locality and horizon: South Rumaila Well-104; Khasib Formation, Upper Turonian, depth of 2408m.

Stratigraphic range: Upper Turonian – Lower Coniacian.

Description: Carapace small, elongate to subtriangular in lateral view, maximum length at about the middle, maximum height in front of the middle. The dorsal margin is nearly straight; the ventral margin is slightly concave; both margins converge towards the acutely pointed posterior end. The anterior margin is broadly and evenly rounded. The postero-cardinal angle is curved and distinct in the left valve, less distinct in the right. The eye tubercle is very feebly developed. The left valve is larger than the right, with overlap strongest anterodorsally, posterodorsally at the upper part of the posterior margin and along the ventral margin.

The lateral surface is punctuate except for a smooth area at the posterior. A very narrow shallow sulcus borders the wide anteromarginal zone parallel to the margin, another narrow sulcus parallel to the posterior margin bounds the smooth posterior marginal area, especially in the ventral part. A shallow sulcus lies just behind the feeble eye tubercle. The internal features could not be observed.

Dimensions: (in mm)

		L.	H.	W.	L/H.
BM(NH) OS 12941	Female (Holotype)	0.630	0.380	0.305	1.657
J.T. 129	Female	0.630	0.380	0.305	1.657
J.T. 130	Female	0.610	0.380	0.305	1.605

These species seem to be females rather than males when compared with other species belonging to *Protobuntonia*.

Discussion

Protobuntonia semmamaensis Bismuth and Le Fevre (1981) recorded by Bismuth *et al.* (1981) from the upper part of the Lower Cenomanian to Middle Cenomanian of Tunisia is similar to *Protobuntonia Khasibaensis* sp. nov., but the latter differs in having a more pointed posterior end, more distinct posterior cardinal angle, broader and evenly rounded anterior margin, wider anterior marginal zone with smaller punctuation, and the overlap is stronger anterodorsally. This species may be descended from the older *Protobuntonia semmamaensis*. *Protobuntonia numidica* Grekoff (1954) illustrated by Van Bold (1964) from the Santonian of Egypt, and by Reyment and Elofson (1959) who designated it as *Buntonia (Protobuntonia) numidica* (Grekoff) from the Santonian of Tunisia, shows some resemblance to *Protobuntonia Khasibaensis* sp. nov. in general outline, in possessing a pointed posterior end, and in the presence of a distinctly developed punctate lateral surface with smooth posterior marginal area; but the latter differs in having a very narrow curved sulcus bounding the wide antero-marginal zone, and a short sulcus lying just behind the eye tubercle.

Occurrence

Known so far from the Upper Turonian – Lower Coniacian of South Rumaila Well-104.

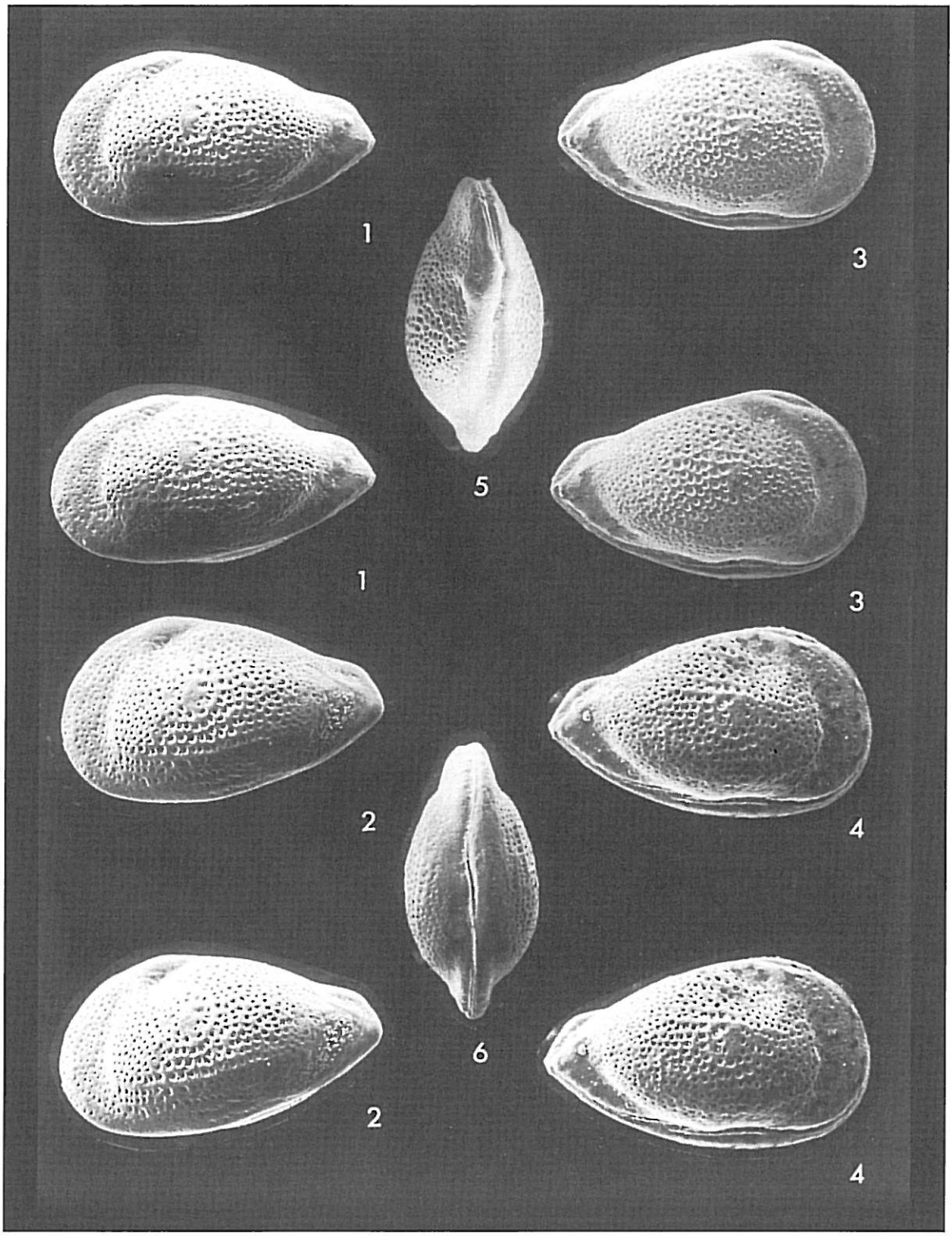

Plate - III

Protobuntonia khasibaensus sp. nov.

All specimens are from the Khasib Formation of South Rumaila Well-104.

Fig. 1. Female carapace, left valve, external, lateral view, (holotype OS 12941); stereoscopic paired photographs; 2408 m; x79.

Fig. 2. Female carapace, left valve, external, lateral view, (paratype J.T. 129); stereoscopic paired photographs; 2406 m; x80.

Fig. 3. Female carapace, right valve, external, lateral view, (paratype J.T. 130); stereoscopic paired photographs; 2412 m, x82.

Fig. 4. Female carapace, right valve, external, lateral view, (paratype J.T. 129); stereoscopic paired photographs; 2406 m; x80.

Fig. 5. Female carapace, external, dorsal view, (paratype J.T. 130); 2412 m; x74.

Fig. 6. Female carapace, external view. (paratype J.T. 130); 2412 m; x74.

ACKNOWLDGEMENTS

I would like to express my sincere thanks to Oil Ministry of Iraq for providing the samples studied in this paper.

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