OSTRACODA FROM THE BAGH BEDS (UPPER CRETACEOUS) OF MADHYA PRADESH*

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ABSTRACT

Thirty ostracod taxa are described and illustrated from the Bagh beds (Upper Cretaceous) exposed in the Upper Narmada Valley, Madhya Pradesh. These include nine new species. Earlier work by the author (Jain, 1961) has been revised and brought up-to-date.

INTRODUCTION

The present work is an attempt to describe the hitherto little known ostracod fauna of the Bagh beds. These beds occur as disconnected outcrops extending from Barwaha near Indore (Madhya Pradesh) in the east to near Rajpipla (Gujrat) in the west, a distance of about 350 km. (Map-1). The Bagh beds are unconformably underlain by Upper Gondwana Group of rocks or Precambrian metamorphic rocks, and are overlain by Lameta beds of Upper Cretaceous age or Deccan Traps. There is no unanimity amongst workers as regards precise age and classification of the Bagh beds. BLANFORD (1869) and BOSE (1884) subdivided the Bagh beds into the following four units (in descending order):

Coralline Limestone .. ..)		
Deola and Chirakhan Marl ..)	Marine	
Nodular Limestone ..)		
Nimar Sandstone	Estuarine or fresh-water	

This classification was later emended by RODE AND CHIPLONKER (1935) who suggested that there are two Coralline Limestone horizons (a lower one underlying the Deola and Chirakhan Marl and an upper one overlying it) instead of one.

ROY CHOWDHRY AND SASTRY (1962), SAHNI AND JAIN (1968) and VERMA (1968) do not recognize Deola and Chirakhan Marl as a separate horizon. SAHNI AND JAIN (1968) proposed the following revised classification of the Bagh beds (in descending order) which has been followed in the present work.

Coralline Limestone .. ..)		
Nodular Limestone ..)	Marine	
Oyster bed .. .. ..)		
Nimar Sandstone	Fresh-water	

The Bagh beds have been assigned an age ranging anywhere between Neocomian and Palaeocene. For a discussion on the age of the beds reference may be made to JAIN (1969).

Although the Bagh beds are known for their richness of invertebrate fauna (rich in number of specimens but poor in number of species and genera) little attention was paid to their microfaunal contents until SINGH (1950) who reported two foraminiferal genera from these beds. The present writer (JAIN, 1961) for the first time reported a rich assemblage

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of ostracods and foraminifers from the Bagh beds. Subsequently, Roy Chowdhry and Sastri (1962) listed four ostracod genera and Guha and Ghosh (1970) seventeen ostracod taxa from these beds. None of these taxa was, however, illustrated.

The material that forms the basis of present work was collected from the weathered Coralline Limestone (Coniacian) horizon exposed near Avalda and Thuati (Maps-2 & 3). Scott's classification (*in* Moore, 1961) with slight modifications has been followed in this work.

All the holotypes and paratypes of the new species and one specimen each of the described taxa have been deposited in the Museum of the Centre of Advanced Study in Geology, Panjab University, Chandigarh.

Systematic Description

Subclass—OSTRACODA
Order—PODOCOPIDA
Suborder—PLATYCOPINA
Family—CYTHERELLIDAE
Genus—CYTHERELLA Jones, 1849

Cytherella sp. cf. **C. austinensis** Alexander (Pl. 1, Fig. 7)

cf. *Cytherella obesa* Alexander (*non* Jones, Kirkby and Brady, 1884), 1929, p. 51, pl. 1, figs. 3, 6 (female).

cf. *Cytherella austinensis* Alexander, 1929, p. 51, pl. 2, figs. 4, 6. (male); Howe and Laurencich, 1958, pp. 244-245 (*et syn.*).

cf. *Cytherella* (*Cytherella*) *austinensis* Alexander ?(Reyment, 1960, pp. 54-55, pl. 1, fig. 2a-d, fig. 12a-c).

cf. *Cytherella* sp. aff. *austinensis* Alexander (Bold, 1964, p. 113, pl. 13, fig. 1a-b).

Material—A single male carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 210)	0.58	0.37	0.25

Remarks—Except for the smaller size, the present specimen is almost identical to *C. austinensis* Alexander (1929) which was first described from the Austin Chalk (Coniacian) of Texas, U.S.A. Apart from U.S.A., this species has also been recorded from the Coniacian—Lower Santonian of Nigeria (Reyment, 1960) and Turonian and Santonian of Egypt (Bold, 1964).

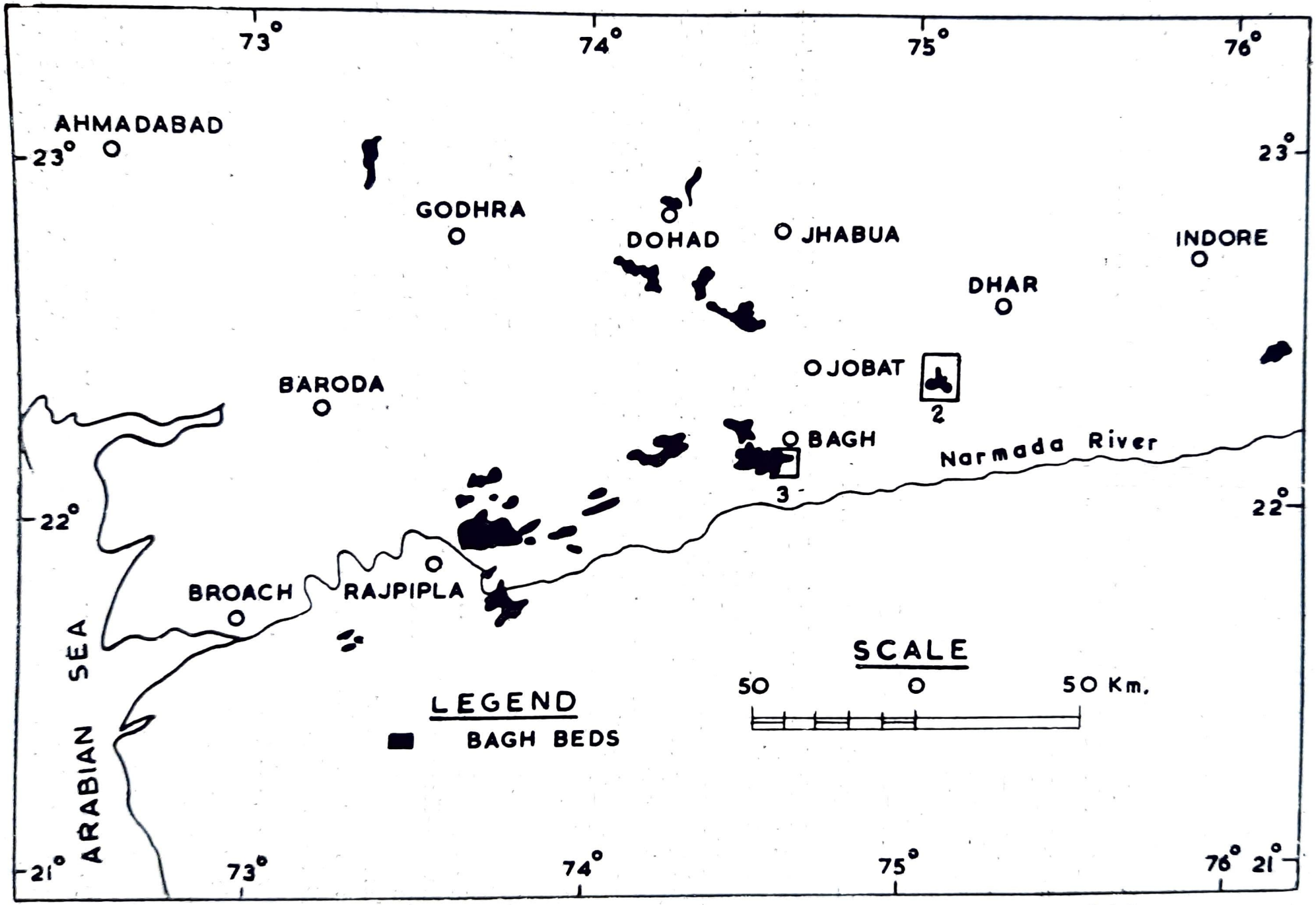
Cytherella sp. A (Pl. 1, Fig. 8)

Material—A single female carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

