



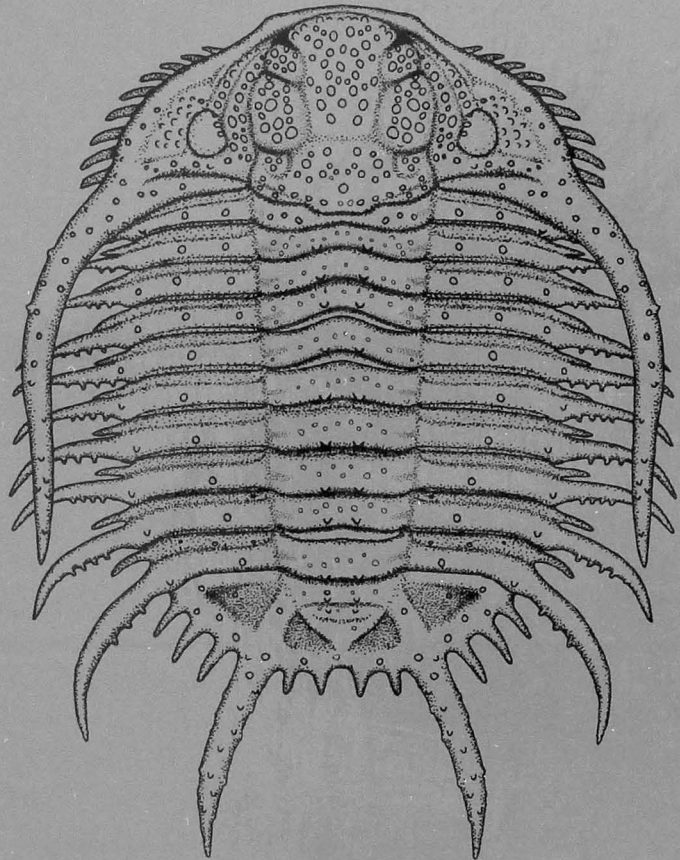
PALAEONTOGRAPHICA CANADIANA

No. 22

Early Silurian trilobites
of Anticosti Island,
Québec, Canada

Brian D.E. Chatterton
and
Rolf Ludvigsen

2004



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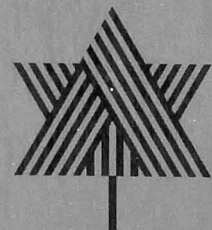


PLATE 1

Figs. 1-12. *Stenopareia grandis* (Billings, 1859). All are from Goéland Member of Jupiter Formation.

- 1-6. GSC122117, ventral, anterior, left lateral, anterodorsal, dorsal, and right lateral views of cephalon X1.85, X1.85, X1.9, X1.9, X1.9, and X1. Locality A13.
 7. GSC122118, dorsal view of incomplete articulated exoskeleton X 3.5. Locality AP45-5-1.
 8, 11. GSC122119, anterodorsal and dorsal views of almost complete exoskeleton X2.6. Locality AP45-5-1.
 9. GSC122120, external view of free cheek X3.3. Locality AN15.
 10. GSC122121, dorsal view of pygidium X2. Locality AP45-5-1.
 12. GSC122122, external view of free cheek X6.5. Locality AN15.

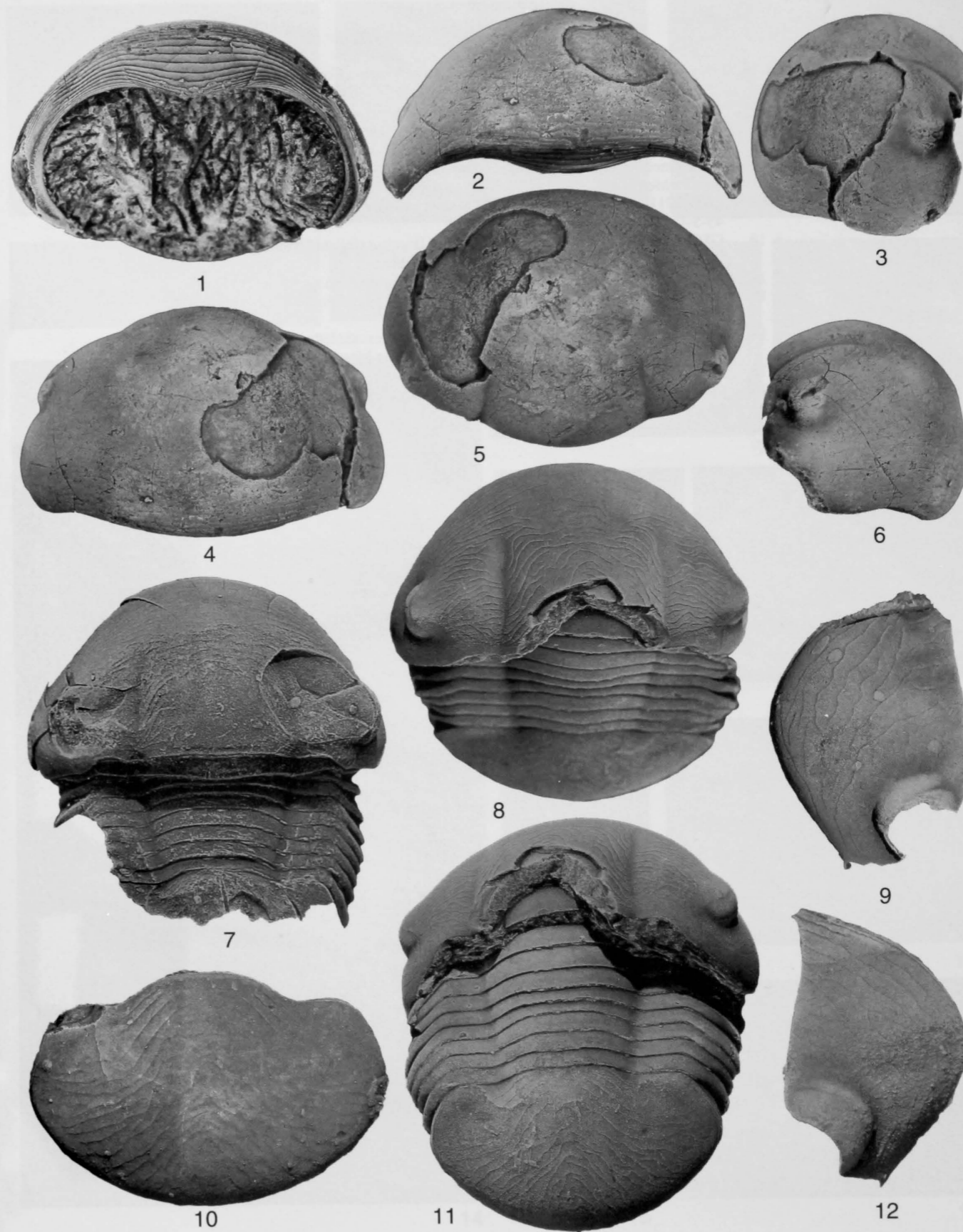


PLATE 2

Figs. 1-16. *Stenopareia grandis* (Billings, 1859). All are from Jupiter Formation.

- 1-3, 7. GSC122123, anteroventral, anterior, dorsal, and right lateral views of cephalon X1.5, X1.5, X1.4, and X1.5. Locality AN8B, Richardson or Cybèle Member.
 4, 5, 11. GSC122124, posterodorsal and dorsal views of partly exfoliated pygidium (note posteromedian forward extension of doublure) X1, X0.46, and X0.46. Locality A111, Ferrum Member.
 6, 9. GSC122119, anterior and left lateral views of exoskeleton X2 and X1.8. Locality AP 45-5-1. Goéland Member.
 8, 10. GSC122126, left lateral and dorsal views of largely exfoliated cranidium X1.6, and X1. Locality AN8B, Richardson or Cybèle Member.
 12. GSC122127, ventral view of pygidium X1.1. Locality AN63, Cybèle(?) Member.
 13. GSC122128, dorsal view of exfoliated thorax and pygidium X1.2. Locality AN15, basal Goéland Member.
 14. GSC122129, dorsal view of slightly disarranged exoskeleton (missing right free cheek) X1.2. Locality AN8B, Richardson or Cybèle Member.
 15. GSC122130, dorsal view of pygidium X1.2. Locality A109, Pavillon Member.
 16. GSC122131, dorsal view of pygidium X0.94. Locality AN8B, Richardson or Cybèle Member.

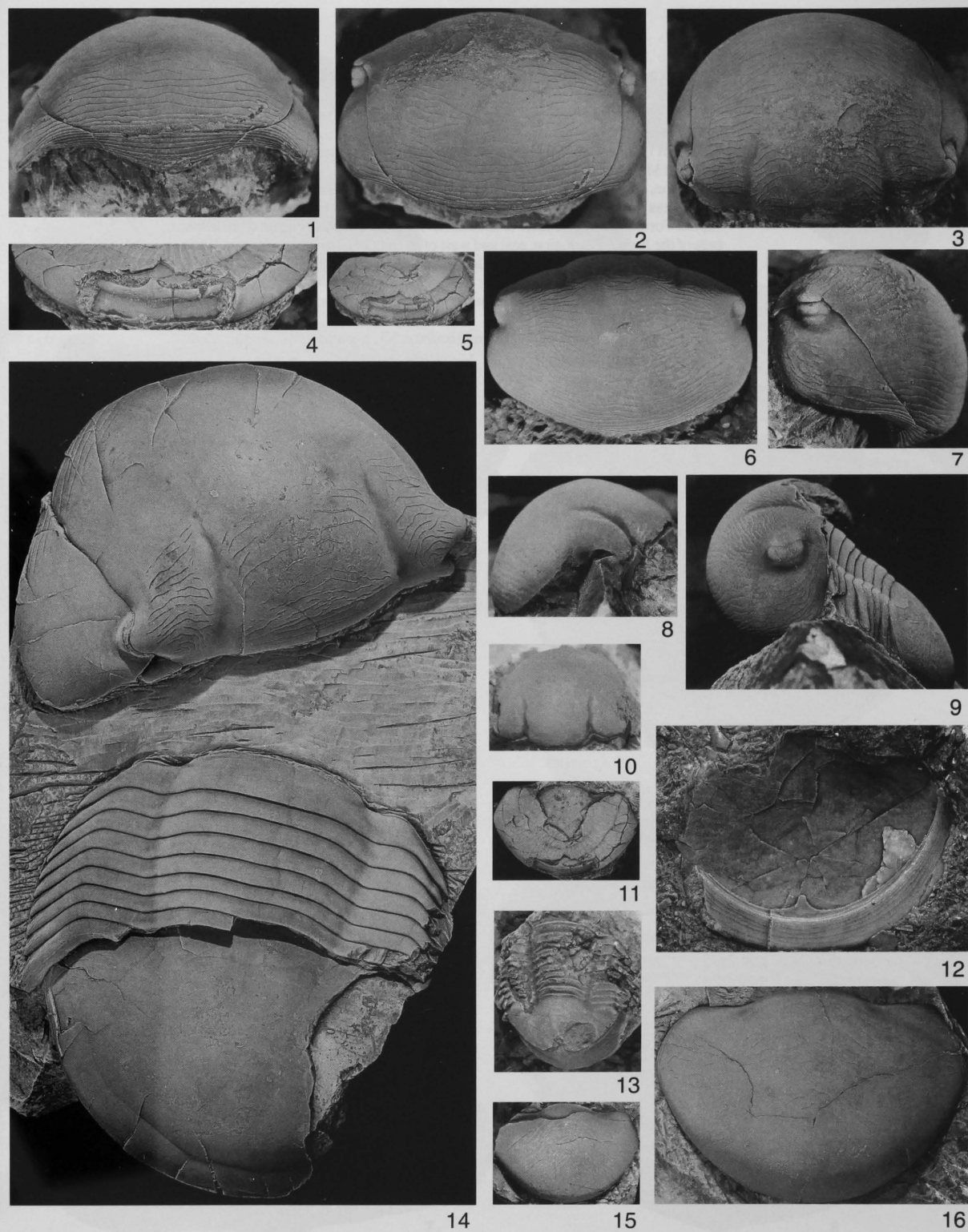


PLATE 3

Figs. 1-8. *Stenopareia grandis* (Billings, 1859). All are from Jupiter Formation.

- 1-3. GSC122132, dorsal, lateral and posterodorsolateral views of cranidium X1.5. Locality A274, Ferrum Member.
4. GSC122117, posteroventral view of cephalon X2.6. Locality A13, mid to upper Goéland Member.
- 5, 7. Lectotype, designated herein, GSC2322, dorsal and left lateral views of partly exfoliated thorax and pygidium X1.5. Location? Specimen is probably from lower half of Jupiter Formation. It is similar to specimens from the Richardson and Cybèle members of the Jupiter Formation, east and west of the mouth of the Jupiter River. Billings (1866) listed this species from the Ordovician (Gamache Bay, Carleton Point), and upper Jupiter (Southwest Point).
6. GSC122134, dorsal view of thorax and pygidium X1.5. Locality AN8B, Richardson or Cybèle Member.
8. YPM10393, dorsal view of crushed exoskeleton X1. Locality Cape Ottawa, Zone 4, (Richardson Member?).

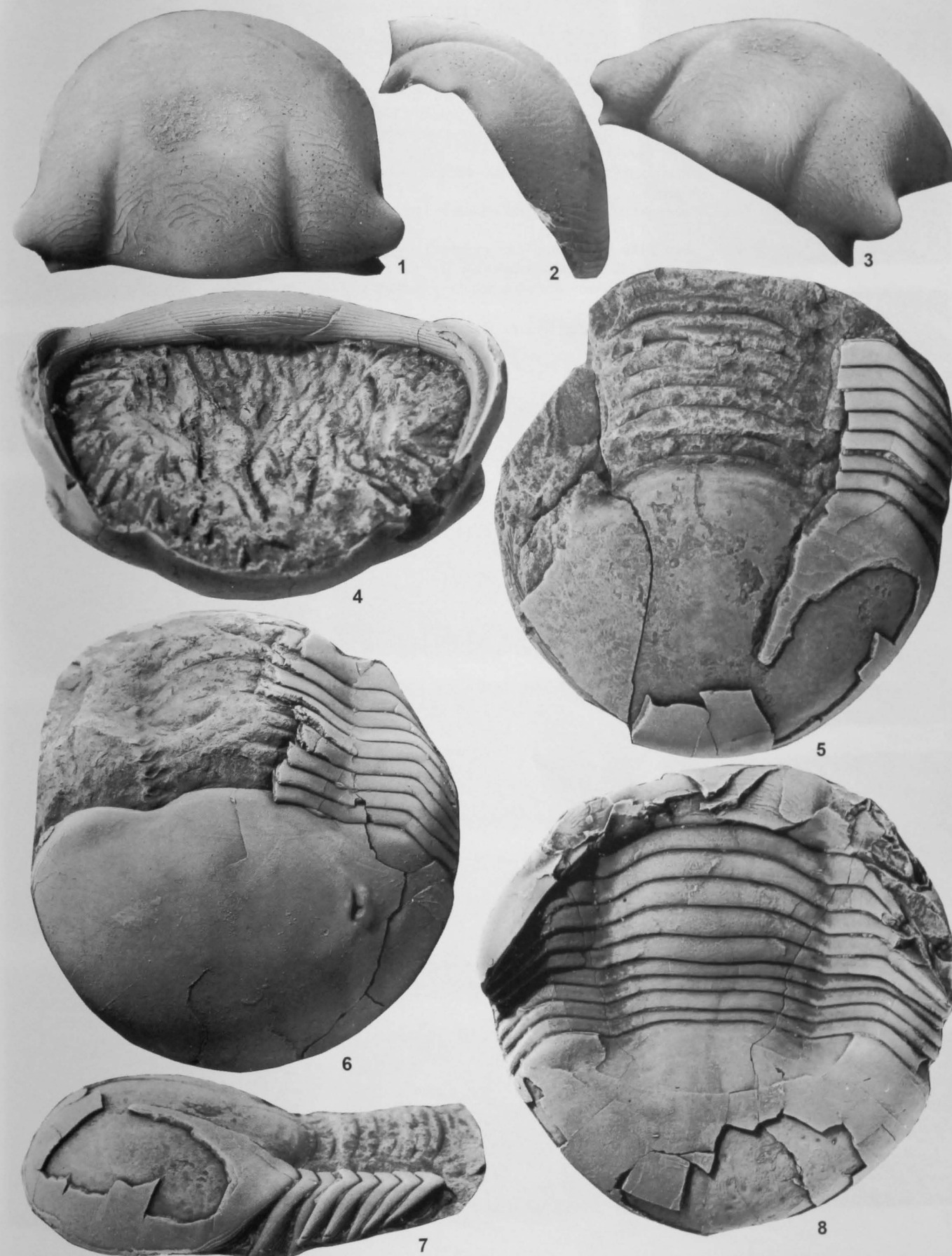


PLATE 4

Figs. 1-12, 14, 15. *Stenopareia duffya* n. sp. All are from Chicotte Formation.

