

BRIEF DESCRIPTIONS OF NEW SPECIES OF OSTRACODA :
CRUSTACEA FROM MAHARASHTRA STATE (INDIA)

By

MAYA DEB

Zoological Survey of India, Calcutta.

(With 19 Text-figures)

INTRODUCTION

A collection of rain water pond crustaceans, made by Dr. K. K. Tiwari, mostly in the Western Ghats region of the Maharashtra State in India, during August—October, 1964, is very rich in diversity as well as numbers of freshwater ostracods. The present paper describes sixteen new, one new record and two possibly new ostracods found in this material.

The large number of new species from a small area in India need not come as a surprise since studies on Indian Ostracods are scattered and non intensive so far. A general report on the entire ostracod collection from Maharashtra State is likely to take some time. In the meantime it is considered desirable to publish the descriptions of new species contained in the material.

Subclass OSTRACODA Latreille, 1806

Order PODOCOPIDA Muller, 1894

Family CYPRIDIDAE Baird, 1845

KEY TO THE GENERA

- | | | |
|--|-----|---------------------|
| I. Shell very tumid, broad, width more than half of length | ... | Cypris |
| II. Shell not very tumid and broad.— | | |
| a. Margin of valves entire | ... | Eucypris |
| b. Margin of one valve tuberculate | ... | Cyprinotus |
| III. Shell tumid, elongate, oblong, furca long | ... | Cypricercus |
| IV. Shell compressed, oblong, Furca dissimilar | ... | Stenocypris |
| V. Shell short, very tumid, anterior end of each valve with a row of radiating septa | ... | Cypretta |
| VI. Shell compressed with a dorsal hump | ... | Sataracypris |
| VII. Shell moderately tumid, large, furca normal | ... | Sclerocypris |

LIST OF SPECIES DESCRIBED

1. *Cypris debi* n. sp.
2. *C. elongata* n. sp.
3. *C. globosa* n. sp.
4. *Eucypris compressa* n. sp.
5. *E. sonia* n. sp.
6. *E. gomti* n. sp.
7. *E. munia* n. sp.
8. *E. indica* n. sp.
9. *E. inequalis* n. sp.
10. *E. ellipticalis* n. sp.
11. *E. himani* n. sp.
12. *Cyprinotus malini* n. sp.
13. *Cypricercus indrani* n. sp.
14. *Stenocypris khopoliensis* n. sp.
15. *S. sohni* n. sp.
16. *S.* sp.
17. *Sataracypris gibbosa* (Baird) 1837, n. Gen.
18. *Sclerocypris* sp.
19. *Cypretta gargi* n. sp.

Generic diagnosis :

Genus 1. *Cypris* O. F. Muller, 1776

Shell very tumid and broad, maximum width more than half of the length. Swimming setae of second antenna as long as the tips of terminal claws. Subterminal segment of first abdominal leg not divided. Furca well developed and normal. Male seldom present. This cosmopolitan genus is most common genus of India also.

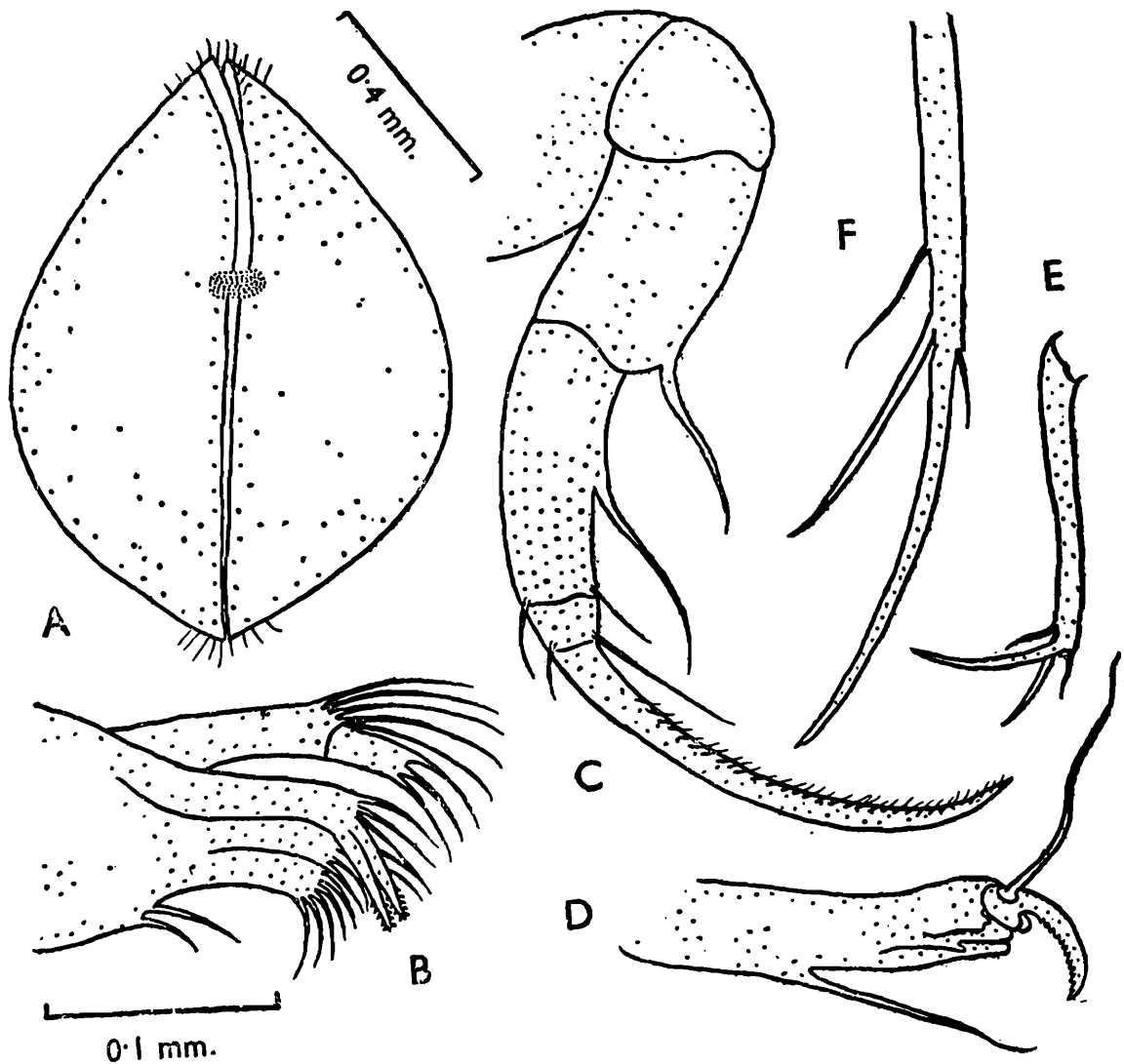
KEY TO THE SPECIES

- | | | | |
|----|---|-----|--------------------|
| 1. | a. shell shorter than 1.50 mm | ... | <i>C. globosa</i> |
| | b. shell longer than 1.50 mm. | ... | ... 2 |
| 2. | a. In dorsal view, ant. end acutely pointed | ... | <i>C. debi</i> |
| | b. In dorsal view ant. end obtusely rounded | ... | <i>C. elongata</i> |

1. *Cypris debi* sp. nov.

(Text-figs. 1A-F)

Material : *Holotype* ; One female, Z. S. I. Reg. No. C 1115/2, *Paratype*—Five females, Z. S. I. Regd. No. C 116/2. *Type locality*—Rain water pond, 6 Kms. from Karad, on Karad Satara road (Bangalore Road). Coll. K. K. Tiwari, 5 September, 1964.



Text-fig. 1. *Cypris debi* sp. nov. A. Shell in dorsal view. B. Maxilla C. First abdominal leg D. Second abdominal leg E, F. Furcal rami. A & E same scale.

Maximum dimensions : Length—1.87 mm., Width—1.37 mm. Height—1 mm.

Shell valve with minute, scattered, tubercles ; margins without spines. Shell very tumid ; In dorsal view, spindle shaped ; maximum width slightly behind the middle, both ends pointed ; anterior end more acuminate than the posterior. Left valve slightly bigger than the right, fringed with a narrow lameller flap. In profile, dorsal edge strongly and angularly curved ; ventral edge sinuate in the middle,

maximum height in front of the middle. Anterior end more broader than the posterior. Valve margins entire; surface of the shell with fine, sparse hairs and sculptured with scattered small granular dots.

Swimming setae of second antenna slightly longer than the tips of terminal claws; third maxillary process with two dentate setae; maxilliped with a branchial plate and a palp. Subterminal segment of first abdominal leg not jointed; furcal rami long, narrow and nearly straight, ventral claw slightly more than half of the ramus in length, ventral seta minute. Male not known, greyish white in spirit.

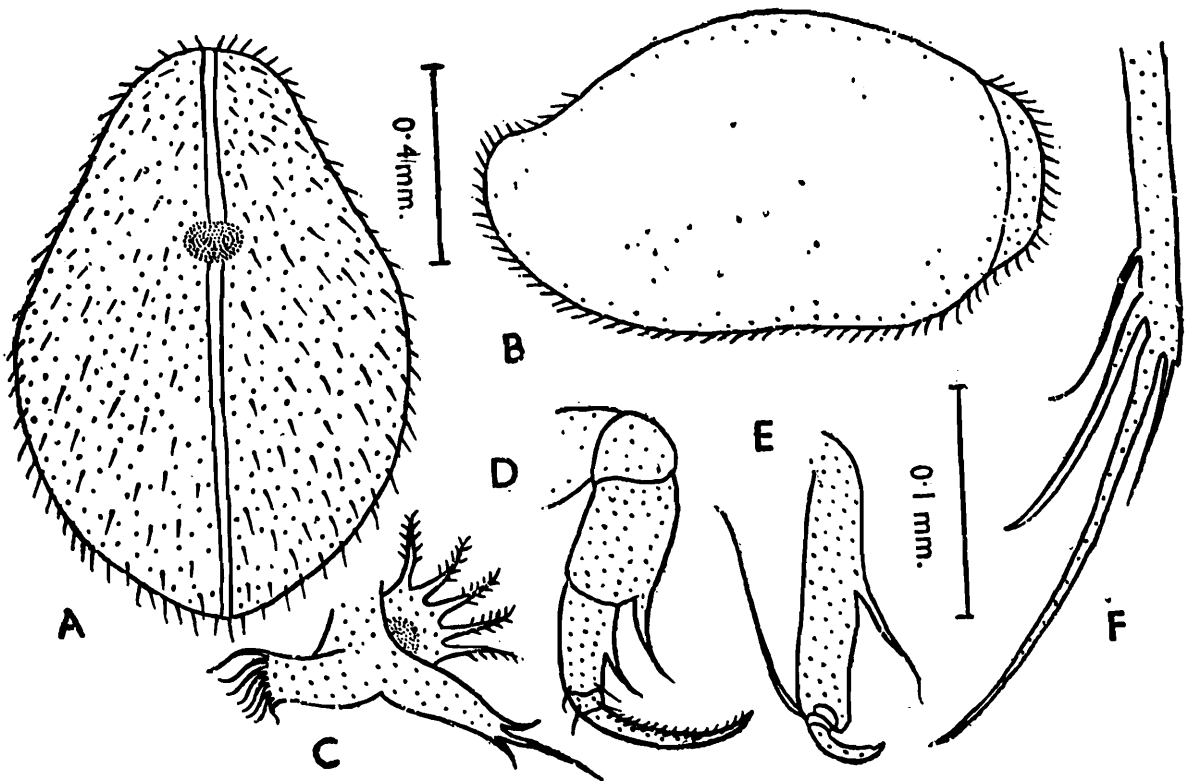
Distribution: Known from type locality only.

Remarks: Though the shell of *C. debi* Deb is similar in shape with *C. subglobosa* Sowerby 1859 and *C. granulata* Daday 1898 from Nagpur and Ceylon yet it lacks the characteristic sculpturing of later. Instead of very close convex areoles of mosaic type, the shell of *C. debi* is adorned with scattered granular dots only. The strong spines of the valve margins of *C. granulata* is also lacking in *C. debi*.

2. *Cypris elongata* sp. nov.

(Text-fig. 2 A-F)

Material: *Holotype*—One female, Z. S. I. Regd. No. C 1119/2 *Paratype*—5 females, Z. S. I. Regd. No. C 1120/2. *Type locality*—Pond inside Satara fort. Coll. K. K. Tiwari. 2nd September, 1964.



Text-fig. 2. *Cypris elongata* sp. nov. A. Shell dorsal view B. Right valve C. Maxilliped D. First abdominal leg E. Second abdominal leg F. Furca A, B same scale, C-F same scale.

Length—1.75 mm. Height—1 mm. Width—1.25 mm.

Shell tumid ; in dorsal view, pear shaped, oblong, elongate, maximum width occurs behind the middle ; anterior half of shell narrower, end broadly rounded ; posterior end obtuse angularly curved. Both the valve almost equal, margin entire. In profile, dorsal edge strongly and evenly curved ; ventral edge sinuate in the middle ; posterior end rounded, slightly upturned and narrower than the anterior end. Anterior marginal border of right valve rather straight. Surface of shell unsculptured, finely hairy.

Swimming setae of second antenna longer than the terminal claws ; third maxillary process with two dentate setae. Subterminal segment of the first abdominal leg not jointed. Furcal rami straight, long, narrow ; terminal claw more than half of ramus.

Distribution : Known from type locality.

Remarks : *Cypris elongata* Deb, differs markedly from the other known species by being much broader and rounded towards the anterior end. Right valve has a broad marginal flange attached towards the anterior end like *C. subglobosa* Sow, 1859, and *C. granulata* Daday 1889, but differs from them in having nearly smooth and unsculptured valves, and in absence of marginal spines.