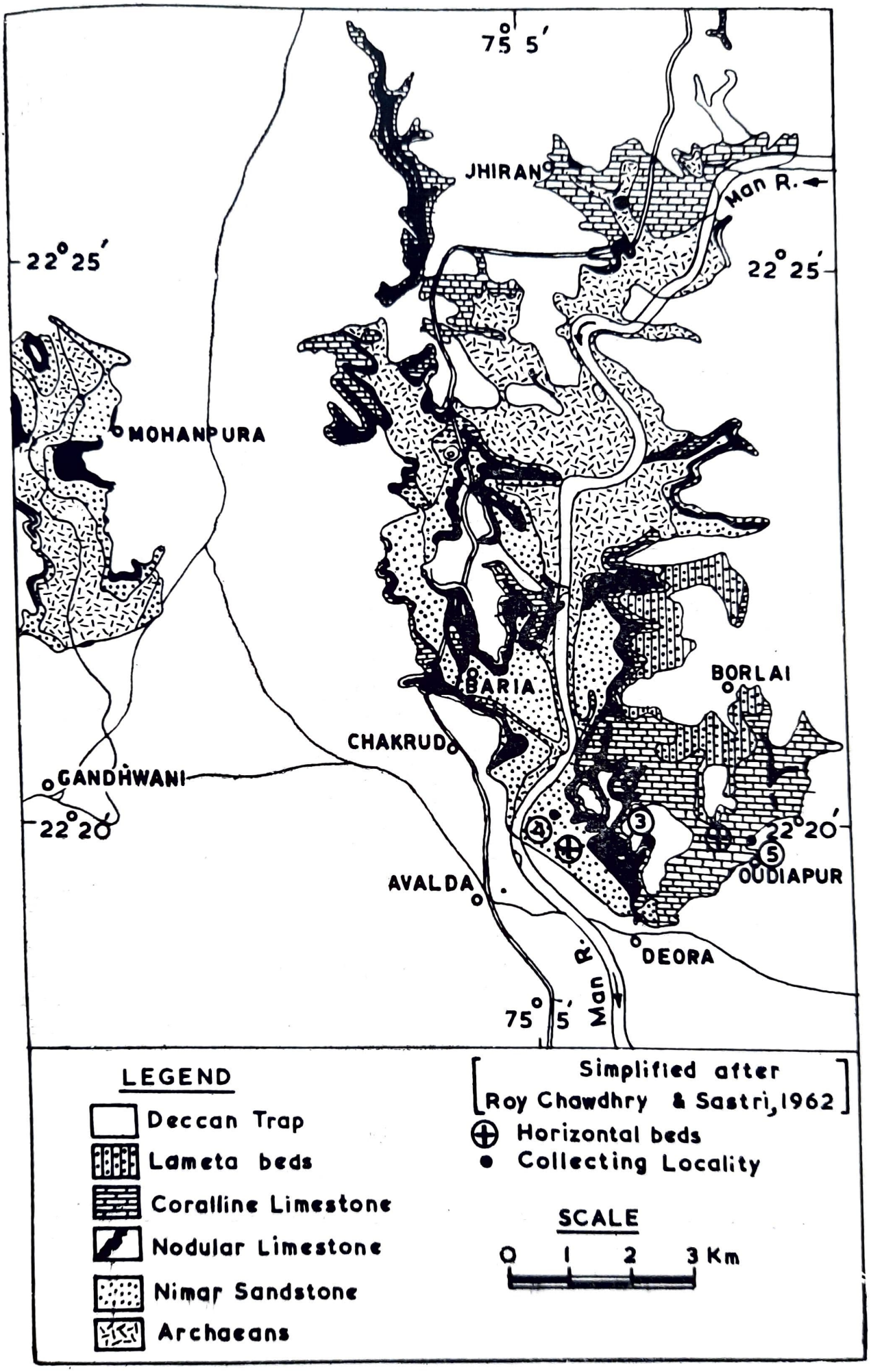
Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 212)	0.55	0.33	0.23

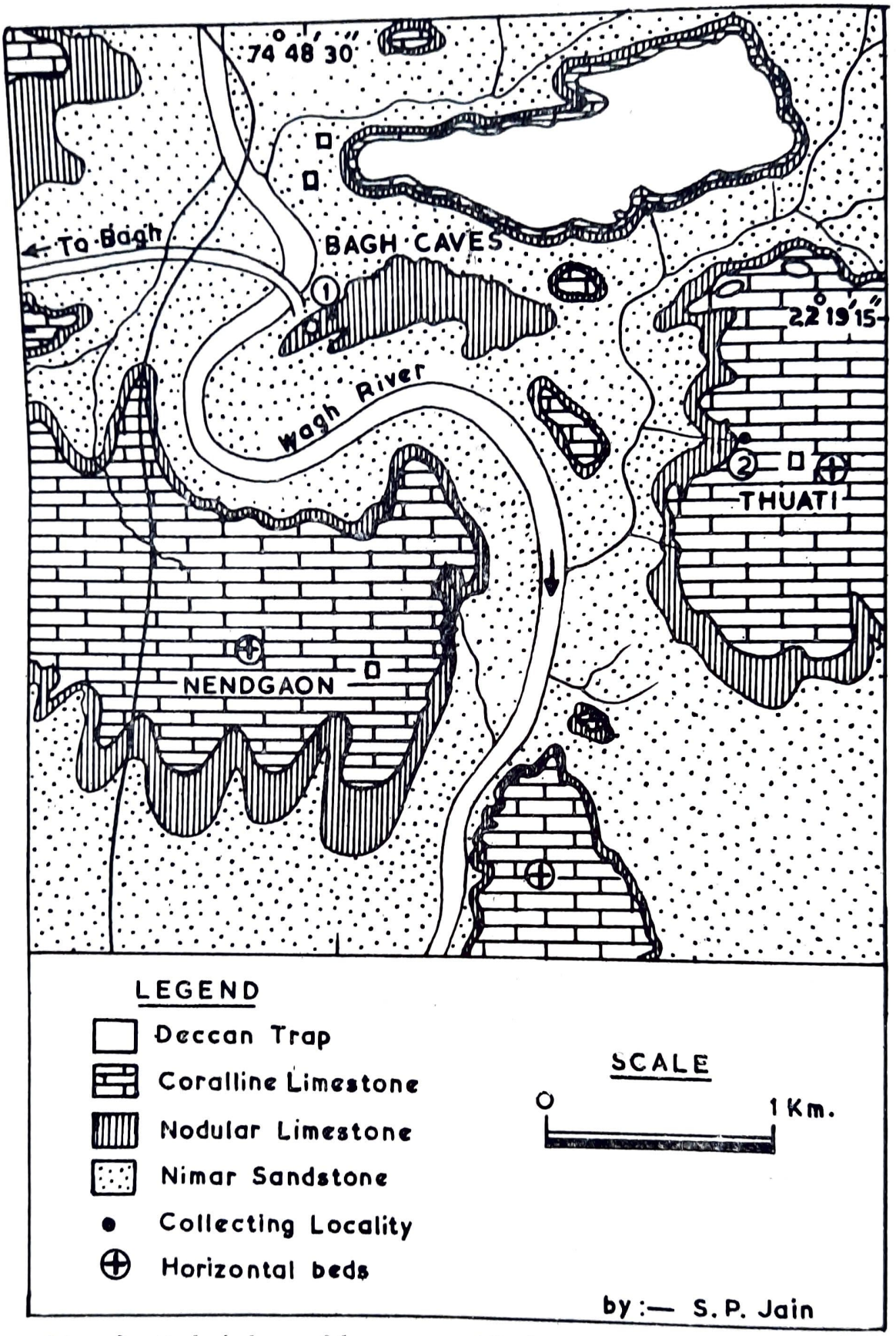
Remarks—This rare species shows some resemblance to *C. plana* Veen (1932), a Maestrichtian species, in lateral outline. However, more specimens are needed for a precise determination.



Map—1. Distribution of Bagh beds in the Narmada Valley and the location of the areas shown in Maps 2 & 3.



Map—2. Geological map of Man river valley showing the collecting localities.



Map—3. Geological map of the area around Bagh Caves showing collecting localities.

Genus—**Cytherelloidea** Alexander, 1929

Cytherelloidea khoslai n. sp. (Pl. 1, Fig. 2a-c)

Name: The species is named after Dr. S. C. Khosla, Lecturer in Geology, Rajasthan University, Udaipur.

Holotype: A male carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratypes: A female left and a female right valve from the same horizon.

Material: Eight carapaces, one left and one right valve.

Diagnosis: A species of *Cytherelloidea* characterized by three longitudinal ribs forming an elongate 'S-shaped' pattern.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 229, holotype)	0.51	0.27	0.18
Left valve (CASGMF 230, paratype I)	0.52	0.29	0.10
Right valve (CASGMF 231, paratype II) ..	0.54	0.29	0.09

Description: Carapace elongate subrectangular; dorsal margin slightly sinuate, ventral slightly concave in the middle; anterior margin broadly rounded, posterior obliquely rounded; maximum height anterior, maximum length median; height slightly more than half the length; compressed in dorsal view; maximum width median; right valve larger than left and overlapping all around; surface ornament consists of a prominent anterior, ventral and posterior marginal rim and three longitudinal ribs forming an elongate 'S-shaped' pattern; in the right valve, the median rib runs oblique to the other two, in the left valve, the median rib is almost parallel to the lower; remaining surface smooth. Inner lamella and hinge as for the genus. Females longer and wider posteriorly, as compared to the males.

Remarks: The present species shows some resemblance to *C. ozanana* Sexton (1951), described from the Campanian of Arkansas, U.S.A., but differs from it in having a sinuate dorsal margin, a concave ventral margin, and an obliquely rounded anterior margin in male carapace. Moreover, in the present specimens, the three longitudinal ribs are joined to form an elongate 'S-shaped' pattern.

