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OSTRACODA FROM THE EZE-AKU SHALE (*TURONIAN, CRETACEOUS*) NKALAGU, NIGERIA

by

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This paper describes and illustrates 12 species of Lower Turonian ostracods from the East Central State of Nigeria. Five of the species are new. The morphology of the ostracods was studied with the aid of the Jeolco scanning electron microscope (SEM) and the Leitz light microscope. The following genera are represented: *Ovocytheridea, Bairdia, Brachycythere, Cytheropteron, Cythereis,* and *Leguminocythereis.*

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INTRODUCTION

The present material is part of a collection made by Professor R. A. Reyment during a survey of the Cretaceous of Nigeria (1963—1965). A sample was taken at the Nkalagu Cement Factory from the Eze-Aku Shale, a formation of the Lower Turonian in the East Central State of Nigeria (see location map). Upon investigation of the material, 12 species were distinguished, representing six genera. The following species are recognized here: *Ovocytheridea* sp. 1, *Ovocytheridea* sp. 2, *Bairdia* sp. 1, *Bairdia* sp. 2, *Brachycythere sapucariensis* Krömmelbein, *"Cytheropteron"* sp., *Cythereis akeezeensis* n. sp., *Cythereis ezeakuensis* n. sp., *"Bradleya" nkalaguensis* n. sp., *"Cythereis" triangulata* n. sp., *Leguminocythereis reymenti* n. sp., *Leguminocythereis* sp.

Owing to the poor preservation of the fossils, the internal structures of the material could not be studied; the taxonomic delineation has therefore had to be based on the external morphology. Owing to the particular biostratigraphical value of the collection, it was considered well worth study.

Sincere gratitude is expressed to Professor R. A. Reyment of the Paleontological Institute, Uppsala University, for providing the study material and critically reading the manuscript.

Technical assistance was given by Mr. Gustav Andersson and Mrs. Dagmar Engström of the Paleontological Institute.

The material here described, is deposited in the type collection of the Museum of the Paleontological Institute, Uppsala University, Uppsala.

SYSTEMATIC DESCRIPTION

Subclass: *OSTRACODA* Latreille, 1806
Family: *CYTHERIDAE* Baird, 1850
Genus: *Ovocytheridea* Grekoff, 1951
Type species: *Ovocytheridea nuda* Grekoff, 1951

Ovocytheridea sp. 1
Pl. 1, Fig. 2, a—b.

DESCRIPTION: The shell substance is thin. The carapace in lateral view is elongate, subovoid, with a moderately broad and regularly rounded anterior margin. The posterior margin is narrow and extended, with a terminal downward slope. The mid-point of the posterior margin lies a little

below that of the anterior margin. The dorsal margin is convex. The anterior half of the ventral margin is convex, then concave over its posterior half. The site of greatest height lies at mid-length.

The carapace in dorsal view is elongated oval. The left valve overlaps the right weakly along the entire dorsal and ventral margins. The valves in lateral view are convex; the strongest convexity lies at mid-length. The surface is pitted.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Two carapaces.

DIMENSIONS: Length=0.75 mm; height=0.44 mm; breadth=0.33 mm (here, and elsewhere, the dimensions refer to figured material).

REMARKS: In general outline, this species appears to be similar to *Ovocytheridea?* sp. (van den Bold, 1964) and both species could be conspecific. The ventral margin of this species tends to be more convex than is usual for *Ovocytheridea.* Owing to the poor preservation and the few specimens available, no specific identification has been attempted.

Ovocytheridea sp. 2
Pl. 1, Fig. 1, a—c.

DESCRIPTION: The shell material is thin. The carapace in lateral view is subovoid with a broad anterior and a narrow posterior margin. Both margins are evenly rounded. The site of greatest height occurs slightly anterior to the mid-length of the carapace. The dorsal margin is convex; the ventral margin is less strongly convex to almost straight.

