

Some freshwater astracodes from North and Central Iran

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SOME FRESHWATER OSTRACODES FROM NORTH AND CENTRAL IRAN

BY

I. YASSINI¹

SUMMARY

Freshwater ostracodes from North and Central Iran are described and illustrated. They comprise 18 species belonging to 13 genera. These ostracodes include the first records of *Chlamydotheca clavata* (BAIRD) and *Stenocypris cylindrica major* (BAIRD) in Iran, and exhibit affinities with Turkish and South Russian zoogeographical provinces.

RÉSUMÉ

Treize genres et 18 espèces d'Ostracodes d'eau douce provenant du nord et du centre de l'Iran sont décrits et illustrés. *Chlamydotheca clavata* (BAIRD) et *Stenocypris cylindrica major* (BAIRD) sont reconnus pour la première fois en Iran. Des affinités existent avec les provinces zoogéographiques de la Turquie et de la Russie méridionale.

INTRODUCTION

Previous studies of the freshwater ostracodes of Iran are few, and until 1964 limited to the papers of R. GURNEY (1921), Z. S. BRONSTEIN (1925) and W. KLIE (1937). G. HARTMANN in 1964 described 46 species from 500 samples, which had been collected by K. LINDBERG in the period of 1933-1947 from several localities of Iran. These samples were collected as a research project on the study of the freshwater copepods in Turkey, Iran and Afghanistan.

In the course of investigation of the marine and freshwater ostracode fauna of Iran, a total of 6 samples were collected by the author from the Caspian province, Central Elburz and Central Iran, during the field trips to the area. All these samples contained ostracodes. The fauna studied comprises 13 genera and 18 species, of which one is in the open nomenclature, and two are recorded for the first time in Iran. All the species encountered are also reported in Turkey and in South Russian zoogeographical provinces.

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The materials illustrated are deposited in the H. J. OERTLI collection, SNPA, Pau, France.

Locality description (Fig. 1)

The samples studied were collected from the following localities:

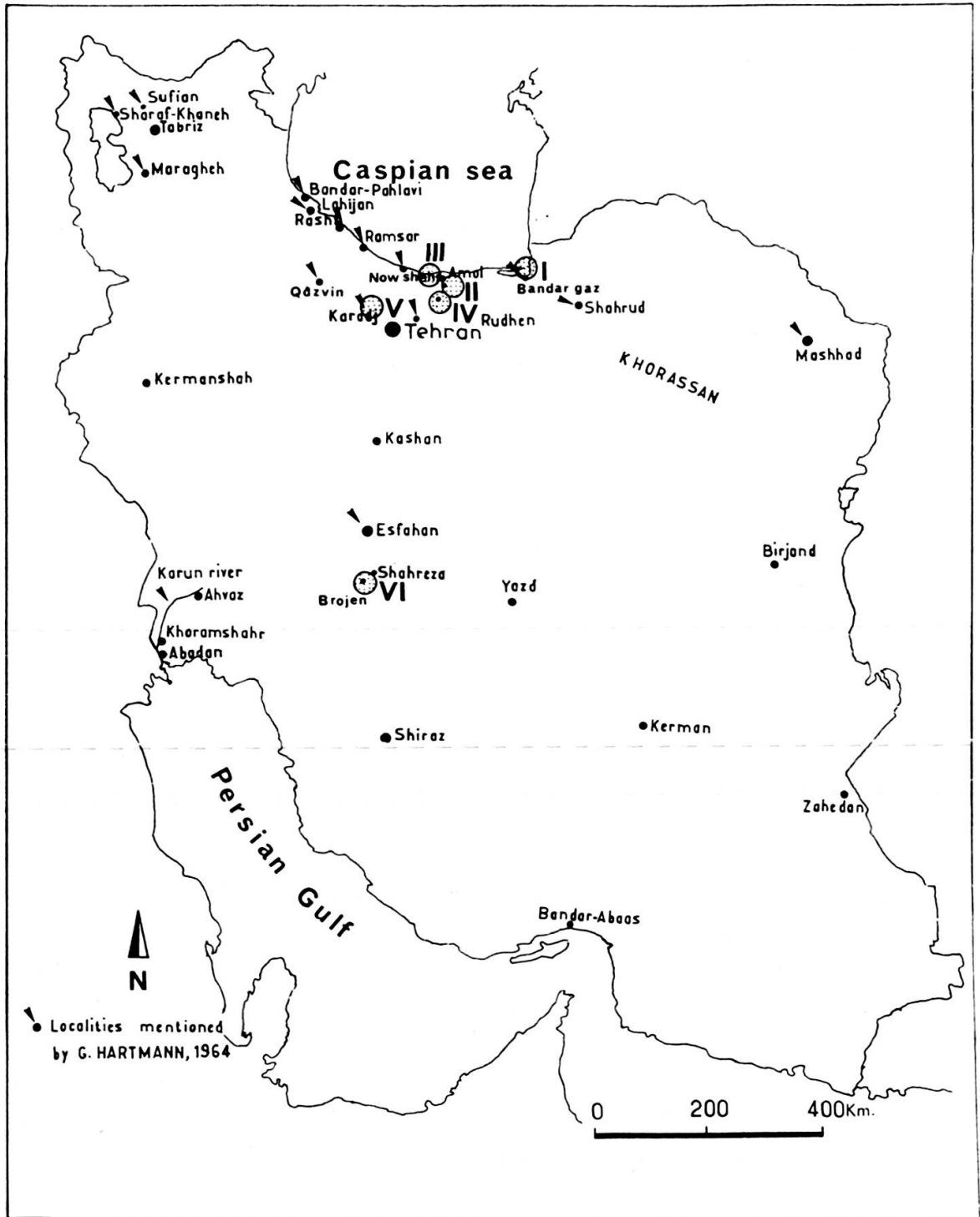


FIG. 1. — Localities of the samples studied.