3. *Cypris globosa* sp. nov.

(Text-figs. 3A-D)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1139/2 Pond near Inspection Bungalow, Satara. Coll. K. K. Tiwari. 30th August, 1964.

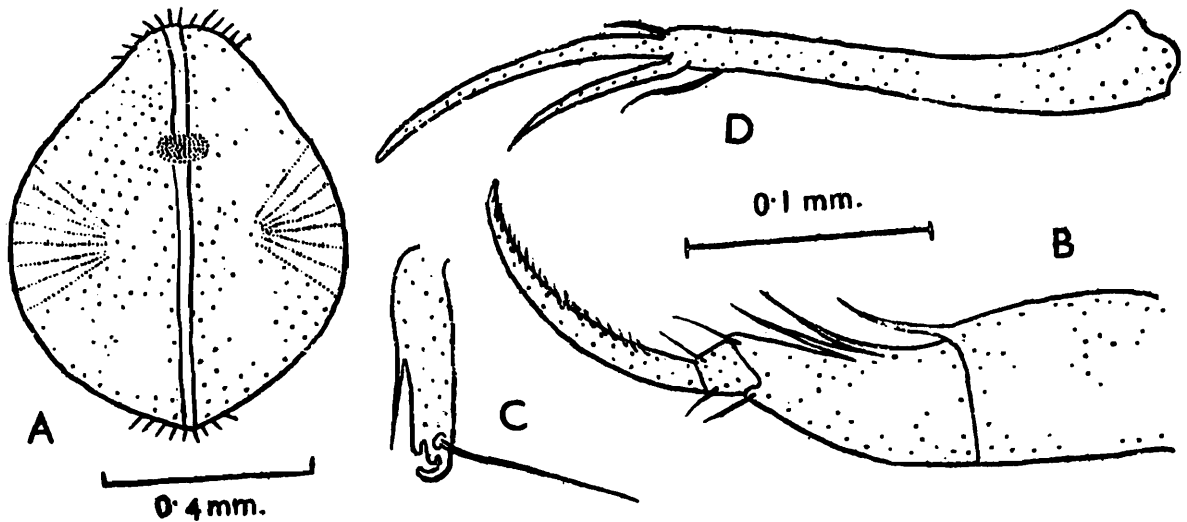
Length—1.25 mm., Width—1 mm.

Shell short, tumid and globular ; In dorsal view, maximum width occurs behind the middle, lateral sides strongly and evenly curved, anterior end broadly rounded, posterior end obtusely pointed. Valves unequal, left valve overlaps the right, margin entire, thin, delicate. Surface of shell unsculptured, finely hairy.

Swimming setae of second antenna slightly longer than the tips of terminal claws. Third maxillary process with two strong setae. Subterminal segment of first abdominal leg not jointed, two setae present on its inner side. Terminal segment of second abdominal leg with a hooked and curved seta. Furcal rami short, stout and curved ; terminal claw more than half of the ramus in length. Ventral seta minute.

Distribution—Type locality.

Remarks—*Cypris globosa* Deb, is easily distinguished from other known species by being more globular and tumid in shape, and in having two setae on the inner side of subterminal segment of the first abdominal leg. *Eurycypris latissima* G. W. Muller 1897-99 has an apparent similarity with *C. globosa* Deb, but differs from the former in following points.



Text-fig. 3. *Cypris globosa* sp. nov. A. Shell dorsal view B. First abdominal leg C, Second abdominal leg D. Furca. B-D same scale.

(1) In *C. globosa* Deb anterior end of shell more broadly rounded in dorsal view.

(2) Swimming setae of second antenna present where it is absent in former.

(3) In *C. globosa* the dorsal edge of third segment of first abdominal leg without five clusters of hairs.

(4) In *E. globosa*, the furcal rami short, stout and curved where as it is reverse in *E. latissima*.

(5) Only one apical claw present on second abdominal leg in *C. globosa*, in *E. latissima*, two apical claws present.

Genus 2. *Eucypris* Vavra 1891

Generic diagnosis :

Shell moderately tumid, valve shape and size variable. Swimming setae of second antenna well developed. Subterminal segment of first abdominal leg divided. Furca well developed, and normal. Not very common genus of India, there is only one previous doubtful record of the genus from Tamilnadu and eight new species described in this paper. Males seldom present.

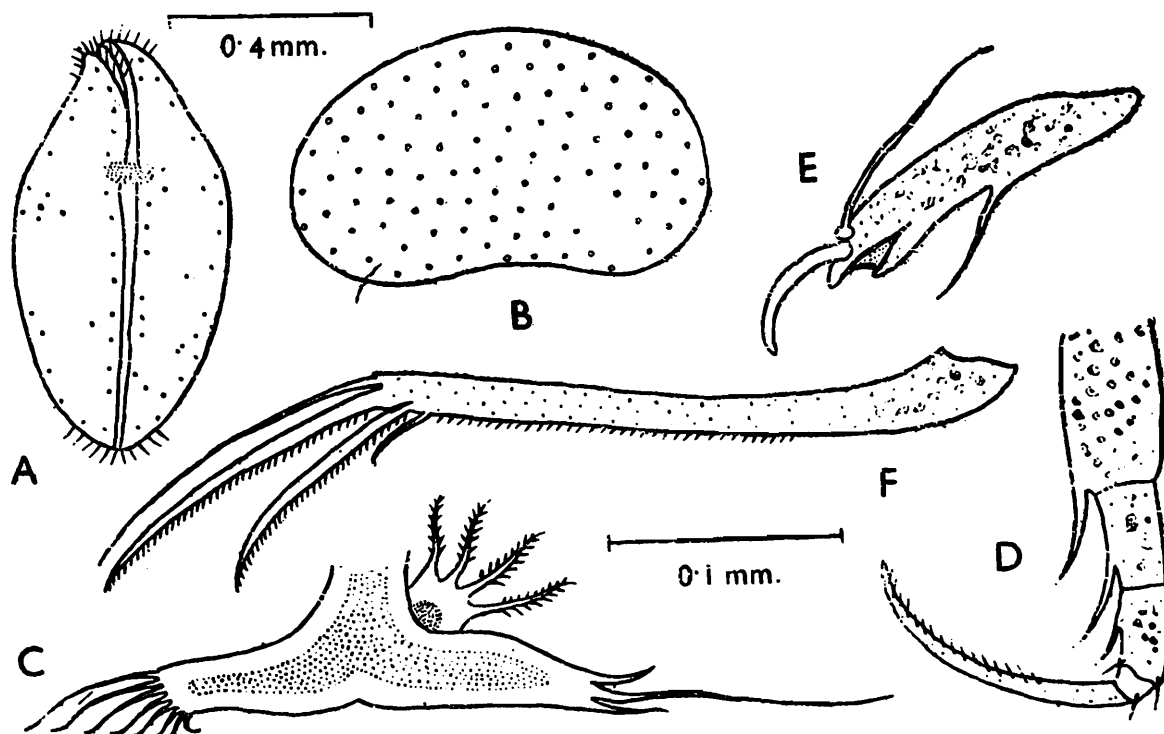
KEY TO THE SPECIES

1. Shell 1.25 mm or less in length,	...	
a. shell compressed	...	<i>E. compressa</i>
b. shell tumid	...	<i>E. himani</i>
2. Shell more than 1.25 in length		
a. shell covered with stiff bristles and finger like projections	...	<i>E. indica</i>
b. Shell covered with fine hairs only 3
3. Shell longer than 2 mm.	...	<i>E. sonia</i>
4. Shell shorter than 2 mm. 5
5. Shell narrow, elliptical in dorsal view		
a. Left valve much smaller than right	...	<i>E. munia</i>
b. Right valve slightly smaller than left	...	<i>E. ellipticalis</i>
6. Shell wide and tumid medially		
a. Left valve much smaller	...	<i>E. gombi</i>
b. Right valve much smaller	...	<i>E. inequalis</i>

4. *Eucypris compressa* sp. nov.

(Text-fig. 4A-F)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1112/2, *Paratype*—3 females. Z.S.I. Regd. No. C 1113/2, Pond at Panchgani. Coll. K. K. Tiwari, 21st August, 1964.



Text-fig. 4. *Eucypris compressa* sp. nov. A. shell dorsal view. B. Right valve C. Maxilliped D. First abdominal leg E. Second abdominal leg F. Furca. C-F. same scale.

Maximum dimensions : Length—0.87 mm ; Height—0.50 mm. Width—0.50 mm.

Shell rather compressed ; in dorsal view, oblong, maximum width occurs in front of the middle, both the ends obtusely rounded, anterior end narrower than the posterior. Right valve bigger than and overlaps the left. In profile bean-like, dorsal edge strongly and evenly curved ; highest in the middle ; both the ends broad and rounded ; ventral edge distinctly sinuate in the middle ; Surface unsculptured, fine hairs and porecanals present on the surface, valve margin entire.

Swimming setae of second antenna longer than the tips of terminal claws ; third maxillary process with two strong, smooth setae. Subterminal segment of first abdominal leg jointed. Furcal rami well developed, long and curved, terminal claws slightly unequal, ventral seta as long as ventral claw ; dorsal seta minute ; dorsal edge of ramus and claws hairy. Male absent.

Distribution : Known from the type locality only.

Remarks : *Eucypris compressa* Deb, is similar in shape to *E. cister-nina* Furtos 1936, but differs in having unequal valves, shell compressed anterolaterally and in having well developed furcal rami, ventral seta and ventral claw equal, and the hairs present on dorsal edge of rami and claws.

5. *Eucypris sonia* sp. nov.

(Text-fig. 5A-F)

Material : *Holotype*—One female, Z.S.I., Regd. No. C 1100/2, *Paratype*—5 females, Z.S.I. Regd. No. C 1101/2, Pond near Inspection Bunglow, Satara. Coll. K. K. Tiwari, 30 August, 1964.

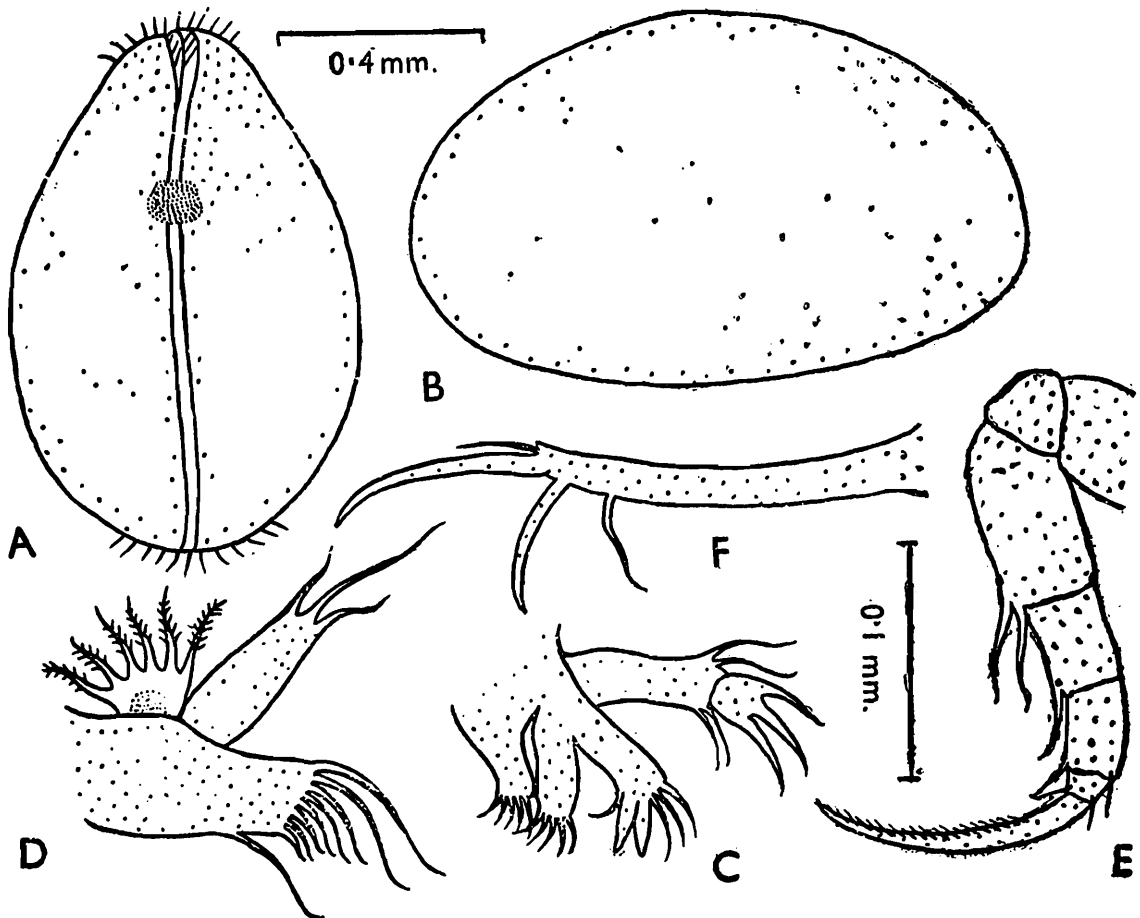
Length—2.12 mm.. Height—1.25 mm., Width—1.12 mm.

Description : Shell tumid ; in dorsal view oblong oval in shape, maximum width occurs behind the middle, both ends broadly rounded, anterior half of shell much narrower than posterior. Right valve slightly bigger than left, margin entire with a narrow fringe. In profile, elongate, dorsal margin strongly and evenly curved, maximum height occurs in the middle ; both ends broadly curved, ventral edge convex. Surface of shell unsculptured with thin scattered hairs and pits.