Cytherelloidea oudiapurensis n. sp. (Pl. 1, Fig. 6a-b; Text-fig. 1)

Name: After Oudiapur village, the type locality for the species.

Holotype: A male carapace from the Coralline Limestone (Coniacian), Oudiapur, Dhar District.

Paratypes: One male carapace and one male right valve from the same horizon.

Material: Five male carapaces and two male right valves.

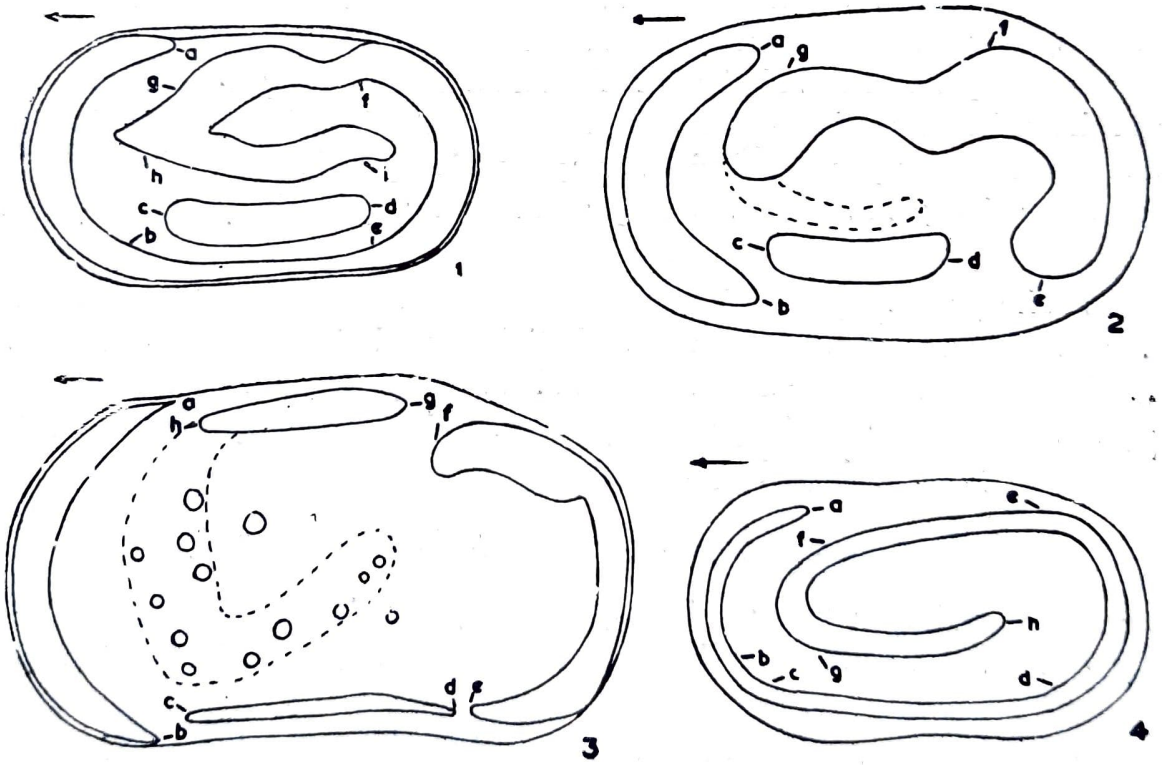
Diagnosis: A species of *Cytherelloidea* characterized by an overall thin spiral rib and an offset, thick element of the ventral part of the outer loop.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 232, holotype)	0.56	0.32	0.21
Carapace (CASGMF 233, paratype I)	0.45	0.25	0.16
Right valve (CASGMF 234, paratype II) ..	0.48	0.27	0.08

Description: Carapace subovate; dorsal and ventral margins nearly straight, converging posteriorly; anterior margin broadly rounded, posterior somewhat narrowly so; maximum height anterior, maximum length median; carapace compressed in dorsal view with nearly parallel sides; maximum width median; right valve larger than left and overlapping all around; both the valves ornamented by a strong anterior rib and a some what less strongly developed posterior rib, posterodorsally the posterior rib continues into an inner sinuate rib below the dorsal margin, this inner rib makes a hair pin bend somewhat behind the anterior rib slightly above the midheight and dies out in front of the posterior rib completely enclosing the subcentral muscle pit; a very short rib is present where the dorsal part of the inner loop bends downwards; another short, thick longitudinal rib (representing the offset ventral part of the outer loop) is present in between the ventral part of the inner loop and the ventral margin; remaining surface smooth. Internal details not seen.

Remarks: This species differs from *C. thuatiensis* in shape of the carapace and in having an offset element of the ventral part of the outer loop. The rib pattern of this species shows some resemblance to that found in the young moult of *C. mikaramuana* Ramsay (1968, Text-fig.8), described from the Campanian of Tanzania. The Indian species, however, differs from the Tanzanian in the overall shape of the carapace, location of the dorsal part of the inner loop and in the absence of the posterior part of the inner loop.



Text-figs. 1-4.—Generalised diagrams of the left valves of the various species of *Cytherelloidea* from the Bagh beds, showing the types of spiral ornament. Abbreviations (after RAMSAY, 1968): a-b, anterior part of the outer loop; c-d, ventral part of the outer loop; e-f, posterior part of the outer loop; f-g, dorsal part of the inner loop; g-h, anterior part of the inner loop; h-i, ventral part of the inner loop.

Cytherelloidea raoi Jain (Pl. 1, Fig. 3a-b; Text-fig. 2)

Cytherelloidea raoi Jain, 1961, p. 342.

Topotype material: Four female carapaces, five female right and five female left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 235)	0.63	0.38	0.26
Right valve (CASGMF 236)	0.60	0.33	0.13
Left valve	0.65	0.40	0.26

Description: Carapace elongate ovate; dorsal and ventral margins nearly straight, slightly converging anteriorly in some and almost parallel in others; both anterior and posterior margins broadly rounded; maximum height posterior and maximum length median; in dorsal view wide posteriorly and narrow anteriorly; right valve larger than left and overlapping all around; surface ornament consists of a thick anterior rib, two posterior nodes, one posterodorsal and one posteroventral, the two nodes are joined posteriorly by a fine vertical rib, a thickened dorsal rib inside the dorsal margin which is joined posteriorly with the posterodorsal node and anteriorly curves round the subcentral muscle pit partly enclosing it, another short but thick longitudinal rib (part of the ventral part of the outer loop) is present in the midventral part above the main upturned part of the ventral margin, the ventral rib is not joined with the posteroventral node; remaining surface smooth. Internal details as for the genus.

Remarks: This species is very close to *C. tollettensis* Sexton (1951), described from the Campanian of Arkansas, U.S.A., from which it can be distinguished in having a straight dorsum and a downwardly curved anterior part of the inner loop. It also resembles *C. austinensis* Sexton (1951) and *C. reticrusta* Crane (1965) in so far as the rib pattern is concerned, but differs in lacking granulations of the former and reticulations of the latter.

Cytherelloidea subgranulosa Jain (Pl. 1, Fig. 4a-b,5; Text-fig. 3)

Cytherelloidea subgranulosa Jain, 1961, p. 341.

Topotype material: Five carapaces, six right and eight left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Female carapace (CASGMF 237)	0.72	0.44	0.32
Female carapace (CASGMF 238)	0.72	0.45	0.33
Male left valve (CASGMF 239)	0.68	0.36	0.13

Description—Carapace elongate ovate; dorsal margin nearly straight in the right vlave and slightly sinuate in the left, ventral nearly straight; both anterior and posterior margins broadly and equally rounded in the right valve, posterior somewhat truncate in the left; maximum height anterior and maximum length median; dorsally maximum width posterior in females, anterior end narrower than posterior; right valve larger than left and overlapping all around; surface ornamented with a spiral rib and 14-16 granules, the anterior part of the outer loop is thick and quite prominent, the ventral part of the inner loop is clearly offset in the right valve and only slightly so in the left, the posterior part of the outer loop is also quite distinct but somewhat thinner than the anterior part, middorsally the dorsal part of the inner loop is offset and lies just below the dorsal margin, remaining surface bears 14-16 granules which seem to show a vague alignment so as to appear to be a broken continuation of the anterior and ventral parts of the inner loop. Inner lamella as for the genus; hinge adont, right valve with a continuous marginal groove. Males elongate and slim; females ovate and with two nodes on the posterior side which are internally represented by pits.

Remarks: *C. subgranulosa* can be distinguished from *C. granulosa* Jones (1849) in having fewer and weaker granules. The present species was compared by the author with the types of *C. granulosa* in the British Museum (Nat. Hist·) and the differences were found to be sufficiently constant.

Cytherelloidea thuatiensis Jain nom. nov. (Pl. 1, Fig. 10a—c; Text-fig. 4)

Cytherelloidea indica Jain, 1961, p. 341.

Name: The species is named after Thuati village, the type locality for the species. It was earlier describeo by the writer as *C. indica* Jain (1961). The name *C. indica*, however, is preoccupied (*vide* Le Roy, 1941, p. 618), hence the new name.