Locality I — “ High Slikke ” pond, immediately north of Bandar-Gaz, near the Caspian shoreline.

Locality II — The rice field on the west of the Tehran-Amol road, 3 Km south of Amol.

Locality III — A shallow pond, about 23 Km west of Amol, west of the Amol-Noshahr road.

Locality IV — The sulfur spring at Abe-Ask, on the Tehran-Amol road.

Locality V — An intermittent stream north of Karadj town, west of the Karadj-Ghachsar road.

Locality VI — A shallow pond behind Emamzadeh Ali, south of Boldaji, south-west of Brodjen.

Acknowledgements

The author thanks Dr. H. J. OERTLI of SNPA, Pau, France, for his permission to use the scanning electron micrographs. My thanks are due Mr. F. SAFFON for his assistance in preparation of the photomicrographs.

Species	Localities	I	II	III	IV	V	VI
<i>Ilyocypris bradyi</i> G.O.SARS, 1890			+	+			
<i>Notodromas persica</i> GURNEY, 1921				+			
<i>Cypris maculosa</i> BRONSTEIN, 1927				+			
<i>Cypris bispinosa</i> LUCAS, 1846				+			
<i>Eucypris</i> sp.					+		
<i>Chlamydotheca clavata</i> (BAIRD) 1838							+
<i>Cyprinotus incongruens</i> (RAMDOHR) 1808		+	+			+	+
<i>Dolerocypris fasciata</i> (O.F.MULLER) 1776				+			
<i>Dolerocypris sinensis</i> G.O.SARS 1903			+				
<i>Stenocypris cylindrica major</i> BAIRD 1859			+				
<i>Erpetocypris chevreuxi</i> (G.O.SARS) 1896			+				
<i>Cyprinotus orientalis</i> BRONSTEIN, 1900				+			
<i>Cypridopsis vidua</i> (O.F.MULLER) 1785			+				
<i>Potamocypris almaysi</i> DADAY, 1903				+			
<i>Cypretta dubiosa</i> VAVRA, 1901			+				
<i>Cyclocypris laevis</i> (O.F.MULLER) 1916				+			
<i>Cyclocypris ovum</i> (JURINE) G.W.MULLER 1820				+			
<i>Candona marchica</i> HARTWIG, 1899				+			

FIG. 2. — Distribution of Ostracodes in the localities studied.

DESCRIPTION OF SPECIES

Class *Ostracoda* LATREILLE, 1802

Order *Podocopida* SARS, 1865

Suborder *Podocopina* SARS, 1865

Family *Cyprididae* BAIRD, 1845

Subfamily *Ilyocypridinae* KAUFMANN, 1900

Genus *Ilyocypris* BRADY & NORMAN, 1889

Ilyocypris bradyi G. O. SARS

1890 *Ilyocypris bradyi* G. O. SARS, P. 59

1916 *Ilyocypris bradyi* G. O. SARS, ALM, P. 39, Fig. 20

1947 *Ilyocypris bradyi* G. O. SARS, BRONSTEIN, P. 94, Fig. 30, Pl. 3, Fig. 3-4

1964 *Ilyocypris bradyi* G. O. SARS, HARTMANN, P. 16

1970 *Ilyocypris bradyi* G. O. SARS, DELORME, P. 1252, Pl. 1, Fig. 4-12

Occurrence in samples studied

8 complete adult carapaces and 10 valves were collected from locality III and 4 juvenile forms from locality II.

Distribution

The species was previously reported by G. HARTMANN (1964) from an intermittent stream near Rudhen (40 Km north-east of Tehran). It is a cosmopolite form, which is known from Afghanistan, Turkey, Southern Russia, the Balkans, Europe, and North America (HARTMANN, 1964; DELORME, 1970).

Subfamily *Notodromidinae* KAUFMANN, 1900

Genus *Notodromas* LILLJEBORG, 1853

Notodromas persica GURNEY (Pl. 3, Fig. 8-14)

1921 *Notodromas persica* GURNEY, P. 842, Fig. 1-7

1947 *Notodromas persica* GURNEY, BRONSTEIN, P. 98, Fig. 33, Pl. 11, Fig. 4, 7

1964 *Notodromas persica* GURNEY, HARTMANN, P. 17, Fig. 2

Occurrence in samples studied

300 examples of male and female, juvenile and adult, specimens were collected at locality III.

Distribution

The type specimen of this form from south-western Iran was described in 1921 by GURNEY. It was also reported by BRONSTEIN (1947) and HARTMANN (1964) in Rasht, Lahidjan (Caspian province) and also from Assalon (Persian Gulf coastal area). The species has been recorded from Southern Russia, the Balkans, and Southern Europe (HARTMANN, 1964).

Subfamily *Cypridinae* BAIRD, 1845

Genus *Cypris* O. F. MULLER, 1776

Cypris maculosa BRONSTEIN (Pl. 4, Fig. 12-15)

1927 *Cypris maculosa* BRONSTEIN, P. 23, Fig. 4

1948 *Cypris maculosa* BRONSTEIN, P. 104, Fig. 37

1964 *Cypris maculosa* BRONSTEIN, HARTMANN, P. 19, Fig. 4

Occurrence in samples studied

100 examples of juvenile and adult specimens were collected from locality III.