- 1. Paratype GSC122135, dorsal view of free cheek X2.75. Locality A269.
- 2. GSC122136, anterodorsal view of cranidium X2.4. Locality AN21.
- 3, 5. GSC122137, dorsal and posterolateral views of incomplete pygidium X1.25 and X1.35. Locality AN21.
- 4, 11, 15. Paratype GSC122138, posterior, dorsal and lateral views of exfoliated pygidium X3, X3 and X3.7. Locality A269.
- 6-8. Holotype GSC122139, lateral, dorsal, and posterior views of pygidium X4.4, X2.9 and X2.9. Locality A269.
- 9, 12. GSC122140, dorsal and posterior views of pygidium X1.25. Locality AN21.
- 10. Paratype GSC122141, posterior view of pygidium X3.4. Locality A269.
- 14. GSC122142, dorsal view of incomplete pygidium X2.1. Locality AN21.

Figs. 13, 16. *Failleana wangi* n. sp. Chicotte Formation.

- 13, 16. Paratype GSC122143, dorsal and lateral views of pygidium X2.5 and X2.9. Locality A269.

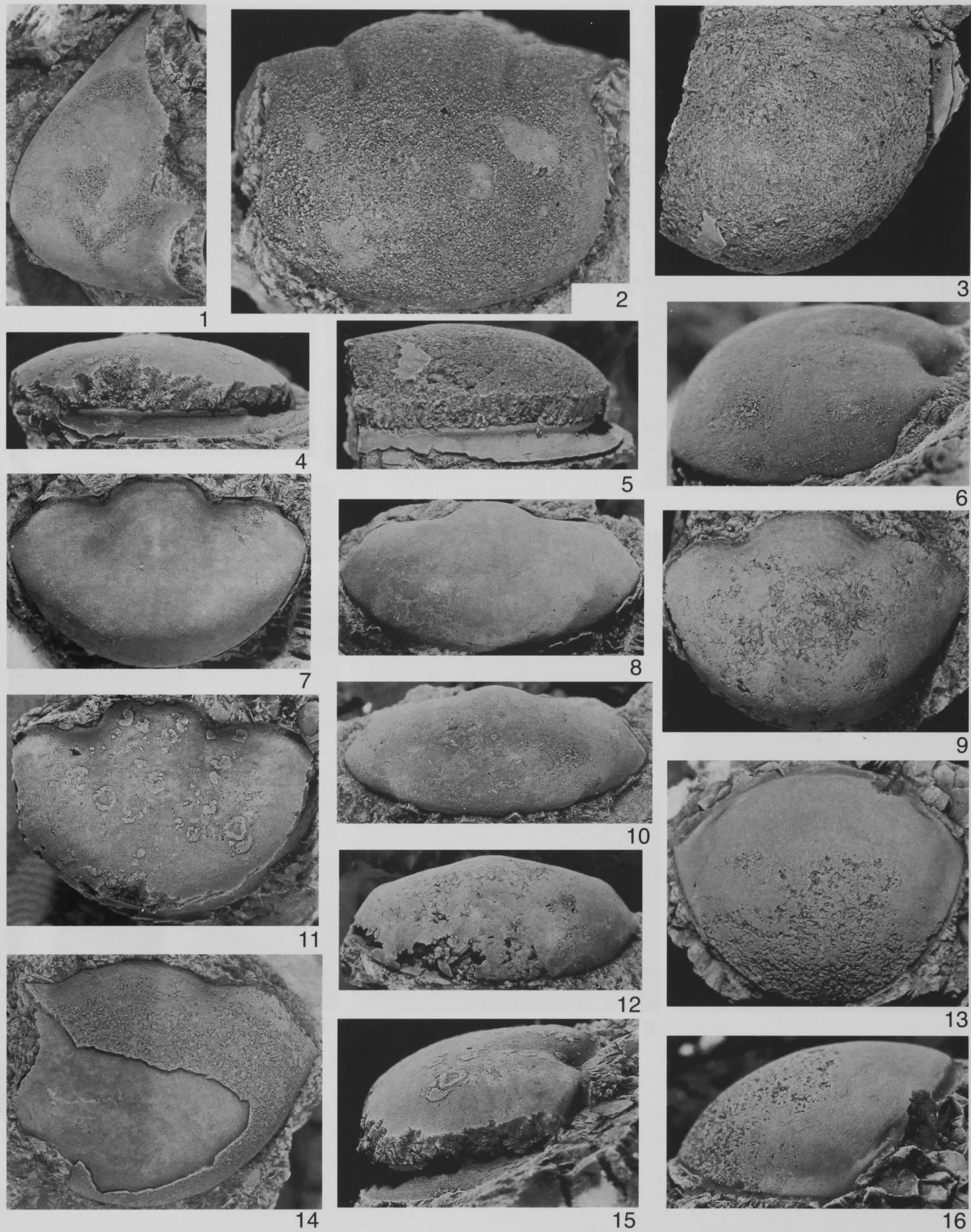


PLATE 5

Figs. 1-9. *Kosovopeltis insularis* (Billings, 1866).

- 1-5, 7. GSC122144, dorsal, dorsal, dorsal (detail of cranidium), dorsal (detail of cranial sculpture), dorsolateral, and dorsal (detail of thorax and pygidium) views of incomplete articulated specimen X2.75, X2.75, X9.4, X25, X1.9, X11. Locality A13, mid to upper Goéland Member of Jupiter Formation.
6. GSC122145, dorsal view of fragmentary pygidium X 4. Locality AN15, basal Goéland Member of Jupiter Formation.
8. Holotype GSC2558, dorsal view of pygidium X5.5. Chicotte Formation, Southwest Point.
9. GSC122146, dorsal view of incomplete pygidium X4.75. Locality AN83, Goéland Member of Jupiter Formation.

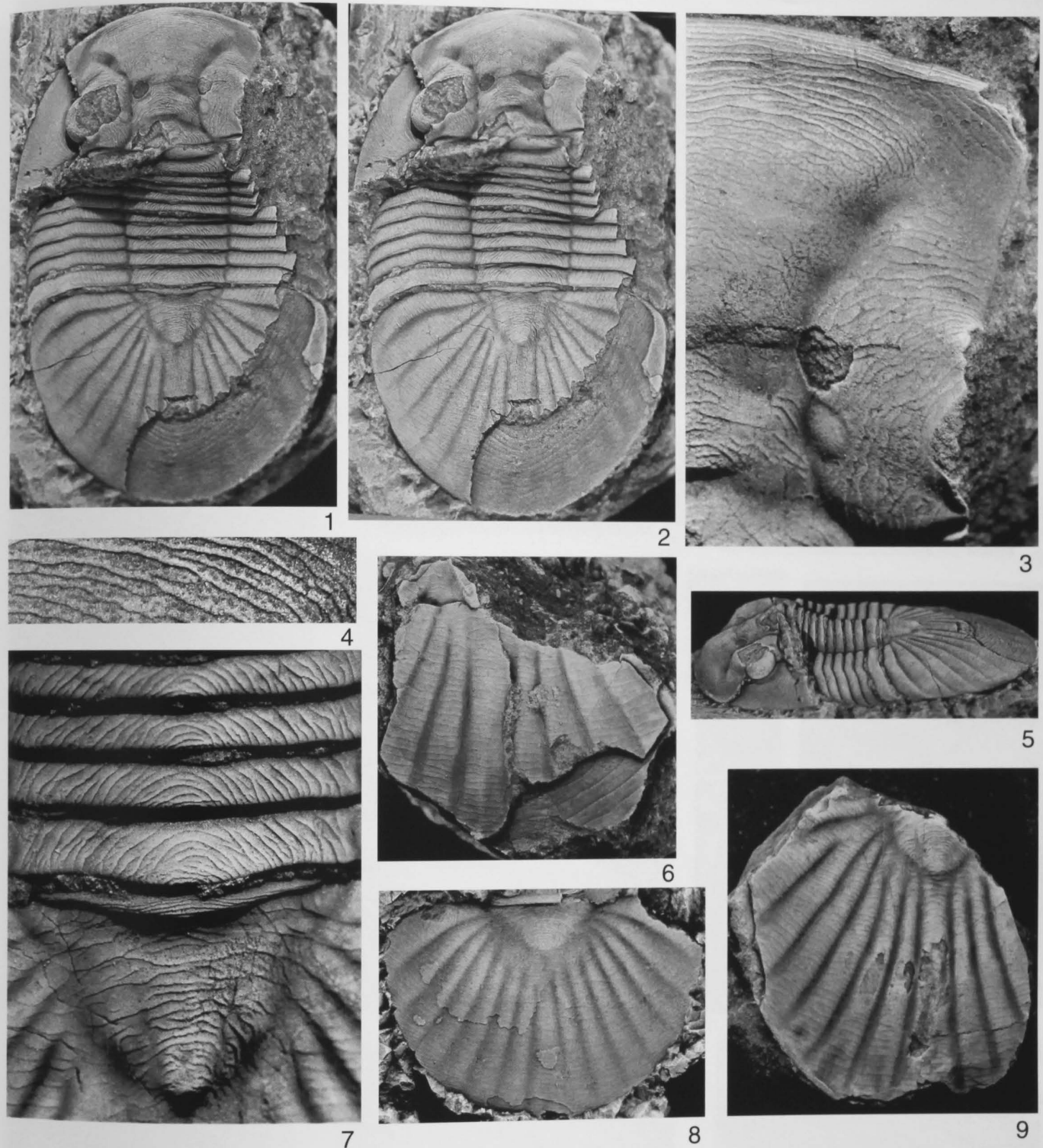
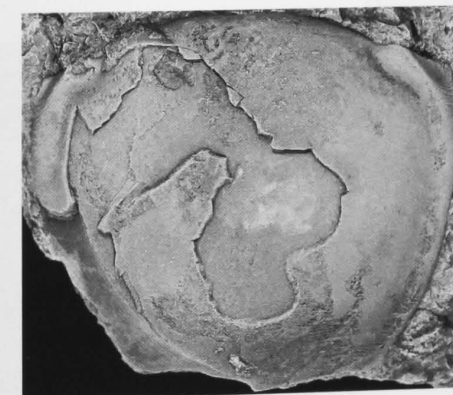
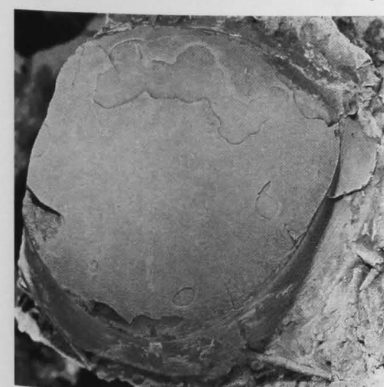
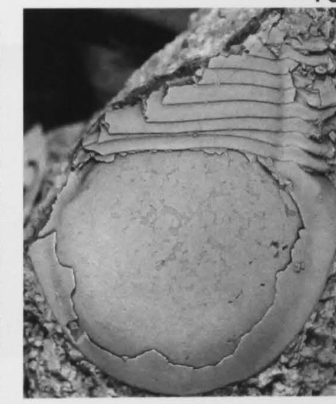
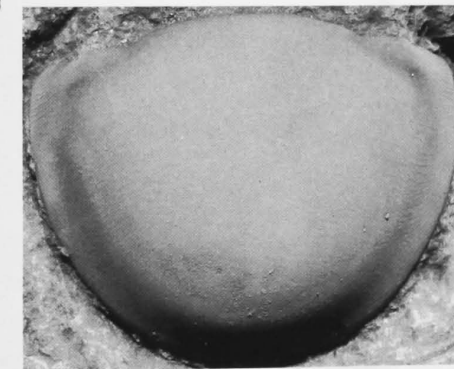
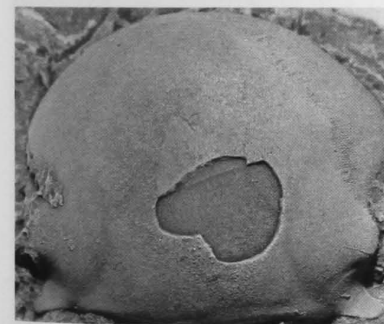
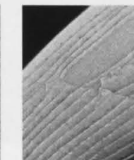
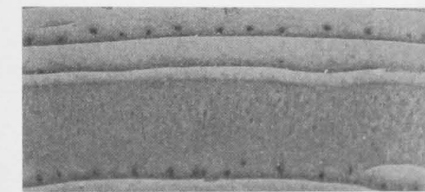
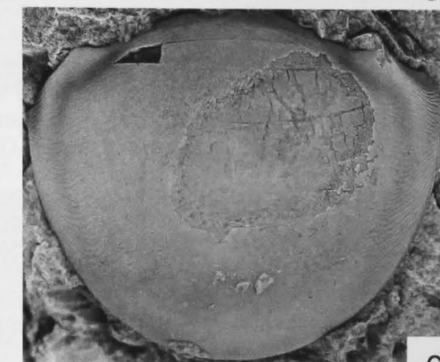
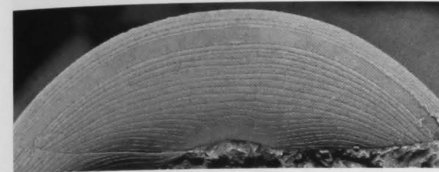
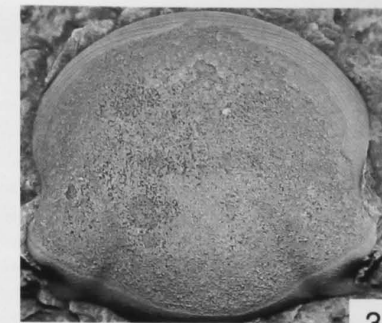


PLATE 6

Figs. 1-17. *Failleana magnifica* n. sp. All are from basal Beesie Formation; and are from locality AN22, except where noted below.

- 1, 2, 4, 5, 7-9. Holotype GSC122147, dorsal, anterior, ventral (rostral plate), anterodorsolateral, ventral, ventral (detail at front of rostral plate), and ventral views (detail at connective suture) of partial cephalon (cranidium, free cheek and rostral plate) X 1.7, X1.7, X3, X1.7, X1.6, X8.5, X5
 3. Paratype GSC122148, dorsal view of cranidium X3.9.
 6. Paratype GSC122149, dorsal view of pygidium X 4.5.
 10, 13, 14. Paratype GSC122150, posterior, lateral and dorsal views of incomplete thorax and pygidium, X1.3, X1.35, X1.35. Locality AN6 (+) 280.
 11. Paratype GSC122151, dorsal view of cranidium X2.5.
 12. Paratype GSC122152, dorsal view of pygidium X4.4. Locality AN7 (+380).
 15. Paratype GSC122153, dorsal view of pygidium X1.75.
 16. Paratype GSC122154, dorsal view of pygidium X1.7.
 17. Paratype GSC122155, dorsal view of pygidium X2.3.