Swimming setae of second antenna as long as the terminal claws ; third maxillary process with two strong smooth setae, terminal segment of maxillary palp broader than long. Subterminal segment of first abdominal leg jointed ; terminal segment of second abdominal leg ends in a chela. Furcal rami short, stout and curved in middle, dorsal edge

of ramus and claws smooth. Ventral claw more than half of the ramus in length, ventral seta minute. Male absent.

Distribution : Known from type locality.



Text-fig. 5. *Eucypris sonia* sp. nov. A. shell dorsal view B. Right valve C. Maxilla D. Maxilliped E. First abdominal leg F. Furca. C-F. same scale.

Remarks : *Eucypris sonia* Deb, is easily distinguished from the other species of the genus in having unequal shell valves and from other species described in this paper by the combination of characters given above. The furcal rami recalls that of *Cyprinotus kliei* Lindroth 1953, but many details of the appendages are different and they are different genera.

6. *Eucypris gomti* sp. nov.

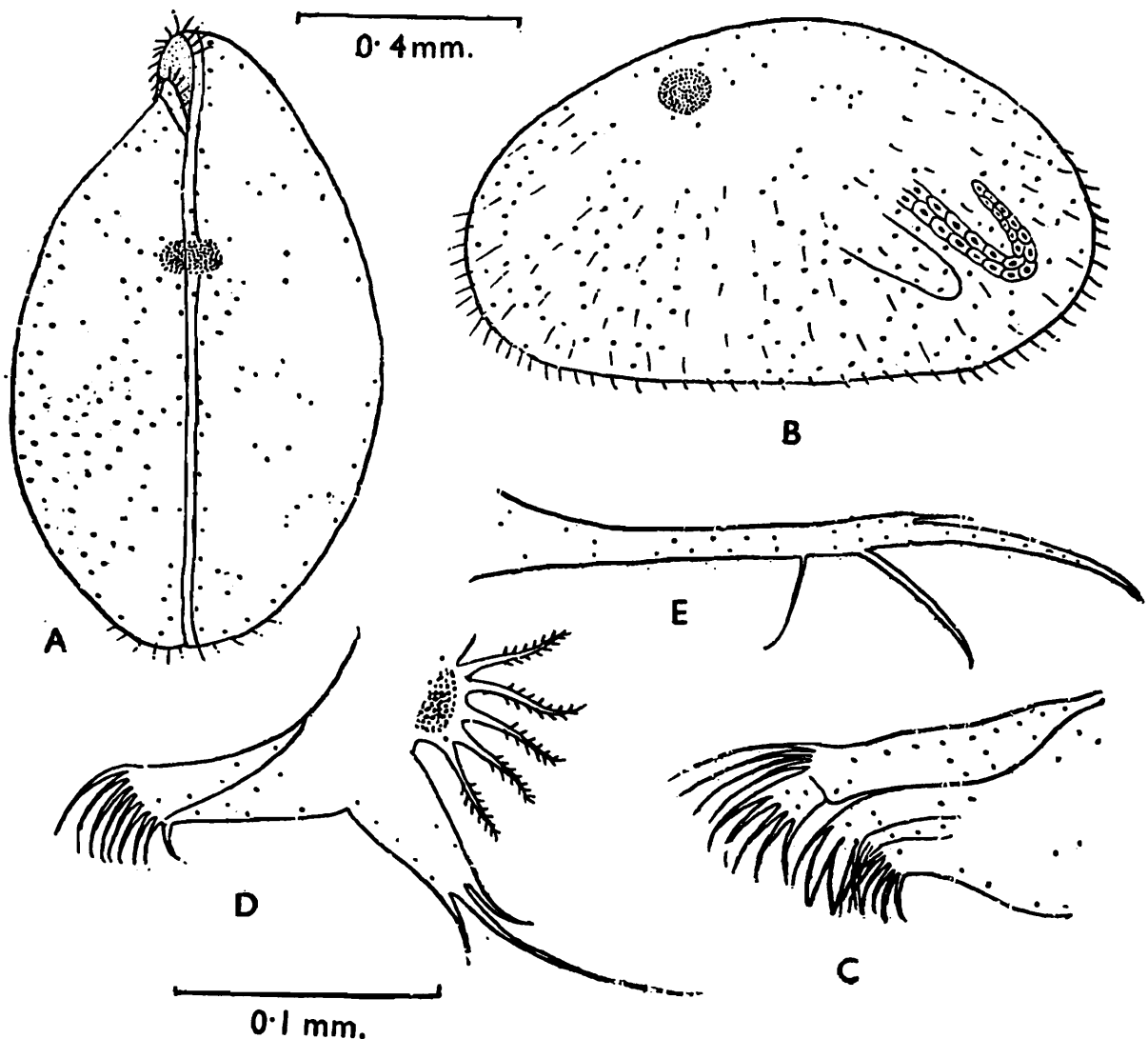
(Text-fig. 6 A-E)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1094/2 ; *Paratype* : 5 females, Z. S. I. Regd. No. C 1095/2. Pond near inspection Bunglow, Satara. Coll. K. K. Tiwari. 30 August 1964.

Length—1.25 mm. width—0.68 mm. ; Height—0.62 mm.

Description : Shell tumid, oblong, in dorsal aspect, eye shaped, widest in the middle and maximum width slightly more than half of length, posterior end broadly rounded ; anterior end narrower than the

posterior ; left valve much smaller than the right and much compressed antero-laterally. In profile, dorsal edge strongly curved, maximum height occurs behind the middle ; ventral edge nearly straight, both ends broadly rounded, posterior end a bit narrower than the anterior. Valves thin, margin entire, surface unsculptured with scattered hairs and porecanals.



Text-fig. 6. *Eucypris gombi* sp. nov. A. shell dorsal view B. shell lateral view C. Maxilla D. Maxilliped E. furca C-E. same scale.

Swimming setae of second antenna slightly longer than the terminal claws. Maxillary palp strong, terminal segment broader than long, third maxillary process with two strong smooth setae. Subterminal segment of first abdominal leg jointed. Furcal rami short, narrow, curved proximally. Distal claw more than half of ramus, distal seta minute. Male absent ; light brown colour in spirit.

Distribution : Known from type locality.

Remarks : A superficial likeness exists between *Eucypris gombi* Deb and *Heterocypris capensis* (Muller) 1908, but it cannot be the later

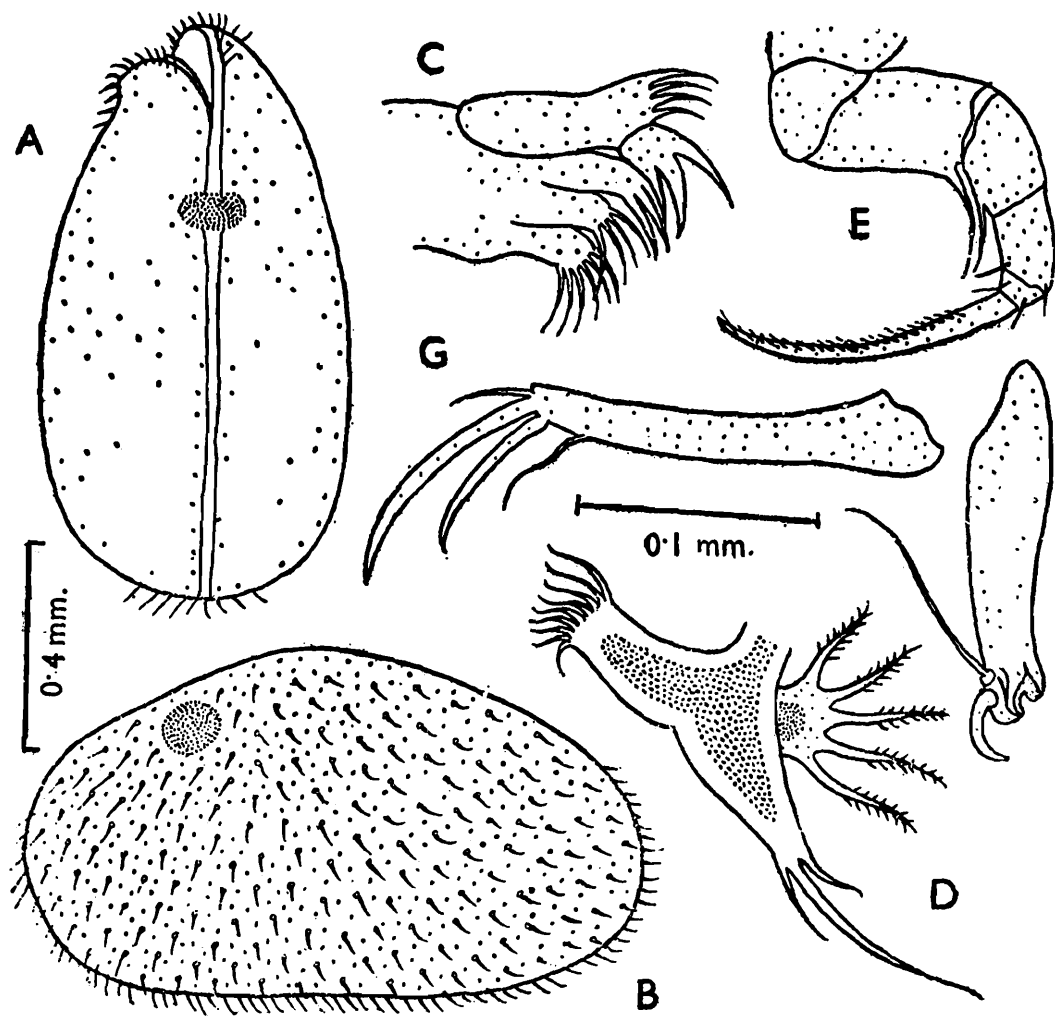
genus as it lacks the valve marginal tubercles. Shell shape and internal anatomy of present species are markedly different from the other species described in this paper.

7. *Eucypris munia* sp. nov.

(Text-fig. 7A—G)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1103/2 ; *Paratype*—5 females, Regd. No. C 1104/2 ; pond near inspection Bunglow, Satara. K. K. Tiwari Coll. 30 August, 1964.

Length—2.0 mm., Height—1.12 mm. width—1 mm.



Text-fig. 7. *Eucypris munia* sp. nov. A. shell dorsal view B. shell lateral view C. maxilla D. maxilliped E. first abdominal leg F. second abdominal leg G. furca. C-F. same scale.

Shell elongate, rather cylindrical in shape ; in dorsal aspect, anterior end much narrower than posterior, and the latter end more broadly rounded than the former ; maximum width occurs behind the middle ; shell gradually compressed anteriorly. Left valve markedly smaller than right, abruptly compressed and then recurved outwards, margin entire with a narrow flap. In profile, dorsal edge strongly and angularly

curved, maximum height occurs in the middle, both ends broadly and equally rounded; ventral edge nearly straight. Surface unsculptured, with thin scattered hairs and porecanals.

Swimming setae of second antenna a bit longer than the terminal claws. Maxillary palp and process short and stout; terminal segment of maxillary palp broader than long, third process with two smooth setae. Penultimate segment of first abdominal leg jointed; distal end of second leg terminates in a chela having 2 setae, one hooked and one long, attached to it. Furcal rami short, stout and curved in the middle; distal claw more than half of the ramus in length, ventral seta minute, Male absent; light brown colour in spirit.

Distribution: Known from type locality only.

Remarks—*Eucypris munia* Deb, is not wholly identical with *E. gomti*, described previously, though both samples are from the same source. The combination of characters viz. shell shape and internal anatomy are clearly different from each other, as the appendages of present species are stouter than those of the previous species. The elongate, tumid and cylindric shape of the present species does not agree with the other species of the genus.

8. *Eucypris indica* sp. nov.

(Text-fig. 8 A-G)

Material: *Holotype*—One female, Z. S. I. Regd. No. C 1109/2; *Paratype*—five females, Z. S. I. Regd. No. C 1110/2; pond at Panchgani, Coll. K. K. Tiwari, 20 August, 1964.

