BISULCOCYPRIS A NEW MESOZOIC GENUS AND PRELIMINARY NOTE ABOUT ITS RELATION WITH METACYPRIS AND ALLIED FORMS. **

IRAJÁ DAMIANI PINTO E YVONNE T. SANGUINETTI

Secção de Geologia e Paleontologia (*), Instituto de Ciências Naturais, Univ. Rio Grande do Sul (U.R.G.S.).

ABSTRACT

The authors, in studying fossil and living ostracodes from Brasil, found that many forms referred to as *Metacypris* by some authors and *Gomphocythere* by others, belong to other genera. Some belong to a new exclusively Mesozoic genus that the authors call *Bisulcocypris* and some to *Cytheridella* or other genera. The authors in this note also describe two new species of the new Genus (*Bisulcocypris pricei* gen. et sp. nov., and *B. uninodosa* sp. nov.) from the Jatobá series in Taboleiro Redondo, Petrolândia Pernambuco, Brasil and concluded for a probable Upper Jurassic age to this place.

RESUMO

Os autores, ao estudarem ostracodes fósseis do Nordeste do Brasil, e atuais do Rio Grande do Sul, verificaram a existência de grande divergência na literatura, a respeito dos gêneros *Metacypris* Brady & Robertson, 1870; *Gomphocythere* Sars, 1924; *Cytheridella* Daday, 1905; *Elpidium* Muller, 1880; e *Onychocythere* Tressler, 1939.

Do estudo do material, concluiram que há real distinção — conforme Tabela I e Estampa I — entre os genêros *Metacypris, Gomphocythere, Cytheridella* e o novo gênero *Bisulcocypris*, exclusivo do Mesozóico, criado pelos autores. O gênero *Onychocythere* é idêntico ao gênero *Cytheridella* e o gênero *Elpidium* parece corresponder "in totum" ao gênero *metacypris*, dependendo, os autores, de melhor material para uma perfeita definição.

Discordam, os autores, da idade Triássica atribuida à Série Jatobá, por Barbosa, 1953, concluindo que, possìvelmente, o que se considera Série Jatobá, inclui sedimentos do Jurássico ao Cretáceo, sendo que dão como do Jurássico superior os sedimentos de Taboleiro Redondo, Petrolândia, Pernambuco.

---

* The researches on these ostracodes have been done thanks to grants from the Rockfeller Foundation and Conselho Nacional de Pesquisas .

** This subject was presented in Nov. 15, 1957, in the XI Brazilian Congress of Geology, in Salvador, Bahia.

INTRODUCTION

The authors, in studying fossil material from Northwestern Brasil and living forms from the state of Rio Grande do Sul, Brasil, found great confusion among many authors about the genera *Metacypris, Gomphocythere and Cytheridella.* From an intensive study of these forms and the literature, the authors found a new genus exclusively of Mesozoic age and the real differences between the genera cited above, as we can see in Table I, Plate I. On the other hand, they found that *Onychocythere* Tressler, 1939, is identical with *Cytheridella* and that *Elpidium* seems, as pointed to by other authors identical with *Metacypris.* The material described in this note is from Pernambuco, a Northwestern state of Brasil and was given to the senior author by the Paleontologist Llewellyn Ivor Price, of Departamento Nacional da Produção Mineral, Rio de Janeiro, to whom the authors express gratitude.

Acknowledgments.

This being the first of a series of papers on ostracods to be published, that the authors have in preparation, after their return from the United States of America, they would like to express their gratitude to the Rockefeller Foundation and Conselho Nacional de Pesquisas, for the help and opportunities that they have received. The senior author expresses, in special, thanks to his good friends Harry M. Miller Jr. (Rockfeller Foundation), H. V. Howe (Louisiana State University), I. G. Sohn (U. S. Geological Survey), S. A. Levinson (Humble Oil Co.), R. Kesling (Michigan Univ.), B. Ellis and A. Messina (Am. Mus. Nat. Hist.), H. Scott (Illinois University), C. P. Sylvester-Bradley (Kansas Univ. and Sheffield Univ.-England). He also wants to express his thanks to Dr. Alice Ball from U.S. Book Exchange and Miss Alma DeJordy from Protographic Reprod. Div. of Illinois Univ. for their help and kind attention.

STRATIGRAPHY

The Cretaceous age was suggested by Orville Derby (1881) and this age is maintained by Moraes (1928), Maury (1929), Oliveira (1939) and others. But Oliveira in 1953 described a conchostraca of the *Estheriella* genus that until now was considered a Triassic genus. Octavio Barbosa (1953) using this fossil as an index and the stratigraphic position in relation to Cicero Dantas Formation, puts the Jatobá Series in the Triassic.