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PLATE 7

Figs. 1-12. *Failleana wangi* n. sp. All are from Jupiter Formation except figure 12.

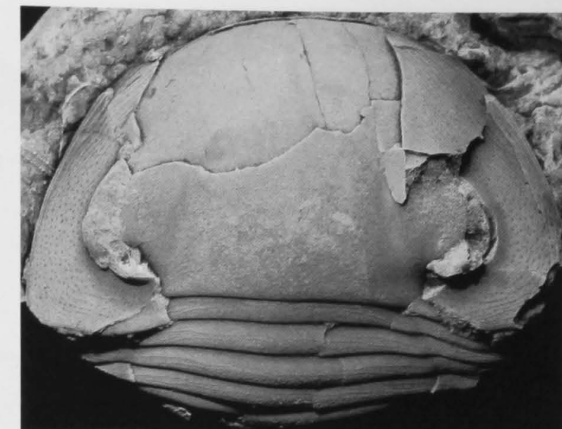
1. Paratype GSC122156, ventral view of free cheek X4.3. Locality C637, lower Goéland Member. On same rock as GSC122157 and GSC122158.
4. Paratype GSC122157, lateral view of pygidium X1.6. Locality C637, lower Goéland Member of Jupiter Formation.
7. Paratypes GSC122158 and GSC122157, dorsal view of cranidium and pygidium X1.6. Locality C637, lower Goéland Member.
2. Paratype GSC122159, external view of free cheek X4.2. Locality A245, upper 3-4m of Pavillon Member.
- 3, 5, 6, 9. Holotype GSC122160, dorsal, external detail of right free cheek, anterodorsal, and lateral views X3, X9, X2.9, X3.7. Locality A222, Goéland Member.
8. Paratype GSC122161, dorsal view of partly exfoliated pygidium X1.7. Locality A247, Ferrum Member.
10. Paratype GSC122162, ventral view of pygidium X1.7. Locality AN57, Cybèle Member.
11. Paratype GSC122163, dorsal view of pygidium X1.7. Locality A245, upper 3-4m of Pavillon Member.
12. Paratype GSC122164, dorsal view of partly exfoliated pygidium X1.35. Locality A225, Gun River Formation.



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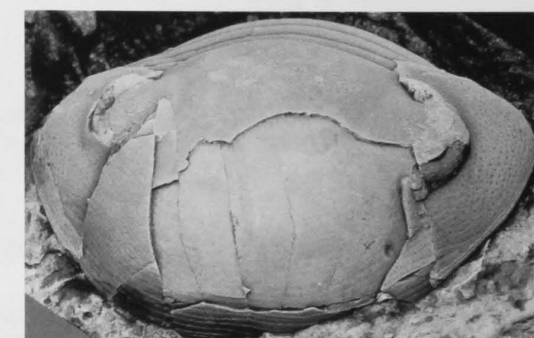
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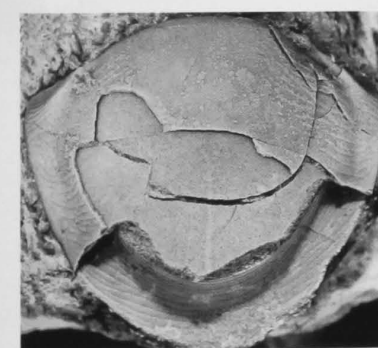
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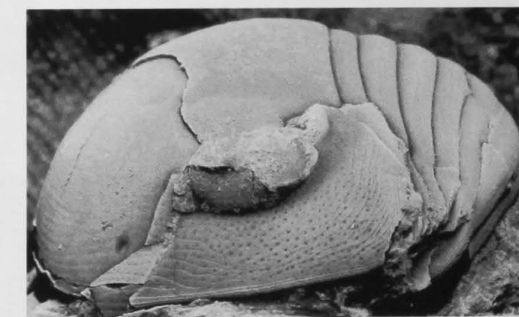
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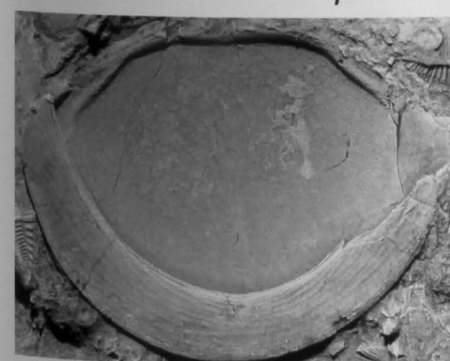
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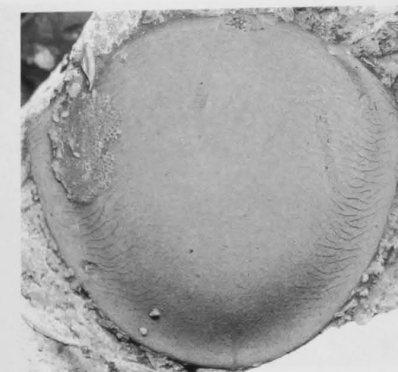
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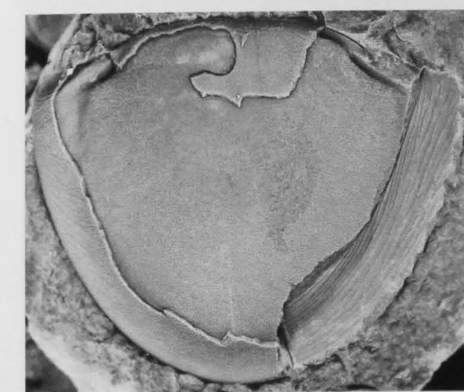
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PLATE 8

Figs. 1, 7. *Failleana wangi* n. sp.

1. Paratype GSC122165, external view of free cheek X3.75. Locality A1180, Goéland Member of Jupiter Formation.
7. Paratype GSC122166, ventral view of hypostome X8. Locality AN12, Pavillon Member of Jupiter Formation.

Figs. 2, 4. *Ekwanoscutellum ekwanensis* ? (Whiteaves, 1904).

2. GSC122167, dorsal view of pygidium X1. Chicotte Formation, F. Brunton locality AB26b.
4. GSC122168, dorsal view of pygidium X1. Chicotte Formation, F. Brunton locality AB26a.

Fig. 3. *Failleana magnifica* n. sp.

3. Paratype GSC122169, ventral view of hypostome X9. Locality AN22, lower Becscie Formation.

Fig. 5. *Kosovopeltis insularis* (Billings, 1866).

5. GSC123165, ventral view of part of pygidium X1.8. GSC locality 84490, Chicotte Formation, collected by Bolton in 1969, "Second front west by west of Chicotte"

Fig. 6. Styginid genus and species indeterminate.

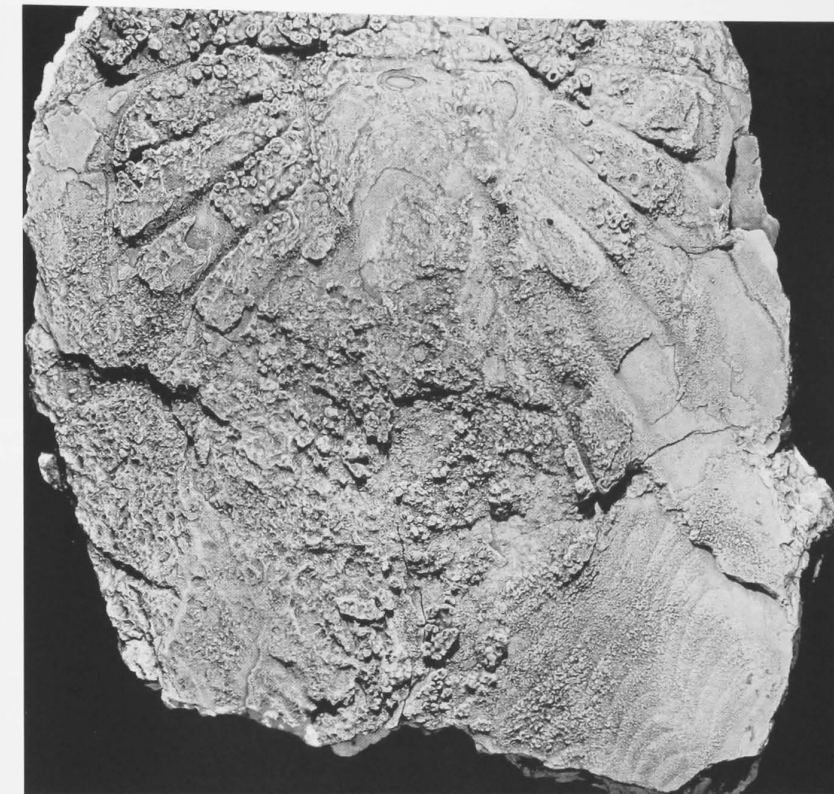
6. GSC122170, external view of right free cheek X6.3. Locality AN12, Pavillon Member of Jupiter Formation.

Fig. 8. *Opoa*? sp.

8. GSC122171, dorsal view of part of pygidium X3.2. Locality AN12, Pavillon Member of Jupiter Formation.



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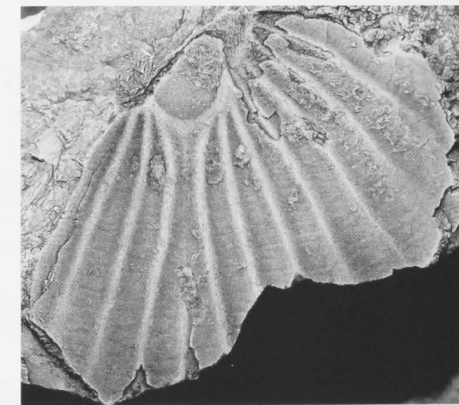
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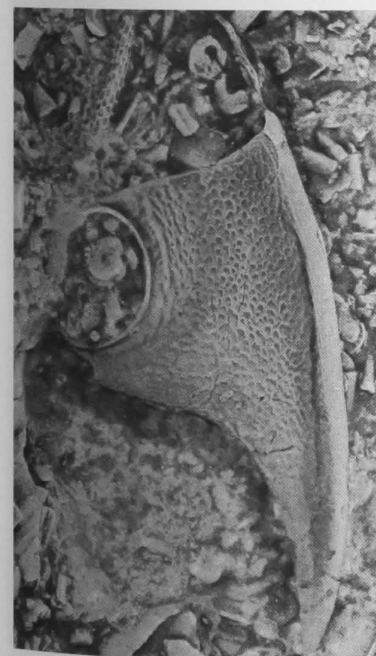
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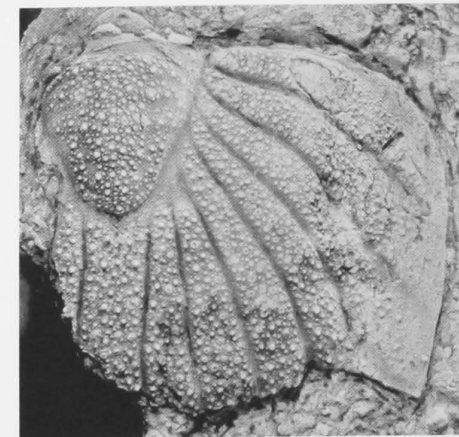
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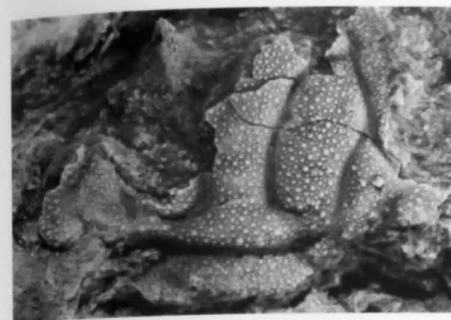


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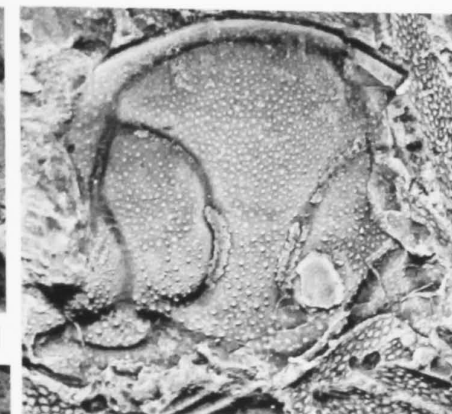
PLATE 9

Figs. 1-12. *Lichas menieri* n. sp. All are from locality AN22, Fox Point Member of lower Beesic Formation (except figures 8, 12, where locality is unknown).

1. Paratype GSC122172, dorsal view of partial cranidium X4.9.
2. Holotype GSC122173a, dorsal view of latex mould of ventral surface cranidium X6.1.
3. Paratype GSC122174, dorsal view of hypostome X7.
4. Holotype GSC122173b, ventral view of cranidium X6.3.
5. Paratype GSC122175, dorsal view of cranidium X7.
6. Paratype GSC122176, ventral view of partial hypostome X7.6.
7. Paratype GSC122177, ventral view of partial thoracic segment X4.6.
- 8, 12. Paratype Redpath Museum 1621, dorsolateral and dorsal views of pygidium and two thoracic segments X2. Locality and horizon unknown, Anticosti Island.
9. Paratype GSC122178, dorsal view of free cheek X6.25.
10. Paratype GSC122179, dorsal view of last meraspid degree transitory pygidium X10.
11. Paratype GSC122180, ventral view of internal mould of hypostome X4.7. Locality AN22.



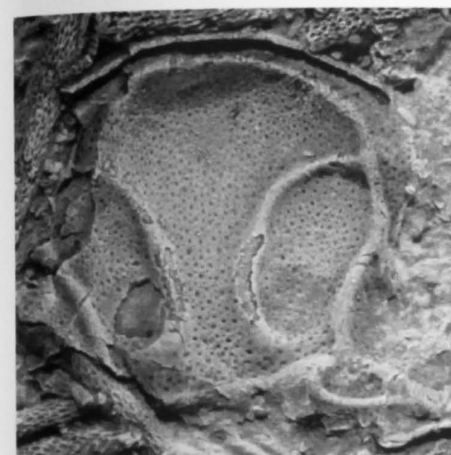
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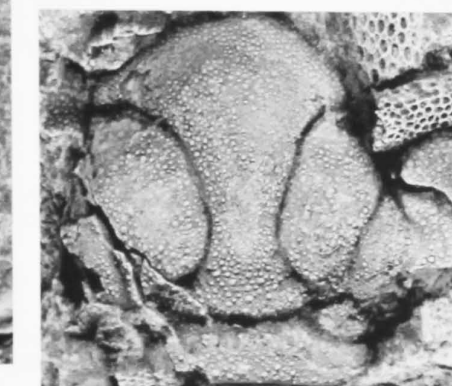
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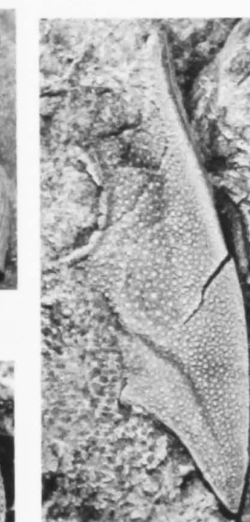
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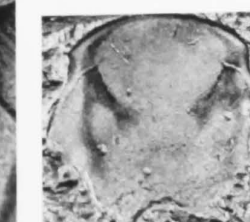
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PLATE 10

Figs. 1, 6. *Arctinurus shallopensis* (Twenhofel, 1928).

- 1, 6. Holotype GSC2546, dorsal and anterolateral views of cranidium X4. Jupiter Formation, Shallop River.