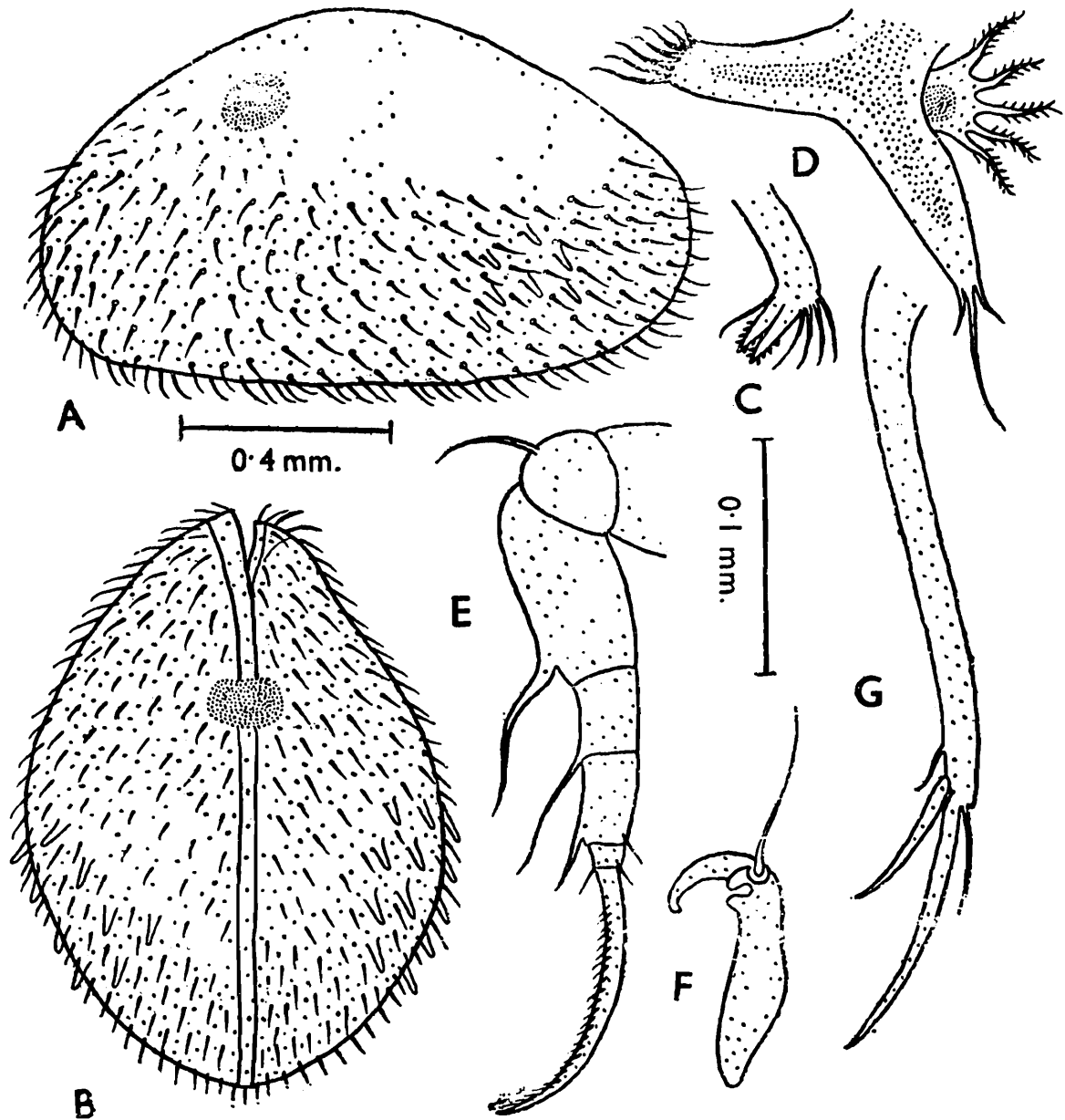
Length—1.37 mm; Height—0.75 mm; Width—0.87 mm

Shell tumid, profusely hairy, hairs strong and stiff, valve surface with scattered punctae otherwise smooth. On postero-lateral side of shell, few blunt finger like processes present in between hairs. In dorsal view, both ends obtusely rounded, anterior end narrower than posterior, maximum width occurs in middle; left valve larger than right which it overlaps; valve margins entire, a broad marginal fringe and a row of thick hairs present anteriorly. In profile, dorsal edge angularly curved, anterior end more broadly rounded than posterior end; ventrally sinuate in middle.

Swimming setae of second antenna longer than terminal claws; third maxillary process with two dentate setae. Subterminal segment of first abdominal leg jointed; Furcal rami long, narrow, curved proximally, distal claw nearly half of ramus in length, dorsal seta minute. Male absent; deep brown colour in spirit,

Distribution : Known from type locality and nearby areas.

Remarks : *Eucypris indica* Deb, introduced as a new species because of a thick coat of stiff seta on the shell surface and the presence of few blunt finger-like projections on the posterolateral border of shell.



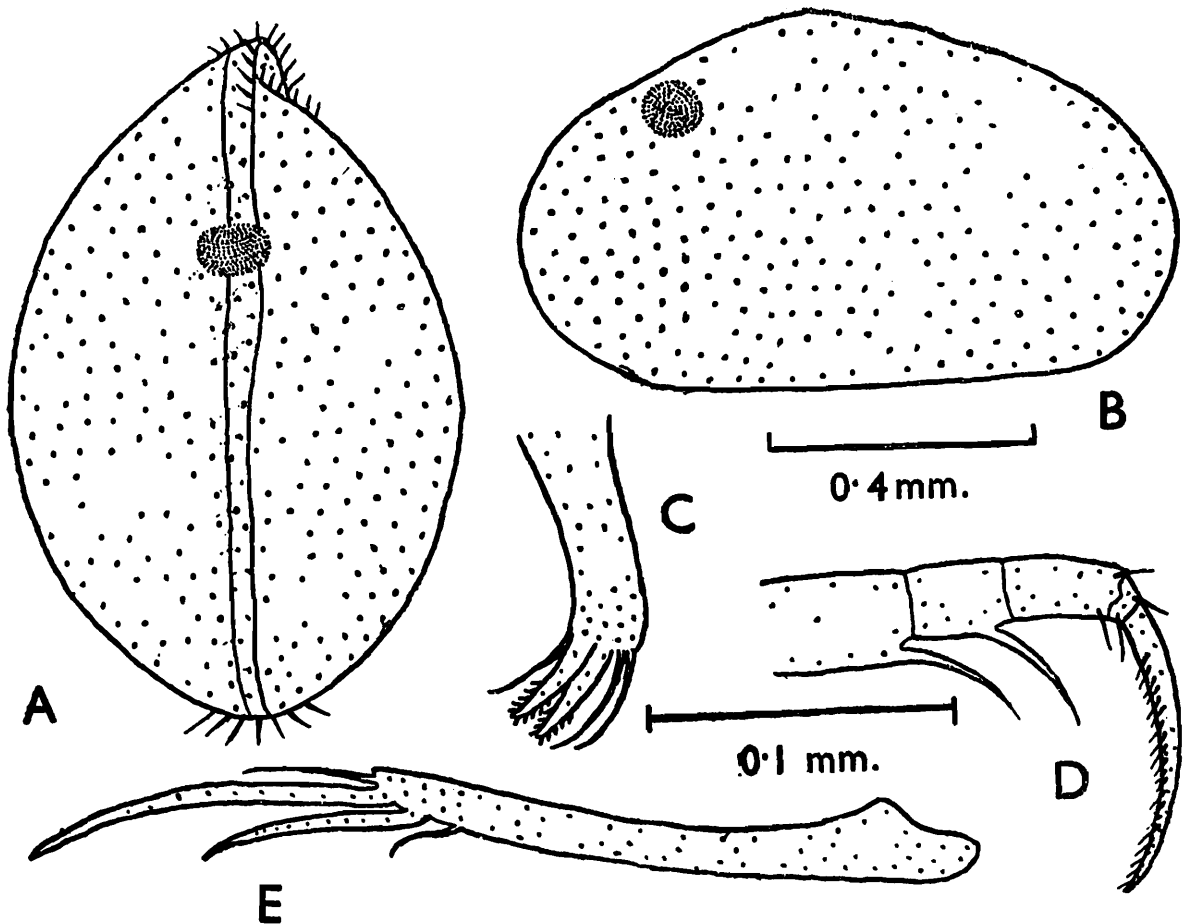
Text-fig. 8. *Eucypris indica* sp. nov. A. shell lateral view B. shell dorsal view C. third maxillary process D. maxilliped E. first abdominal leg F. second abdominal leg G. furca C-G. same scale.

This species is closely allied to *E. hystrix* Furtos 1933, the shell being as in the later but the combination of the other characters *viz.*, by the presence of longer swimming setae of second antenna, curved furcal rami and its finely hairy dorsal edge, and lastly the presence of dentate third maxillary process differs the *E. indica* from *E. hystrix*. The colour of the freshly preserved specimens is dark brown not green as the *E. hystrix*.

9. *Eucypris inequalis* sp. nov.

(Text-fig. 9 A-F)

Material: *Holotype*—One female, Z. S. I. Regd. No. C 1106/2; *Paratype*—4 females, Z. S. I. Regd. No. C 1107/2; From an old unused well at Panchgani, C. 1 km. of Govt. Rest House. Coll. K. K. Tiwari, 23 August, 1964.



Text-fig. 9. *Eucypris inequalis* sp. nov. A. shell dorsal view B. Shell lateral view C. Third maxillary process D. first abdominal leg E. Furca. A & B, C-E. same scale.

Length—1.75 mm ; Height—1 mm ; Width—1.25 mm.

Shell very tumid, in dorsal view, spindle shaped, maximum width occurs in the middle ; anterior end pointed, posterior end obtusely rounded. Left valve much bigger than the right ; valve margin with broad lameller flap. In profile, dorsal edge angularly curved, maximum height occurs in front of middle, ventral edge straight, anterior end more broadly rounded than the posterior end. Surface of shell unsculptured, hairs seem to be absent on surface except for a marginal row.

Swimming setae of second antenna as long as terminal claws. Maxillary process short and stout, third process with two dentate setae ; maxilliped normal ; first abdominal leg with jointed subterminal segment ; Furcal rami short, stout, curved proximally, terminal claw more

than half of ramus in length ; dorsal claw half of terminal claw, dorsal seta minute. Male absent, deep brown colour in spirit.

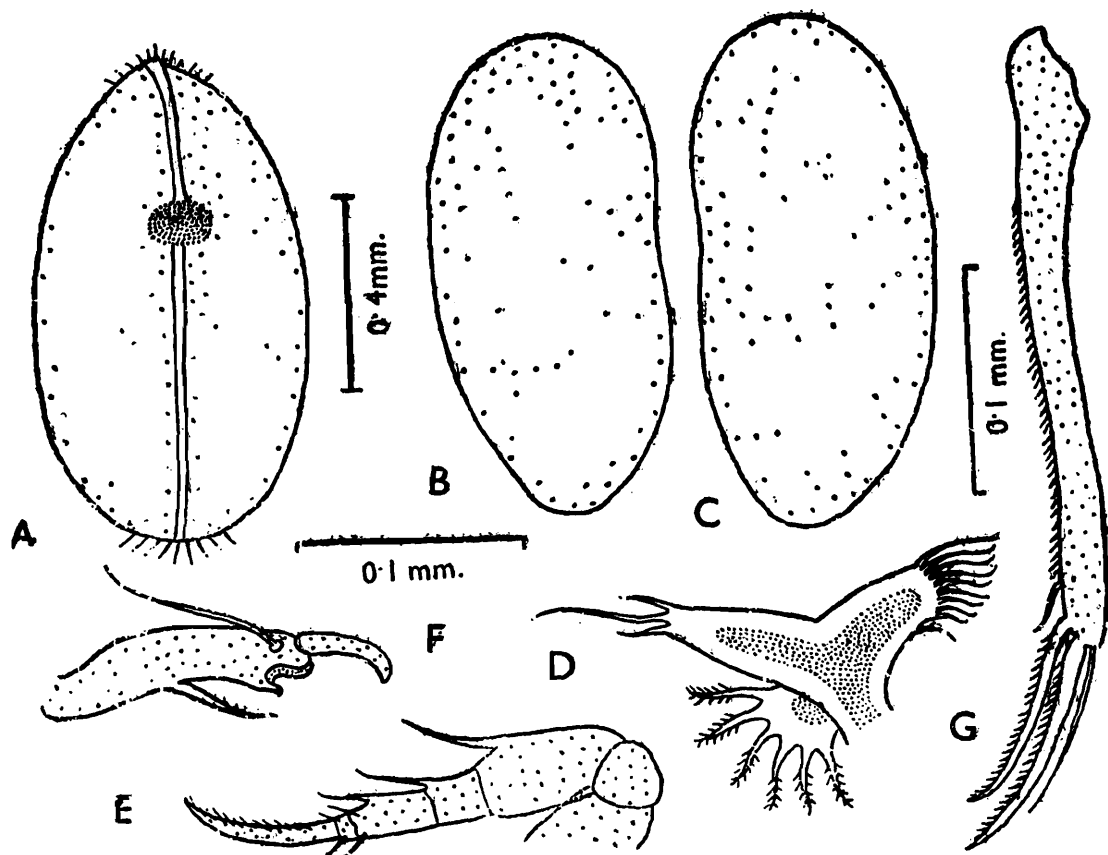
Distribution—Known from type locality only.

Remarks—*Eucypris inequalis* Deb, is allied to the preceding species and still more perhaps to the *E. hystrix* Furtos 1933, the shell being of same shape. It differs from them mainly in the absence of stiff, setose hairs and in presence of markedly short, stout and curved furcal ramus with very long apical claws.

10. *Eucypris ellipticalis* sp. nov.

(Text-fig. 10 A-G)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1097/2 ; *Paratype*—4 females, Z. S. I. Regd. No. C 1098/2 ; Rewa, paddyfield near Chaclai, C. 36 km. from Rewa, M. P. Coll. K. K. Tiwari, 18th October, 1964.



Text-fig. 10. *Eucypris ellipticalis* sp. nov. A. Shell dorsal view B. Right valve C. Left valve D. Maxilliped E. First abdominal leg F. Second abdominal leg G. Furca A-C & D-G. same scale.

Length—1.62 mm. ; Width—1 mm. Height—0.75 mm.

Shell elongate, oblong, very tumid ; in dorsal view, barrel shaped, maximum width occurs in the middle ; anterior end obtusely pointed,

posterior end broadly rounded, left valve slightly larger than right which it overlaps. Valves delicate, margin entire, fringed with a narrow flap. In profile, dorsal edge evenly curved, ventral edge sinuate in middle, anterior end more broadly rounded than the posterior. Maximum height occurs in the middle. Surface of shell with scattered hairs and porecanals, otherwise unsculptured.

Swimming setae of second antenna as long as terminal claws. Terminal segment of maxillary palp longer than broad; third maxillary process with two smooth setae. Maxilliped normal. Subterminal segment of first abdominal leg jointed; terminal segment of second abdominal leg with a thumb finger like projection present just ahead of tip, terminal hooked claw serrated on its concave edge. Furcal rami stout, long, narrow and curved proximally; one ramus narrower than the other and terminal claws slightly unequal in length, dorsal edge of ramus and claws hairy. Ventral seta three-fourths the length of ventral claw, dorsal seta minute. Male absent; light brown colour in spirit.