The present authors have based themselves on the following facts:

a) That ostracod association from several places (Bahia, Alagoas, Pernambuco) shows a strong affinity with the Purbeck-Wealden species that occur in Jurassic to Cretaceous all over the world.

b) That the fossils here studied have great affinities with the Wealden species from Germany (Upper Jurassic) described by Martin, 1940 and the upper Jurassic species of North America described by Roth, 1933.

c) That as only a small number of species are known of the Estheriella genus it could have a higher range than that we know until now.

d) That no other fossil shows a definite Triassic age but in general they suggest an Upper Jurassic to lower Cretaceous age.

The assumption of these facts, together with the study of ostracods of this Series and the revision of bibliography, has led them to the conclusions below.

CONCLUSIONS

1) Problably the so-called Jatobá Series include sediments of several ages, because we found Jurassic and Cretaceous associations in different places.

2) The genus *Estheriella* must have a higher range than that we know until now arriving, at least, until the Jurassic.

3) The Jatobá Series at the place where we found the fossils, i. é, Taboleiro Redondo, Petrolândia, Pernambuco, must be of Upper Jurassic age.

4) Finally, that an intensive study of fossils, associated with detailed stratigraphic studies will be the only way with which we could classify the relations, the composition and the correct age of the Bahia and Jatobá Series.

SYSTEMATICS

CLASSIS	CRUSTACEA
ORDO	PODOCOPA
FAMILIA	CYTHERIDAE
GENUS	BISULCOCYPRIS Pinto et Sanguinetti, gen. nov.

Generic Diagnoses

Shell in side view rhomboid or oblong, the dorsal margin straight or slightly concave; the ventral margin straight or slightly convex; the anterior end rounded and the posterior broadly rounded to flattened; the cardinal angles normally are very well marked.

Typically it presents two sulci that run, more or less obliquely downward to form the dorsal margin; the posterior one terminates dorsal to the mid-length or slightly further; the anterior is shorter and runs more obliquely forward and downward.

The surface is slightly or strongly pitted, coarsely and in a reticulate fashion; along the ventrum the longitudinal elements of the reticulum are stronger giving an appearence of longitudinal ridges only. In some forms are found tubercles, nodes, spines, and in a few, one longitudinal and ventral ridge is stronger and end in an ala or spine. Hingement lophodont. One valve has a flat anterior tooth wich is smooth and semicircular and a more triangular smooth and sharp posterior tooth, between the teeth, a narrow

and straight sulcus to receive the hinge-bar from the opposite valve. The opposite valve has one anterior socket and one posterior socket to receive the teeth from the other valve and between them a straight and narrow hinge-bar. Muscle scars consiste of a subventral row of four closely spaced scars. They lie ventral to the dorso-mendian sulcus and are slightly ventral to midlength. In dorsal view the female is triangular rounded and the male oblong, showing two sulci on each side in the anterior midway.

Genoholotype — *Bisulcocypris pricei* Pinto et Sanguinetti, sp. nov.

Série Jatobá, Upper Jurassic(?), Pernambuco, Brasil.

Repository — Museu de Paleontologia da URGS, Pôrto Alegre, Brasil.

Discussion

Forms similar to this have been referred to *Metacypris* or *Gomphocythere* by many authors. However, *Bisulcocypris* may easily be distinguished from these genera because it has two sulci whereas *Metacypris* Brady & Robertson has none and *Gomphocythere* Sars has only a slight depression midway to the anterior margin. *Bisulcocypris* is more similar to *Cytheridella* Daday, however *Cytheridella* has only one sulcus and the hinge structure is quite different. (See the differences in Table I and Plate I).

Range — Triassic(?), Jurassic and Cretaceous.

Bisulcocypris pricei Pinto et Sanguinetti, gen. et sp. nov.

Pl. I, figs. 19-24; Pl. II, figs. 1-7; Pl. III, figs. 1-5

Diagnoses

Carapace rhomboid in lateral outline, it is slightly higher in the posterior part. Dorsal and ventral margin straight and almost parallel. Laterally showing a strongly development of some ventral ridges of the reticulum, forming a process like an ala in the posterior ventral part. Right valve larger than the left.

Description

Carapace distinct in the two sexes. Carapace of male seen from above is ovate, the larger portion is just after the middle as in female but is not so large and the sulcus is obscure. The posterior third is narrow ending in a sharp angle and does not form a reentrance as can be seen in the female. Anteriorly as in the female the ridges form a keel like ridge. Carapace of female seen from above is piriform, it is larger slightly posterior to middlength and two sulci are present anterior to midlength. The posterior third of the carapace becomes gradually narrow and forms posteriorly a reentrance at the junction of the valves. The valves converge rapidly from the anterior sulcus to form a compressed keel like ridge at the anterior end of the carapace.