Figs. 2-5, 9, 12, 15. *Arctinurus anticostiensis* (Northrop, 1939).

- 2-4. Original syntype GSC2471a, lateral, dorsal, and anterior views of partial cranidium X1.8, X1.5 and X1.5. From Jupiter Formation, East Point, Anticosti Island.
 5. YPM 880, ventral view of rostral plate X4.8. From YPM locality 3019.
 9. GSC122181, ventral view of hypostome X3.5. Locality AN57, Cybèle Member of Jupiter Formation.
 12. GSC122182, ventral view of rostral plate X4. Locality AN78, Pavillon Member of Jupiter Formation.
 15. GSC122183, ventral view of hypostome X1.8. Locality AN72, Sandtop Member of Gun River Formation.

Figs. 7, 13. *Lichas* sp.

- 7, 13. GSC122184a, dorsal and anterolateral views of rubber mould of ventral surface of cranidium X2.15, and X2.7. Locality AN 17, Jupiter Formation (Cybèle Member?).

Figs. 8, 11, 14. *Hemiarges* sp.

- 8, 11, 14. GSC122185, dorsal, anterodorsal and lateral views of cranidium X3.8, X3.8, and X5. Locality A313c, Ordovician/Silurian boundary section at Rivière aux Algues, Lousy Cove Member of Ellis Bay Formation (Late Ordovician in age).

Fig. 10. *Lichas menieri* n. sp.

10. Holotype GSC122173a, anterolateral view of cranidium X6. Locality AN22, Fox Point Member, lower Becscie Formation.

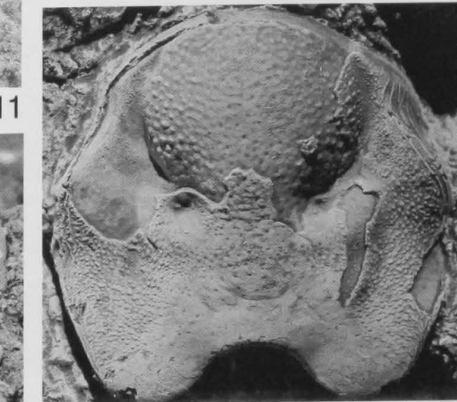
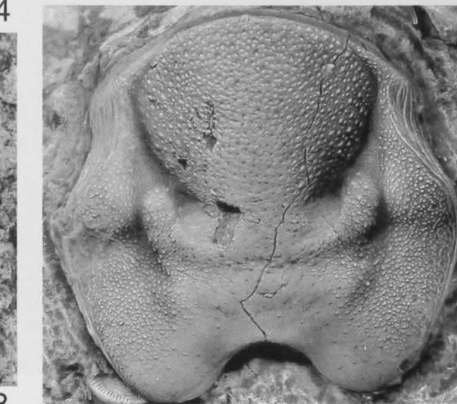
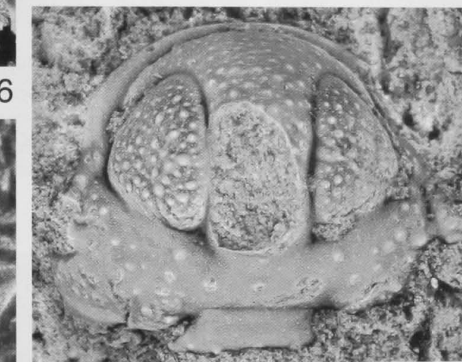
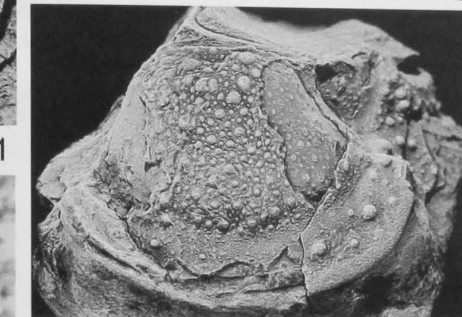
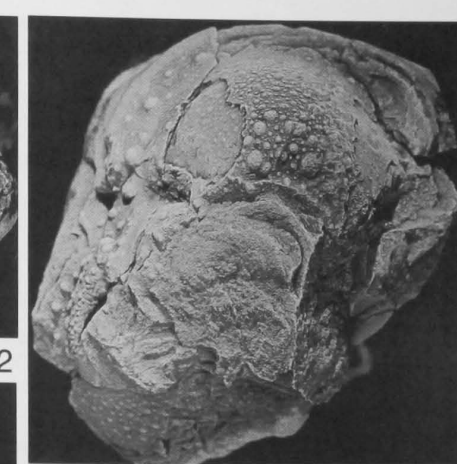


PLATE 11

Fig. 1. *Amphilichas* sp. A.

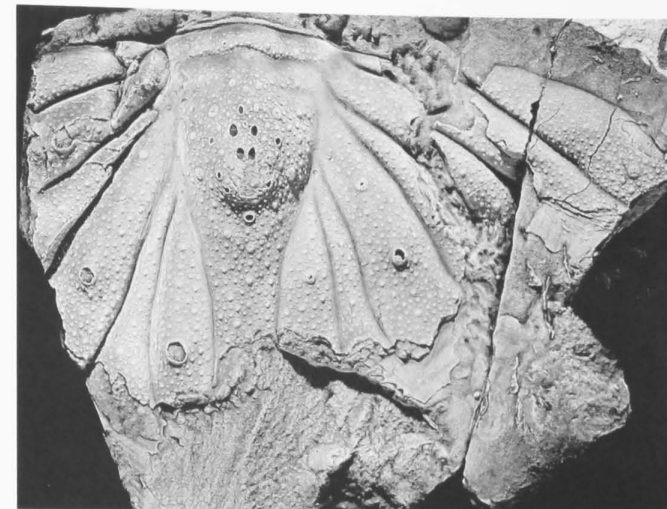
1. GSC122186, dorsal view of pygidium X11. Locality AN22, Fox Point Member, lowest part of Beccsie Formation.

Figs. 2-6. *Arctinurus anticostiensis* (Northrop, 1939). All are from Jupiter Formation.

2. GSC67078, dorsal view of partial pygidium X1.2. GSC loc. 66759, Richardson or Cybèle members, Cape Ottawa.
3. GSC122187, dorsal view of pygidium X4.2. Locality AN73, Goéland Member.
4. GSC29729, dorsal view of pygidium X2.1. Wreck Bay.
5. Lectotype GSC2471, dorsal view of pygidium X3.1. East Point (units in this area range from Goéland Member to Cybèle Member).
6. GSC122188, dorsal view of pygidium X5. Locality AN69, Goéland Member.



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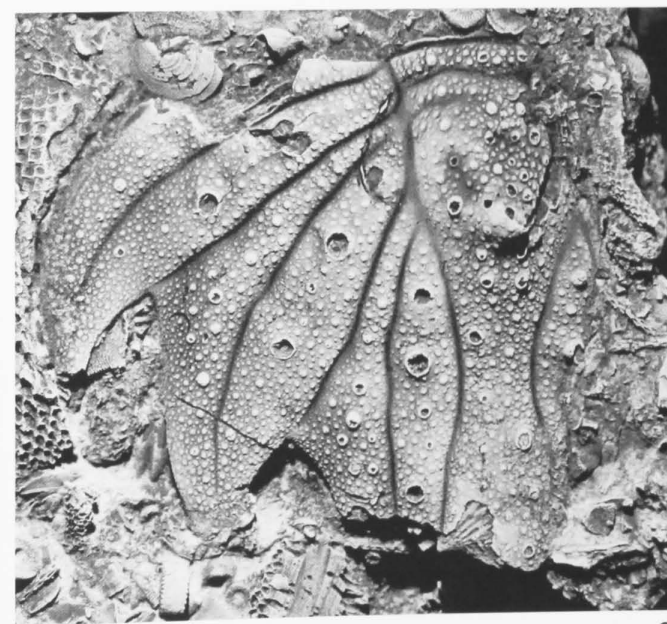
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PLATE 12

Figs. 1, 6. *Arctinurus anticostiensis* (Northrop, 1939).

1. GSC122189, dorsal view of pygidium X1. Location uncertain (lithology and specimen similar to material collected from lower part of Jupiter Formation near mouth of Jupiter River).
6. GSC122190, dorsal view of pygidium and part of thorax X1. Locality A1055, Cybèle Member of Jupiter Formation.

Figs. 2, 3, 5. *Arctinurus* sp. A.

- 2, 3, 5. GSC122191, detailed, dorsal and dorsolateral views of incomplete articulated exoskeleton X1.05, X3.8 and X1.6. Location 77AP.45.5.2. Gun River Formation, section southeast of mouth of Rivière de la Chaloupe (Shallop River).

Fig. 4. *Arctinurus aranaceus* (Twenhofel, 1928).

4. GSC122192, dorsal view of pygidium X2.4. Collected by Pierre Gonin, Locality on internal road east of road to head of Jupiter, about 2 km before road to Chicotte River (Gun River Formation on map by Petryk, 1981, Goéland Member on map of Copper).

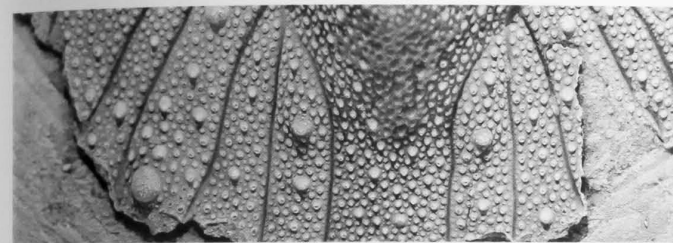
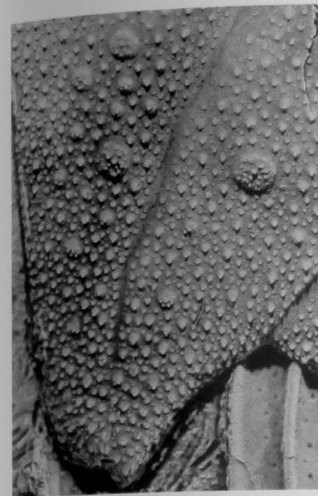


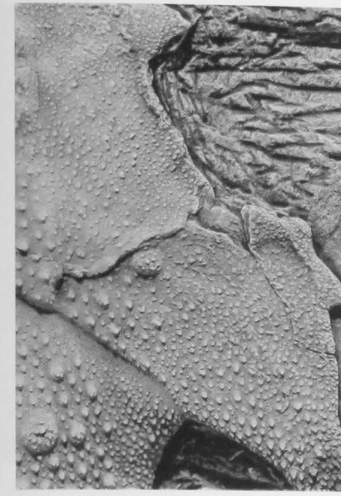
PLATE 13

Figs. 1-8. *Arctinurus anticostiensis* (Northrop, 1939). All are from Jupiter Formation.

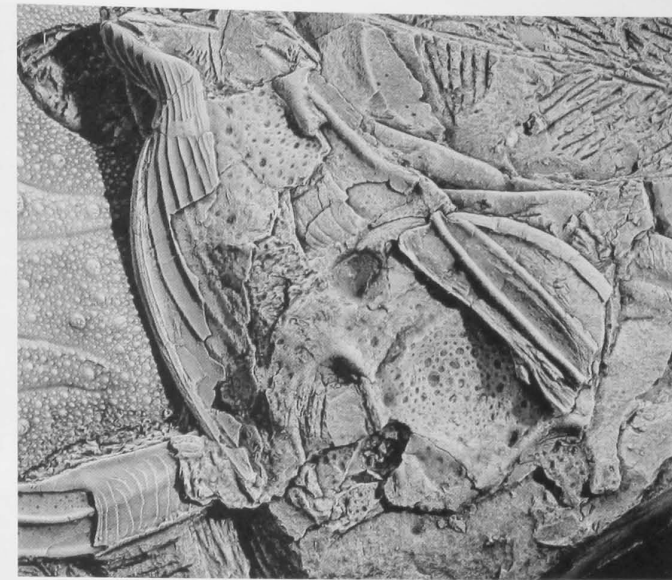
- 1-6. GSC122193, views of disarticulated partial exoskeleton from Locality AN8B, Richardson or Cybèle Member.
- 1, 4. Details of dorsal surface of second left hand marginal spine of pygidium X 2 and X3.75.
- 2, 5. Details of right hand side of pygidium X2.2 and X2.8.
3. Ventral view of two fragmentary thoracic segments and dorsal view of incomplete hypostome X1.3.
6. View of most of specimen (most of hypostome not in picture) X0.75.
7. GSC122194, dorsal view of incomplete pygidium X1. Locality AN8B, Richardson or Cybèle Member.
8. GSC122195, dorsal view of pygidium X1. Locality A1216, Richardson Member (upper 2-3 m?).



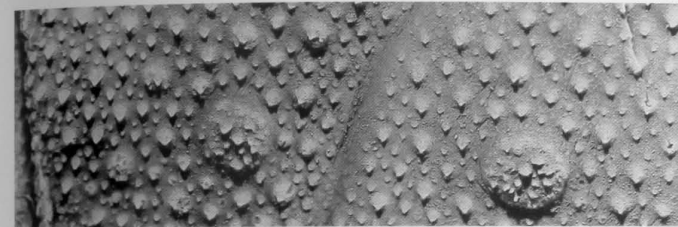
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PLATE 14

Figs 1-4. *Arctinurus anticostiensis?* (Northrop, 1939). All are from Jupiter Formation.

1. GSC122196, ventral view of hypostome X2.5. Locality AN44, Cybèle Member.
2. GSC122197, ventral view of hypostome X6.9. Locality AN78, Pavillon Member.
3. GSC122198, dorsal view of hypostome X1.8. Locality AN62, Goéland or Richardson Member?
4. GSC122199, ventral view of part of hypostome X6.3. Locality AN66, Cybèle or Ferrum Member.

Figs. 5, 8. *Amphilichas* sp. B.

- 5, 8. GSC122200, dorsal and dorsolateral views of pygidium X4.1 and X3.5. Locality Cap Henri west, 5.7 m above Oncolite Bed, basal Becscie Formation.

Figs. 6, 10. *Lichas menieri* n. sp.

- 6, 10. Paratype GSC122201, dorsal view of latex cast and ventral view of mould of pygidium X4.3. "GSC locality 84369, Ellis Bay Member 6, Becscie River Road, 4.5 miles south of crossing". If this horizon is correct, it would probably date this tail as latest Ordovician (we have usually found this form in the earliest Silurian Becscie Formation, slightly higher in the local stratigraphy).

Fig. 7. *Lichas* aff. *L. menieri* n. sp.

7. GSC122184b, ventral view of cranidium X1.9. Locality AN17, Jupiter Formation (Cybèle Member?).

Fig. 9. *Arctinurus aranaceus* (Twenhofel, 1928).

9. Holotype YPM 25649, dorsal view of pygidium X1.9. Locality on brook on west side of Cape Sandtop Bay, Gun River Formation.