Distribution : From type locality only.

Remarks : *Eucypris ellipticalis* Deb, is a distinct and easily recognisable form, differing conspicuously from *E. crassa* Sars 1928, by being much more tumid in shape, having asymmetrical furcal rami and a differently shaped terminal segment of the second abdominal leg.

11. *Eucypris himani* n. sp.

(Text-fig. 11 A-G).

Material : *Holotype*—One adult female, Z. S. I. Regd. No. C 1161/2; *Paratype*—Three females; Z. S. I. Regd. No. C 1162/2; From Duttuwadi, C 7 km. from Poona on way to Singhgarh. Coll. K. K. Tiwari; 20 September, 1964.

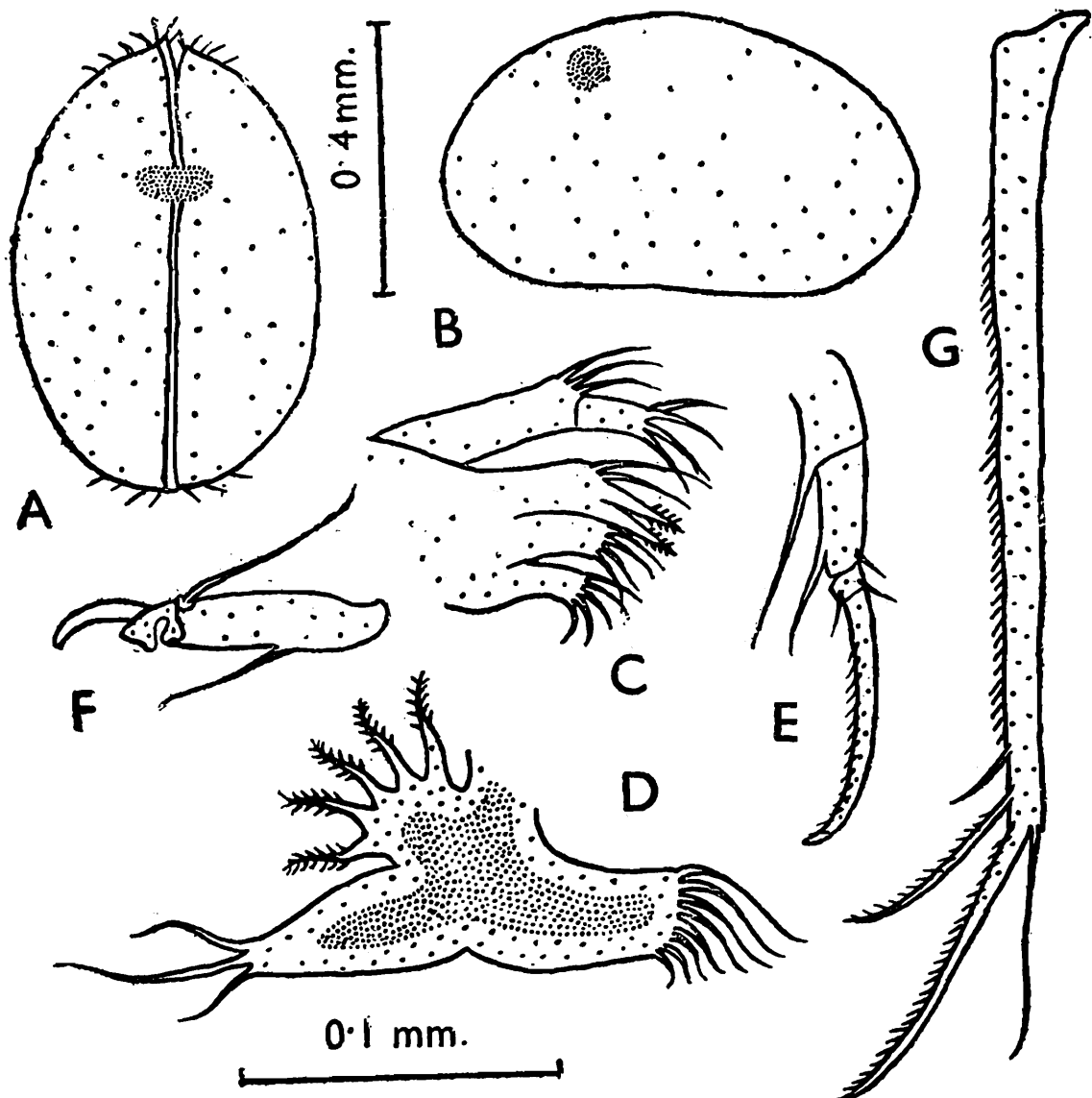
Length—1.25 mm. Height—0.62 mm. Width—0.68 mm.

Shell tumid, in dorsal view elliptical in shape, maximum width occurs in the middle and more than half of the length; both the ends broadly and similarly curved, but anterior end pointed in the middle; Left valve slightly larger than the right and overlaps the latter, valve margin entire. In profile, flat, angularly curved dorsally, slightly sinuate ventrally, both the ends broadly curved. Surface of shell thickly pitted, hairs thin and scattered.

Swimming setae of second antenna slightly shorter than the terminal claws; terminal segment of maxillary palp long and narrow, third maxillary process with two thick, dentate setae. Subterminal segment of first abdominal leg jointed; terminal segment of second leg triangular

distally and deeply excavate near the base. Furcal rami long, narrow and slightly curved basally. Terminal claw slightly less than one third of rami in length, dorsal claw and ventral seta nearly equal in length; dorsal seta minute. Male not known; Light brown colour in spirit.

Distribution : Known from type locality only.



Text-fig. 11. *Eucypris himani* sp. nov. A. Shell dorsal view B. Shell lateral view C. Maxilla D. Maxilliped E. First abdominal leg F. Second abdominal leg G. Furca.

Remarks : *Eucypris himani* Deb, differs from the closely allied form *E. rava* Furtos 1933, by being more tumid in shape and in having terminal segment of the second abdominal leg, triangular at the tip and markedly constricted near the base. Moreover the ventral seta of the furcal rami in *E. himani* is three fourths of the ventral claw, dorsal seta is minute, whereas in *E. rava*, the ventral seta is less than half of the ventral claw, and the dorsal seta is half of the dorsal claw in length.

Genus 3. *Cyprinotus* Brady, 1886**Generic diagnosis :**

Shell not tumid, valves unequal, subovate to subtriangular in shape ; smaller valve with marginal tubercles. Swimming setae of second antenna well developed. Furca normal, similar. Males common. Very common in stagnant brackish water of Chilka Lake, Sambhar Lake of Rajasthan and other saline water sources of India as well as in fresh water sources.

12. *Cyprinotus malini* sp. nov.

(Text-fig. 12 A-F).

Material : Holotype—One adult female, Z. S. I. Regd. No. C 1164/2 ; From Duttuwadi, c 7 Km. from Poona, on way to Singh garh. Coll. K. K. Tiwari ; 20 September 1964.

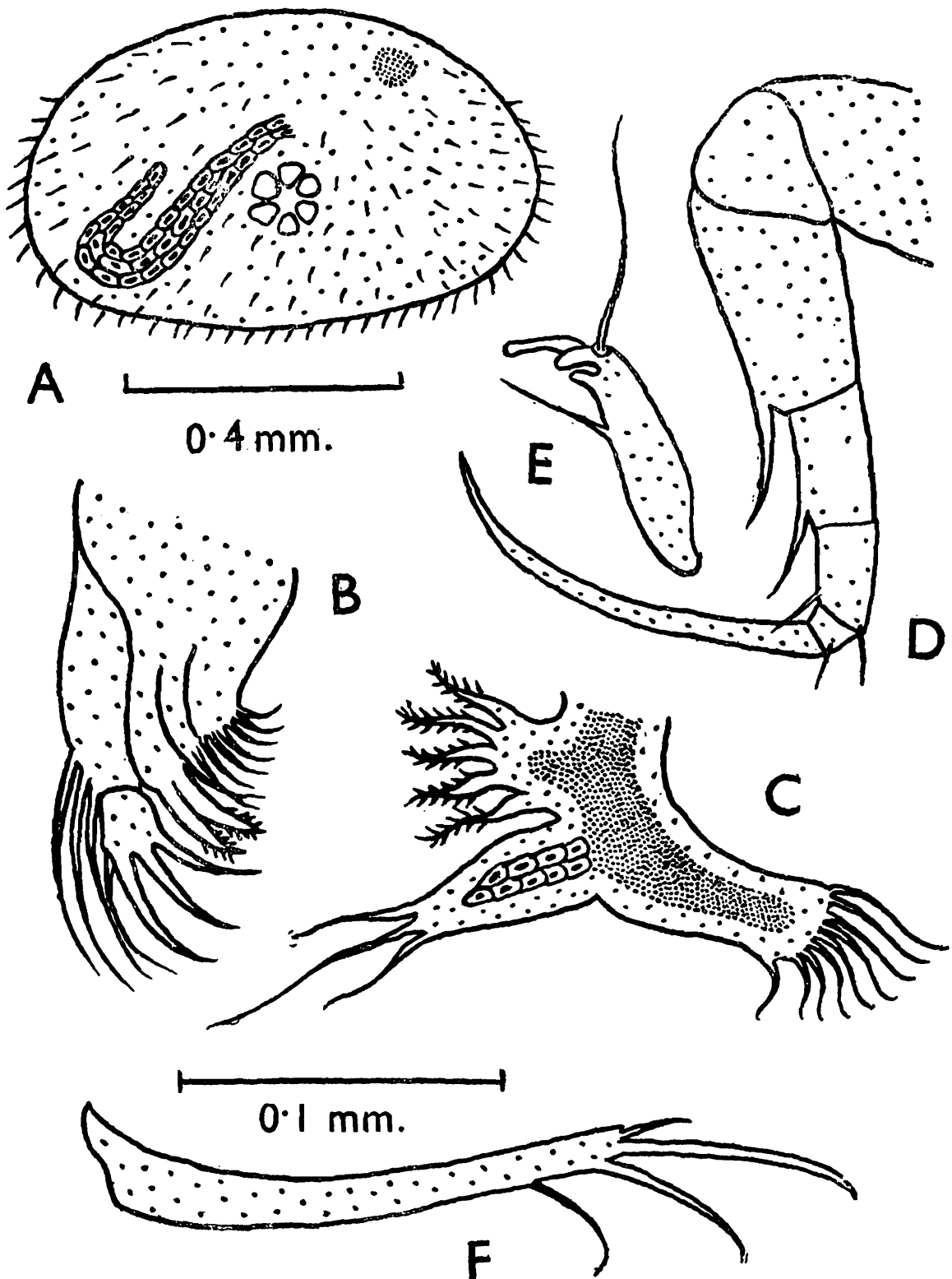
Length—1.15 mm. Height : 0.68 mm.

Shell slightly tumid, when seen dorsally, oblong, maximum width occurs in the middle ; both the ends obtusely pointed ; Left valve slightly smaller than right, left valve margin prominently tuberculate ; right valve entire. In profile, elliptical in shape, dorsal edge evenly, curved, ventral edge markedly convex, both the ends broadly curved. Surface of shell apparently unsculptured although reticulate under high power, and also punctate and with scattered hairs.

Swimming setae of second antenna much longer than terminal claws, third maxillary process with two thick, dentate setae, maxilliped with five rayed branchial plate. Subterminal segment of first abdominal leg jointed, terminal segment of second leg chelate, with a short and a long seta present distally. Furcal rami short, stout, strongly curved in the middle. Two terminal claws slightly unequal, dorsal seta slightly smaller, ventral seta minute. Male not known ; light brown colour in spirit.

Distribution : From type locality only.

Remarks : *Cyprinotus malini* Deb, resembles *C. newmexicoensis* Ferguson 1967, in size, in reticulation of the valves and lastly in combination of the other characters, viz., the second antenna, second abdominal leg and in furcal rami. But the significant difference between them lies in the shape of the shell and in the valve that bears tubercles ; the left valve is tuberculate in *C. malini* whilst it is the right valve of *C. newmexicoensis* that bears the tubercles.



Text-fig. 12. *Cyprinotus malini* sp. nov. A. Shell lateral view B. Maxilla C. Maxilliped D. First abdominal leg E. Second abdominal leg F. Furca.

Genus 4. *Cypricercus* Sars, 1894

Strandesia Hartmann 1964, p. 98 ; Victor, R & Fernando 1979, p. 168.