Distribution

This typical Transcaucasian species was previously reported by BRONSTEIN (1948) from north Iran and by HARTMANN (1964) from the Persian Gulf coastal area. According to HARTMANN, this species may be present in central and southern Africa.

Cypris bispinosa LUCAS (Pl. 1, Fig. 1-5)

1846 *Cypris bispinosa* LUCAS, P. 82, Pl. 8, Fig. 7

1947 *Cypris bispinosa* LUCAS, BRONSTEIN, P. 101, Pl. 3, Fig. 1-2

1964 *Cypris* cf. *bispinosa* LUCAS, HARTMANN, P. 19, Fig. 3

Occurrence in samples studied

100 adult and juvenile specimens were found at locality III.

Distribution

HARTMANN (1964) mentioned this species from Rasht and Gazian. The species is also known from Southern Russia, the Balkans (BRONSTEIN, 1947), Europe, and North Africa (KLIE, 1924).

Genus *Eucypris* VAVRA, 1891*Eucypris* sp. (Pl. 1, Fig. 6-8)*Diagnosis*

Shell pale brown in color, very fragile, valves unequal, LV slightly larger than RV; carapace elongate, subreniform in lateral view, dorsal margin convex, ventral margin straight to gently inflexed medially; anterior and posterior margins broadly rounded; greatest height behind the middle; in dorsal view carapace elliptical, ends subacuminate; internally: inner lamella is very narrow posteriorly and ventrally but broad anteriorly; muscle scars not clearly visible; surface very finely pitted, anterior and postero-ventral margins finely denticulated.

Occurrence in samples studied

More than 1000 adult and juvenile specimens were collected from locality IV.

Genus *Chlamydotheca* SAUSSURE, 1855*Chlamydotheca clavata* (BAIRD) (Pl. 1, Fig. 7, 11, 13, 14)

1838 *Cypris clavata* BAIRD, P. 137, Pl. 5, Fig. 6

1947 *Eucypris clavata* (BAIRD), BRONSTEIN, P. 111, Fig. 42-43

1964 *Eucypris clavata* (BAIRD), HARTMANN, P. 22

Occurrence in samples studied

50 examples of adult specimens were collected from locality VI.

Distribution

The species was recorded by HARTMANN (1964) in Azerbaidjan, southern iranian highlands, and the Persian Gulf coastal area. It is also reported from Southern Russia, the Balkans, South and North Europe (BRONSTEIN, 1947; HARTMANN, 1964).

Genus *Cyprinotus* BRADY, 1886*Cyprinotus incongruens* (RAMDOHR) (Pl. 1, Fig. 9, 10 12, 15; Pl. 2, Fig. 1-5)

1808 *Cypris incongruens* RAMDOHR, P. 86, Pl. 3, Fig. 19

1916 *Cyprinotus incongruens* (RAMDOHR), ALM, P. 71, Fig. 39

1964 *Heterocypris incongruens* (RAMDOHR), HARTMANN, P. 33

1970 *Cyprinotus incongruens* (RAMDOHR), DELORME, P. 160, Pl. 7, Fig. 64-74

Remarks

As G. HARTMANN (1964) has noted, there are many intraspecific groups among the populations of this species in Iran. The variation is mainly related to the dimension of the carapace.

Occurrence in samples studied

80 examples of juvenile and adult were found at localities I, II, V and VI.

Distribution

The species was previously known from Iran. It was reported by HARTMANN (1964) from several localities: Naghl Tagi (Persian Gulf coastal area), Maragheh in Azerbaidjan, Bandar-Pahlavi (Caspian province), Karadj, Shahrud, Karun river, Sharaf-Khaneh in Azerbaidjan and Khorassan province. P. F. GHETTI (1973) noted this form from a rice field near Rasht. The species is very cosmopolitan and has a worldwide distribution.

Genus *Dolerocypris* KAUFMANN, 1900*Dolerocypris fasciata* (O. F. MULLER) (Pl. 4, Fig. 8-11)

- 1776 *Cypris fasciata* O. F. MULLER, P. 199
 1900 *Dolerocypris fasciata* (O. F. MULLER), KAUFMANN, P. 278, Pl. 20, Fig. 13-15
 1947 *Dolerocypris fasciata* (O. F. MULLER), BRONSTEIN, P. 133, Pl. 5, Fig. 2-3
 1964 *Dolerocypris cf. fasciata* (O. F. MULLER), HARTMANN, P. 32
 1970 *Dolerocypris fasciata* (O. F. MULLER), DELORME, P. 162, Pl. 9, Fig. 77-85

Occurrence in samples studied

3 examples of adult and 2 examples of juvenile specimens were found at locality III.

Distribution

G. HARTMANN (1964) reported *Dolerocypris cf. fasciata* (O. F. MULLER) from Lahijan (Caspian province). The species is very cosmopolitan and is known from Southern Russia, the Balkans, Southern Europe (HARTMANN, 1964), and Canada (DELORME, 1970).

Dolerocypris sinensis G. O. SARS (Pl. 4, Fig. 1-3)

- 1903 *Dolerocypris sinensis* G. O. SARS, P. 37, Pl. 4
 1947 *Dolerocypris sinensis* G. O. SARS, BRONSTEIN, P. 133, Pl. 8, Fig. 1-4
 1964 *Dolerocypris sinensis* G. O. SARS, HARTMANN, P. 33
 1970 *Dolerocypris sinensis* G. O. SARS, DELORME, P. 163

Occurrence in samples studied

50 examples of adult specimens of this species were collected from locality II.