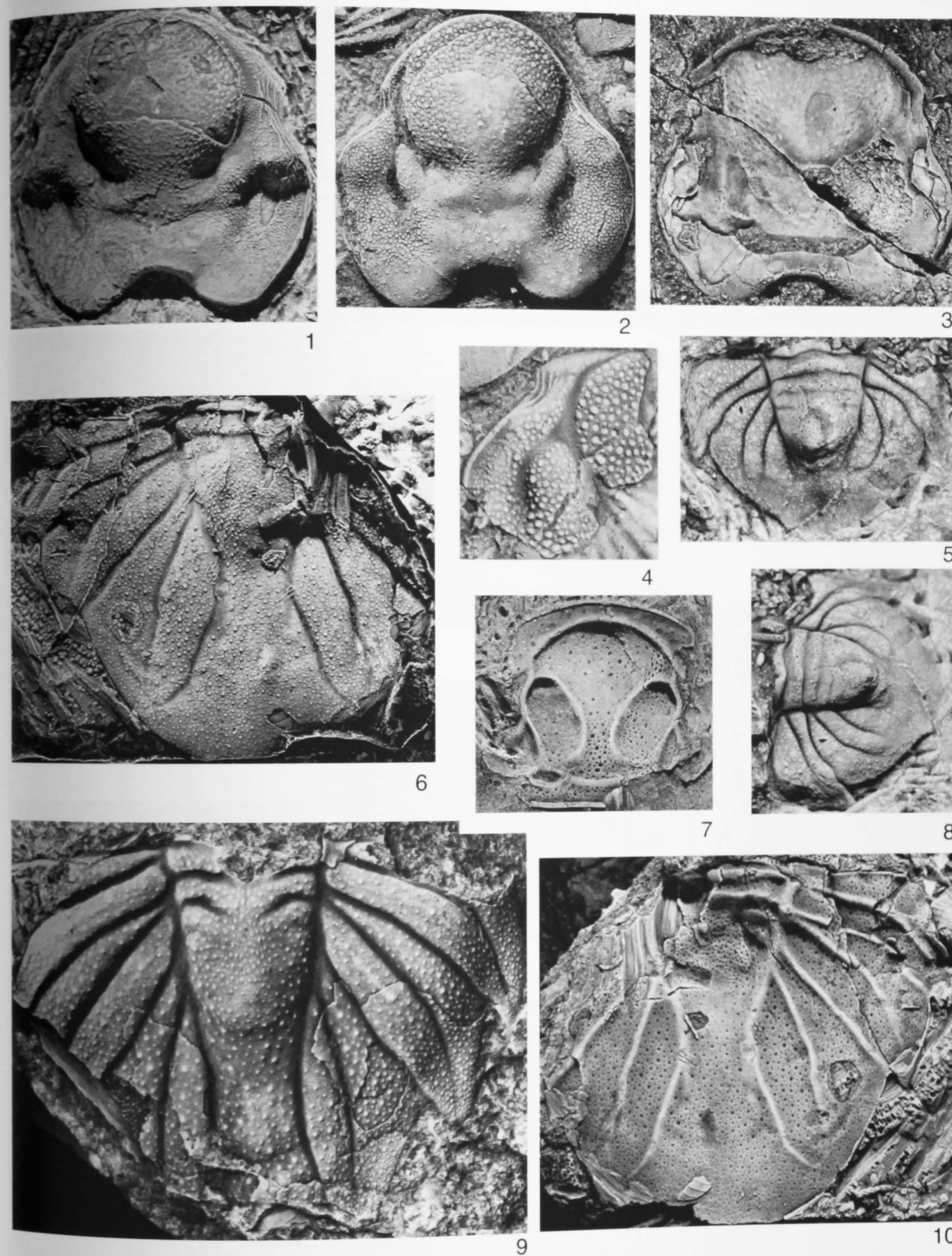


PLATE 15

Figs. 1-8, 10. *Dalaspis boltoni* n. sp. All are from Jupiter Formation.

- 1-4. Paratype GSC122203, dorsal, dorsolateral, dorsolateral and lateral views of cephalon and pygidium X4.6, X5.2, X5, and X5.4. Locality AN15, basal Goéland Member.
 5-8. Holotype GSC122204, dorsal, anterodorsal, dorsolateral, dorsal and dorsolateral views of cephalon X3, X2.8, X4.2, X5.2. Locality AN50, Cybèle Member (?).
 10. GSC123141, dorsolateral view of partial cephalon X5.4. Locality AN78, Pavillon Member.

Fig. 9. *Dalaspis* aff. *D. boltoni* n. sp.

9. GSC122205, dorsal view of fragment of left side of cephalon X4.7. Locality AN12, Pavillon Member of Jupiter Formation.

Figs. 11, 12. *Anacaenaspis* aff. *A. zedei* n. sp.

11. GSC122399, dorsal view of incomplete cephalon X3.6. Locality AN78, Pavillon Member of Jupiter Formation.
 12. GSC122207, dorsal view of incomplete cephalon X5. Locality AN36, Pavillon Member of Jupiter Formation.



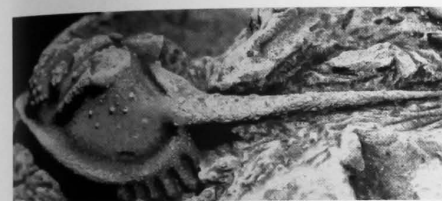
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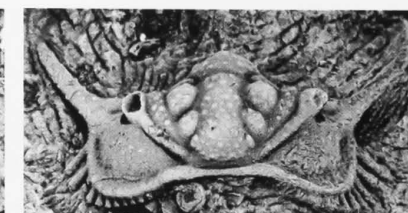
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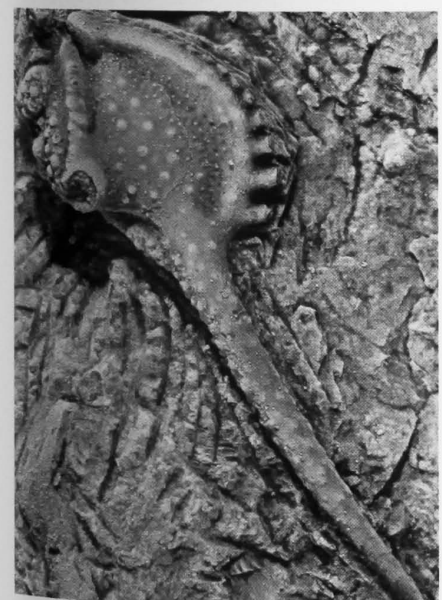
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PLATE 16

Figs. 1-6. *Dalaspis* aff. *D. pustulosa* n. sp. All are from Cybèle or Ferrum members of Jupiter Formation.

1. GSC122538, exterior view of right side of cephalon X13. Locality AN54.
2. GSC122208, external view of right part of cephalon X13.5. Locality AN54.
3. GSC122209, internal view of right part of cephalon X13.5. Locality AN54.
4. GSC122210, dorsal view of weathered pygidium X10.7. Locality AN54.
5. GSC122211, dorsal view of weathered pygidium X6.5. Locality AN54.
6. GSC122212, anterodorsal view of weathered cephalon X4. Locality AN54.

Figs. 7, 8, 11. *Dalaspis pustulosa* n. sp. All are from Pavillon Member of Jupiter Formation.

7. Holotype GSC122213, anterodorsal view of cephalon X5.5. Locality AN36.
8. Paratype GSC122214, external view of left part of cephalon X12.5. Locality AN78.
11. Paratype GSC122215, dorsal view of pygidium X8.1. Locality AN78.

Fig. 9. *Dalaspis* aff. *D. boltoni* n. sp.

9. GSC122216, external view of left side of cephalon X5. Locality AN78, Pavillon Member of Jupiter Formation.

Fig. 10. *Dalaspis boltoni* n. sp.

10. Paratype GSC122217, dorsal view of pygidium X12.4. Locality AN50, Richardson or Cybèle Member of Jupiter Formation.

Fig. 12. *Anacaenaspis zedei* n. sp.

12. Paratype GSC122218, dorsal view of part of pygidium X5.1. Locality AN15, Goéland Member of Jupiter Formation.

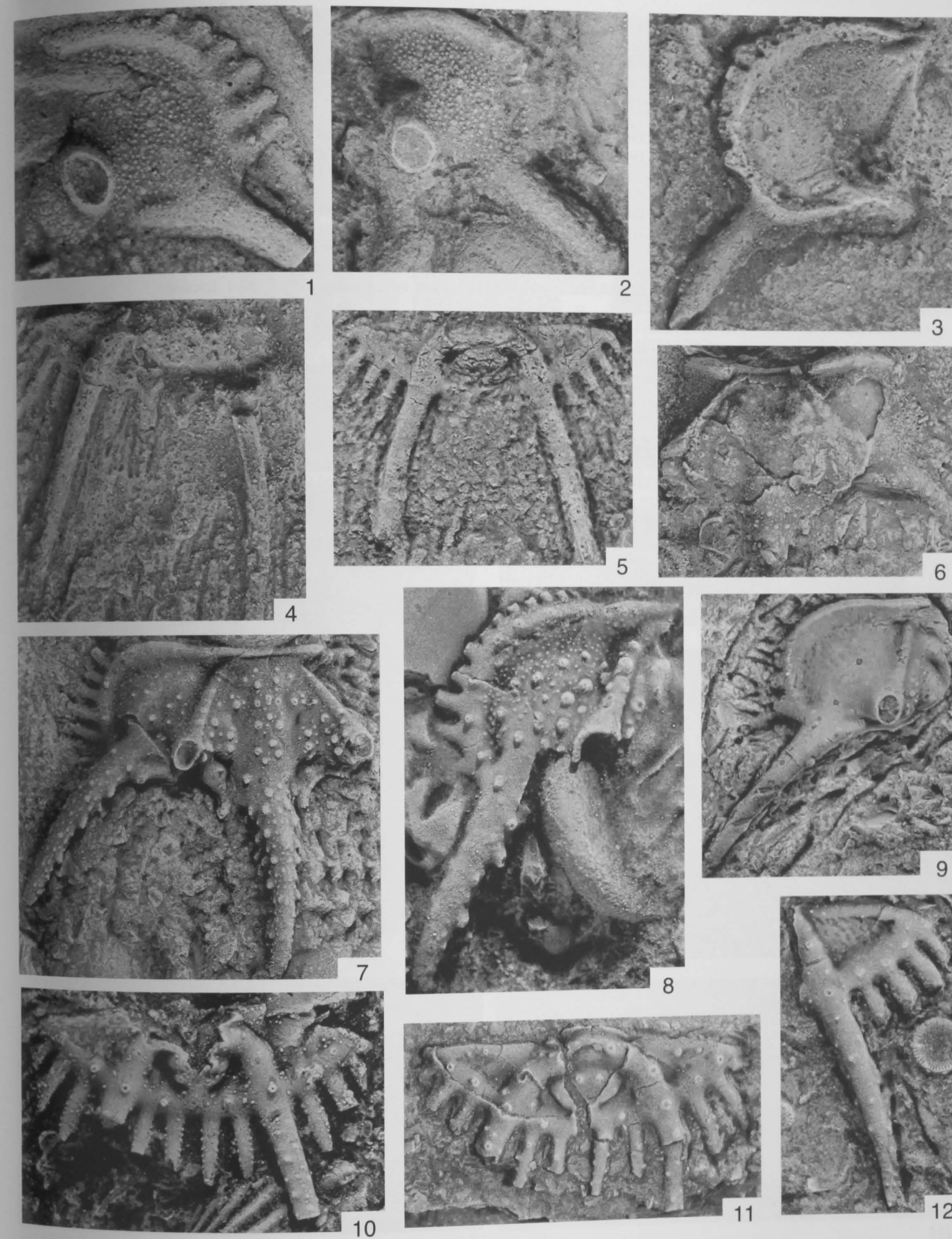


PLATE 17

Figs. 1-5, 7-15. *Ketmeraspis copelandi* n. sp. All are from Richardson or Cybèle (probably Cybèle) Member of Jupiter Formation.

1. Paratype GSC122219, external view of free cheek X8.3. Locality AN44.
2. Paratype GSC122220, external view of free cheek X10. Locality AN44.
3. Paratype GSC122221, dorsal view of pygidium X8. Locality AN44.
4. Paratype GSC122222, dorsal view of pygidium X5.6. Locality AN44.
5. Paratype GSC122223, dorsal view of pygidium X6. Locality AN44.
7. Paratype GSC122224, dorsal view of cranidium X4.2. Locality AN44.
- 8, 10, 13-15. Holotype GSC122225, dorsolateral view of back of thorax and pygidium X10, dorsal view of cranidium X4.5, dorsal view of exoskeleton X7.2, dorsolateral view of exoskeleton X6.6, and dorsal view of back of thorax and pygidium X10. Locality AN44.
9. GSC122601, internal view of free cheek X4. Locality AN44.
11. GSC122701, dorsal view of thoracic segment X5. Locality AN44.
12. GSC122125, external view of free cheek X5. locality AN44.

Figs. 6, 16. *Ketmeraspis ramskoeldi* n. sp. All are from Jupiter Formation.

6. Paratype GSC122226, dorsal view of pygidium X8. Locality AN15, Goéland Member.
16. Holotype GSC122227, dorsal view of part of cephalon and thorax X9.6. Locality about 2 km west of Mouth of Jupiter River, east of Mouth of Triplesia Creek, upper Goéland or Richardson Member.

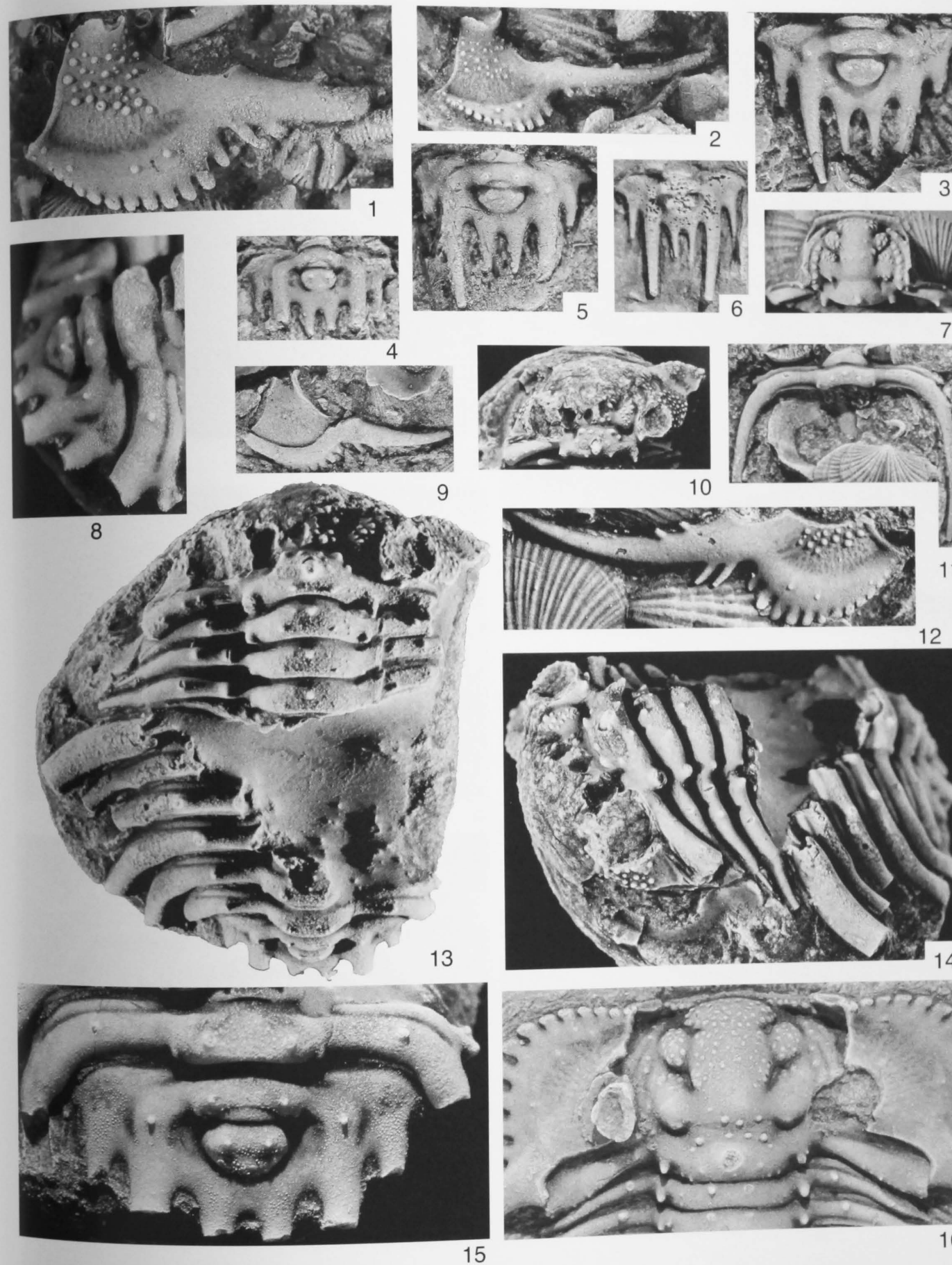
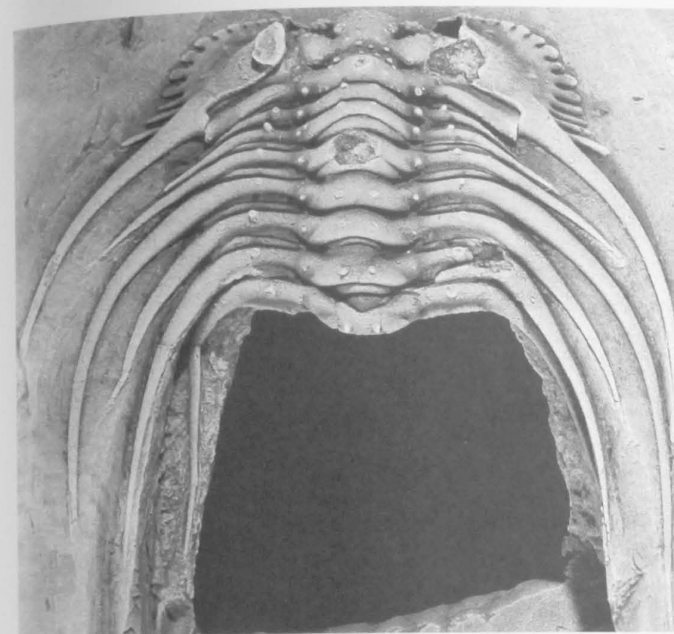