The carapace in dorsal view is elongated oval. The left valve is larger than the right and overlaps the latter strongly along the entire dorsal margin. The ventral and anterior margins are less strongly overlapped. The surface is pitted.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Four carapaces.

DIMENSIONS: Length=0.73 mm; height=0.45 mm; breadth=0.30 mm.

REMARKS: The present form differs from *Ovocytheridea* sp. 1 in having a broader anterior and a stronger dorsal overlap and a somewhat straighter ventral margin. It lacks the concavity in the posterior half of the ventral margin that is prominent in *Ovocytheridea* sp. 1. In general shape, it is rather close to some *Haplocytheridea.* It is close to *Ovocytheridea nuda* Grekoff in lateral outline.

Family: *BAIRDIIDAE* Sars, 1888
Genus: *Bairdia* McCoy, 1844
Type species: *Bairdia curta* McCoy, 1844
(as *B. curtus*)

Bairdia sp. 1
Pl. 1, Fig. 3.

DESCRIPTION: The carapace is subtriangular to subovoid in lateral view; in dorsal view it is subovoid with the anterior and posterior margins pointed. The anterior and posterior margins are compressed and narrow. The posterior margin is more extended and pointed, and narrower than the anterior margin. The dorsal margin is strongly convex to arched. The ventral margin is less strongly convex in the left valve. The right valve is slightly concave to almost straight. The site of greatest height occurs at mid-length.

The left valve is much larger than the right and overlaps the latter along the entire dorsal margin and the mid-ventral region of the ventral margin. The overlap is strongest along the anterior half of the dorsal margin, then decreases on its posterior half. The surface is densely punctate.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: One carapace.

DIMENSIONS: Length=0.85 mm; height=0.50 mm; breadth=0.35 mm.

REMARKS: This species differs from *Bairdia* sp. 2 in having the anterior and posterior extremities compressed, the dorsal margin less arched, the ventral margin convex in the left valve and slightly concave to almost straight in the right valve. *Bairdia* sp. 2 is concave in the mid-ventral zone of the ventral margin. *Bairdia* sp. 1, lacks this concavity.

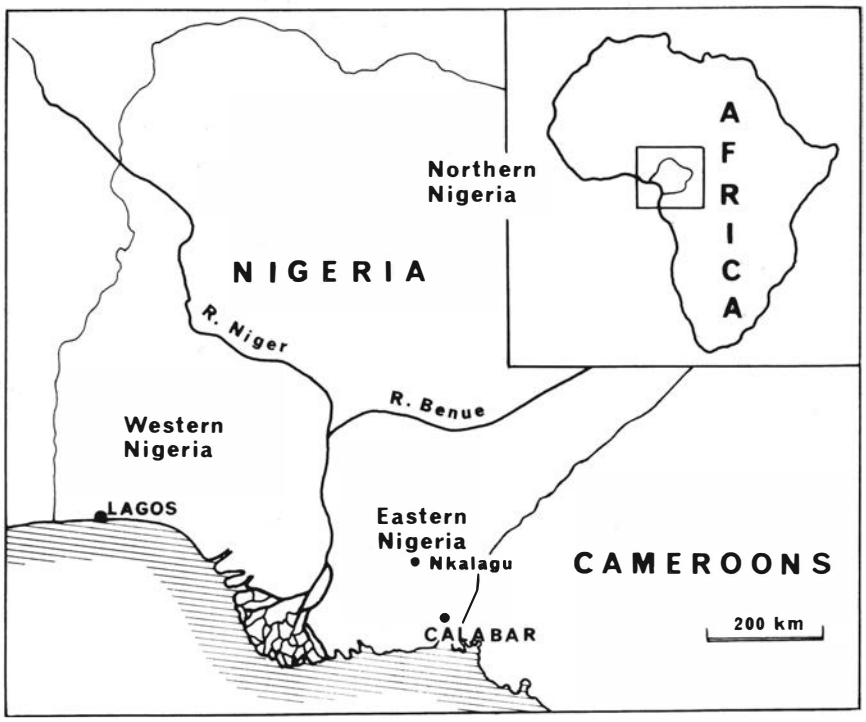

Fig. 1. Map showing the location of Nkalagu in Nigeria.