Distribution

G. HARTMANN has recorded this form from Azerbaidjan, Ramsar, Noshahr, and Esfahan. The species is very cosmopolitan and is known from Afghanistan, Southern Russia, the Balkans, probably North Europe, and also South-west Asia (HARTMANN, 1964). In North America, Canada, DELORME (1970) reported it from the Holocene deposits of Southwestern Saskatchewan.

Subfamily *Stenocyprinae* FERGUSON, 1964

Genus *Stenocypris* G. O. SARS, 1889

Stenocypris cylindrica major (BAIRD) (Pl. 4, Fig. 4-7)

1859 *Cypris cylindrica major* BAIRD, P. 233

1886 *Cypris malcolmsoni* BRADY, P. 297, Pl. 38, Fig. 5-7

1964 *Stenocypris cylindrica major* (BAIRD), FERGUSON, P. 18

1969 *Stenocypris cylindrica major* (BAIRD), FERGUSON, P. 67

Occurrence in samples studied

55 complete carapaces and 20 desarticulated valves were found at locality II.

Distribution

P. F. GHETTI (1973) has reported *Stenocypris malcolmsoni lata* (GHETTI, 1973, from Tutti-gli rice field, near Rasht. The species is reported from India, Ceylon, Indonesia, Australia, South East Africa, and North America (HARTMANN, 1964).

Genus *Erpetocypris* G. S. BRADY & A. M. NORMAN, 1889

Erpetocypris chevreuxi (G. O. SARS)

1896 *Cypris chevreuxi* SARS, P. 5

1938 *Herpetocypris chevreuxi* (SARS), KLIE, P. 127

1957 *Erpetocypris chevreuxi* (SARS), WAGNER, P. 29, Pl. 8

1964 *Erpetocypris chevreuxi* (SARS), HARTMANN, P. 38

Occurrence in samples studied

Only one specimen was collected from locality II.

Distribution

In 1928 Z. S. BRONSTEIN recognized this form from North Iran. It was also mentioned by HARTMANN (1964) from several localities in Iran: Pahlavi-Ghazian, Karadj, Soltanabad, Sufian in Azerbaidjan, and Meshad area (Province of Khorasan). The species has a world-wide distribution and is reported from Afghanistan, Turkey, Southern Russia, the Balkans, South and North Europe, North Africa, probably central and southern Africa, and North America (HARTMANN, 1964).

Genus *Cypridopsis* BRADY, 1868

Cypridopsis orientalis BRONSTEIN (Pl. 4, Fig. 16-19)

1927 *Cypridopsis orientalis* BRONSTEIN, P. 8, Fig. 2

1947 *Cypridopsis orientalis* BRONSTEIN, P. 164, Fig. 83

Occurrence in samples studied

8 complete carapaces and 5 isolated valves were collected at locality III.

Distribution

This form was noted by BRONSTEIN (1947) from Southern Russia and probably North America.

Cypridopsis vidua (O. F. MULLER) (Pl. 2, Fig. 16-17)

1785 *Cypris vidua* O. F. MULLER, P. 55

1916 *Cypridopsis vidua* (O. F. MULLER), ALM, P. 77

1957 *Cypridopsis vidua* (O. F. MULLER), WAGNER, P. 26, Pl. 6

1964 *Cypridopsis vidua* (O. F. MULLER), HARTMANN, P. 147

Occurrence in samples studied

15 examples were found at locality II.

Distribution

The species was previously known from Iran (HARTMANN, 1964), but HARTMANN doesn't give the locality where the species was found. It is very cosmopolitan and is recorded from Europe, Africa, and North and South America (WAGNER, 1957).

Genus *Potamocypris* G. S. BRADY, 1870

Potamocypris almasyi DADAY (Pl. 3, Fig. 1-7)

1903 *Potamocypris almasyi* DADAY, P. 519, Pl. 29, Fig. 89-97

1947 *Potamocypris almasyi* DADAY, BRONSTEIN, P. 171, Fig. 89

Occurrence in samples studied

30 complete carapaces and 10 desarticulated valves were found at locality III.

Distribution

Two subspecies of this form, *Potamocypris almasyi angulata* (?) BRONSTEIN and *Potamocypris almasyi caspica* HARTMANN, were reported from Caspian province by G. HARTMANN (1964). It is also known from Southern Russia (BRONSTEIN, 1947).

Genus *Cypretta* VAVRA, 1895

Cypretta dubiosa VAVRA (Pl. 2, Fig. 14-15)

1901 *Cypretta dubiosa* VAVRA, P. 44

1947 *Cypretta dubiosa* VAVRA, BRONSTEIN, P. 171, Fig. 91

Occurrence in samples studied

15 examples of complete carapaces were collected at locality II.

Distribution

The species was reported by BRONSTEIN (1925) from North Iran; unfortunately locality was not specified. It was also mentioned by the same author from Southern Russia.

Subfamily *Cyclocyprinae* ALM, 1916Genus *Cyclocypris* BRADY & NORMAN, 1889

Cyclocypris laevis (O. F. MULLER) — VAVRA — G. W. MULLER
(Pl. 2, Fig. 18-19)

1916 *Cyclocypris laevis* (O. F. MULLER), ALM, P. 97, Fig. 55

1947 *Cyclocypris laevis* (O. F. MULLER), BRONSTEIN, P. 171, Fig. 95

1957 *Cyclocypris laevis* (O. F. MULLER) — VAVRA — G. W. MULLER, P. 22, Pl. 4

Occurrence in samples studied

80 complete carapaces were collected at locality III.