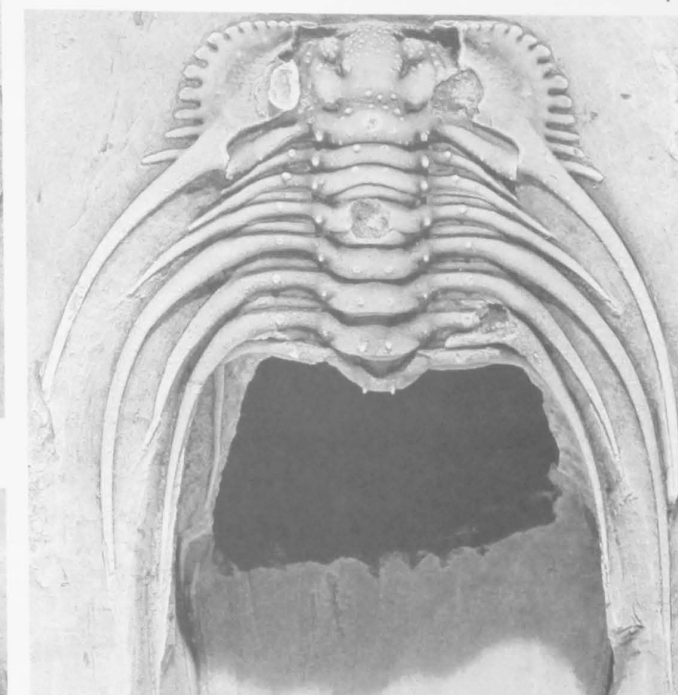
PLATE 18

Figs. 1-7. *Kettneraspis ramskoeldi* n. sp.

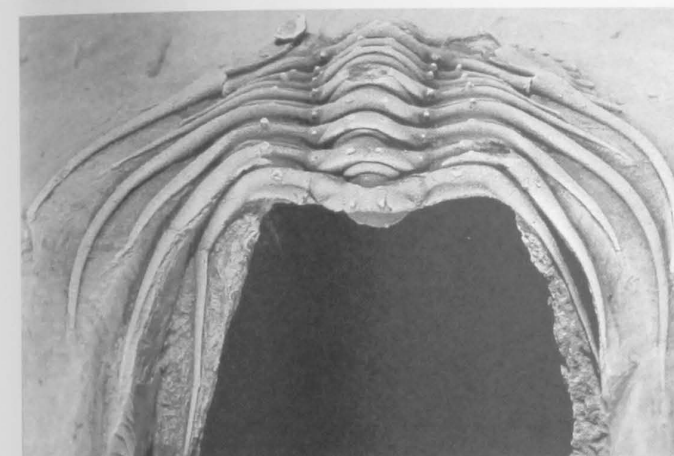
1-7. Holotype GSC122227, anterior, slightly posterodorsal, dorsal, posterodorsal, lateral, ventral and dorsolateral views of partly enrolled articulated exoskeleton X4.2, X4.74, X4.6, X4.74, X5.2, X11.5 and X5.2. Locality about 2 km west of Mouth of Jupiter River, east of Mouth of Triplesia Creek, upper Goéland or Richardson Member of Jupiter Formation.



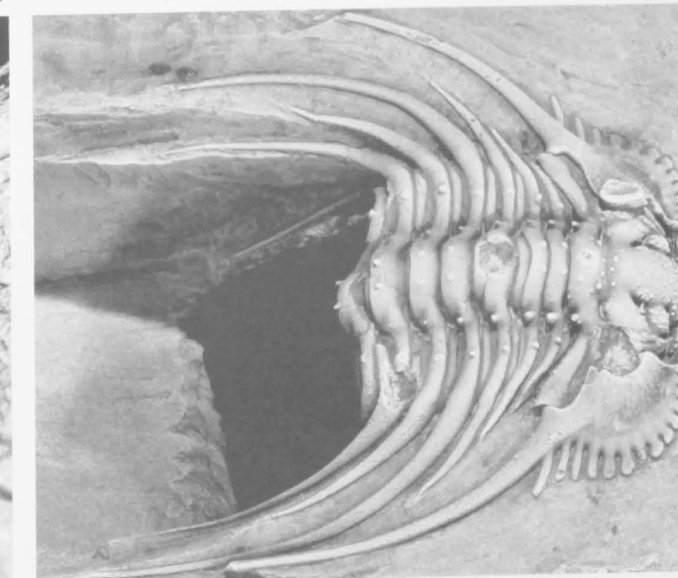
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PLATE 19

Figs. 1-7. *Kettneraspis* aff. *jaanussoni* (Chatterton and Perry, 1983). All are from basal Becscie Formation.

1. GSC122228, external view of free cheek X8.1. Locality Cap Henri East, 5.3-7.1 m above oncolite bed.
2. GSC122229, dorsal view of cranidium X9. Locality Cap Henri East, 5.3-7.1 m above oncolite bed.
3. GSC122230, internal view of free cheek X 8.7. Locality Cap Henri East, 5.3-7.1 m above oncolite bed.
4. GSC122231, ventral view of pygidium X8. Locality AN7, 500-700 cm above oncolite bed.
5. GSC122232, external view of free cheek X10.3. Locality AN7, 5.3-7.1 m above oncolite bed.
6. GSC122233, dorsal view of cranidium and part of free cheek X8.3. Locality AN6, 700 cm above oncolite bed.
7. GSC122133, ventral view of pygidium X8. Locality AN7, 500-700 cm above platform bed.

Figs. 8, 12, 14, 17. *Anacaenaspis wrighti* n. sp. All are from lower Becscie Formation, Fox Point Member.

8. Paratype GSC122234, dorsal view of cranidium X10. Locality AN22.
12. Paratype GSC122236, dorsal view of left part of cephalon X9.1. Locality AN22.
14. Paratype GSC122237, internal view of left part of cephalon X8.8. Locality AN22.
17. Paratype GSC122238, internal view of thoracic segment X8.3. Locality AN22

Figs. 9, 10, 13, 15, 16. *Exallaspis* sp. A.

9. GSC122239, external view of free cheek X5.9. GSC locality 33634, upper part of Ellis Bay Formation (Late Ordovician).
10. GSC122240, dorsal view of pygidium X5.5. Locality AN7, 500-700 cm above oncolite bed, basal Becscie Formation.
13. GSC122241, dorsal view of cranidium X5.2. Locality AN6, 610-625 cm above oncolite bed, basal Becscie Formation.
15. GSC122242, dorsal view of pygidium X4.9. Locality AN6, 610-625 cm above oncolite bed, basal Becscie Formation.
16. GSC122243, ventral view of pygidium X9.3. Cap Henri, horizon F, lower Becscie Formation.

Fig. 11. *Anacaenaspis zedei* n. sp.

11. Paratype GSC122235, ventral view of pygidium X7. Locality AN54, Cybèle or Ferrum Member of Jupiter Formation.



PLATE 20

Figs. 1-14. *Exallaspis macrackeni* n. sp. All are from Jupiter Formation.

1. Paratype GSC122244, external view of free cheek X7.4. Locality AN44. Richardson or Cybèle Member.
2. Paratype GSC122245, external view of free cheek X7.2. Locality AN44. Richardson or Cybèle Member.
3. Paratype GSC122246, dorsal view of cranidium X5.1. Locality AN44. Richardson or Cybèle Member.
4. Paratype GSC122247, external view of free cheek X7.4. Locality AN62, Goéland or Richardson Member.
5. Paratype GSC122248, dorsal view of cranidium X4.5. Locality AN15, Goéland Member.
6. Paratype GSC122249, external view of free cheek X8.3. Locality AN44, Richardson or Cybèle Member.
7. Paratype GSC122250, internal view of free cheek X5.1. Locality AN44, Richardson or Cybèle Member.
8. Paratype GSC122251, dorsal view of pygidium X9.4. Locality AN44, Richardson or Cybèle Member.
9. Paratype GSC122252, external view of free cheek X4.5. Locality AN44, Richardson or Cybèle Member.
10. Paratype GSC122253, external view of free cheek and dorsal view of pygidium X8. Locality 77AP 18-10, Upper Jupiter Formation, Chicotte River, Cybèle Member (?).
11. Paratype GSC122254, dorsal view of pygidium X17. Locality AN44, Richardson or Cybèle Member.
12. Paratype GSC122255, ventral view of pygidium X6.8. Locality AN44, Richardson or Cybèle Member.
13. Paratype GSC122256, ventral view of pygidium X9.5. Locality AN44, Richardson or Cybèle Member.
14. Paratype GSC122257, dorsal view of pygidium X12. Locality AN44, Richardson or Cybèle Member.

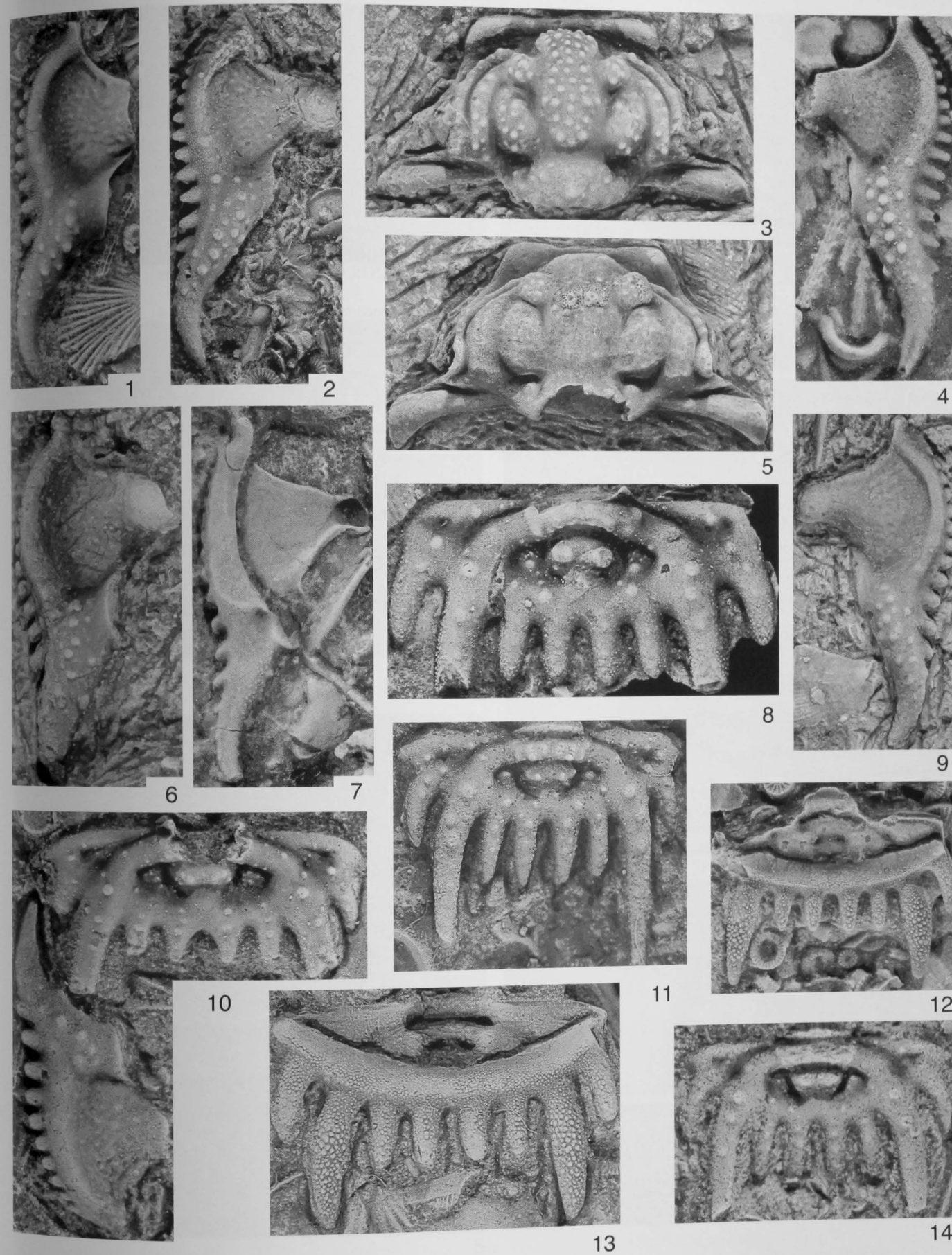


PLATE 21

Figs. 1, 2. *Exallaspis maccrackeni* n. sp.

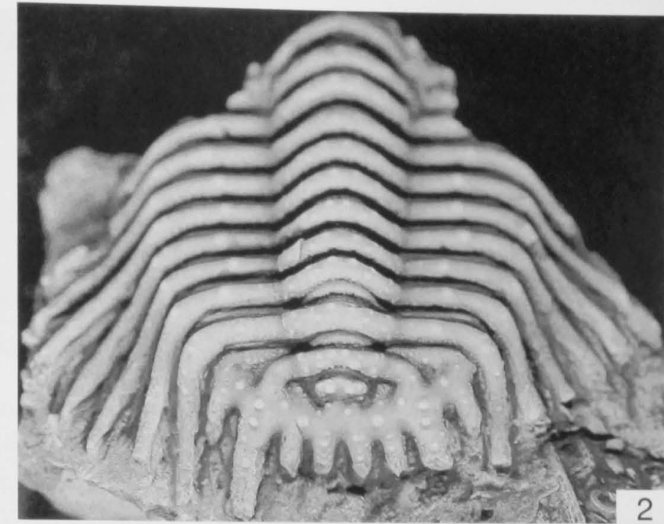
1. Paratype GSC122258, ventral view of free cheeks and dorsal view of anterior thoracic segments X3.8. Locality AN47, Cybèle Member of Jupiter Formation.
2. Holotype GSC122259, dorsal view of thorax and pygidium X4.3. Locality AN44, Richardson or Cybèle Member of Jupiter Formation.

Figs 3-6. *Anacaenaspis zedei* n. sp.