Topotype material: Forty-three carapaces, thirteen right and ten left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Male carapace (CASGMF 240)	0.55	0.30	0.13
Male left valve (CASGMF 241)	0.63	0.32	0.10
Female carapace (CASGMF 242)	0.61	0.33	0.16
Female left valve	0.63	0.32	0.10

Description: Carapace elongate ovate, laterally compressed; dorsal margin slightly concave in front of middle; ventral concave in the middle; anterior margin broadly rounded, posterior somwhat truncate; maximum height anterior, maximum length median; height more than half the length; wedge-shaped in dorsal view; maximum width posterior in females,median in males; right valve larger than left and overlapping all around; surface ornament consists of a spiral rib with nearly equally strong anterior, ventral and posterior parts of the outer loop and dorsal and ventral parts of the inner loop, in both the valves the rib starts from the anterodorsal margin; in some specimens the posterior part of the outer loop is thicker, the area in between the anterior, and ventral margins and the outer loop covered with reticules arranged in a linear manner; remaining surface smooth. Inner margin and hinge as for the genus. Females widest posteriorly and with two small posterior pits on the inside of the valve.

Remarks: This species closely resembles *C. mairae* Ramsay (1968), described from the Campanian of Tanzania, in having a spiral rib pattern, but differs in the shape of the carapace, and in having thin ribs and a well developed ventral part of the inner loop. Moreover, the outer loop in the present species lies very close to the margins while it is farther removed from the margins in the case of *C. mairae*. *C. thuatiensis* differs from *C. spiralia* Jennings (1936) described from the Maestrichtian of New Jersey, U. S. A., in having identical rib-pattern on both the valves.

Suborder—PODOCOPINA
Superfamily—BAIRDIACEA
Family—BAIRDIIDAE
Genus—**Bairdia** McCoy, 1844

"Bairdia" sp. A (Pl. 1, Fig. 1)

Material: Two internal moulds from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Internal mould (CASGMF 260)	1.06	0.69	0.32

Remarks: In view of the poor state of preservation and paucity of material, a more precise identification is not possible.

"Bairdia" sp. B (Pl. 1, Fig. 11)

Bairdia obliqua Alexander (Jain, 1961, p. 341; *non Bairdia obliqua* Alexander, 1927, p. 32, pl. 6, fig. 6).

Material: One internal mould from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Internal mould (CASGMF 261)	0.71	0.48	0.25

Remarks: "*Bairdia*" sp. B resembles *B. obliqua* Alexander (1927) in having maximum height behind middle but differs in having an upturned posterior caudal process. The anterodorsal and anterior angulations are more marked in the present specimen. More specimens are needed for a precise identification.

"Bairdia" sp. C (Pl. 1, Fig. 9a-b)

Material: One carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 426)	0.62	0.32	0.23

Description: Carapace elongate subtriangular, laterally compressed; dorsal margin straight in the middle, steeply sloping posteriorly and gently sloping anteriorly, ventral straight in the left, slightly concave anteriorly in the right; anterior margin narrowly rounded with extremity at about midheight, posterior subtriangular with a broad apex below midheight; maximum height in front of middle, maximum length submedian; height a little more than half the length; in dorsal view biconvex with compressed ends; maximum width median; left valve larger than right, overlap more pronounced middorsally and midventrally; surface pitted.

Remarks: The present species resembles *B. pittensis* Brown (1957), an Upper Cretaceous species from U.S.A., in having a pitted surface but differs in shape of the carapace. More specimens are needed to give it a new name.

Genus—**Bythocypris** Brady, 1880

Bythocypris sp. (Pl. 2, Fig. 16a-b)

Bythocypris goodlandensis Alexander (Jain, 1961, p. 341; *non Bythocypris goodlandensis* Alexander, 1929, p. 64, pl. 3, fig. 11, 13).

Material: One adult carapace and eight moults from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 275)	0.79	0.35	0.25
Moult	0.67	0.30	0.19

Remarks: The present species closely resembles "*Bythocypris*" sp., described by Esker (1968) from the Danian of Tunisia in the shape of the carapace, but differs from it in being higher and less wide. In view of paucity of adult carapaces the species has been left under open nomenclature.

Superfamily—CYPRIDACEA
Family—PARACYPRIDIDAE
Genus—**Paracypris** Sars, 1866

Paracypris jonesi Bonnema (Pl. 2, Fig. 14a-b)

Paracypris jonesi Bonnema, 1940-41, p. 115, pl. 3, figs. 24-28; Howe and Laurencich, 1958, p. 449; Jain, 1961, p. 341; Esker, 1968, p. 319, pl. 1, fig. 13; Jain, 1975a, p. 207, figs. 1u-v.

Paracypris sahnii Jain, 1961, p. 341.

Material: Two carapaces from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 270)	0.63	0.25	0.17
Carapace	0.62	0.24	0.17

Remarks: Except for the smaller size, the present species is similar in outline to *P. jonesi* Bonnema (1940-41), described from the Maestrichtian of Holland. *P. jonesi* also occurs in the Danian of Tunisia (Esker, 1968) and Lower Maestrichtian of South India (Jain, 1975a).

Paracypris sp. indet. (Pl. 2, Figs. 15a-b, 20)

Paracypris monmouthensis Schimdt (Jain, 1961, p. 341; *non Paracypris monmouthensis* Schmidt, 1948, p. 408, p. 62, fig. 17).

Material: One carapace and three left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 273)	0.66	0.35	0.35
Left valve	0.67	0.35	0.18

Remarks: This indeterminate species is characterized by a subtriangular outline. The height and width are equal and more than half the length of the carapace. More specimens are needed before a new name can be assigned.

Genus—**Pontocyprella** Mandelstam, 1955, in Lyubimova

Pontocyprella ? sp. indet. (Pl. 2, Fig. 17a-b)

?Macrocypris graysonensis Alexander (Jain, 1961, p. 341; *non Macrocypris graysonensis* Alexander, 1929, p. 59, pl. 2, fig. 13, 14).

Material: One male and one female carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm:

	Length	Height	Width
Carapace (CASGMF 280)	0.80	0.33	0.26
Carapace	0.71	0.35	0.27

Description: Male carapace elongate; dorsal margin arched, ventral nearly straight; anterior margin rounded with extremity at midheight, posterior very narrowly rounded, pointed below; maximum height median, less than half the length; maximum length ventral; in dorsal view maximum width median, both anterior and posterior ends acutely pointed; left valve only slightly larger than the right, overlap more pronounced dorsally and ventrally; surface smooth.

The female carapace differs from male in being shorter and higher. It also differs in dorsal view in having a broad posterior and a somewhat narrower anterior.

Remarks: This species does not resemble any other species of the genus known to the author. More specimens are, however, needed before the species is assigned a new name.

Superfamily—CYTHERACEA
Family—BRACHYCYTHERIDAE
Genus—**Brachycytheridae** Alexander, 1933

Brachycythere angulata Grekoff (Pl. 2, Figs. 18a-b, 19)

Brachycythere ledaforma angulata Grekoff, 1951, p. 58, pl. 2, fig. 11-12; Howe and Laurencich, 1958, p. 88.

Brachycythere angulata (Grekoff) Apostolescu, 1961, p. 798, pl. 8, fig. 146-149; Bold 1964, p. 122, pl. 13, fig. 15, (*et syn.*).

Brachycythere bhatiai Jain, 1961, p. 341.

Material: Twenty-two carapaces, four right and five left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 284)	0.70	0.46	0.42
Left valve	0.71	0.47	0.25
Right valve	0.71	0.40	0.24

Remarks: Except for smaller size, the Indian specimens are very similar to *B. angulata* Grekoff (1951). These were examined by Dr. N. Grekoff who agreed with the present identification (personal communication). *B. angulata* was first described from the Santonian of Cameroun. It has subsequently been reported from the Coniacian of Nigeria (Reyment, 1960); Senonian of Senegal and Ivory Coast (Apostolescu, 1961) and Senonian of Egypt (Bold, 1964). A solitary specimen belonging to the above species also occurs in the Upper Campanian-Maestrichtian of South India (Jain, 1971; Ms).

Brachycythere batei n. sp. (Pl. 3, Figs. 31a-b—32a-b)

Haplocytheridea ? punctura Schmidt (Jain, 1961, p. 341; *non Haplocytheridea punctura* Schmidt, 1948, p. 425, pl. 61, fig. 27-31).

Name: This species is named after Dr. R. H. Bate, British Museum (Nat. Hist.), London, U. K.

Holotype: A left valve from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratype: A carapace from the same horizon.

Material: Seventy-seven carapaces, eleven right and four left valves.

Diagnosis: A subtriangular, moderately tumid species with transverse ribs in the anterior and posterior parts and longitudinal ribs in the middle.