In both sexes the right valve is larger and overlaps the left strongly in the anterior and posterior cardinal angles. Seen laterally they are rhomboid in outline and slightly higher in the posterior quarter. Dorsal and ventral margins are almost parallel. In the male the dorsal and ventral margins are straight, the dorsal showing a little elevation in the anterior cardinal angle. The anterior cardinal angle is very obtuse; the posterior cardinal angle is prominent but much less obtuse than the anterior. The anterior margin is straight below the cardinal angles going downward and forward until almost the middlength where it becomes unequally rounded and grades into the ventral margin. The posterior margin is rounded grading into the ventral surface and meeting the dorsal margin with an obtuse angle at the posterior end of the hinge.

Just anterior to midlength two prominent sulci indent deeply each valve. The posterior one extends downward until the midlength or slightly lower, the anterior is not so long.

The female carapace differs from the male in side view to have a more rounded anterior end; the posterior end is more flattened: posterior part is higher; dorsal margin strongly concave in the anterior portion at the sulci and convex in the posterior quarter; and having a stronger angle in the posterior end formed by a marginal ridge. Sulci deeply impressed as in male.

Surface of valves covered with very small and difficultly seen pits, which form a reticulate network that in the ventral portion has the longitudinal ridges more prominent forming a process like a keel ending in a very small ala that is similar to *Bisulcocypris* striata (Martin), 1940.

Muscle scars consist of a row of four impressions that lies ventral to the posterior sulcus and are slightly ventral to midlength. Hingement lophodont. The left valve has a flat anterior tooth which is smooth and semicircular and a more triangular smooth and sharp posterior tooth, between the teeth a narrow and straight sulcus to receive the hinge-bar from the right valve. The right valve has one anterior socket and one posterior socket to receive the teeth from the left valve and between them a straight narrow hinge-bar.

The right valve is larger than the left and overlaps the later strongly in the cardinal angles.

Average — dimensions for adult female: 0,77mm in length; 0,45mm in height; 0, 40mm in width.
dimensions for adult male: 0,78mm in length; 0,41mm in height; 0,32mm in width.

Discussion

This species is similar to *Bisulcocypris striata* (Martin), 1940, but differs from that species in having the right valve larger than the left and consequently the elements of the hinge in opposite valves; it does not have

such a strong ala; the rim is narrower and the pits are very small and obscure thus, giving the carapace an almost smooth appearence; seeing the male from above it shows a much more acute posterior end and female presents a reentrance at the junction of the valves that can not seen in *B. striata.*

The new species is dedicated to one of the greatest Brazilian Paleontologist, Llewellyn Ivor Price, from whom the senior author has received much help and encouregement early in his professional life.

Material studied — About 30 carapaces and molds.
Holotype: MP-O-1A. length: 0,75mm; height: 0,43mm;
Paratypes: MP-O-1B; MP-O-2A; MP-O-2B; MP-O-2C.
Repository — Museu de Paleontologia da URGS, Pôrto Alegre, Brasil.
Occurrence — In Jatobá Series, Upper Jurassic(?), in the south side of the road to Petrolândia, in Taboleiro Redondo, 7 km from Icó, município de Petrolândia, Pernambuco, Brasil.

Ecology — it is associated with ostracods of the *Darwinula* genus, that suggest a fresh-water environment.

Bisulcocypris uninodosa Pinto et Sanguinetti, sp. nov.

Pl. II, figs, 8-13; Pl. III, figs. 6-8.

Diagnoses

Carapace subquadrangular in lateral view, dorsal margin almost straight, showing some slight depressions in the place of sulci, ventral margin slightly convex and parallel to the dorsal margin. Two sulci not very strong. It presents typically one node (like a spur) in the posterocentral portion. Left valve larger than the right. Hingement lophodont, having one socket at each cardinal angle and between them a hinge-bar in the left valve and the corresponding teeth and sulcus in the right valve.