Distribution

The species is known from Mid and North Europe, Asia, and North America (WAGNER, 1957, BRONSTEIN, 1947).

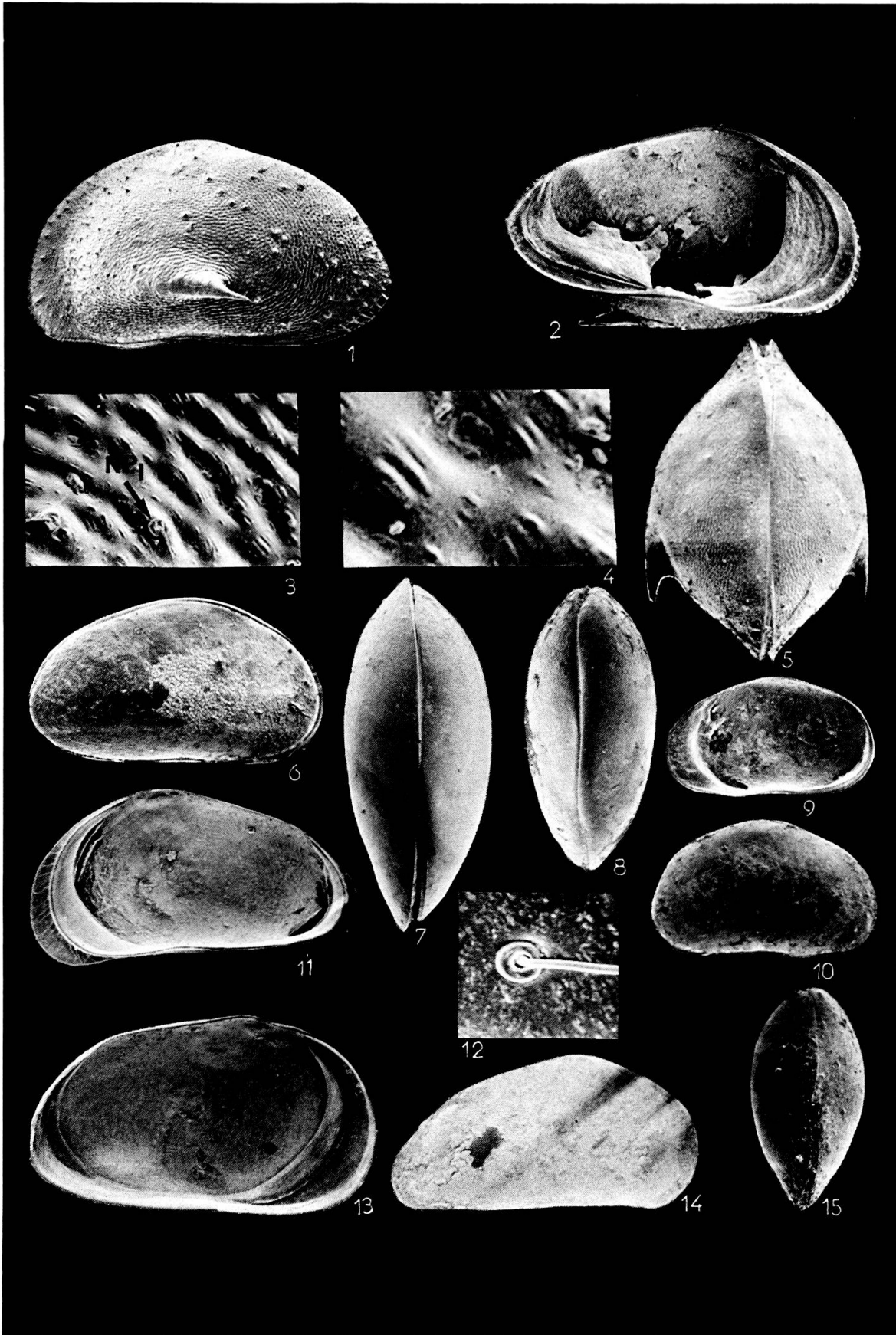


PLATE I

FIG. 1-5. — *Cypris bispinosa* LUCAS

-
- 1, 2) Lateral and internal views of left valve × 10
 - 3) Detail of the surface ornamentation, showing simple funnel-shaped normal pore canal (NP.1) × 100
 - 4) Detail of figure 3 × 250
-

FIG. 6, 8. — *Eucypris* sp. × 50

- 6) External view of right valve
- 8) Dorsal view of a complete carapace

FIG. 9, 10, 12, 15. — *Cyprinotus incongruens* (RAMDOHR)

- 9, 10) Internal and lateral views of right valve × 25
- 12) Simple funnel-shaped normal pore × 500
- 15) Dorsal view of complete carapace × 25

FIG. 7, 11, 13, 14. — *Clamidotheca clavata* (BAIRD)

- 7) Dorsal view of complete carapace × 25
- 11) Internal view of right valve × 25
- 13) Internal view of left valve × 25
- 14) Lateral view of right valve × 25