Measurements in mm.:

	Length	Height	Width
Left valve (CASGMF 352, holotype)	0.53	0.32	0.14
Carapace (CASGMF 353, paratype)	0.53	0.32	0.27
Right valve	0.53	0.29	0.13

Description: Carapace elongate subtriangular, moderately tumid ventrally, dorsal margin angled at the anterodorsal cardinal angle, converging posteriorly, ventral straight to slightly convex; anterior margin broadly and obliquely rounded with extremity just below midheight, posterior narrowly rounded, compressed; maximum height anterior, maximum length ventral; height more than half the length; in dorsal view ends compressed and sides parallel; maximum width posterior; left valve larger than right and overlapping dorsally and ventrally; surface ornamented with transverse ribs in the anterior and posterior parts, longitudinal ribs in the ventral part and a few oblique ribs in the median part, intercostate areas pitted; eye spot distinct. Inner lamella moderately wide anteriorly and posteriorly, inner margin and line of concrescence coincide throughout and run parallel to the outer margin; selvage subperipheral; hinge poorly preserved, probably holamphidont, left valve with a smooth anterior socket, a smooth anteromedian tooth, a smooth posteromedian bar and a posterior socket, accommodation groove present, right valve with complementary hinge elements.

Remarks: The present species closely resembles *B. emmae* Deroo (1966), described from the Maestrichtian of Holland, insofar as the nature of surface ornament is concerned but differs from it in lateral and dorsal outline and in being smaller in size.

Family—BYTHOCYTHERIDAE

Genus—**Monoceratina** Roth, 1928

"Monoceratina" sp. aff. **M. bugensis** Szczechura (Pl. 3, Fig. 33a-b)

Monoceratina sp. indet. Jain, 1961, p. 341.

aff. Monoceratina bugensis Szczechura, 1964, pp. 389-391, pl. 4, fig. 1-3; pl. 10, fig. 1-6.

Material: One right valve from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Right valve (CASGMF 297)	0.55	0.29	0.13

Remarks: The present species appears to be very similar to the IV Instar of *M. bugensi* Szczechura (1964) described from the Lower Maestrichtian of Poland.

"Monoceratina" tewarii Jain (Pl. 2, Figs. 21a-b, 22a-d)

Monoceratina tewarii Jain 1961, p. 341.

Topotype material: Thirteen adult carapaces, six moults, eleven right and six left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 298)	0.80	0.38	0.50
Right valve	0.76	0.34	0.23

Description: Carapace elongate subquadrate; dorsal margin straight, ventral slightly convex; anterior margin broadly rounded with extremity at midheight, posterior produced into a dorsal caudal process; maximum height anterior; maximum length dorsal; height a little less than half the length; ends compressed in dorsal view, maximum width posterior; anterior marginal rim prominent, a median vertical sulcus separates the anterodorsal and posterodorsal lobes, ventral area with four nodes, anterior most located below the anterodorsal lobe, second located below the sulcus, remaining two located below the posterodorsal lobe, third node from the anterior strongest, produced into a backwardly directed spine, entire surface including the nodes covered with fine reticules, obliquely disposed in the area between the nodes and the ventral margin.

Hinge poorly preserved, right valve with a median groove, terminal elements not seen.

Remarks: "M." *tewarii* resembles *M. pecten* Veen (1936), a Maestrichtian species, in having four nodes above the ventral margin but differs from it in the posterior location of the weakest node, in third node being produced in a posteriorly directed spine and in having a finely reticulate surface.

Genus—**Protojonesia** Deroo, 1966

Protojonesia sp. cf. **P. bolliaformis** (Veen) Deroo (Pl. 3, Fig. 34a-b)

cf. *Loxoconcha bolliaformis* Veen, 1936, p. 23, pl. 1, figs. 24-26.
cf. *Loxoconcha ? bolliaformis* Veen (Howe and Laurencich, 1958, p. 383)
cf. *Cytherura thuatiensis* Jain, 1961, p. 341.
cf. *Protojonesia bolliaformis* (Veen) (Deroo 1966, p. 85, pl. 10, fig. 151-152).

Material: Six carapaces, three right and four left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 300)	0.64	0.32	0.31
Left valve	0.61	0.29	0.19

Remarks: Except for the absence of the concavity on the ventral margin and the smaller size, the Indian specimens are very similar to *C. bolliaformis* Veen (1936) described from the Maestrichtian of Limburg, Holland.

Family—CYTHERETTIDAE

Genus—ACUTICYTHERETTA Deroo, 1966

Acuticytheretta baghensis (Jain) (Pl. 1, Fig. 12a-c, 13; pl. 3, Fig. 35)

Macrocypris ? baghensis Jain, 1961, p. 341.

Topotype material: Twenty carapaces, ten right and six left valves from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Left valve (CASCMF 302)	0.88	0.48	0.24
Carapace (CASGMF 303)	0.80	0.42	0.36
Right valve	1.01	0.47	0.22

Description: Carapace elongate subovate, strongly inequivalve, biconvex in dorsal view, maximum width median, posterior compressed; overlap pronounced dorsally and ventrally; surface pitted.

Right valve: dorsal margin straight between distinct anterior and posterior angulations, ventral sinuate; anterior margin obliquely rounded with extremity below midheight, posterior broadly triangular with apex at midheight; maximum height anterior; maximum length median; height less than half the length; ends compressed in dorsal view.

Selvage distinct, peripheral; Hinge consists of a groove extending between anterodorsal and posterodorsal angulations with a distinct anteromedian socket.

Left valve: dorsal margin arched, ventral convex; anterior margin broadly rounded with extremity below midheight, posterior drawn out, truncate; maximum height just in front of middle; maximum length median; height more than half the length; both ends compressed in dorsal view.

Anterior, ventral and posterior margins with a well developed groove. Hinge consists of a prominent median bar with slightly strongly developed ends; a faint accommodation groove visible in some specimens.

Remarks: This species was originally described by the author as *Macrocypris ? baghensis.* A re-examination of the material, however, shows that it should be assigned to the genus *Acuticytheretta* Deroo (1966). The Bagh specimens are poorly preserved and the hinge is not clearly seen in the material at hand. The only hinge element which is clearly visible is the median bar in the left valve and the median groove in the right. This species is quite variable in shape as well as in size. In some specimens, both anterior and posterior ends are compressed while in others only the posterior is compressed. In some cases, the height is more than half the length while in others it is less than half. It is likely that these differences are due to sexual dimorphism. Some broken specimens measure more than 1.30 mm. in size.

The present species closely resembles *A. infundibuliformis* Veen (1935) described from the Maestrichtian of Holland, having similar shape of the carapace and overlap, but differs in being smaller in size and in having a finely pitted surface. It is likely that the Indian specimens may represent moulds of *A. infundibuliformis*, but this could not be ascertained as the topotypes of *A. infundibuliformis* were not available.

Family—CYTHERIDEIDAE

Subfamily—KRITHINAE

Genus—**Krithe** Brady, Crosskey and Robertson, 1874

Krithe oudiapurensis n. sp. (Pl. 3, Figs. 36a-b)

Name: After Oudiapur village, the type locality for the species.

Holotype: A female carapace from the Coralline Limestone (Coniacian), Oudiapur, Dhar District.

Paratype: One female left valve from the same horizon.

Material: Eighteen carapaces and four left valves.

Diagnosis: A small, subovate *Krithe* with arched dorsum, rounded anterior and ventrally pointed posterior.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 311, holotype)	0.45	0.26	0.23
Left valve (CASGMF 312, paratype)	0.44	0.25	0.12

Description: Female carapace subovate; dorsal margin gently arched, ventral slightly concave in the right, straight in the left valve; anterior margin rounded with extremity below midheight, posterior obliquely truncate, pointed below; maximum height median; maximum length ventral; height more than half the length; gently biconvex in dorsal view; maximum width posterior; left valve larger than right and overlapping ventrally and posteriorly; surface smooth. Internal details obscure.

Remarks: The present species can be easily distinguished from other Cretaceous species of the genus by its small size and shape.

Subfamily—THERIDEIDINAE

Genus—**Neocytherideis** Puri, 1952

Neocytherideis reymenti Jain (Pl. 2, Figs. 27a-b)

Neocytherideis reymenti Jain, 1975 b, p. 52, figs. 16 & 35.

Material: A single carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 317, paratype)	0.65	0.25	0.25

Remarks: This species was erected by the writer (JAIN, 1975 b) on a much larger material collected from the Lower Maestrichtian of South India. A description therefore is not necessary here.

Family—CYTHERURIDAE

Genus—**Semicytherura** Wagner, 1957

Semicytherura? sp. indet. (Pl. 2, Fig. 24a-b)

Material: One male carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 347)	0.35	0.18	0.11

Remarks: A single carapace of this indeterminate species occurs in our material.

Family—PROGONOCYTHERIDAE

Subfamily—PROGONOCYTHERINAE

Genus— **Sphaeroleberis** Deroo, 1966

Sphaeroleberis ? chiplonkeri (Jain) (Pl. 3, Figs. 37a-c, 38)

Bythocypris chiplonkeri Jain, 1961, p. 341.

Topotype material: Four carapaces and one right valve from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Female carapace (CASGMF 356)	0.66	0.34	0.38
Male right valve (CASGMF 357)	0.68	0.31	0.19

Description: Carapace elongate subovate, tumid; dorsal margin arched, obscurely angled anteriorly and posteriorly, ventral convex; anterior margin obliquely rounded with extremity below midheight, posterior narrow, bluntly pointed below; maximum height in front of middle; maximum length ventral; height half the length in males, more than half in females; biconvex in dorsal view, ends compressed, maximum width median, more than height, spherical in posterior view; left valve larger than right, overlapping dorsally and ventrally; surface ornamented with reticules arranged concentrically in the median part and longitudinally in the ventral.