- 3, 5. Paratype GSC122260, dorsolateral, anterodorsal, dorsal and posterodorsal views of articulated exoskeleton X8.35 and X9.3. Locality AN15, Goéland Member of Jupiter Formation.
- 4, 6. Holotype GSC122202, dorsal and lateral views of incomplete exoskeleton X3.8 and X2.5. Locality AN15, Goéland Member of Jupiter Formation.



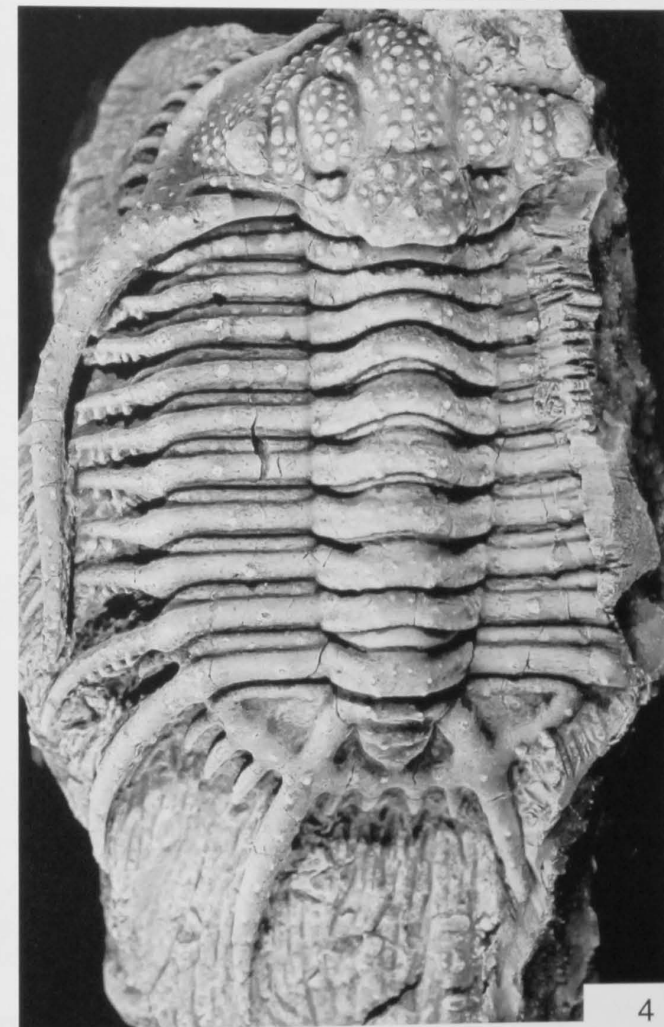
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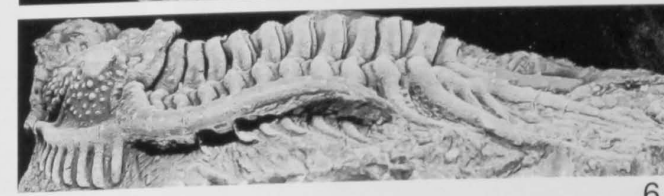
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PLATE 22

Figs. 1-4, 8, 11. *Exallaspis bruntoni* n. sp. All are from Cybèle Member (?) of Jupiter Formation.

1. Paratype GSC122261, ventral view of pygidium X10. Locality AN66.
2. Paratype GSC122262, dorsal view of pygidium X111.5. Locality AN66.
3. Paratype GSC122263, dorsal view of pygidium X12. Locality AN66.
4. Holotype GSC122264, dorsal view of pygidium X8.3. Locality AN66.
8. Paratype GSC122265, dorsal view of cranidium X7.3. Locality AN66.
11. Paratype GSC122266, dorsal view of cranidium X4.6. Locality AN66.

Fig. 5. *Dalaspis* aff. *D. pustulosa* n. sp.

5. GSC122267, external view of part of right side of cephalon X7.3. Locality AN54, Cybèle or Ferrum Member of Jupiter Formation.

Figs. 6, 10, 13. *Stelckaspis* sp. A.

- 6, 10, 13. GSC122268, dorsal, anterodorsal and lateral views of cephalon X4.85, X4.85, and X5.3. Locality AN37, Chicotte Formation, about 3 m from base.

Fig. 7. *Kettneraspis copelandi* n. sp.

7. Paratype GSC122224, dorsal view of cranidium X6. Locality AN44, Richardson or Cybèle Member of Jupiter Formation.

Fig. 9. *Dalaspis pustulosa* n. sp.

9. Paratype GSC122269, internal view of part of right side of cephalon X6.75. Locality 77 AP 18-8, Upper Jupiter Formation, Chicotte River.

Fig. 12. *Anacaenaspis zedei* n. sp.

12. Paratype GSC122270, internal view of free cheek X3. Locality AN15, basal Goéland Member of Jupiter Formation.



PLATE 23

Figs. 1-14. *Anacaenaspis wrighti* n. sp. All are from lower Becscie Formation.

1. Paratype GSC122271, dorsal view of cranidium X8.25. Locality AN22.
2. Paratype GSC122272, anterodorsal view of cranidium X10. Locality AN22.
3. Paratype GSC122273, dorsal view of free cheek X7.4. Locality AN22.
- 4, 6, 10, 14. Holotype GSC122274, dorsal, anterodorsal, anterodorsolateral, and dorsolateral views of cephalon X3.5, X3.5, X2.9, and X3.4. Locality 12.8.76 AP 22-23'.
5. Paratype GSC122275, dorsal view of cranidium X9.2. Locality AN22.
7. Paratype GSC122276, internal view of free cheek X3.15. Locality near base of formation along Salmon River (Rivière aux Saumons).
8. Paratype GSC122277, ventral view of fragmentary pygidium X5.8. Locality near base of formation along Salmon River.
9. Paratype GSC10748, ventral view of cranidium X4. Locality AN22.
11. Paratype GSC122278, dorsal view of relatively posterior thoracic segment X14. Locality AN22.
12. Paratype GSC122279, ventral view of pygidium X3.8. Locality near base of formation along Salmon River.
13. Paratype GSC122280, dorsal view of pygidium X12. Locality AN22.

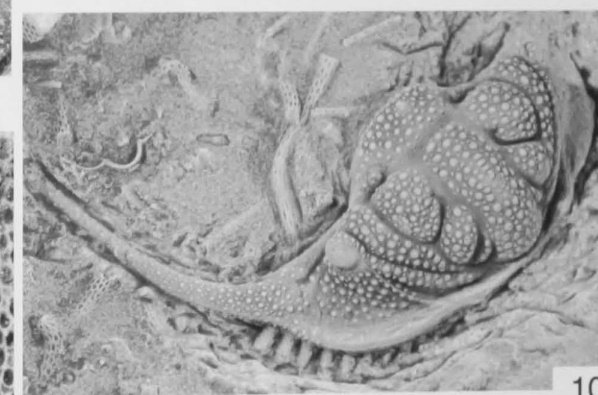
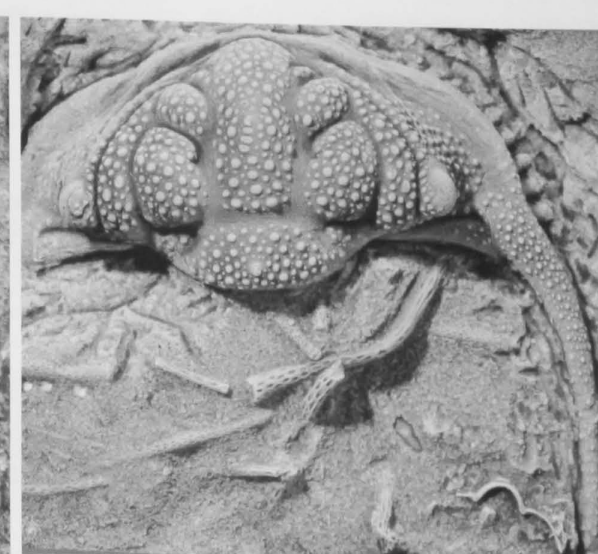
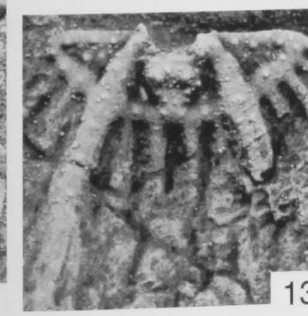
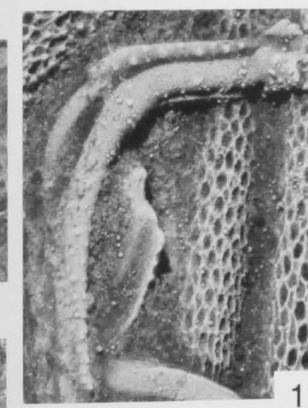
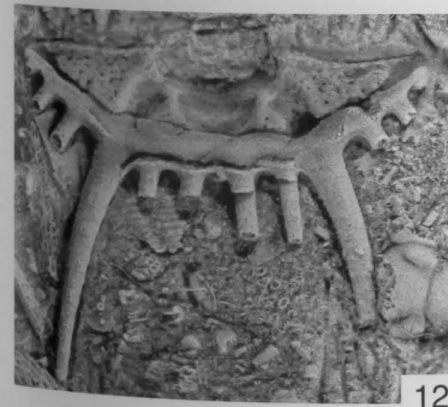
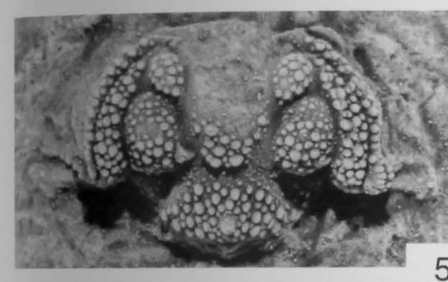


PLATE 24

Figs. 1-17. *Stelckaspis perplexa* (Billings, 1866). All are from Pavillon Member of Jupiter Formation.

1. GSC122281, dorsal view of cephalon X4.8. Locality AN12.
2. Holotype GSC2559, dorsal view of cephalon X3.25. Locality "the Jumpers" = AN12.
3. GSC122282, ventral view of cephalon X4. Locality AN12.
- 4, 7. GSC122283, dorsolateral and dorsal views of incomplete cephalon X6 and X4.1. Locality AN12.
5. GSC122284, dorsal view of cephalon X4.5. Locality AN12.
6. GSC122285, dorsolateral view of cephalon X5. Locality AN12.
8. GSC122286, dorsal view of cephalon X5.5. Locality AN12.
9. GSC122287, dorsal view of pygidium X4.7. Locality AN12.
10. GSC122288, ventral view of pygidium X3.9. Locality AN12.
11. GSC122289, dorsal view of pygidium X3.2. Locality AN12.
12. GSC122290, dorsal view of distal part of thoracic segment X5.5. Locality AN12.
13. GSC122291, dorsal view of pygidium X3. Locality AN78.
14. GSC122292, dorsolateral view of incomplete cephalon X6.7. Locality AN78.
15. GSC122293, dorsal view of pygidium X7.25. Locality AN78.
16. GSC122294, ventral view of pygidium X7.4. Locality AN12.
17. GSC122295, dorsal view of pygidium X11. Locality AN12.



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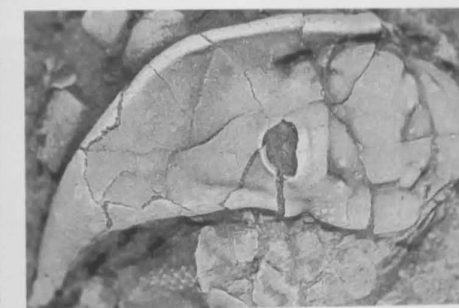
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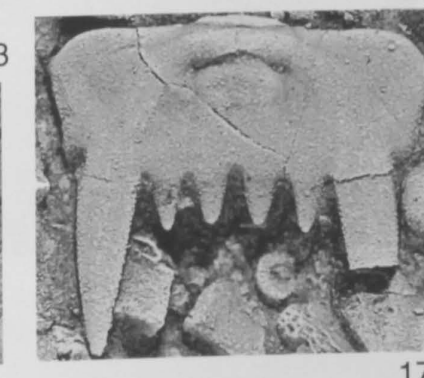
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PLATE 25

Figs. 1-8. *Stelckaspis perplexa* (Billings, 1866). All are from Pavillon Member of Jupiter Formation.

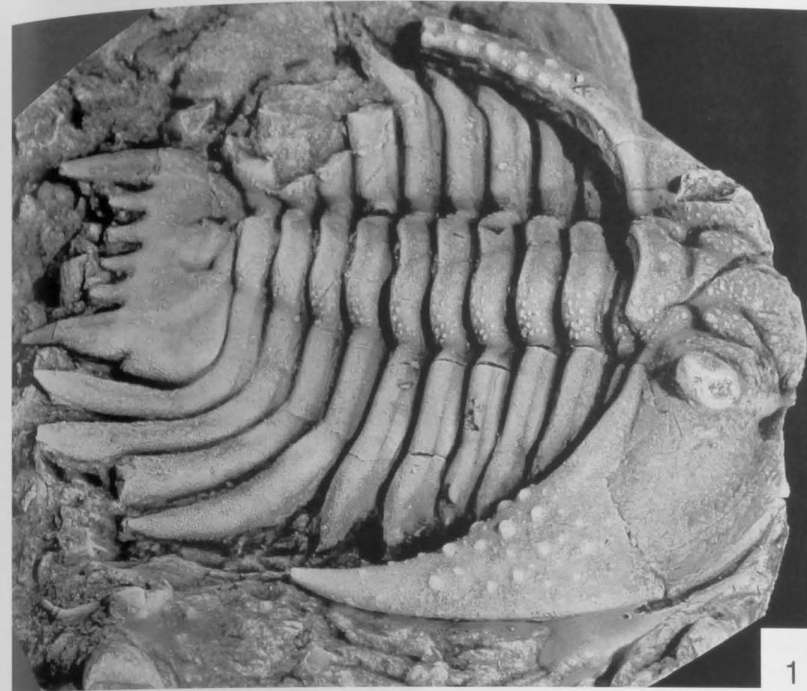
1. GSC122296, dorsal view of articulated exoskeleton X5.1. Locality A418(5).
2. GSC122297, dorsal view of cephalon X6.4. Locality AN78, basal part of member.
- 3, 5. GSC122298, anterior and dorsal views of cephalon X6 and X6.1. Locality AN36.
- 4, 6, 8. GSC122299, dorsal, anterodorsal and dorsolateral views of cephalon X7. Locality AN78, basal part of member.
7. GSC122300, ventral view of partial cephalon X4.9. Locality AN12.



PLATE 26

Figs. 1-6. *Stelckaspis perplexa* (Billings, 1866).

1-6. GSC122296, dorsolateral, detailed dorsolateral, detailed dorsolateral, detailed dorsolateral, detailed dorsal, and detailed dorsal views of articulated exoskeleton X5.5, X20, X12, X7.2, X16.5 and X15.4. Locality A418(5), Pavillon Member of Jupiter Formation.