Bairdia sp. 2
Pl. 1, Fig. 4, a—b.

DESCRIPTION: In lateral aspect, the carapace is subtriangular. The dorsal margin is arched and slopes obtusely in its anterior half. The slope of the posterior half is acute, or almost so. The ventral margin has a concavity in its mid-ventral region. Apart from this concavity, the marginal line is weakly convex. The anterior and posterior margins are narrow and regularly rounded. The posterior margin is a little drawn out and compressed along the marginal line. The site of greatest height lies at mid-length.

In dorsal aspect, the carapace is almost spindle-shaped with the anterior and posterior margins pointed. The left valve overlaps the right along the dorsal and ventral margins. The surface is weakly punctate.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: One carapace.

DIMENSIONS: Length=0.85 mm; height=0.50 mm; breadth=0.35 mm.

REMARKS: *Bairdia* sp. 2 closely resembles *Bairdia* sp. (van den Bold, 1964) in shape and general outline, but differs in bearing a concavity in the mid-ventral region of the ventral margin. *Bairdia* sp. is more strongly overlapped on its dorsal margin and evenly convex on the ventral margin than *Bairdia* sp. 2.

Family: *CYTHERIDAE* Baird, 1850
Subfamily: *CYTHERIDEINAE* Sars, 1951
Genus: *Brachycythere* Alexander, 1933
Type species: *Cythere sphenoides* Reuss, 1854

Brachycythere sapucariensis Krömmelbein
Pl. 1, Figs. 5, a—b, 6 and 7.

1965. *Brachycythere sapucariensis,* Krömmelbein, p. 120, Pl. 1, Fig. 3 a—c.

DESCRIPTION: In lateral aspect, the carapace is elongate, subtriangular and highest at the antero-

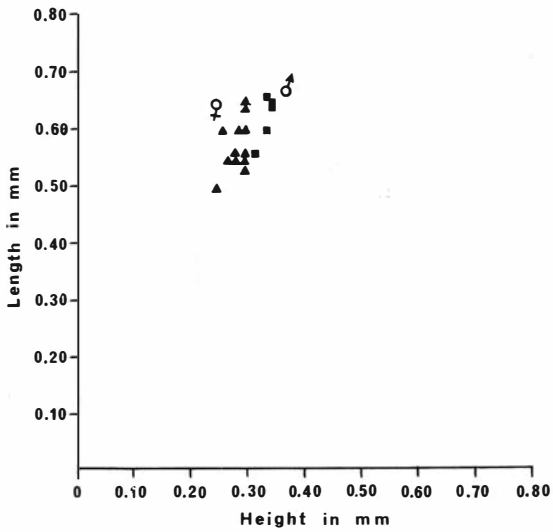

Fig. 2. Scatter diagram of length and height of *Brachycythere sapucariensis* Krömmelbein.
Triangles = females and black squares = males.

dorsal angle. In dorsal view, it is sub-rhomboid with the greatest inflation occurring at mid-length or a little posterior thereof. The anterior margin is broad; in some specimens it is regularly rounded, in others it tends to be obliquely rounded. The posterior margin is narrow and extended to a sub-caudal process; in the middle of this extension there is a concavity. There is a slope from the posterodorsal angle to the mid-posterior so that the mid-point of the posterior margin lies slightly below that of the anterior margin. Both margins are compressed and ornamented with coarse denticles. The dorsal margin is weakly convex to almost straight. The ventral margin is straight, or almost so.

The carapace in side view is compressed along the laterodorsal region. The lateroventral region is extended into a winglike process that may rise at about mid-length or extend posteriorly backward in others. The anterodorsal angle bears an eye tubercle on each valve with a depression immediately below. The left valve overlaps the right along the dorsal and ventral margins with the ventral overlap stronger. Along the dorsal margin, the overlap is strongest at the anterodorsal angle. The surface is punctate.