Selvage subperipheral; hinge antimerodont, right valve with elongate terminal crenulate teeth and a crenulate median groove.

Probable female carapace little shorter, higher and wider than the male.

Remarks: The present species was earlier described by the writer (JAIN, 1961) as *Bythocypris chiplonkeri* on the basis of a single complete carapace. A later find of an open valve revealed that it does not belong to the genus *Bythocypris* but is probably close to *Sphaeroleberis.* According to Dr. G. Deroo, these specimens being less spherical are not true *Sphaeroleberis* and may even represent a new genus (personal communication). In the absence of details of muscle scars and marginal pore canals, this species is being tentatively assigned to *Sphaeroleberis.*

Sphaeroleberis ? howei n. sp. (Pl. 2, Figs. 23a-b)

Material: One carapace and one right valve from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 367)	0.43	0.22	0.26
Right valve	0.42	0.21	0.13

Remarks: This species has already been described from the Lower Maestrichtian of South India (JAIN, 1975 b) and no further description is necessary here.

Family—TRACHYLEBERIDIDAE

Genus—**Curfsina** Deroo, 1966

Curfsina derooi n. sp. (Pl. 3, Fig. 39a-b)

Name: This species is named after Dr. G. Deroo, Institut Francais du Petrole, Rueil Malmaison, France.

Holotype: A male carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratype: One female carapace from the same horizon.

Material: Thirty-seven carapaces.

Diagnosis: A species of *Curfsina* with long dorsal and ventral longitudinal ribs and a short, thick median rib which is connected to the subcentral muscle node by a fine rib and smooth surface.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 375, holotype)	0.61	0.27	0.26
Carapace (CASGMF 376, paratype)	0.58	0.29	0.25

Description: Carapace subrectangular; dorsal margin straight, ventral slightly sinuate to concave; anterior margin broadly rounded with extremity at midheight, posterior triangular with apex at midheight; maximum height anterior; maximum length median, height less than half the length in males and about half the length in females; ends compressed in dorsal view, posterior more compressed than the anterior; maximum width posterior; left valve slightly larger than right; anterior and posterior marginal rims prominent; dorsal rib extending from behind the eye spot to the posterodorsal angulation and joined by a short vertical rib in the back, a short thick and elongate rib present behind the muscle node and joined with it by a fine rib, ventral rib prominent, continuous with the anterior rim, another short rib extends from the eye spot towards the muscle node; remaining surface smooth; eye spot and muscle node strongly developed; anterior marginal denticles numerous, fine, posterior denticles 5-6 in number. Males more elongate than females, with anterior extremity at midheight, females shorter and higher, with anterior extremity below midheight.

Remarks: Curfsina derooi appears to be similar to such closely related groups of species as (1) *Curfsina kafkai kafkai* Pokorny (1967), *Cythereis nuda* Deroo (1956), and *Cythereis? gatyensis* Damotte and Grosdidier (1963); and (2) *Cythereis bonnemai* Triebel (1940), and *Curfsina quadrispinata* Deroo (1966). It, however, differs from the first group of species in having the muscle node and median rib joined. In *Cythereis bonnemai* the median rib is fine and long as compared to the thick short rib in the present specimens. The Indian

species differs from *Curfsina quadrispinata* in having a more regular dorsal rib and in the absence of nodes between dorsal and median ribs.

Curfsina thuatiensis n. sp. (Pl. 2, Figs. 25a-b, 26a-c; Pl. 3, Fig. 40a-b)

Name: The species is named after Thuati village, the type locality for the species.

Holotype: A female carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratypes: One female right valve and one male carapace from the same horizon.

Material: Two hundred and six carapaces, two right and three left valves.

Diagnosis: A *Curfsina* with three longitudinal ribs and reticulate surface.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 371, holotype) ..	0.51	0.29	0.21
Right valve (CASGMF 372, paratype I) ..	0.51	0.26	0.09
Carapace (CASGMF 373, paratype II) ..	0.61	0.29	0.19

Description: Carapace subquadrate; dorsal and ventral margins nearly straight, subparallel and converging posteriorly; anterior margin broadly rounded with extremity at midheight, posterior triangular with apex below midheight; maximum height anterior; maximum length submedian, height more than half the length in females and a little less than half in males; compressed in dorsal view with parallel sides; maximum width posterior; left valve slightly larger than right, overlapping dorsally; anterior and posterior marginal rims prominent, each with a single row of pits; dorsal rib extends between anterior and posterior cardinal angles, median rib long, extends from near the posterior margin past the subcentral muscle node to a point close to the anterior margin, anteriorly bifurating in the left valve, the dorsal and median ribs joined posteriorly by a short vertical rib, anteriorly the ventral rib joined with the marginal rim, posteriorly it turns back to form a sharp hair-pin bend; surface finely reticulate; eye spot and muscle node weakly developed; anterior marginal denticles small and numerous, posterior fewer in number.

Inner lamella wide anteriorly; inner margin and line of concrescence coincide throughout and run parallel to the outer margin; selvage strongly developed, subperipheral, flange forms the underside of the outer margin; hinge probably holamphidont, right valve with a large conical peg-like anterior tooth, an anteromedian socket, a posteromedian groove and a small, elongate, smooth posterior tooth, left valve with complementary elements. Females shorter and higher than males.

Remarks: The present species can be compared with *C. subparva* Pokorny (1967) described from the Lower Turonian-Coniacian of Bohemia with which it resembles in having a reticulate surface, but differs in having a more prominent median rib and a less prominent muscle node.

The species also occurs rarely in the Patti Member (Campanian-Maestrichtian), Patti, Vridhachalam District (Jain 1971; MS).

Genus—**Cythereis** Jones, 1849

"Cythereis" raoi n. sp. (Pl. 3, Figs. 28a-b, 29a-b, 30a-b)

Cythereis sp. aff. *C. krumensis* Alexander (Jain, 1961, p. 341; *non Cythereis krumensis* Alexander, 1929, p. 91, pl. 9, fig. 1-2).

Name: The species is named after Late Professor L. Rama Rao.

Holotype: A male carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratypes: One female left valve, one male right valve and one female carapace from the same horizon.

Material: One hundred and forty-seven carapaces, thirty-nine right and thirty-seven left valves.

Diagnosis: An elongate species of "*Cythereis*" with three strong and parallel longitudinal ribs and coarsely reticulate surface; hinge probably holamphidont.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 385, holotype)	0.68	0.36	0.35
Left valve (CASGMF 386, paratype I) ..	0.73	0.38	0.18
Right valve (CASGMF 387, paratype II) ..	0.68	0.36	0.17

Description: Carapace elongate; dorsal and ventral margins nearly straight, slightly converging posteriorly, anterodorsal and posterodorsal cardinal angles well marked; anterior margin broadly rounded with extremity at midheight, posterior compressed, somewhat triangular with apex at midheight; maximum height anterior; maximum length median; height more than half the length; spindle-shaped in dorsal view, ends compressed; maximum width median in males, posterior in females; left valve larger than right, with a prominent anterior 'hinge ear' and a pronounced anterodorsal overlap; anterior marginal rim strong, posterior weak; dorsal, median and ventral ribs are nearly equally strongly developed, straight and parallel, entire surface including the ribs coarsely reticulate; eye spot and muscle node somewhat weakly developed; anterior marginal denticles numerous, posterior few and strong.

Inner lamella wide anteriorly; inner margin and line of concrescence coincide throughout and run parallel to the outer margin; selvage strongly developed, in the left valve forming a narrow and shallow groove with a list in the anterior and posterior regions; flange present, anteriorly forming the underside of the outer margin; hinge probably holamphidont, right valve with a large, smooth anterior tooth, an anteromedian socket, a posteromedian groove and a smooth posterior tooth, left valve with an anterior socket, an anteromedian tooth, a posteromedian bar and a posterior socket, both anterior and posterior sockets open into the inner side of the valve, an additional tooth like structure present anterior to the anterior socket.

Females less elongate than males and with a more upturned posteroventral margin.

Remarks: Externally, these specimens closely resemble *Cythereis* S. S. but differ in having smooth (?) terminal teeth, a feature which may actually be due to bad preservation. According to Dr. J. Hazel (personal communication) ".....this form is similar to such North American species as *Bradleya crassicarinata* Hazel and Paulson (1964) and *Cythereis hazardi* Israelsky (1929) and most similar to African species such as *Cythereis vitiliginosa* Apostolescu (1961). They are neither *Bradleya* nor *Cythereis* and probably represent a new genus related to *Oertliella.*" In the absence of more precise details of hinge, muscle scars and marginal pore canals, however, these specimens are being tentatively assigned to the genus "*Cythereis*".

Genus—**Leniocythere** Howe, 1951

Leniocythere ? thuatiensis n. sp. (Pl. 3, Fig. 42a-b)

Name: The species is named after Thuati village, the type locality for the species.

Holotype: A carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Paratype: One carapace from the same horizon.

Material: Thirty carapaces and one broken left valve.