Generic diagnosis :

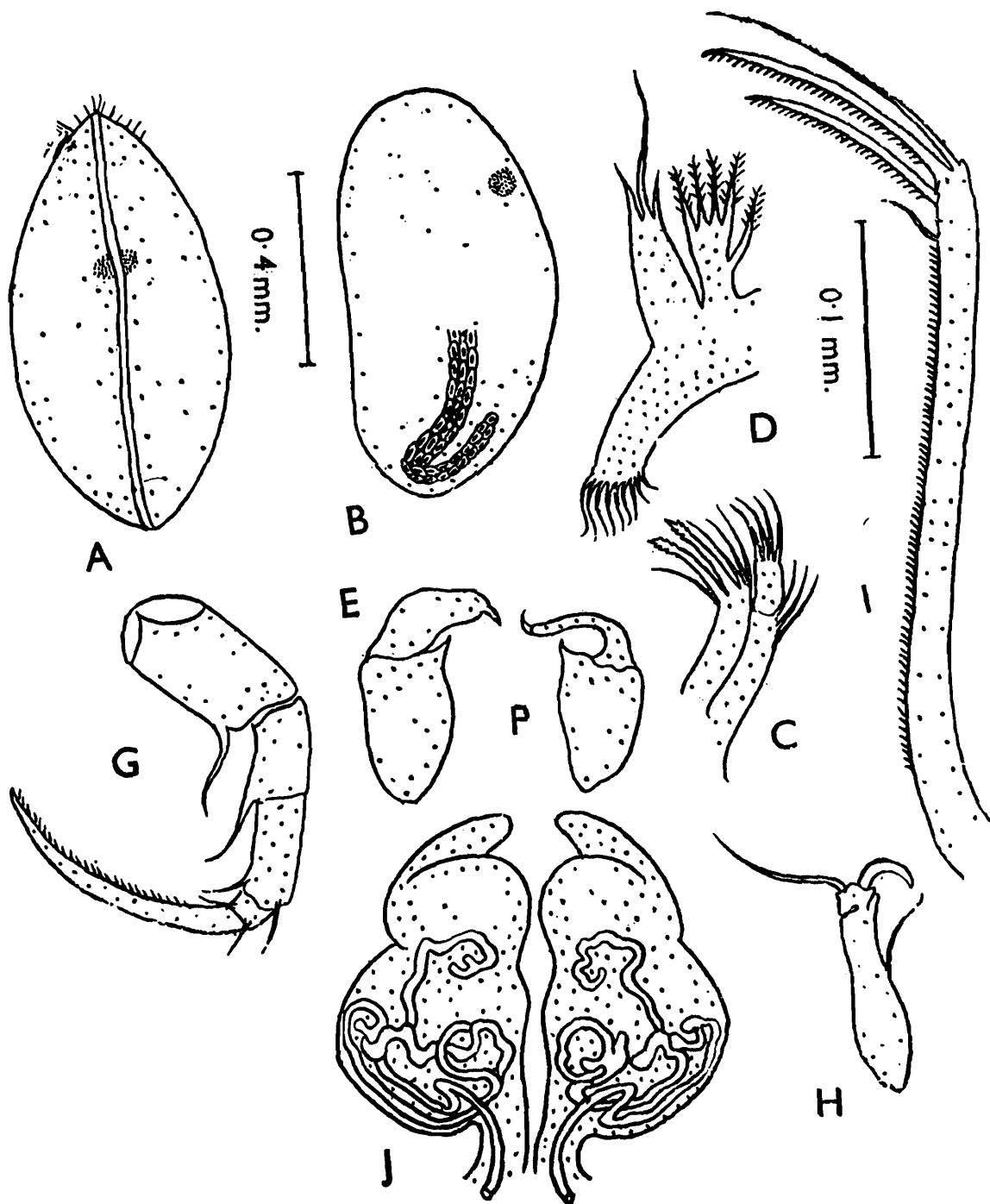
Shell tumid, narrow, elongate, oblong, somewhat cylindrical in dorsal view. Swimming setae of second antenna well developed. Furcal rami very long, slender, similar or dissimilar. Males common ; spermatic

tubes in male forming a dense coil within the anterior and posterior part of shell. Cosmopolitan & common in India.

13. *Cypricercus indrani* sp. nov

(Text-fig. 13 A-J)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1166/2 ;
Paratype—One male, two females, Regd. No. C 1167/2 ; From rain water pond on Mahabaleswar Panchgani Road, c 5 km. from Mahabaleswar. Coll. K. K. Tiwari ; 28 August 1964.



Text-fig. 13. *Cypricercus indrani* sp. nov. A. Shell dorsal view B. Shell lateral view C. Third maxillary process with palp D. Maxilliped E & F. Right and left prehensile palp of male G. First abdominal leg H. Second abdominal leg I. Furca J. Male copulatory appendage. A, B same C-J. Same scale,

Length : 1.32 mm. ; Height : 0.62 mm. ; Width : 0.66 mm.

Shell oblong, elongate, oval in dorsal view, maximum width occurs in the middle, both ends obtusely pointed, left valve slightly larger than and overlaps the right. In profile, strongly & evenly curved dorsal edge, ventral margin nearly straight, anterior end more broadly rounded than the posterior end. Maximum height occurs in the middle. Surface without any sculpture, fine hairs and puncta scattered on the valves, valve margin entire. Spermatocyst vessels in the male form dense spiral within the anterior and posterior part of the shell.

Swimming setae of second antenna slightly longer than terminal claws, terminal segment of maxillary palp twice as long as wide, third maxillary process with two strong, dentate setae. In male prehensile palp of maxilliped bears dissimilar claspers and has five-rayed branchial plate. Subterminal segment of first abdominal leg jointed. Furcal rami very long, narrow, curved proximally, dorsal edge of ramus and claws hairy. Ventral seta as long as ventral claw, dorsal seta minute. Ventral claw less than half of ramus in length. Copulatory appendage in male broad plate-like and with upper and lower lappets. Light brown colour in spirit.

Distribution : Known from type locality.

Remarks : *Cypricercus indrani* Deb, differs from the two closely allied species viz. *C. obliquus* (Brady) 1866, in the character of the soft parts viz. of maxilliped, second abdominal leg and furcal rami and from *C. splendida* Furtos 1933, in not having pearly tubercles covering the shell.

Genus 5. **Stenocypris** Sars, 1889

Generic diagnosis :

Shell elongate, length twice or more of height, compressed. Swimming setae of second antenna well developed, reaching upto the tips of terminal claws. Furcal rami dissimilar, asymmetrical, stout. Males common. This is a cosmopolitan and very common genus of Indian ostracods.

KEY TO THE SPECIES OF Stenocypris

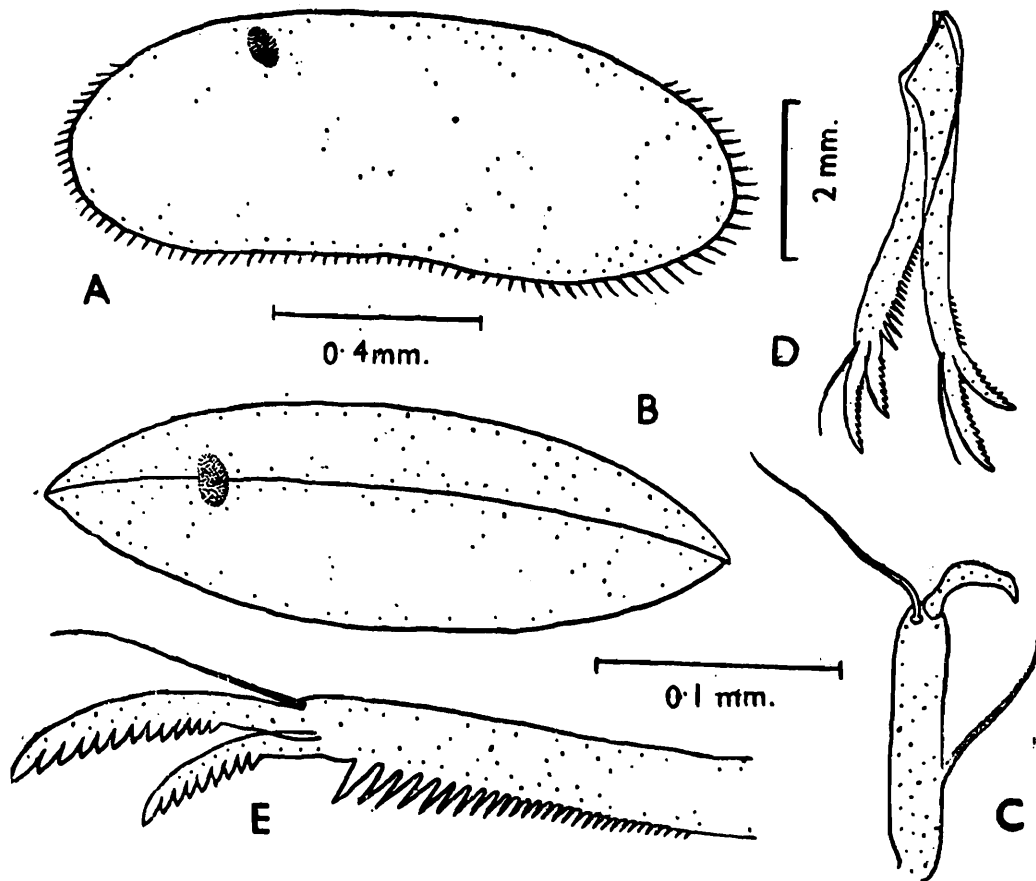
- | | | |
|--|-----|------------------------|
| 1. Valves without marginal band of radial porecanals | ... | <i>S. khopoliensis</i> |
| 2. Valves with marginal band of radial porecanals | ... | ... 3. |
| 3. Band of porecanals very broad ; posterior end of valve narrowly rounded | ... | <i>S. sohni</i> |
| 4. Band of porecanals narrower, post end of valve broadly rounded | ... | <i>S. sp.</i> |

14. *Stenocypris khopoliensis* sp.

(Text-fig. 14 A-E)

Material: *Holotype*—One female, Z.S.I. Regd. No. C. 1086/2; *Paratype*—Five females, Z.S.I., Regd. No. C 1087/2; From Khopoli, rain water pond at Karla, c 13 Km. south of Lonavala on Bombay Poona Road, alt. 616 m; Coll. K. K. Tiwari; 26 September 1964.

Length: 2.12 mm.; Height: 0.75 mm. Width: 0.72 mm.



Text-fig. 14. *Stenocypris khopoliensis* sp. nov. A. Shell lateral view B. Shell dorsal view C. Second abdominal leg D, E. Furca C & E. same scale.

Shell elongate, oblong, length more than $2\frac{1}{2}$ of height. In dorsal view, right valve overlaps left; maximum width occurs in middle, both ends acutely pointed. Seen laterally oblong, dorsal edge forms a flattened arch that slopes towards the end. Anterior and posterior ends broadly rounded; ventral edge weakly sinuate in the middle. Surface without ornamentation except for hairs and punctae. Marginal porecanals absent.

Swimming setae of second antenna as long as terminal claws; third maxillary process with two smooth setae. Right furcal ramus broad, curved and with dorsal pectination up to middle of ramus, left ramus narrow, curved, pectination upto distal one fourth of ramus. Ventral

seta slightly smaller than ventral claw. Male unknown. Light brown colour in spirit.

Distribution : Known from type locality only.

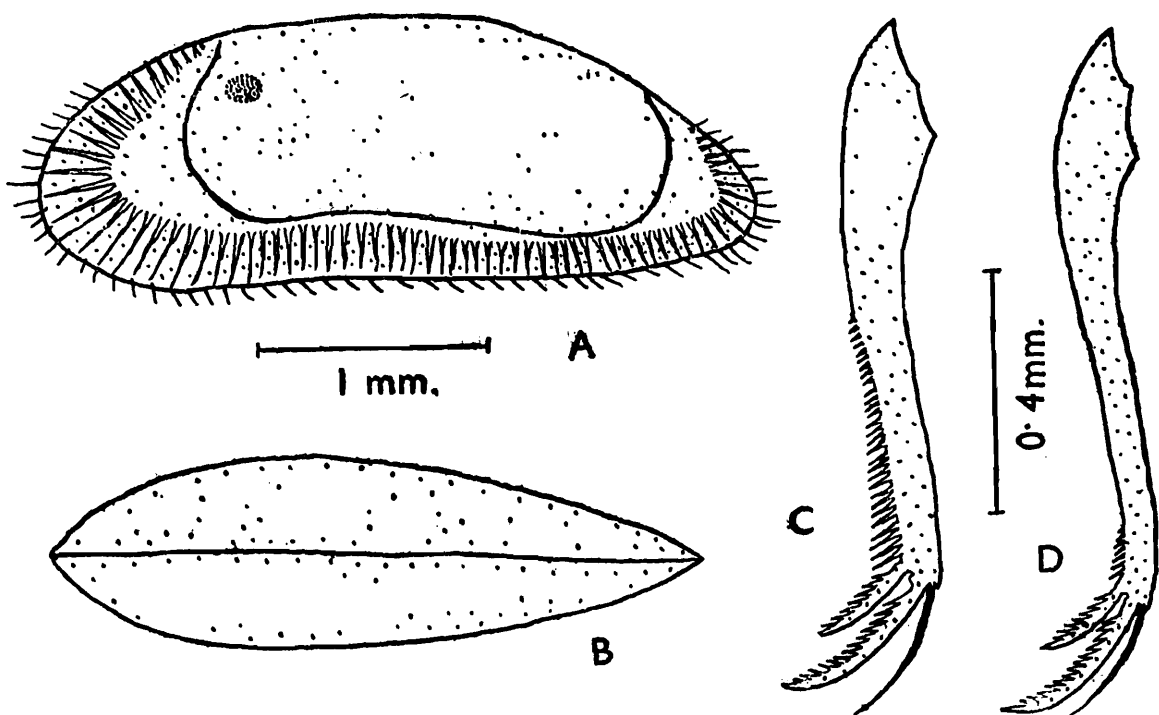
Remarks : *Stenocypris khopoliensis* Deb, shows a remarkable resemblance to *S. hislopi* Ferguson 1969, from Nagpur. Despite a close resemblance between the two species, *S. khopoliensis* is significantly bigger in size than *S. hislopi*, the former differs from the latter and *S. cylindrica major* (Baird 1859), in not having a distinct band of radial porecanals along the margins of valves, and having smooth terminal claw like seta of the second abdominal leg, and both the furcal rami are denticulate and narrower distally. *S. fontinalis* Vavra 1895 resembles the present species in some points, but may be separated by size differences and by the short ventral seta of the furcal rami. *S. fontinalis* measures 1.70 mm. in length, and *S. khopoliensis* measures 2.12 mm.