SEXUAL DIMORPHISM: Weak, the males are slightly higher than the females (see Fig. 2).

MATERIAL: Forty-four carapaces.

DIMENSIONS (ranges): Males — Length=0.57—65 mm; height=0.33—38 mm; breadth=0.28—30 mm.
Females — Length=0.57—65 mm; height=0.28—0.30 mm; breadth=0.28—0.30 mm.

REMARKS: Up to now, nothing is known about the internal structures of this species. Unfortunately, due to the poor preservation of the present material, such a study was impossible. *B. sapucariensis*, as was first pointed out by Krömmelbein (1966), occurs in stratigraphically equivalent formations in northeastern Brazil and western Africa (the collection of Brazilian *sapucariensis* contains individuals that differ from the Nkalagu material in the length/height relationship).

Subfamily: *CYTHERURINAE* Müller, 1894
Genus: *Cytheropteron* Sars, 1866
Type species: *Cythere latissima* Norman, 1865.

"Cytheropteron" sp.
Pl. 1, Figs. 8, a—c, and 9.

1960. *"Cytheropteron"* sp., Reyment, p. 106, Pl. 6, Fig. 6, a—c.

DESCRIPTION: The carapace in lateral aspect is subovoid and the dorsal margin is roughly convex with a slight concavity at the posterodorsal angle. The ventral margin is straight or almost so. The anterior margin is moderately broad and regularly rounded, the posterior margin is pointed, forming a distinct caudal process, compressed and extended. The valves are of equal size and highest at about mid-length.

The ventrolateral area of each valve extends into a winglike process which hangs a little below the ventral margin. The lateral ornament of the carapace consists of reticulations upon which are superimposed a curved mid-lateral rib and a weaker and a more curved rib just dorsal of the edge of the ventrolateral wing. The ventral surface shows four equally spaced curved ridges.

In dorsal aspect, the carapace is inflated ovoid with the site of greatest inflation occuring at about the middle of the carapace length.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Four carapaces.

DIMENSIONS: Length=0.50 mm; height=0.28 mm; breadth=0.31—0.35 mm.

REMARKS: The species figured here is close to "*Cytheropteron*" sp. of Reyment (1960, p. 106). Reyment (1960) pointed out that the presence of eye tubercles on his "*Cytheropteron*" sp. indicated this species to belong to some hitherto unrecognized genus. The occurrence of our form in the Lower Turonian may support this suggestion. The detail of the internal structures are still unknown. Although the form recorded here is close to the ostracod figured by Reyment (1960), that specimen differs in having its site of maximum inflation at the posterior third of the length of the carapace. This could, however, be a sexual dimorphic difference.

Subfamily: *CYTHERINAE* Baird, 1850
Genus: *Cythereis* Jones, 1849
Type species: *Cytherina ciliata* Reuss, 1846

Cythereis akeezeensis n. sp.
Pl. 2, Fig. 1, a—d

NAME: From the town of Ake-Eze, East Central State, Nigeria.

HOLOTYPE: Af. 161, figured in Pl. 2, Fig. 1, a—d.

DIAGNOSIS: A species of *Cythereis* with the following characteristics: A mid-anterior tubercle; surface strongly tuberculated and ornamented irregularly in a reticulated pattern.

DESCRIPTION: The shell substance is rather thick; in lateral view, the carapace is elongate, subquadrate and in dorsal view elongate, inflated ovoid with the site of maximum inflation occurring between the mid-length and the posterior seventh of the carapace length. The dorsal and ventral margins are roughly parallel to weakly convex; the anterior and posterior margins are compressed