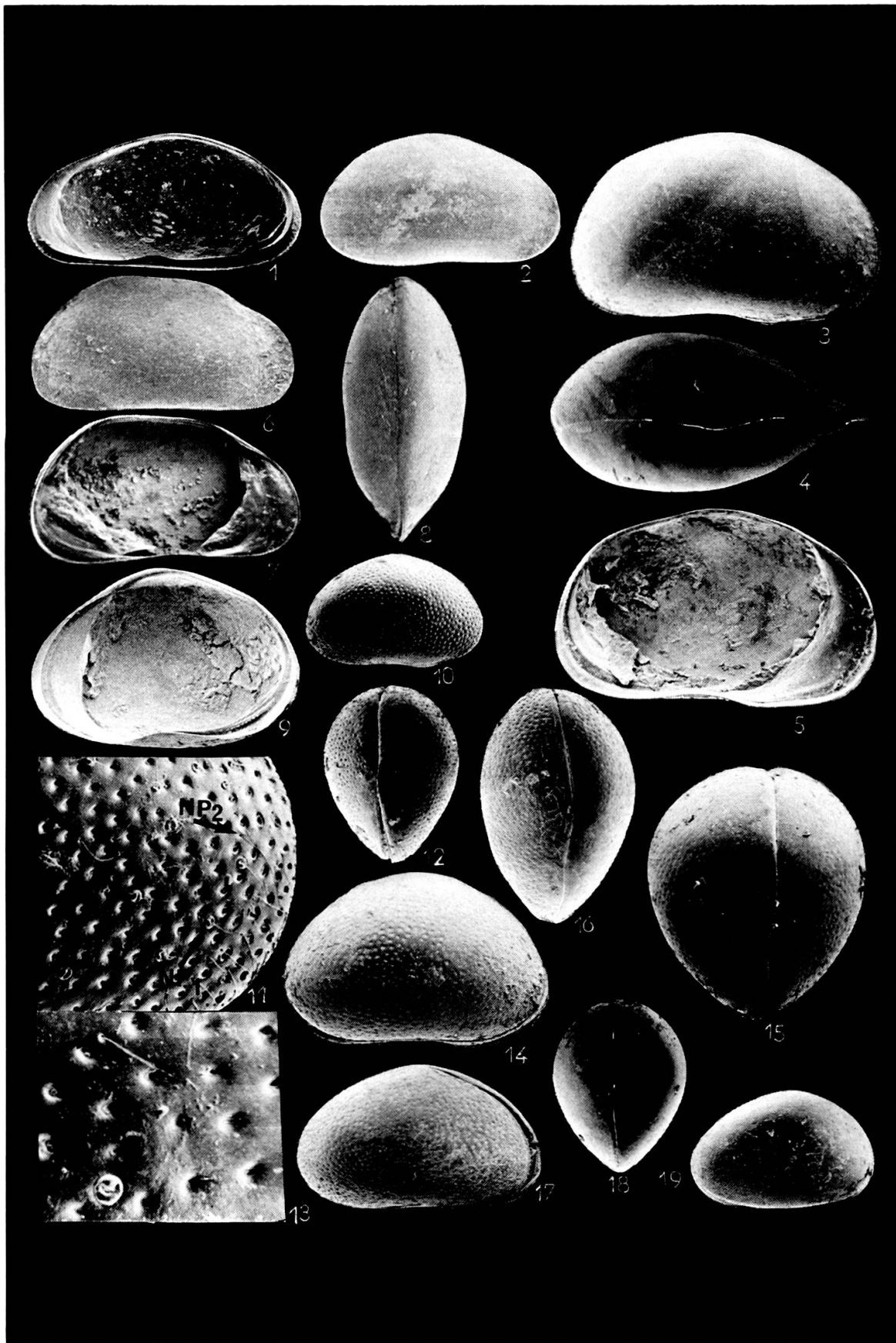


PLATE II

FIG. 1-5. — *Cyprinotus incongruens* (RAMDOHR) × 25

- 1-2) Internal and external views of right valve
- 3) External view of right valve
- 4) Dorsal view of complete carapace
- 5) Internal view of left valve

FIG. 6-8. — *Candona marchica* HARTWIG × 25

- 6) Lateral view of right valve
- 7) Internal view of left valve
- 8) Dorsal view of complete carapace

FIG. 9-13. — *Cyclocypris ovum* (JURINE)

- 9) Internal view of right valve × 100
- 10) Lateral view of right valve × 50
- 11) Detail of the anterior end, showing simple, open (NP.2), and funnel-shaped (NP.1) normal pore canal × 500
- 12) Dorsal view of complete carapace × 50
- 13) Detail of figure 12, showing NP.1 structure × 500