Description

Carapace distinct in the two sexes. Carapace of male seen from above presents an elongate ellipsoidal form, it is acute in front and somewhat less acute behind, where the lateral projection of the nodes can be seen. The sulci are not deeply impressed. Seen from the side it is subquadrangular, having the dorsal margin almost straight, it is slightly elevated just posteriorly to the second sulcus and between the sulci. At the antero-cardinal angle it forms with the anterior margin an obtuse and sharp angle; at the postero-cardinal angle the carapace is more or less rounded. The ventral margin is slightly convex and continuous with the anterior and posterior margins. Similar to the posterior margin the anterior margin is also rounded but it is slightly flattened and forms a broad angle with the dorsal margin. The surface ornamentation consists of a meshwork of strong polygonal pits, which become elongated into parallel riblets along the ventral margin. Two sulci

which are not deeply impressed occur in the anterior portion, the posterior is slightly larger than the anterior. In the postero-ventral portion a node, projecting backward is present. The muscle scars are not seen. Carapace of female seen from above the outline is triangular rounded, it is flattened behind and acuminate in front and having just anteriorly to the midlength a concavity at each side, corresponding to the posterior sulcus. Maximum width is in the third posterior quarter. The left valve is slightly larger than the right. The sulci are not deeply impressed. The nodes can not be seen from above, because of the posterior tumidity of the valve. Seen from the side it is subquadrangular having the dorsal margin almost straight, it is slightly elevated in the antero-cardinal angle and in the third posterior quarter, with two slight depression at the sulci. The marginal ridge makes a sharp angle in the posterior end. The ventral margin is very slightly concave in the midlength and is continuous with the posterior margin which is rounded; the anterior margin forms an obtuse angle with the dorsal margin and goes straight downward and forward until one third of the height where it forms a new angle and goes down until the two-thirds of the height; here it forms another low obtuse angle, then it becomes rounded downward and backward until it meets the ventral margin. The ornamentation is the same as in the male. The sulci as in the male are not deeply impressed and the node is identical in size and position.

Dimensions of paratypes — Adult female mold: length: 0,77mm; height: 0,45mm; width: 0,41mm.

Adult male mold: length: 0,75mm; height: 0,41mm; width: 0,28mm.

Discussion

This species is similar to *Bisulcocypris pahasapensis* (Roth), 1933, but it differs from that species in the following ways:

1) the male is proportionally narrower and longer than B. *pahasapensis;*
2) the female is not so tumid posteriorly;
3) both do not have the salient ridge in front forming a rim;
4) the sulci are not as deep;
5) the male and female have only one node in postero-ventral portion.

Material studied — about 20 carapaces and molds.

Holotype: MP-O-3. Dimensions: length: 0,71mm; height: 0,41mm.
Paratypes: MP-O-4A and MP-O-4B.

Repository — Museu de Paleontologia da URGS, Pôrto Alegre, Brasil.

Occurrence — In Jatobá Series, Upper Jurassic (?), in the south side of the road to Petrolândia, in Taboleiro Redondo, 7 km from Icó, município de Petrolândia, Pernambuco, Brasil.

Ecology — it is associated with ostracodes of the genus *Darwinula* that suggest a fresh-water environment.

TABLE I

COMPARATIVE TABLE

	METACYPRIS	GOMPHOCYTHERE	CYTHERIDELLA	BISULCOCYPRIS
Outline in dorsal view	Female cordate; male ovate without depression or sulcus.	Female piriform; male ovate elongate; in front of the anterior middle portion became constricted, without sulcus.	Female cordate; male ovate with a strong sulcus in the anterior middle portion.	Female piriform; male ovate elongate, with two sulci, in the anterior portion.
Outline in lateral view	Oblong, with convex dorsal margin rounded in front and obscurely angular behind.	Rhomboidal, with straight dorsal margin.	Rhomboidal, with straight dorsal margin, inclined forward in the anterior third.	Rhomboidal to oblong with a sinuose to an almost straight dorsal margin.
Ornamentation	Without or with nodes; no velate ridge or carina.	without nodes; become constricted in front of the middle and presents ventrally a strong longitudinal velate ridge.	Unisulcate in front of midlength and without other ornamentation, as nodes, velate, ridge or carina.	Bisulcate anteriorly without or with nodes; no velate ridge, and sometimes with a small posterior carina.
Ventral side	Flat and deeply impressed along the central and posterior portions of median line. Margins downwardly produced forming the longitudinal marginal ridge.	Flat defined at the sides by the velate ridges. No marginal ridges.	Flat and slightly impressed along the central and posterior portion of median line. No marginal ridges.	Flat and slightly impressed along the central portion of median line. No marginal ridges.