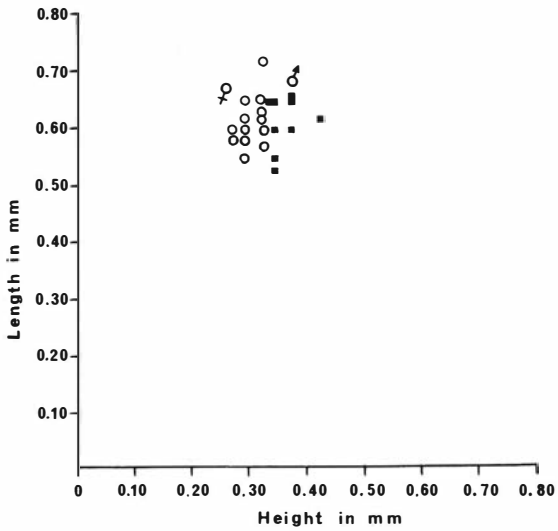

Fig. 3. Scatter diagram of length and height of "*Cythereis*" *triangulata* n. sp. Open circles = females, black squares = males.

and ornamented with short denticles. The anterior margin bears a rimlike thickening, backed by a parallel sulcus; it is moderately broad and slightly irregularly rounded in some specimens, in others it is obliquely rounded. The site of greatest height lies at the anterodorsal angle. The posterior margin is obliquely pointed, the dorsal half is concave and the mid-edge therefrom is sharper. The carapace is ornamented with a mid-anterior tubercle, together with bunches of tubercles irregularly arranged along the surface. The bunches tend to be more numerous in the posteroventral part of the shell where they are oriented to form a rough arch. They may sometimes cluster into a weak or "breached" median ridge.

The anterior cardinal angle is rounded and bears a glassy eye tubercle on each valve. Immediately below the eye tubercle, begins an almost vertical sulcus which is interrupted by the adductor tubercle. The left valve is larger than the right and overlaps the latter weakly in places, in places strongly, along parts of the periphery.

SEXUAL DIMORPHISM: Females are shorter than males.

MATERIAL: Twenty-two carapaces; eighteen females and four males.

DIMENSIONS: Male — Holotype, Length=0.80 mm; height=0.40 mm; breadth=0.35 mm. Female specimen, Length=0.70 mm; height=0.40 mm; breadth=0.35 mm.

REMARKS: In shape, the present species resembles *Cythereis vitiliginosa reticulata* Apostolescu (1963), but differs in the details of the ornament; *C. vitiliginosa reticulata*, is more regularly ornamented and lacks the surface tubercles that are so conspicuous in *C. akeezeensis.*

Cythereis ezeakuensis n. sp.
Pl. 2, Figs. 6, a—b, and 7.

NAME: From the Eze-Aku Shale, East Central State, Nigeria.

HOLOTYPE: Af. 162, figured in Pl. 2, Fig. 6, a—b.

DIAGNOSIS: *C. ezeakuensis* is distinguished by an almost straight anterior margin; a mid-anterior tubercle and a convex ventral margin. The surface is ornamented by strong tubercles that are irregularly arranged in a reticulated pattern.

DESCRIPTION: The shell substance is thick and the carapace in lateral aspect is short, subovoid-subrectangular, with the dorsal margin almost straight, the ventral margin convex. The anterior margin bears a rimlike thickening backed by a deep sulcus. The anterior margin is almost straight but rounded along the corners where it meets the dorsal and ventral margins. In some specimens, it is a little irregular to obliquely rounded, as in *C. akeezeensis.* The site of greatest height lies at the anterodorsal angle. The posterior margin forms an oblique angle at the middle of its extent. Both margins are denticulated and compressed. The anterior cardinal angle bears an eye tubercle on each valve and a small ocular sulcus directly below.

In dorsal aspect, the carapace is inflated ovoid and the site of maximum inflation occurs between the mid-length and the posterior fifth of the carapace length. As in *Cythereis akeezeensis,* the surface is ornamented with an adductor tubercle and bunches of tubercles irregularly arranged in a reticulated pattern. The left valve is larger than the right.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Ten carapaces.

DIMENSIONS: Holotype — Length=0.65 mm; height=0.35 mm; breadth=0.30 mm.