15. *Stenocypris sohni* n. sp.

(Text-fig. 15 A-D)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1083/2 ; *Paratype*—five females, Z.S.I. Regd. No. C. 1084/2 ; From rain water pond at Kholapur, c 8 km. North of Inspection Bunglow. Coll. K. K. Tiwari ; 26 September 1964.

Length—3.18. mm. Height : 1.32 mm. ; Width—0.62 mm.



Text-fig. 15. *Stenocypris sohni* sp. nov. A. Shell lateral view B. Shell dorsal view C. Right furca D. Left furca.

Shell seen dorsally, anterior end obtusely and posterior end acutely pointed; maximum width occurs in front of middle, sides gradually compressed posteriorly. In profile, oblong, dorsal edge with a low arch, sloping diagonally downwards posteriorly. Anterior end broadly rounded; posterior end narrow and rounded off below near ventral corner. Ventral edge weakly sinuate in middle. Valves equal, thin and transparent, margins with a very broad band of radial porecanals, the band much broader anteriorly. Surface unsculptured, thinly hairy.

Swimming setae of second antenna extend slightly above the tips of terminal claws. Third maxillary process with two thick feathery setae. Furcal rami stout, right ramus broad, curved, spines on dorsal edge are in groups, 7-8 groups, clearly visible under high power. Left ramus weakly curved, narrow, 2-3 groups of spines on distal end, rest of edge hairy. Terminal claws pectenated, ventral seta three-fourths of ventral claw. Male unknown, light yellowish brown colour, in spirit.

Distribution : Known from type locality only.

Remarks : *Stenocypris sohni* Deb, resembles *S. perarmata* Brady 1904, and *S. derupta* Vavra 1906, but differs from *S. perarmata* by being bigger in size, in having broad marginal band of radial porecanals and not having ten strong spines on the dorsal edge of the furcal ramus. *S. derupta* measures 2.50 mm., its marginal band of porecanals is less broad and dents on the dorsal edge of the furcal ramus are not in successive groups, ventral seta is half the length of the ventral claw, all these characters distinguish *S. derupta* from *S. sohni*.

This species is named in honour of Dr. I. G. Sohn, of U. S. Geological Survey, Washington D. C. in recognition of his significant contributions to our knowledge of ostracod taxonomy.

16. *Stenocypris* sp.

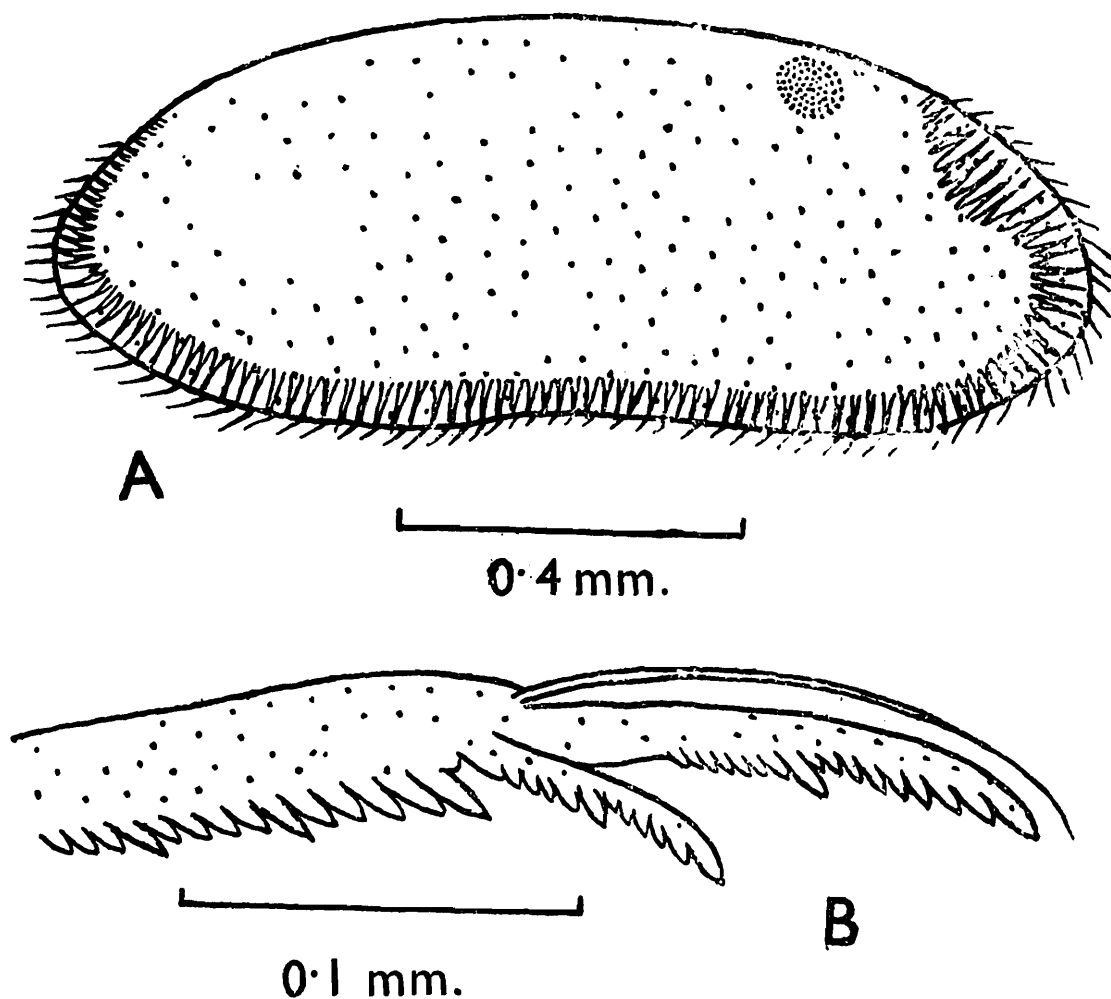
(Text-fig. 16 A-B)

Material : One adult female and two young females. Z. S. I. Regd. No. C 1081/2; from a pond inside Satara Fort, on 2 September 1964, Coll. K. K. Tiwari.

Length : 2 mm. ; Height : 0.80 mm.

Shell oblong, elongate, in dorsal view, maximum width in the middle, ends pointed. Left valve larger than the right. Valve margins with a broad band of radial porecanals. Surface unsculptured, with fine scattered hairs and punctae.

Swimming setae of second antenna slightly longer than terminal claws. Broad furcal ramus denticulate dorsally, dents are arranged in successive groups, six groups quite clear, demarketed by larger dents. Terminal claws denticulate dorsally, one abruptly larger dent present on the middle of claw. Ventral seta slightly longer than the ventral claw, dorsal claw short, not reaching up to the middle of ventral claw. Male absent, greyish colour in spirit.



Text-fig. 16. *Stenocypris* sp. A. Shell lateral view B. Furca.

Distribution : From a pond inside Satara Fort.

Remarks : *Stenocypris* sp., resembles the majority of species belonging to the genus as regards size, shape and other characters. In India, the genus *Stenocypris* is profusely developed as far as I have examined them, though the range of area from where material is being examined is not vast as regards our country.

It is possible that the species is to be regarded as new but the numbers of specimens available and their poor state of preservation makes it impossible to place it properly. Apparently it is very close to *S. malcolmsoni* Brady 1886 though the groups of dents on furcal rami are different.

Sataracypris n. Gen.

Cypris Baird, 1837 ; p. 137 ; 1850 ; p. 156.

Shell moderately tumid, slightly oblong, valves subequal, thin, without any sculpture except fine scattered hairs and punctae. One prominent dorsal protuberance or hump like gibbosity of the shell present. Swimming setae of second antenna well developed, extend much beyond the tips of terminal, thick bristles. These bristles are not like claws as in the other allied genera. Mandibular palp four segmented; terminal segment of maxillary palp broader than its length. Subterminal segment of first abdominal leg jointed. Terminal segment of second leg chelate apically and adorned with very small claw and a short setae. Furcal rami similar, short, stout, adorned apically with two claws and two setae. Male not known.

Remarks : A new generic name for these hump back *Cypris* have been suggested as they deserve it I feel, because it is not *Cypris* and unlike any other known genera. In olden time all the Ostracods were designated as *Cypris* only. After Baird no record of this *C. gibbosa* has been made.

Sataracypris gibbosa (Baird)

(Text-fig. 17 A-B)

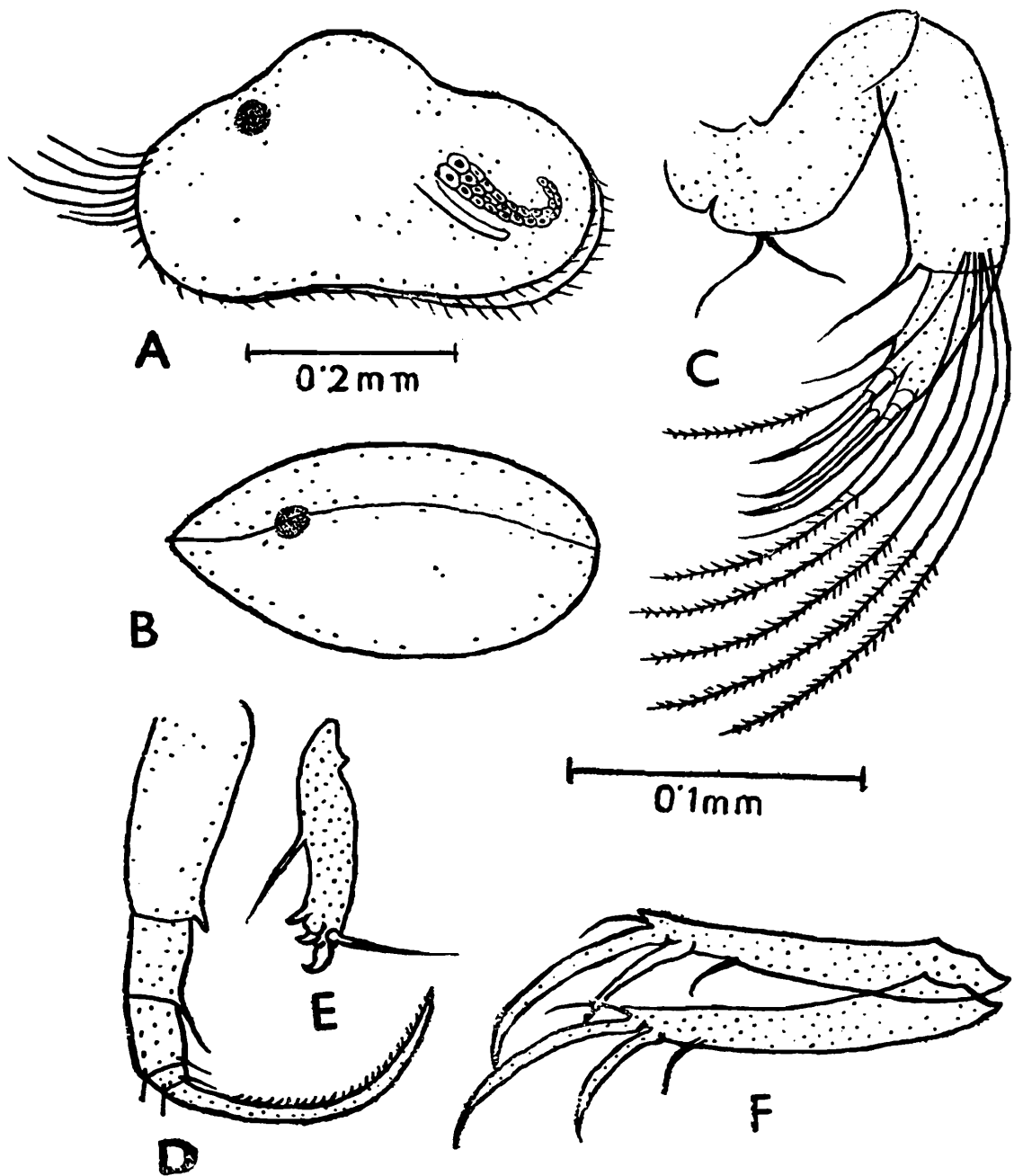
Cypris gibbosa Baird, 1837, p. 137 ; 1850 ; p. 156.

Material : One adult female, Z. S. I. Regd. No. C 1169/2. From pond near Inspection Bungalow, Satara, 30 August, 1964 ; two young females, Z. S. I. Regd. No. C 1170/2, from a pond at Panchgani ; 20 August 1970. *K. K. Tiwari* coll.

Length : 1.50 mm ; Height : 0.6 mm. Width : 0.5 mm.

Shell moderately tumid, when seen dorsally, elongate, oval, maximum width occurs in the middle, anterior end acutely pointed, posterior end broadly rounded. Left valve slightly larger and overlaps the right. In profile, dorsal edge strongly curved with a gibbosity or hump like protuberance. Maximum height occurring in middle. Both the ends broadly rounded ; anterior end broader than posterior. Ventral edge sinuate in middle. Surface of shell without sculpture. Thin scanty hairs present on the surface. Valve thin, delicate, margin entire. Both the antenna with long plumose setae. Swimming setae of second antenna extend much beyond the tips of terminal setae. Third maxillary process with two smooth setae. Subterminal segment of second abdominal leg jointed. Furcal ramus short, stout, similar, ventral claw two third of the ramus in length. Male absent, light brown in colour.'

Distribution : New record from Satara and Panchgani Maharashtra, India ; and from Survey Zoo garden ditch at U. K.



Text-fig. 17. *Sataracypris gibbosa* Baird A. Shell lateral view B. Shell dorsal view C. Second antenna D. First abdominal leg E. Second abdominal leg. F. Furcal ramii.