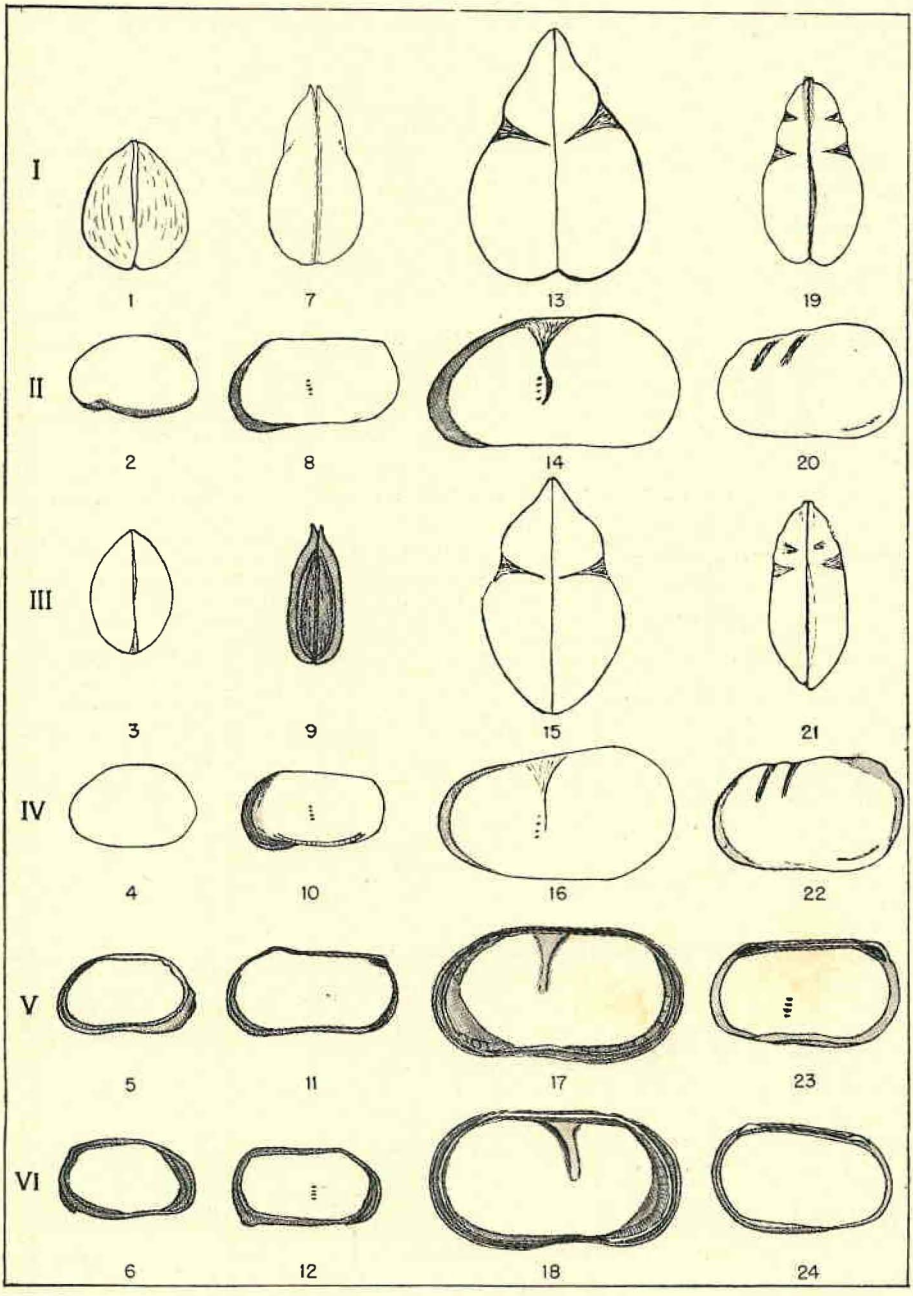
Hingement	Brady & Norman: right valve formed by a laminated angular projection anteriorly, posteriorly by a strong retangularly-produced flange, from which projects a single sharplycut tooth, the flange itself being continued round the posterior margin of the valve; left valve formed by a deep sulcus behind and a shalllower one in front.	Sars don't mention in any of his works (1910 and 1924) but by drawing it appears to be lophodont.	Not described by Daday. In the authors' specimens: one valve has a well developped selage forming a hinge-bar that fits in a sulcus (flange groove) in the opposite valve.	One valve has a flat anterior tooth which is smooth and semicircular and a more triangular smooth and sharp posterior tooth between the teeth a narrow and straight sulcus to receive the hinge-bar from the opposite valve. The opposite valve has one anterior socket and one posterior socket to receive the teeth from the other valve and between them a straight and narrow hinge-bar.
Size of the valves	Right valve larger than the left.	Valves nearly equal.	One valve larger than the other.	One valve larger than the other.
Maximum length	About 0,5mm	About 0,8mm	About 1,6mm	About 0,8mm

P L A T E I

Figs. 1-6. — **Metacypris cordata.** (After Brady & Robertson). 20 x
Figs. 7-12. — **Gomphocythere obtusata.** (After Sars). 30 x
Figs. 13-16. — **Cytheridella ilosvayi.** (After Daday). 20 x
Figs. 17-18. — **Cytheridella** sp. (Original). 20 x
Figs. 19-24. — **Bisulcocypris pricei** gen. et sp. nov. 30 x

Line I Dorsal view of females.
Line II Lateral view of the same.
Line III Dorsal view of males, except fig. 9 that is the ventral view, showing the longitudinal ridges.
Line IV Lateral view of males.
Line V Right valve, internal view.
Line VI Left valve, internal view.