FIG. 14-15. — *Cypretta dubiosa* DADAY × 50

- 14) Lateral view of right valve
- 15) Dorsal view of complete carapace

FIG. 16-17. — *Cypridopsis vidua* (O. F. MULLER) × 50

- 16) Dorsal view of complete carapace
- 17) Lateral view of right valve

FIG. 18-19. — *Cyclocypris laevis* (O. F. MULLER) × 50

- 18) Dorsal view of complete carapace
- 19) Lateral view of left valve

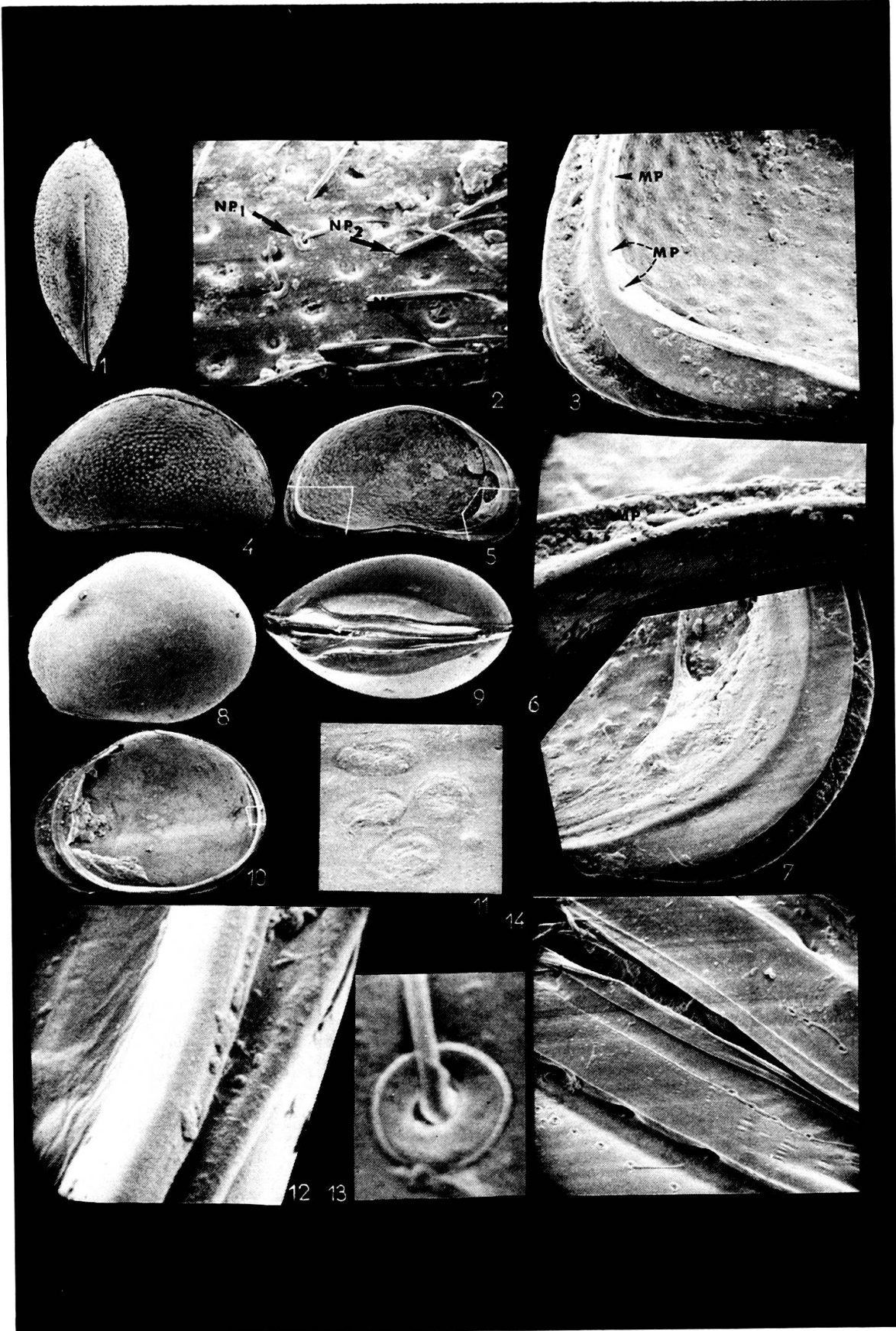


PLATE III

FIG. 1-7. — *Potamocypris almasyi* DADAY

- 1) Dorsal view of complete carapace × 50
- 2) Detail of surface ornamentation of left valve showing simple; open (NP.2), and funnel-shaped normal pores × 500
- 3) Detail structure of postero-ventral margin showing marginal pore canals (MP.) × 250
- 4) Lateral view of left valve × 50
- 5) Internal view of left valve × 50
- 6) Posterior margin of left valve showing marginal pore canals (MP.) × 500
- 7) Detail of anterior margin of left valve × 250

FIG. 8-14. — *Notodromas persica* GURNEY

- 8) Lateral view of left valve × 50
- 9) Ventral view of complete carapace × 50
- 10) Internal view of right valve × 50
- 11) Muscle scars of right valve × 500
- 12) Detail structure of the posterior margin of right × 250
- 13) Simple, funnel-shaped, normal pore canal × 1000
- 14) Detailed structure of ventral margin × 250