Diagnosis: An elongate *Leniocythere ?* with a wide anterior marginal rim and a furrow behind it, a somewhat narrow posterior marginal rim, a weak dorsal rib, a strong median rib which is joined to a weak ventral rib by a short rib in the back and faint longitudinally arranged pits.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 392, holotype)	0.67	0.28	0.27
Carapace (CASGMF 393, paratype)	0.65	0.30	0.28

Description: Carapace subrectangular, compressed posteriorly; dorsal and ventral margins nearly straight to slightly concave; anterior margin obliquely rounded with extremity below midheight, posterior broadly triangular with apex at midheight; maximum height anterior, maximum length median, height less than half the length; ends compressed in dorsal view; maximum width behind middle; left valve slightly larger than right; anterior marginal rim broad, with a furrow behind it, posterior marginal rim somewhat narrow, dorsal rib weak, median rib long and oblique, ventral rib short, ventral and median ribs joined posteriorly by a short cross rib, entire surface including the ribs covered with faint longitudinally arranged pits; muscle node weakly developed. Left valve with a wide anterior marginal zone; selvage subperipheral; hinge consists of an anterior socket and a median bar.

Remarks: The present species is undoubtedly related to some of the Maestrichtian species described from Holland and which have been questionably placed by Deroo (1966) under the genus *Leniocythere* Howe. These are *Leniocythere? dolloi* Veen (1936), *L. ? limburgensis* Veen (1936), and *L. ? radiosa* Bosquet (1854). The Indian specimens, however, differ from *L. ? dolloi* in the shape of the carapace and in the nature of ornament, from *L. ? limburgensis* in surface ornament; and from *L. ? radiosa* in overall shape and in the absence of posterior spines.

Genus—**Planileberis** Deroo, 1966

Planileberis ? sp. indet. (Pl. 3, Figs. 41a-b)

Material: One carapace from the Coralline Limestone (Coniacian), Thuati, Dhar District.

Measurements in mm.:

	Length	Height	Width
Carapace (CASGMF 419)	0.62	0.30	0.21

Remarks: This indeterminate species is represented in our material by a single poorly preserved carapace only.

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PLATE 1

(Unless otherwise stated, a, external view, b, dorsal view).

1. "*Bairdia*" sp. A.—Internal mould, 1.06 mm.
2. *Cytherelloidea khoslai* n. sp.—Holotype, male carapace, a, right valve view, b, left valve view, c, dorsal view, 0.51 mm.
3. *Cytherelloidea raoi* Jain—Topotype, female carapace, 0.63 mm..
4,5. *Cytherelloidea subgranulosa* Jain—4, topotype, female carapace, 0.72 mm.; 5, topotype, male left valve, external view, 0.68 mm.
6. *Cytherelloidea oudiapurensis* n. sp. —Holotype, male carapace, 0.56 mm.
7. *Cytherella* sp. cf. *C. austinensis* Alexander—Male carapace, left valve view, 0.58 mm.
8. *Cytherella* sp. A— Female carapace, left valve view, 0.55 mm.
9. "*Bairdia*" sp. C—Carapace, 0.62 mm.
10. *Cytherelloidea thuatiensis* nom. nov.—Topotype, male carapace, a, left valve view, b, right valve view, c, dorsal view, 0.55 mm.
11. "*Bairdia*" sp. B—Internal mould, 0.71 mm.
12,13. *Acuticytheretta baghensis* Jain—12, topotype, left valve, a, external view, b, internal view. 0.88 mm.; 13, topotype, right valve, internal view, 0.83 mm.

PLATE 2

(Unless otherwise stated, a, right valve external view, b, dorsal view

14. *Paracypris jonesi* Bonnema—Carapace, 0.63 mm.
15, 20. *Paracypris* sp. indet.—15, carapace, 0.66 mm.; 20, left valve internal view, 0.67 mm.
16. *Bythocypris* sp.—Carapace, 0.79 mm.
17. *Pontocyprella?* sp. indet.—Carapace, 0.80 mm.
18,19. *Brachycythera angulata* Grekoff—18, carapace, 0.70 mm.; 19, right valve internal view, 0.71 mm.
21,22. "*Monoceratina*" *tewarii* Jain—21, topotype, carapace, 0.80 mm.; 22, right valve, a, external view, b, internal view, c, ventral view, d, dorsal view, 0.76 mm.
23. *Sphaeroleberis? howei* n. sp.—Carapace, 0.43 mm.
24. *Semicytherura* sp. indet. Carapace, 0.35 mm.
25,26. *Curfsina thuatiensis* n. sp.—25, holotype, female carapace, a, left valve view, b, dorsal view, 0.51 mm.; 26, paratype 1, male right valve, a, external view, b, internal view, c, dorsal view, 0.51 mm.
27. *Neocytherideis reymenti* Jain—Paratype, 0.65 mm.

PLATE 3

(Unless otherwise stated, a, right valve external view, b, dorsal view, c, anterior end view).

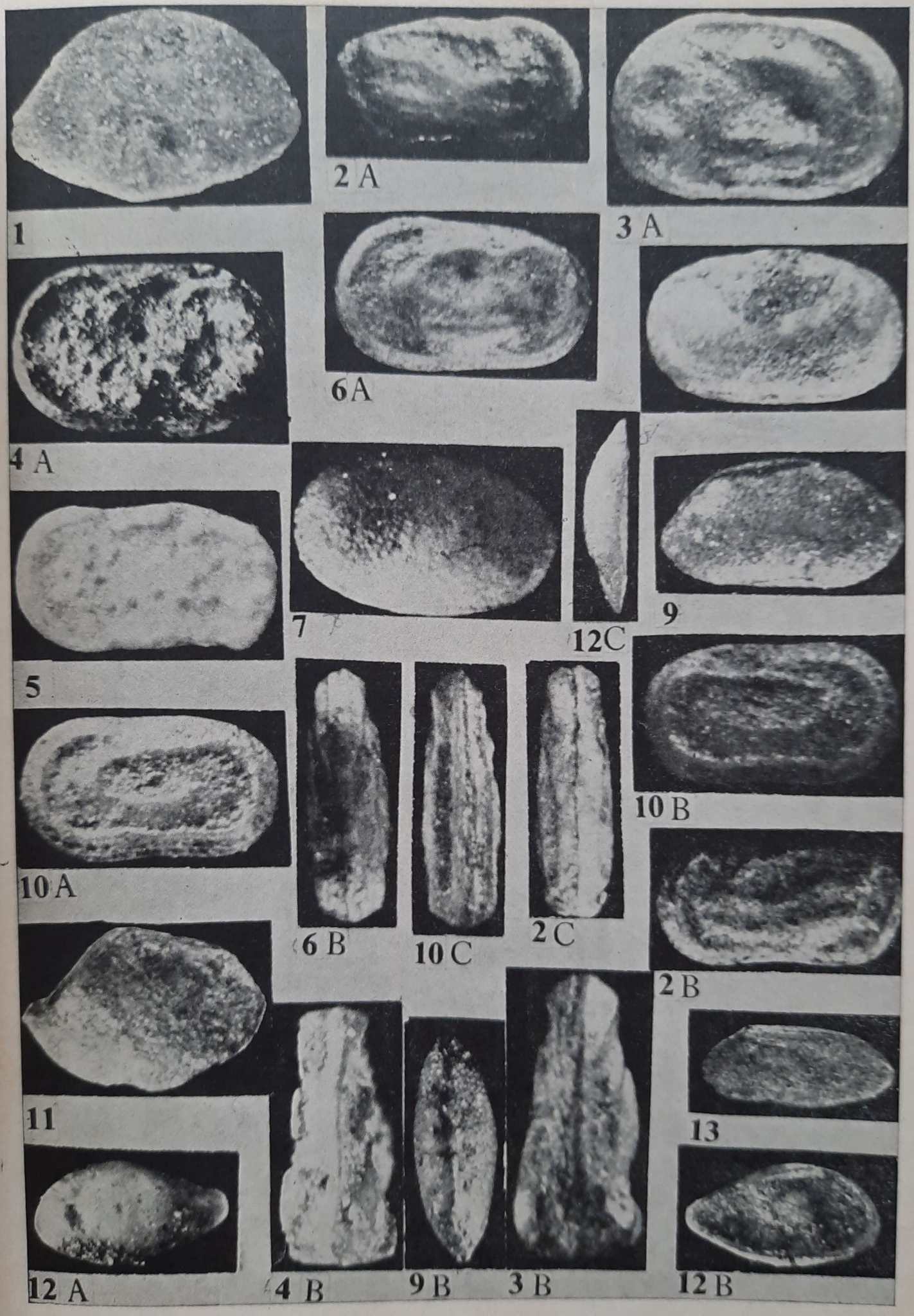
28-30. "*Cythereis*" *raoi* n. sp.— 28, holotype,male carapace, 0.68 mm.; 29, paratype II, male right valve, a, internal view, b, dorsal view, 0.68 mm.; 30, para type I, female left valve, a, internal view, b, dorsal view, 0.73 mm.

31,32. *Brachycythere batei* n. sp.
31, paratype, carapace, 0.53 mm.; 32, holotype, left valve, a, external view, b, internal view, 0.53 mm.