PINTO AND SANGUINETTI PLATE I



P L A T E I I

All figures 50x

Figs. 1-7. — **Bisulcocypris pricei** gen. et sp. nov.
1 — right valve of male. Holotype: MP-O-1A; 2 — right valve of female, MP-O-1B; 3 — internal view of left valve, showing the hinge structure and muscle scars, MP-O-2C; 4 — dorsal view of a male mold, MP-O-2A; 5 — lateral view of the same; 6 — dorsal view of a female mold, MP-O-2B; 7 — lateral view of the same.

Figs. 8-13. — **Bisulcocypris uninodosa** sp. nov.
8 — external view of the left valve of the holotype, showing the node. MP-O-3; 9 — internal view of the same valve, showing the hinge structure; 10 — dorsal view of a male mold, showing the projections of the nodes. MP-O-4A; 11 — lateral view of the same; 12 — dorsal view of the female mold where the tumidity of the carapace doesn't permit to see the nodes. MP-O-4B; 13 — lateral view of the same.

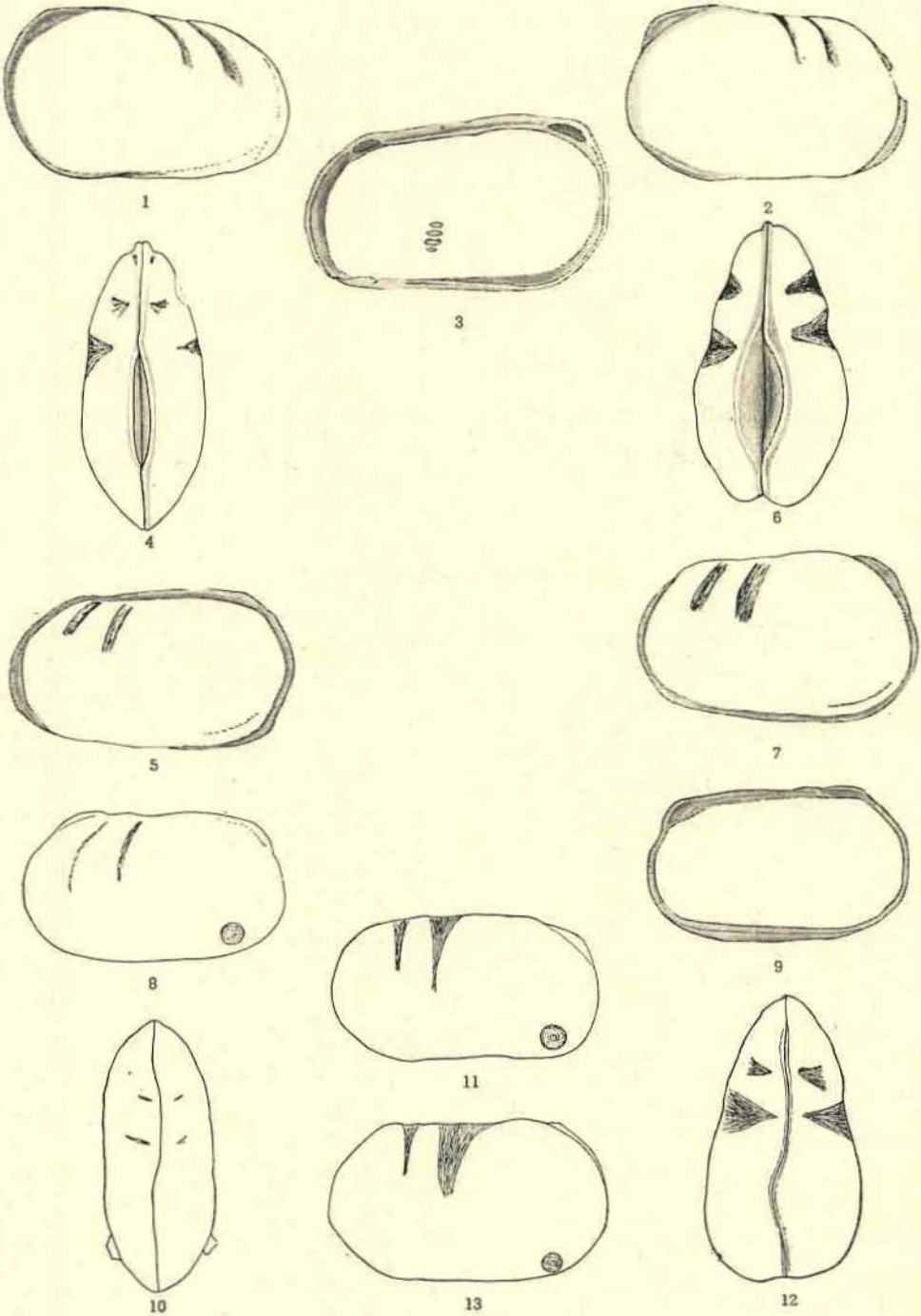

1
2
3
4
5
6
7
8
9
10
11
12
13

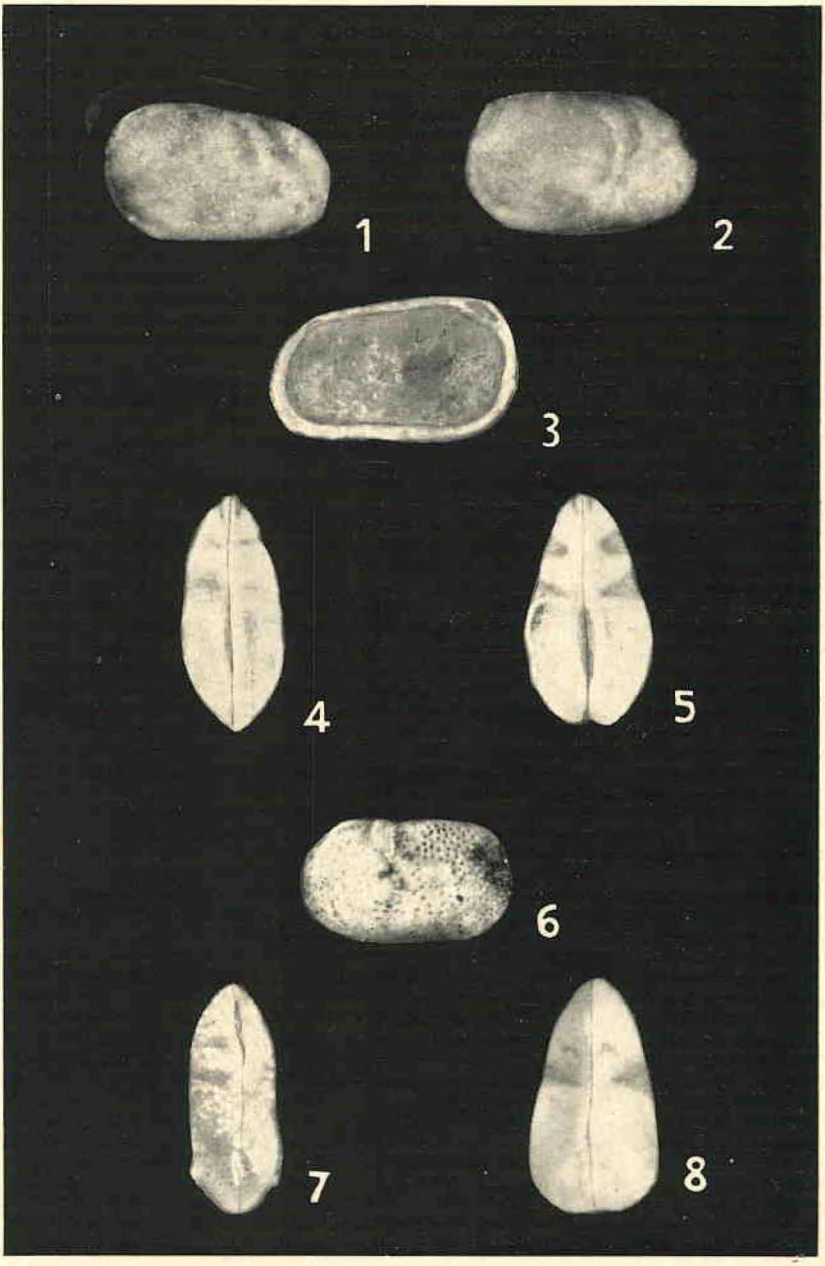
PLATE III

All figures 50x

Figs. 1-5. — **Bisulcocypris pricei** gen. et sp. nov.
1 — external view of the right valve of a male. Holotype: MP-O-1A; 2 — external view of the right valve of female. Paratype: MP-O-1B; 3 — internal view of a paratype. MP-O-2C; 4 — dorsal view of a male. Paratype: MP-O-2A; 5 — dorsal view of a female. Paratype: MP-O-2B.