REMARKS: With regard to the ornament and shape, the present species is somewhat similar to *C. akeezeensis.* It differs in having a convex ventral margin and the anterior margin in some specimens is more compressed and bluntly rounded. Also, the carapace is relatively shorter.

Genus: *Bradleya* Hornibrook, 1952
Type species: *Cythere arata* Brady, 1880

"Bradleya" nkalaguensis n. sp.
Pl. 2, Fig. 2, a—b.

NAME: From the town of Nkalagu, East Central State, Nigeria.

HOLOTYPE: Af. 164, figured in Pl. 2, Fig. 2, a—b.

DIAGNOSIS: *"Bradleya" nkalaguensis* is distinguished by the following characteristics: Two parallel longitudinal ridges, an oblique median ridge, a velate ridge. The surface ornament consists of coarse reticulations.

DESCRIPTION: The shell substance is thin and in lateral view the carapace is elongate, subrectangular and compressed. The anterior and posterior margins are moderately broad; the site of greatest height lies at the anterodorsal angle. Both margins bear a thick rim along the marginal lines and are ornamented with short denticles. The anterior margin is obliquely rounded and the posterior margin is slightly narrower with an angular mid-point. The dorsal and ventral margins are roughly parallel, the dorsal margin is weakly convex to almost straight. In dorsal view, the carapace is elongate, inflated ovoid-subrectangular with the site of greatest inflation occurring at midlength or a little anterior of this location.

The anterior cardinal angle is rounded and with

an eye tubercle on each valve, slightly below which there is a sulcus. The posterior cardinal angle is sharp and drawn out into a sub-caudal process.

The lateral surface of the carapace is ornamented with three longitudinal ridges. The dorsal ridge originates a little below the eye tubercle then becomes feebly concave; it extends along the dorsal margin at which it becomes posteriorly continuous. The ventral ridge extends the whole length of the ventral margin. The median ridge originates at mid-length, or a little anterior therefrom, runs obliquely to about the posterodorsal margin, where it slopes down gently toward mid-posterior before terminating. The intercostal areas are coarsely reticulated. There may be some lateral swelling. The left valve is larger than the right.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Nine carapaces.

DIMENSIONS: Holotype — Length=0.65 mm; height=0.32 mm; breadth=0.20 mm.

REMARKS: Not until the publications of van Morkhoven (1963) and van den Bold (1970) did the genus *Costa* receive a complete generic description. Up until that time, it was treated as a group within *Cythereis* (Neviani, 1928), or a separate genus (Ruggieri, 1956); *Bradleya* was proposed by Hornibrook (1952) for subquadrate *"Cythereis"*. The present species, as regards external habitus, is close to the genera *Costa* and *Bradleya.* As the internal structure is still unstudied, the writer prefers to refer the species provisionally to the genus *Bradleya*, thus following the line adopted by Apostolescu (1963) for certain Upper-Cretaceous cythereid ostracods.

"Cythereis" triangulata n. sp.
Pl. 2, Figs. 8 and 9, a—b.

NAME: From the triangular shape of the carapace in ventral aspect.

HOLOTYPE: Af. 165, figured in Pl. 2, Fig. 8.

DIAGNOSIS: A species of *"Cythereis"* with the following characteristics: A horse-shoe shaped ridge and the lateroventral area is inflated into a wing-like process; surface coarsely reticulated.

DESCRIPTION: The shell substance is thin. In lateral view the carapace is subrectangular and highest at the anterodorsal angle. In dorsal view, it is sub-ovoid to roughly triangular. The site of maximum inflation lies at the posterior fourth of the carapace length. The anterior and posterior margins are compressed, bearing rims and short blunt denticles. The anterior is moderately broad and regularly rounded, the posterior is narrower and with a sharp median angle (90°). The dorsal and ventral margins are roughly parallel and the anterodorsal angle bears en eye tubercle on each valve.