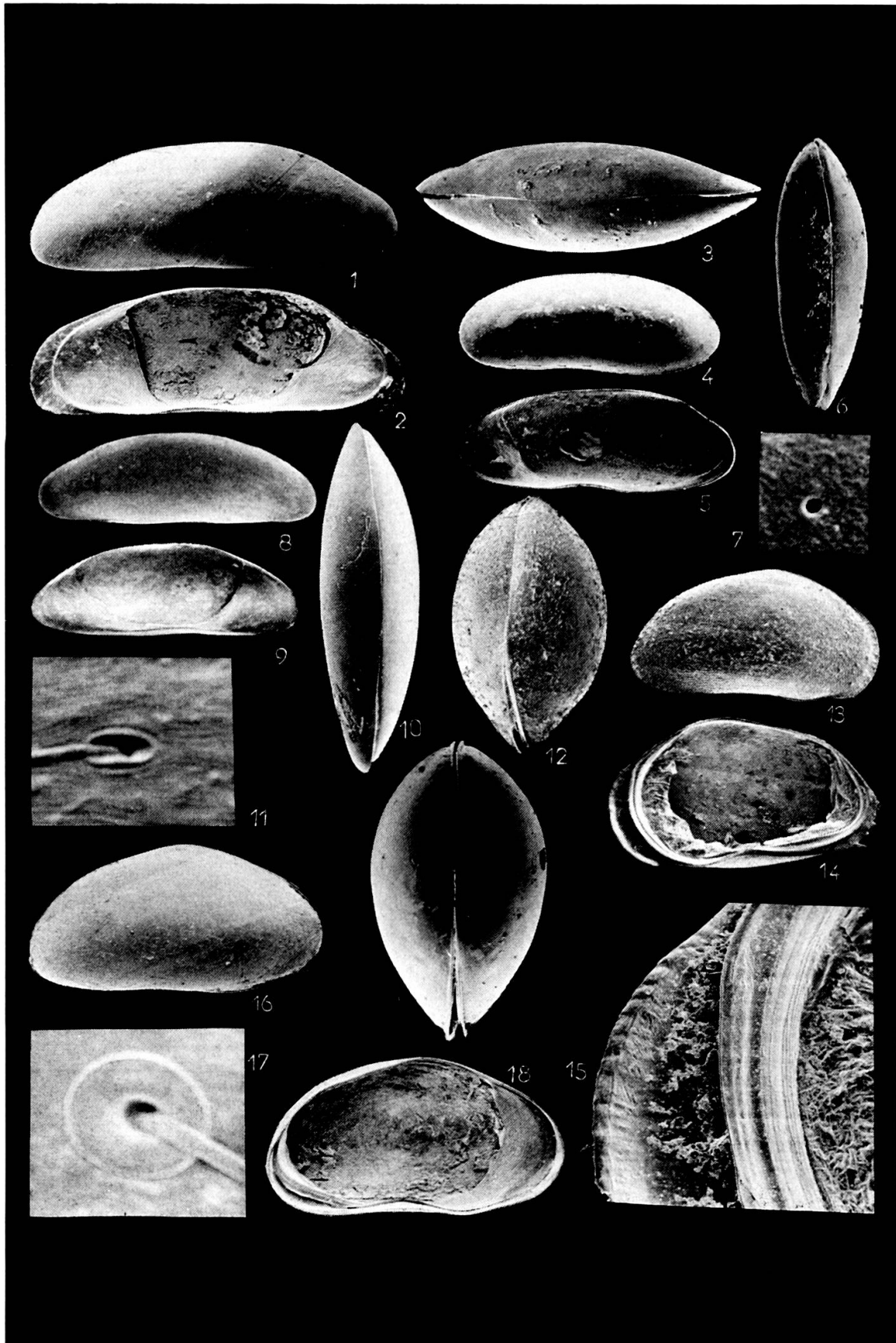


PLATE IV

FIG. 1-3. — *Dolerocypris sinensis* G. O. SARS × 25

- 1, 2) Lateral and internal views of left and right valves
- 3) Dorsal view of complete carapace

FIG. 4-7. — *Stenocypris cycindrica major* (BAIRD)

- 4, 5) Lateral and internal views of left and right valves × 25
- 6) Dorsal view of complete carapace × 25
- 7) Simple, open, normal pore canal × 500

FIG. 8-11. — *Dolerocypris fasciata* (O. F. MULLER)

- 8, 9) Lateral and internal views of left and right valves × 25
- 10) Dorsal view of complete carapace × 25
- 11) Simple, funnel-shaped, normal pore canal × 1000

FIG. 12-15. — *Cypris maculosa* BRONSTEIN

- 12) Dorsal view of complete carapace × 10
- 13, 14) Lateral and internal views of right valve × 10
- 15) Detailed structure of the anterior margin × 100

FIG. 16-19. — *Cypridopsis orientalis* BRONSTEIN

- 16) Lateral view of right valve × 50
- 17) Simple, funnel-shaped, normal pore canal × 1000
- 18) Internal view of left valve × 50
- 19) Dorsal view of complete carapace × 50

Cyclocypris ovum (JURINE) — G. W. MULLER (Pl. 2, Fig. 16-17)

- 1820 *Monoculus ovum* JURINE, P. 179, Pl. 19, Fig. 18-19
 1912 *Cypris ovum* (JURINE) — G. W. MULLER, P. 128, Fig. 46
 1916 *Cyclocypris ovum* (JURINE), ALM, P. 98, Fig. 56
 1947 *Cyclocypris ovum* (JURINE), BRONSTEIN, P. 176, Fig. 92
 1947 *Cyclocypris ovum* (JURINE), HARTMANN, P. 147

Occurrence in samples studied

20 examples were found at locality III.

Distribution

This form was previously mentioned by HARTMANN (1964) from Iran without specifying the locality. It is also known from Southern Asia, the Balkans, Europe, North Africa, and North America (HARTMANN, 1964).

Subfamily *Candoninae* KAUFMANN, 1900

Genus *Candona* BAIRD, 1845

Candona marchica HARTWIG (Pl. 2, Fig. 6-8)

- 1899 *Candona marchica* HARTWIG, P. 183
 1916 *Candona marchica* HARTWIG, ALM, P. 131, Fig. 75
 1947 *Candona marchica* HARTWIG, BRONSTEIN, P. 224, Pl. 11, Fig. 6-8

Occurrence in samples studied

5 complete carapaces of this species were found at locality III.

Distribution

This form was reported by BRONSTEIN (1947) from Southern Russia and by ALM (1916) from north-west Europe.

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