33. "*Monoceratina*" sp. aff. *M. bugensis* Szczechura
Right valve, 0.55 mm.

34. *Protojonesia* sp. cf. *P. bolliaformis* (Veen) Deroo
Carapace, 0.64 mm.
35. *Acuticytheretta baghensis* (Jain)
Topotype, right valve, external view, 0.83 mm.
36. *Krithe oudiapurensis* n. sp.
Holotype, female carapace, 0.45 mm.
37,38. *Sphaeroleberis? chiplonkeri* (Jain)
37, topotype, female carapace, 0.66 mm.; 38, topotype, male right valve, internal view, 0.68 mm.
39. *Curfsina derooi* n. sp.
Holotype, male carapace, 0.61 mm.
40. *Curfsina thuatiensis* n. sp.
Paratype II, male carapace, 0.61 mm.
41. *Planileberis ?* sp. indet.
Carapace, 0.62 mm.
42. *Leniocythere? thuatiensis* n. sp.
Holotype, carapace, 0.67 mm.

A. *Cytherelloidea Ondiapurensis* n. sp., ×Ca. 98.
Holotype, male carapace.
B. *Cytherelloidea raoi* Jain, ×Ca. 98.
Topotype, female left valve.
C. *Cytherelloidea subgranulosa* Jain, ×105.
Topotype, male left valve.
D. *Cytherelloidea thuatiensis* Jain nom. nov., ×Ca 98.
Topotype, male carapace.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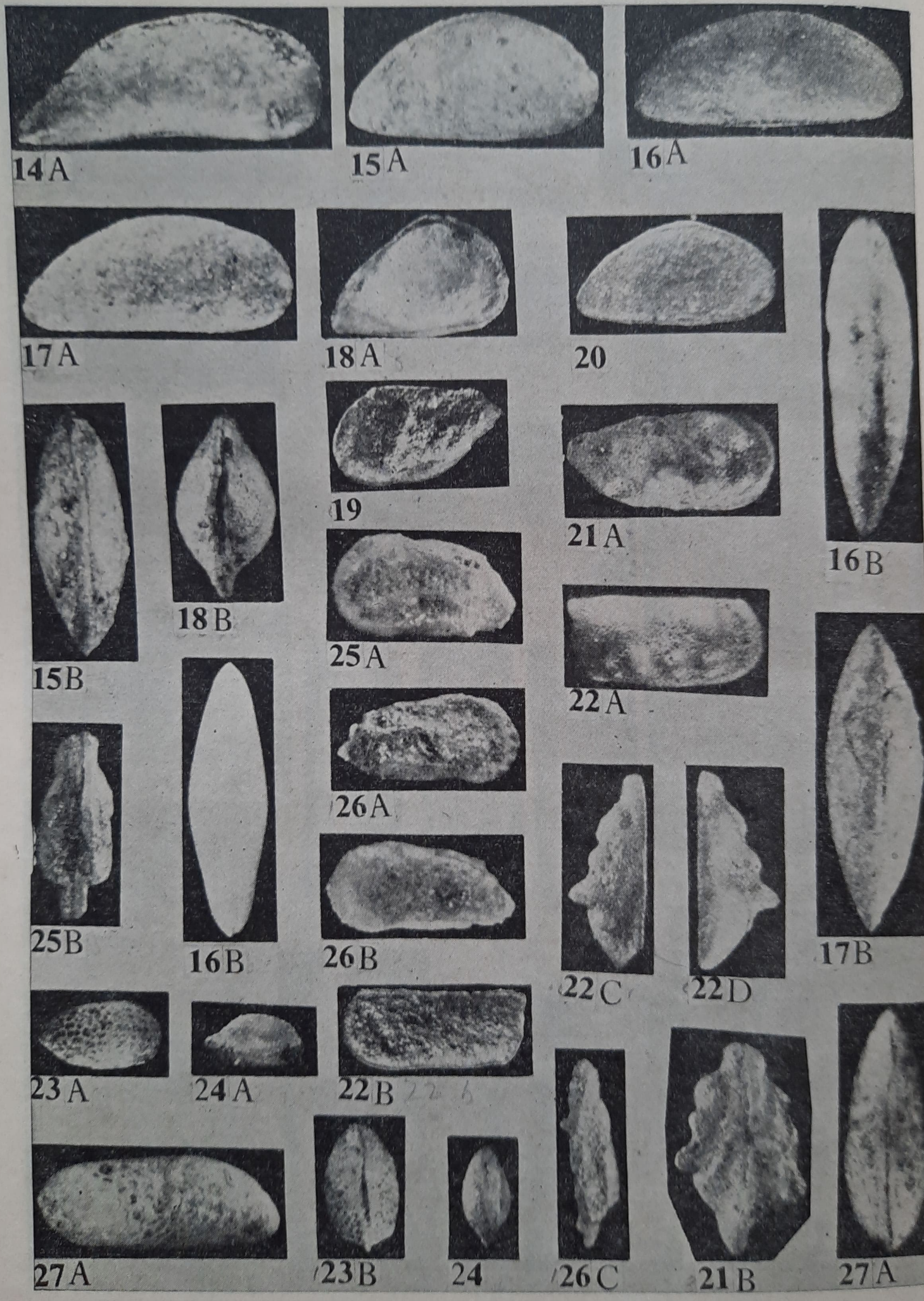
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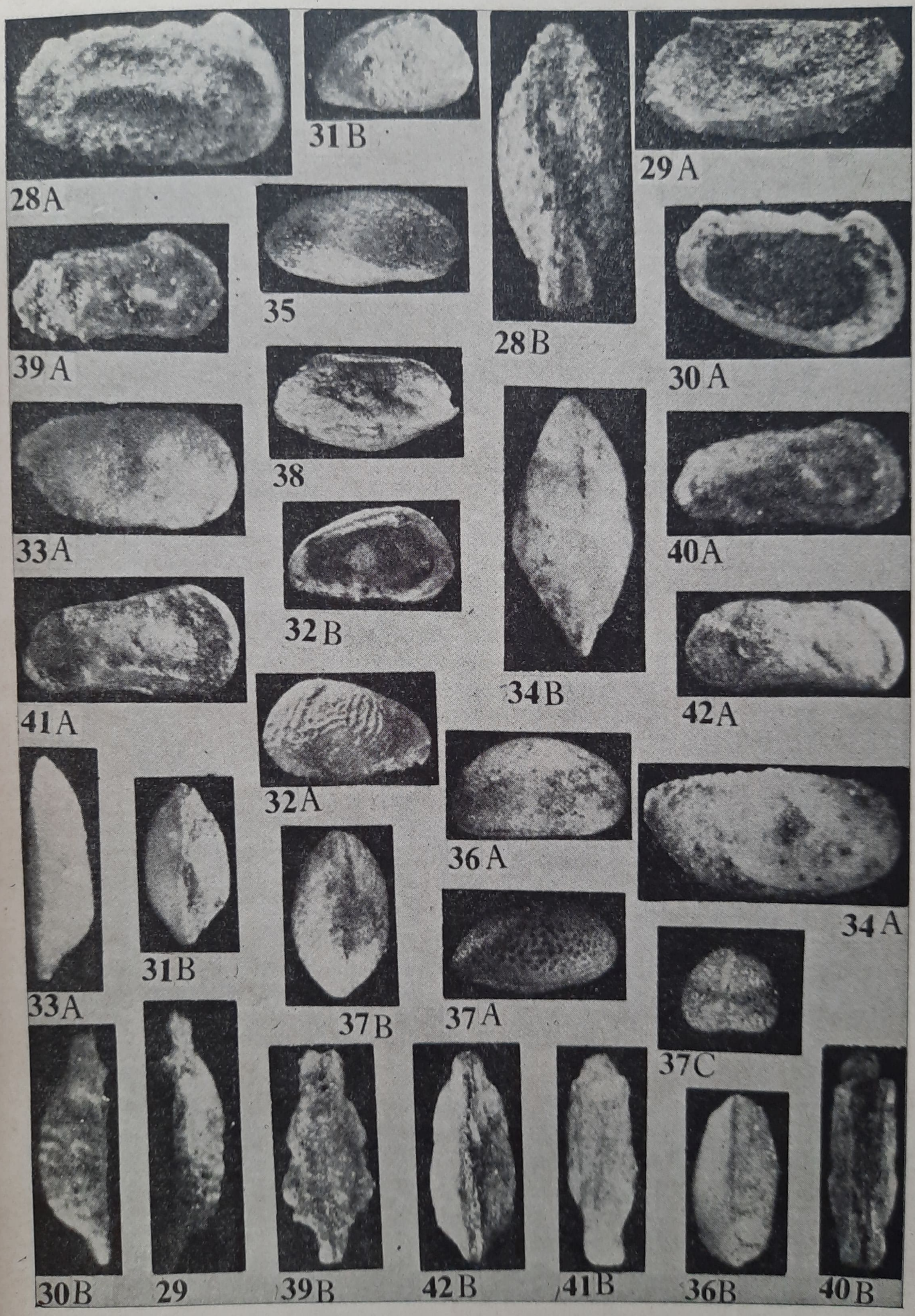
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40B