Remarks : The specimens are very much alike to *C. gibbosa* Baird; in their outward appearance of shell with its dorsal hump, Except the presence of two pairs of plumose antennae and first pair of legs Baird did not mention or show any other appendages in his *C. gibbosa*.

Genus 7. *Sclerocypris* Sars, 1924

Generic diagnosis : Shell large, oblong, moderately tumid, valves subequal. Swimming setae of second antenna not much elongated.

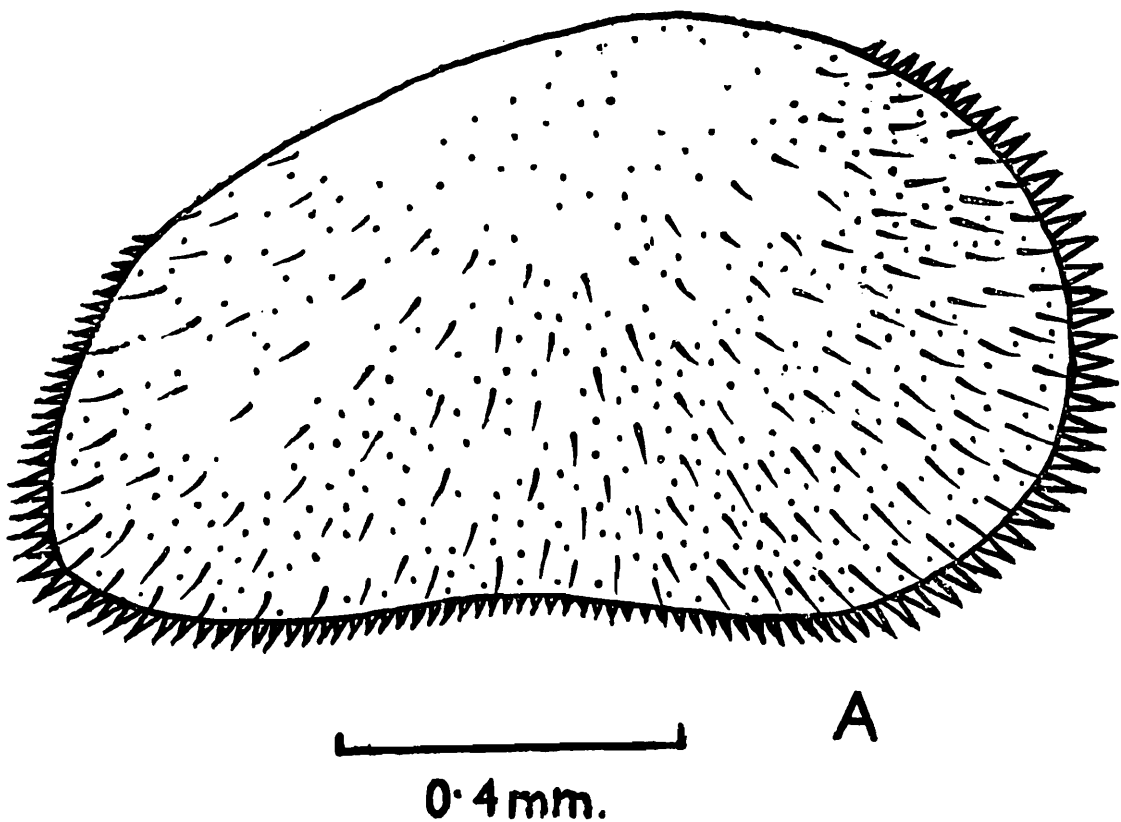
Terminal joint of maxillary palp broader than long. Furca similar, long, slender. Males common. Commonly found in North and South Western parts of India and South Africa.

Sclerocypris sp.

(Text-fig. 18 A)

Material : One ex. Z. S. I. Regd. No. C 1093/2 ; From rain water pond at Panchgani, Coll. *K. K. Tiwari* ; 19 August 1964.

Length : 3.50 mm ; Height : 1.66 mm. Width : 1.62 mm.



Text-fig. 18. *Sclerocypris* sp. A. Shell of young male in lateral view.

Shell large tumid ; profusely hairy towards the anterior end. Hairs long, but shorter towards posterior end. Shell surface unsculptured. In dorsal view, spindle shaped, maximum width occurs in the middle, both the ends evenly compressed and acutely pointed. In profile, anterior end very broad and rounded ; posterior end broadly and angularly curved and much narrower than anterior end. Ventral edge sinuate behind the middle ; Dorsal edge curved and slanting postero-dorsally ; maximum height occurs in front of the middle, where the dorsal edge is slightly angular. Left valve slightly bigger than and overlaps the right. Valve margins with hairs and a row of prominent spines except dorsally.

Furcal rami long, narrow, with two claws and two setae terminally. Ventral seta one haird of ventral claw, dorsal seta less than half of dorsal claw. The specimen seems to be a young male though the coils of vasdeference are not visible outwardly. Dark brown colour in spirit.

Distribution : Panchgani, from where it was collected.

Remarks : *Sclerocypris* sp. is a large, mango like in shape, shell described above, markedly differing from six African species described by Sars 1924-1926, and two Indian records of the present author 1973, from Sambhar Lake, Rajasthan, a salt producing desert area and Punjab.

According to Sars 1924, the present specimen is a young male and as only one specimen present at my disposal, I have not dissected it and have kept it as a doubtful species until more adult specimens could be collected.

Genus 8. *Cypretta* Vavra, 1895

Shell less than 1 mm in length, very broad, tumid and high. Anterior end of valves with well defined radiating septa. Furcal rami similar, normal, short ; terminal claws are very long, slender, whip like setae, sometimes longer than or as long as the ramus itself. Males not uncommon. It is a cosmopolitan genus, common in India also.

Cypretta *gargi* sp. nov.

(Text-fig. 19 A-F)

Material : *Holotype*—One female, Z. S. I. Regd. No. C 1089/2 ; *Paratype* : 10 females, Z.S.I. Regd. No. C. 1090/2. From a temporary pond at Karla, c 13 km. south of Lonavala, on Bombay Poona Road, alt. 616 m ; coll *K. K. Tiwari*, 26 September 1964.

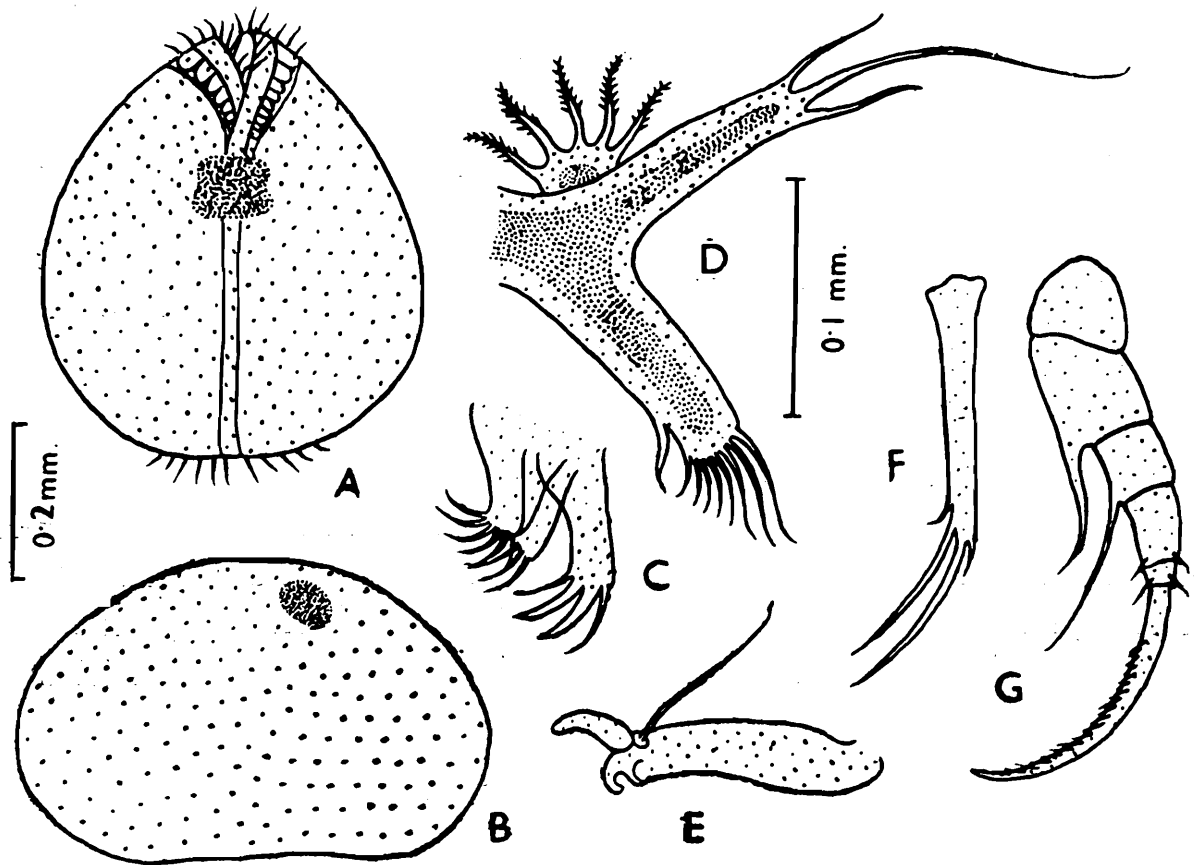
Length : 0.87 mm ; Height : 0.62 mm ; Width : 0.68 mm.

Shell, seen in dorsal view, very tumid with maximum width occurs in the posterior fourth ; anterior end obtusely pointed, posterior end more broadly rounded. In profile, both the ends broadly rounded, dorsal edge highest and somewhat angular about the middle decending on both sides in a smooth curve, ventral edge nearly straight. Valves unequal, right valve slightly larger than the left, overlapping it, margins entire. Anteriorly striated band of radiating septa present on each valve margin bordered by marginal fringe ; Valves thin, punctate, unsculptured and with scattered hairs.

Swimming setae of second antenna slightly longer than terminal claws. Third maxillary process with two thick smooth setae. Subter-

minal segment of first abdominal leg jointed. Furcal rami straight, short, comparatively strong, with two long claws and two small setae. Male not known. Colour in spirit deep brown with darker patches.

Distribution : Known only from the type locality.



Text-fig. 19. *Cypretta gargi* sp. nov. A. Shell dorsal view B. Shell lateral view C. Maxilla D. Maxilliped E. Second abdominal leg F. Furca G. First abdominal leg C-F. same scale.

Remarks : *Cypretta gargi* Deb can be easily distinguished from other known species of the genus by the shape of the shell which is much broader posteriorly. It shares certain similarities of structure with *Cypretta bilicis* Furtos 1936, but can be differentiated from this by its more tumid posterior portion of shell, angular and higher dorsal profile and strong furcal rami armed with two nearly equal claws and two setae.

ACKNOWLEDGEMENTS

I am grateful to the Director, Zoological Survey of India for facilities to examine the material and to Dr. K. K. Tiwari, Carcinologist of the Survey, for guidance and help in identification. The types of the new species described herein are deposited in the National Zoological Collection of the Zoological Survey of India, abbreviated in the text as Z. S. I.

REFERENCES

- BAIRD, W. 1837. *Mag. Zool. and Bot.*, i, p. 137
- BAIRD, W. 1850. The Natural History of the British Entomostraca, P. 1-364.
- BAIRD, W. 1859. Description of some new recent Entomostraca from Nagpur collected by Rev. S. Hislope. *Proc. zool. Soc. Lond.*, : 213-234.
- BRADY, G. S. 1866. Monograph of the recent British Ostracoda. 1904. On Entomostraca collected in Natal by Mr. James Gibson. *Proc. zool. Soc. Lond.*, 2 : 121.
- DADAY, E. V. 1898. *Mikroskopische Susswasserthiere aus Ceylon*, p. 69-85.
- DEB, M. 1973. First record of the genus *Sclerocypris* Sars. 1924, from India, with description of two new species. *J. zool. Soc. India*, 25 (1 & 2) : 47.
- FERGUSON, E. JR. 1967. *Cyprinotus newmexicoensis*, a new Cyprid Ostracod. *Amer. midl. Nat.*, 78, no. 1 : 248-251.
- FERGUSON, E. JR. 1969. The type species of the genus *Stenocypris* Sars 1889 with description of two new species. *Taxonomy, Morphology and Ecology recent Ostracoda*. Oliver & Boyd, Edinburg, : 67-75.
- FURTOS, NORMA C. 1933. The Ostracoda of Ohio. *Ohio Biol. Surv.*, 5 : 411-524.
- FURTOS, NORMA C. 1936a. Freshwater Ostracoda from Florida and North Carolina, *Amer. Mid. Natural.*, 17 : 491-522.
- HARTMANN, G. 1964. Asiatische Ostracoden. Systematische und zoogeographische Untersuchungen. *Int. Rev. gesamten Hydrobiol. Syst. Beih.*, 3 : 1-155.
- LINDROTH, S. 1953-56. Taxonomic and zoogeographical studies of the Ostracod fauna in the inland waters of East Africa. *Zool. Bidr. uppsala.*, 30 : 43-156.
- MULLER, G. W. 1912. Die Ostracoden der Deutschen Sudpolar-Expedition 1901-1903, 10 Zool. Bd. II. Berlin : 50-181.
- SARS, G. O. 1924a. Freshwater Entomostraca of the Cape Province. *Ann. S. Afr. Mus.*, 20 : 105-193.
- SARS, G. O. 1924b. Contribution to a knowledge of the fauna of South West Africa. *Ann. S. Afr. Mus.*, 20 : 195-211.