The lateral ornament consists of a ridge that originates from about mid-anterior and which extends obliquely backward and swings at the posterodorsal margin, where it is slightly concave, thereafter it runs along the dorsal margin. At about the anterodorsal margin, it gently slopes inward before terminating. The lateroventral area extends into a winglike process. The wings take up almost the entire side and give the carapace a triangular shape when viewed from the ventral aspect. The surface is coarsely reticulated. The left valve is slightly larger than the right.

SEXUAL DIMORPHISM: Weak; males are slightly higher than females (see Fig. 2).

MATERIAL: Thirty-seven carapaces, twelve males and twenty-five females.

DIMENSIONS: Holotype — Length=0.65 mm; height=0.35 mm; breadth=0.30 mm.

REMARKS: The ventral aspect of this species shows that it can hardly be a true *Cythereis.* In this respect, it has some features in common with *Quadracythere* and *Bradleya.*

Leguminocythereis reymenti n. sp.
Pl. 2, Figs. 3 and 4, a—b.

1960. *Leguminocythereis* sp., Reyment, p. 139, Pl. VII, Fig. 6.

NAME: In honour of Professor R. A. Reyment of Uppsala University, Sweden.

HOLOTYPE: Af. 167, figured in Pl. 2, Fig. 3.

DIAGNOSIS: *L. reymenti* is distinguished by four equally spaced longitudinal ribs in the upper half of the shell that run parallel with the dorsal margin and two more anterior ribs that run parallel to the anterior margin. The surface is ornamented with coarse-walled reticulations that are arranged into a lattice-like pattern.

DESCRIPTION: In lateral aspect, the carapace is bean-shaped with the posterior inflated and the site of greatest height occurring at the anterior seventh of the carapace length. The dorsal margin is concave slightly posterior to the anterodorsal angle, then convex in its posterior half. The ventral margin is almost straight to slightly concave. The anterior margin is broad and obliquely rounded, the posterior margin is slightly narrower and somewhat pointed.

In dorsal aspect, the carapace is egg-shaped and the site of maximum inflation lies at the mid-point of the carapace or a little posterior thereto. The left valve is slightly larger than the right. The lateral ornament consists of four, equally spaced longitudinal ribs dorsally situated and running parallel with the dorsal margin. Two or more anterior ribs run parallel to the anterior margin. The surface is composed of coarse-walled reticulations that are arranged into a lattice-like pattern. The anterodorsal angle bears an eye tubercle on each valve.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: Six carapaces.

DIMENSIONS: Holotype — Length=0.81 mm; height=0.45 mm; breadth=0.40 mm.

REMARKS: *L. reymenti* is conspecific with *Leguminocythereis* sp. described by Reyment (1960, p. 139). The details of the internal structures and the sexual dimorphism are still unknown.

Leguminocythereis sp.
Pl. 2, Fig. 5, a—b.

DESCRIPTION: The carapace in lateral view is bean-shaped and in dorsal view elongated oval. The site of greatest height lies at the anterodorsal angle. The anterior and posterior are somewhat inflated. The anterior margin is moderately broad and somewhat irregularly rounded, the posterior margin is narrow and pointed. It bears a marginal rim along the margin. The dorsal margin is weakly convex and the ventral margin almost straight.

The surface ornament consists of coarse-walled reticulations, arranged into a lattice-like pattern. There is a smooth zone on the posterior margin. The anterodorsal angle bears an eye tubercle on each valve. The left valve is larger than the right.

SEXUAL DIMORPHISM: Not observed.

MATERIAL: One carapace.

DIMENSIONS: Length=0.80 mm; height=0.33 mm; breadth=0.35 mm.

REMARKS: *Leguminocythereis* sp. differs from *L. reymenti* in being slenderer and lacking the anterior and dorsal ribs that are a conspicuous feature of *L. reymenti.*

CONCLUDING DISCUSSION

Up to the present, no detailed work has been done on the micro-biostratigraphy of the Eze-Aku Shale. Reyment (1965) divided the Turonian of Nigeria using ammonites and noted the occurrence of some microfossils in the Eze-Aku Shale. This included ostracods, gastropods, as well as bryozoan fragments. In addition to the above mentioned fossils, some foraminifers were found in this investigation, although the ostracods are the most important element.