Figs. 6-8. — **Bisulcocypris uninodosa** sp. nov.
6 external view of the left valve of a male. Holotype: MP-O-3; 7 — dorsal view of a male mold. Paratype: MP-O-4A; 8 — dorsal view of a female mold. Paratype: MP-O-4B.

PINTO AND SANGUINETTI PLATE III



SELECTED BIBLIOGRAPHY

BARBOSA, OCTAVIO (1953) — *Sôbre a Idade das Camadas Mesozóicas do Nordeste do Brasil.* Dept. Nac. Prod. Min.; D.G.M. Not. Prel. e Est. n.º 72, pp. 1-19.

BRADY, G. S. (1870) — *The Microscopic Fauna of the English Fen District.* Nature, March 10, pp. 483 and 484, figs.

———— and D. ROBERTSON (1872) — *Contribution to the Study of the Entomostraca. VI. On the Distribution of British Entomostraca.* Ann. Mag. Nat. Hist. Ser. IV, vol. IX, pp. 48-70. pls. 1-2.

———— and A. M. NORMAN (1889) — *A Monograph of the Marine and Fresh-water Ostracoda of the North Atlantic and of North Western Europe...*Sect. I. *Podocopa.* Trans. Roy Dubl. Soc., N.S.., vol. IV, part II, pp. 63-270, pls. VIII-XXIII.

BRANSON, C. C. (1935) — *Fresh-water Invertebrates from the Morrison (Jurassic?) of Wyoming.* Jour. Pal., vol. 9, n. 6, pp. 514-522, pls, 56-57.

———— (1936) — *New Name for a Morrison Ostracode Genus. Jour.* Pal., vol. 10, n. 4, p. 323.

DADAY, E. von. (1905) — *Untersuchungen über die Süsswasser-Mikrofauna Paraguays Zoologica, Heft* 44, *IV. Ostracoda,* pp. 234-270, taf XV-XVIII.

HARPER, F. and A. H. SUTTON (1935) — *Ostracodes of the Morrison Formation from the Black Hills, South Dakota.* Jour. Pal., vol. 9, n. 8, pp. 623-628, pl. 76.

JONES, T. RUPERT. (1860) — *Note on the fossil Entomostraca from Mont-Serrate.* Q.J.G.S., pp. 266-268, pl. XVI.

LORANGER, D. M. (1951) — *Useful Blairmore Microfossil Zone in Central and Southern Alberta, Canada.* Bull. Am. Ass. Petr. Geol., vol. 35, n. 11, pp. 2348-2367, pls. 1-3, text-figs. 1-3.

MARTIN, von GERALD P. R. (1940) — *Ostracoden des Norddeutschen Purbeck und Wealden. Senckenb.* band 22, num. 5/6, s. 275-361, taf 1-13, 2 text-figs.

MORAES, LUCIANO J. (1928) — *Estudos Geológicos do Estado de Pernambuco.* Serv. Geol. do Brasil. Bol. n.º 32, pp. 41-65.

MÜLLER, FRITZ (1881) — *Descripção do Elpidium bromeliarum Crustáceo da Família dos Cytherideos.* Arch. Mus. Nac., Brasil, vol. 4, pp. 27-34, est. 2.

OLIVEIRA, PAULO E. (1935) — *Sôbre um novo Conchostráceo Fóssil do Estado da Bahia.* Depto. Nac. Prod. Min., D.G.M.., Not. Prel. e Est., n.º 63, pp. 1-13, pls. 1 e 2.

PECK, RAYMOND E. (1941) — *Lower Cretaceous Rocky Mountain Nonmarine microfossils.* Jour. Pal., vol. 15, pp. 285-304, pls. 42-44.

ROTH, ROBERT (1933) — *Some Morrison Ostracoda.* Jour. Pal., vol. 7, n. 4, pp. 398-405, pl. 48.

SARS, G. O. (1924) — *The Fresh-water Entomostraca of the Cape Province (Union of South Africa).* Ann South Afr. Mus., vol. 20, part 2, pp. 105-193, pls. I-XX.

SWAIN, FREDERICK M. (1946) — *Middle Mesozoic Nonmarine Ostracoda from Brazil and New Mexico.* Jour Pal., vol. 20, n. 6, pp. 543-555, pls. 83 and 84, 1 text-fig.

TRESSLER, WILLIS L. (1939) — *Onychocythere, a New Genus of Marine Ostracod from Florida, with a Description of one species.* Jour Wash. Acad. Sc., vol. 29, n. 8, pp. 336-339, figs. 1-11.