Grekoff (1953) and Krömmelbein (1966) drew attention to the similarities of species in NE Brazil and stratigraphically equivalent formations in Western Africa. This investigation has revealed the abundant occurrence of the species *Brachycythere sapucariensis* Krömmelbein, a well known species in the Cotinguiba Formation of NE Brazil and also found in the Lower Turonian of Gabon.

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PLATES

Plate 1

All figures are ×60.

Figs. 1, a—c. *Ovocytheridea* sp. 2, Af. 152, a, left side of carapace; b, right side of carapace; c, dorsal view.
Figs. 2, a—b. *Ovocytheridea* sp. 1, Af. 153, a, left side of carapace; b, dorsal view.
Fig. 3. *Bairdia* sp. 1, Af. 154, right side of carapace.
Figs. 4, a—b. *Bairdia* sp. 2, Af. 155, a, right side of carapace; b, ventral view.
Figs. 5, a—b. *Brachycythere sapucariensis* Krömmelbein, Af. 156 a, left side of a male carapace; b, dorsal view.
Fig. 6. Same species, Af. 157, right side of a male carapace.
Fig. 7. Same species, Af. 158, right side of a female carapace.
Figs. 8, a—c. *"Cytheropteron"* sp. Af. 159, a, angled right side view; b, ventral view; c, dorsal view.
Fig. 9. Same species, Af. 160, a right side view of carapace. Stereoscan (SEM) illustration.

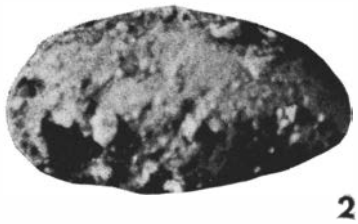
Plate 2

All figures are ×60.

Figs. 1, a—d. *Cythereis akeezeensis* n. sp.; a, left side of carapace; b, right side of carapace; c, dorsal view (SEM photograph); d, ventral view (holotype, Af. 161).
Figs. 2, a—b. *"Bradleya" nkalaguensis* n. sp.; a, right side of carapace; b, dorsal view (holotype, Af. 164).
Fig. 3. *Leguminocythereis reymenti*; right side of carapace (SEM photograph) (holotype, Af. 167).
Figs. 4, a—b. Same species; a, right side of carapace; b, dorsal view. Af. 168.
Figs. 5, a—b. *Leguminocythereis* sp.; a, right side of carapace; b, dorsal view. Af. 169.
Figs. 6, a—b. *Cythereis ezeakuensis* n. sp.; a, left side of carapace; b, ventral view (holotype, Af. 162).
Fig. 7. Same species; right side of carapace. Af. 163.
Fig. 8. *"Cythereis" triangulata* n. sp.; right side of carapace (SEM photograph) (holotype, Af. 165).
Figs. 9, a—b. Same species; a, ventral view; b, dorsal view. Af. 166.

1a

1c



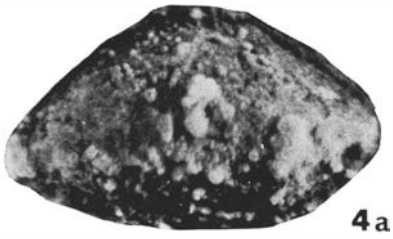
2a

1b

3

2b

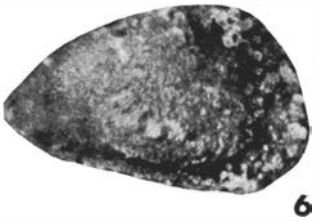
4b



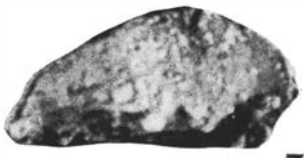
4a

5a

5b



6



7

8a

8b

8c

9

Plate II