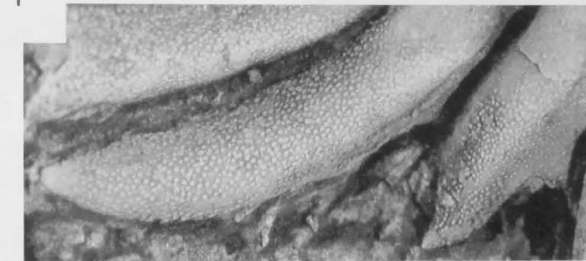
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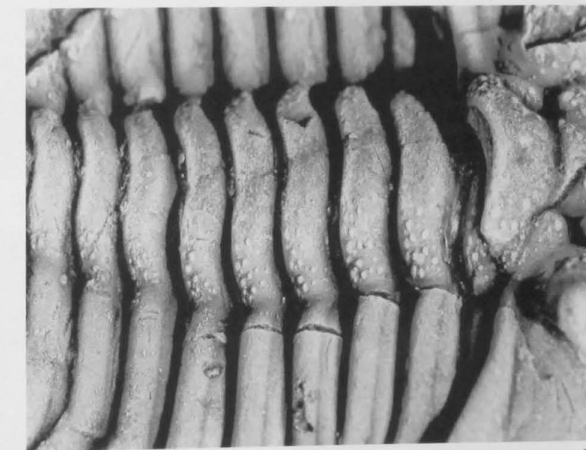
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PLATE 27

Figs. 1-6. *Acernaspis boltoni* Lespérance and Letendre, 1982

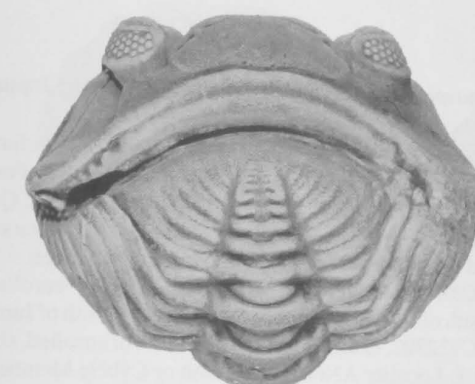
- 1-3. Holotype GSC17091, external views (of cranidium, of pygidium, and of left side) of enrolled articulated specimen X3.8, X3.8, and X3.2. Jupiter Formation, creek section 3.2 km (2 miles) east of Cape MacGilvray.
- 4-6. Paratype GSC29691, external views (of cranidium, of pygidium, and of left side) of enrolled articulated specimen X4.7, X4.7, and X4.5. Basal Jupiter Formation, 4 km (2.5 miles) south of junction with road to 12 mile lodge (same as AN15).

Figs. 7-12. *Acernaspis orestes* (Billings, 1860).

- 7-9. Lectotype GSC2472, external views (of cranidium, of pygidium, and of left side) of enrolled, articulated individual X5.2, X4.75, and X4.43. Jupiter Formation, Anticosti Island. Exact location not known, but believed to be from lower Jupiter Formation near mouth of Jupiter River.
- 10-12. GSC67142, external views (of cranidium, of pygidium, and of left side) of enrolled articulated specimen X4.7, X4.6, and X4.4. This specimen is the holotype of *Acernaspis mimica* Lespérance and Letendre, 1982, considered here to be a junior synonym of *Acernaspis orestes* (see extreme similarities to lectotype of that species above, and arguments in text). From south bank of Jupiter River, first major bend upriver of Six Mile Creek; Goéland Member of Jupiter Formation?.



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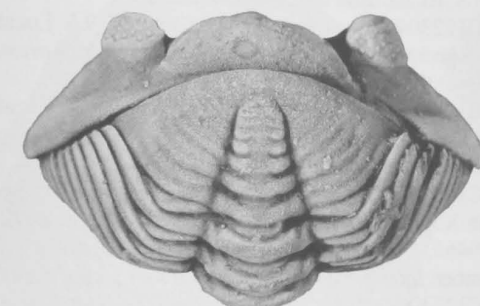
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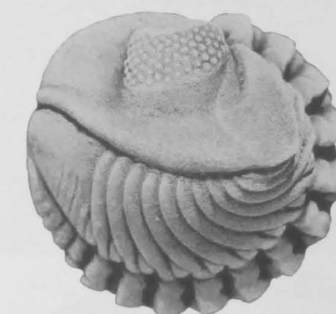
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PLATE 28

Figs. 1-12. *Acernaspis orestes* (Billings, 1860). All are from Jupiter Formation.

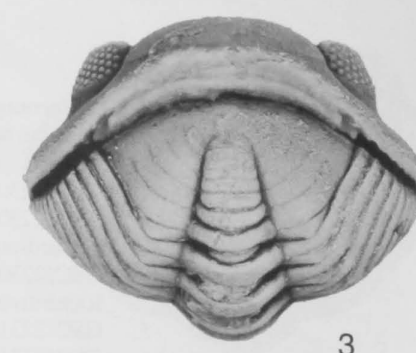
- 1-3. GSC67143, external views (of cranidium, of pygidium, and of left side) of enrolled articulated specimen X4.4, X4.3 and X4.4. Jupiter Formation, debris slope of Jupiter River on north bank of Rock Pool, Anticosti Island, Québec. This specimen was designated a paratype of *Acernaspis mimica* by Lespérance and Letendre (1982); considered here a junior synonym of *Acernaspis orestes*.
4. GSC122301, external view of cranidium of enrolled articulated specimen X4.6. Mouth of Triplesia Creek, 3.2 km west of mouth of Jupiter River, Goéland Member.
5. GSC122302, external view of pygidium of enrolled, slightly disarticulated individual X 5.1. Locality AN68. Richardson or Cybèle Member.
6. GSC122303, external view of anterior edge of enrolled specimen X 4.4. Locality AN68. Richardson or Cybèle Member.
7. GSC122304, dorsal view of hypostome X 9.5. Locality AN15, Goéland Member. This specimen could belong to either *Acernaspis orestes* or *Acernaspis boltoni*. Both occur at this locality.
8. GSC122712, ventral view of hypostome X8.9. Locality AN15, Goéland Member. This specimen could belong to either *Acernaspis orestes* or *Acernaspis boltoni*. Both occur at this locality.
9. GSC122305, ventral view of cephalon and part of thorax of incomplete enrolled specimen X5.6. Locality AN68. Richardson or Cybèle Member.
- 10, 12. UA9465, dorsal and ventral views of articulated specimen X4.1, X4.2. Goéland Member, mouth of Triplesia Creek, about 3.2 km west of the mouth of Jupiter River.
11. GSC122306, ventral view of hypostome X18. Locality AN15, Goéland Member. This specimen could belong to either *Acernaspis orestes* or *Acernaspis boltoni*. Both occur at this locality.



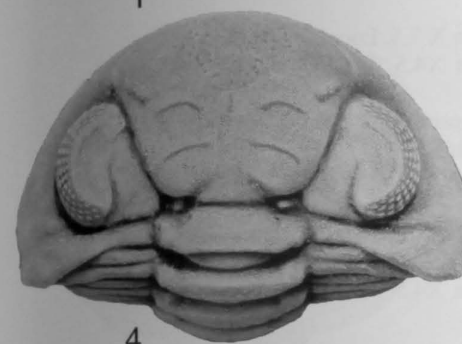
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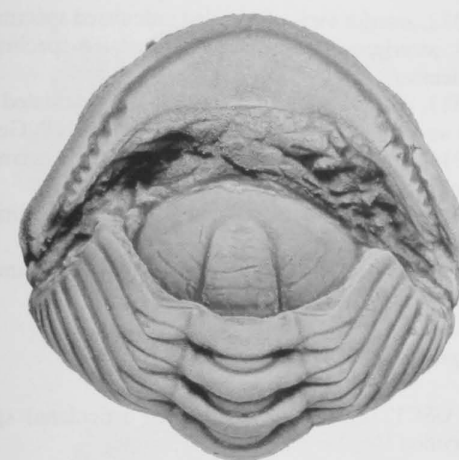
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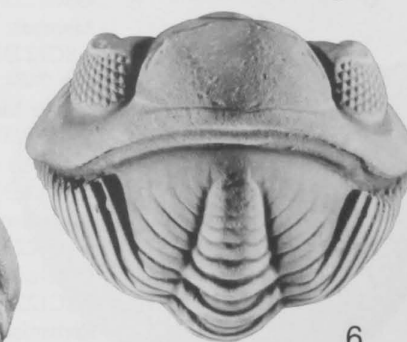
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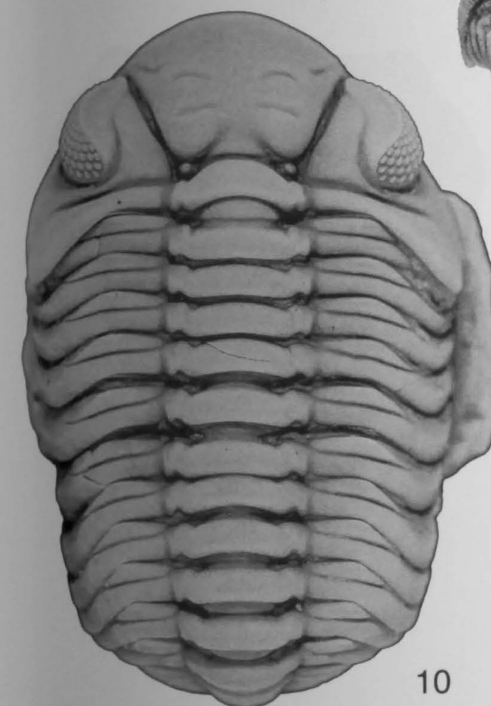
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PLATE 29

Figs. 1-3, 5-12. *Acernaspis orestes* (Billings, 1860). Figures 1, 5, 7 are from Sandtop Member of Gun River Formation, remainder are from Jupiter Formation.

1. GSC122307, anterior view of enrolled articulated specimen X4.7. Locality AN72.
2. GSC122308, anterior view of enrolled articulated specimen X5.6. Locality AN44, Richardson or Cybèle Member.
3. GSC122309, anterior view of enrolled, articulated individual X6.25. Locality AN43, Richardson or Cybèle Member.
5. GSC122310, anterior view of enrolled articulated specimen X 4.4. Locality AN72.
6. GSC122311, anterior view of articulated specimen X 4.9. Locality AN15, Goéland Member.
7. GSC122312, anterior view of enrolled articulated specimen X 7.5. Locality AN72.
8. UA 7484, anterior view of enrolled articulated specimen X4.5. Locality AN57, Cybèle Member.
9. GSC122313, anteroventral view of enrolled articulated specimen X4.6. Goéland Member, west of Mouth of Jupiter River (collected P. Gonin).
10. GSC122314, anterior view of enrolled articulated specimen X4.2. Locality AN68, Richardson or Cybèle Member.
11. GSC122315, ventral view of enrolled articulated specimen X5.5. Locality A1150, Cybèle Member.
12. GSC122316, dorsal view of enrolled articulated specimen X4.5. Locality AN68, Richardson or Cybèle Member.

Fig. 4. *Acernaspis copperi* n. sp.

4. Paratype GSC122317, paratype enrolled articulated specimen X4.75. Locality AN12, Pavillon Member of Jupiter Formation.

Figs. 1-5, 8, 9, 11, 12. Are scanning light microscope pictures.

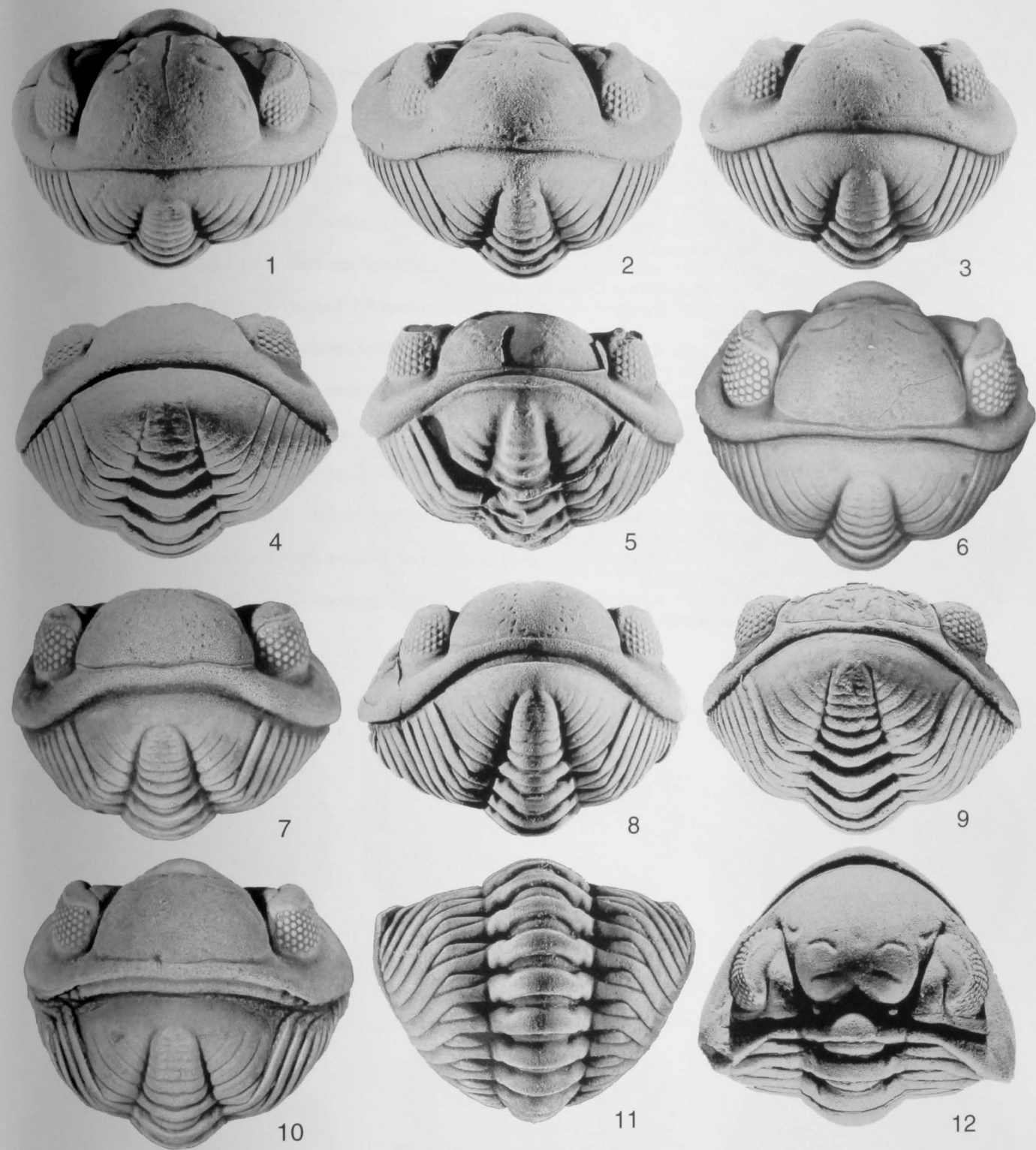


PLATE 30

Figs. 1-12. *Acernaspis orestes* (Billings, 1860). All pictures are scanning light microscope photographs. All are from Jupiter Formation.

1. GSC122318, left lateral view of enrolled articulated specimen X4.6. Locality AN68, Richardson or Cybèle Member.
2. GSC122319, lateral view of enrolled articulated specimen X5.4. Locality AN68, Richardson or Cybèle Member.
3. GSC122320, left lateral view of enrolled articulated individual X5.5. Locality AN68, Richardson or Cybèle Member.
4. GSC122321, right lateral view of enrolled articulated specimen X4.4. Locality AN68, Richardson or Cybèle Member.
5. GSC122322, left lateral view of articulated specimen X5. Locality AN12, Pavillon Member.
6. GSC122323, right lateral view of enrolled articulated specimen X6.4. Locality AN77, Cybèle Member (?).
7. GSC122324, left lateral view of enrolled articulated specimen X6.6. Locality AN44, Richardson or Cybèle Member.
8. GSC122325, right lateral view of enrolled articulated specimen X6.6. Locality AN44, Richardson or Cybèle Member.
9. GSC122326, right lateral view of enrolled articulated specimen X6.4. Locality AN44b, Richardson or Cybèle Member.
10. GSC122327, left lateral view of enrolled articulated specimen X5.2. Locality AN68, Richardson or Cybèle Member.
11. GSC122328, left lateral view of enrolled articulated specimen X5.7. Locality AN15, Goéland Member.
12. GSC122329, right lateral view of enrolled articulated specimen X7. Locality A1150, Cybèle Member.

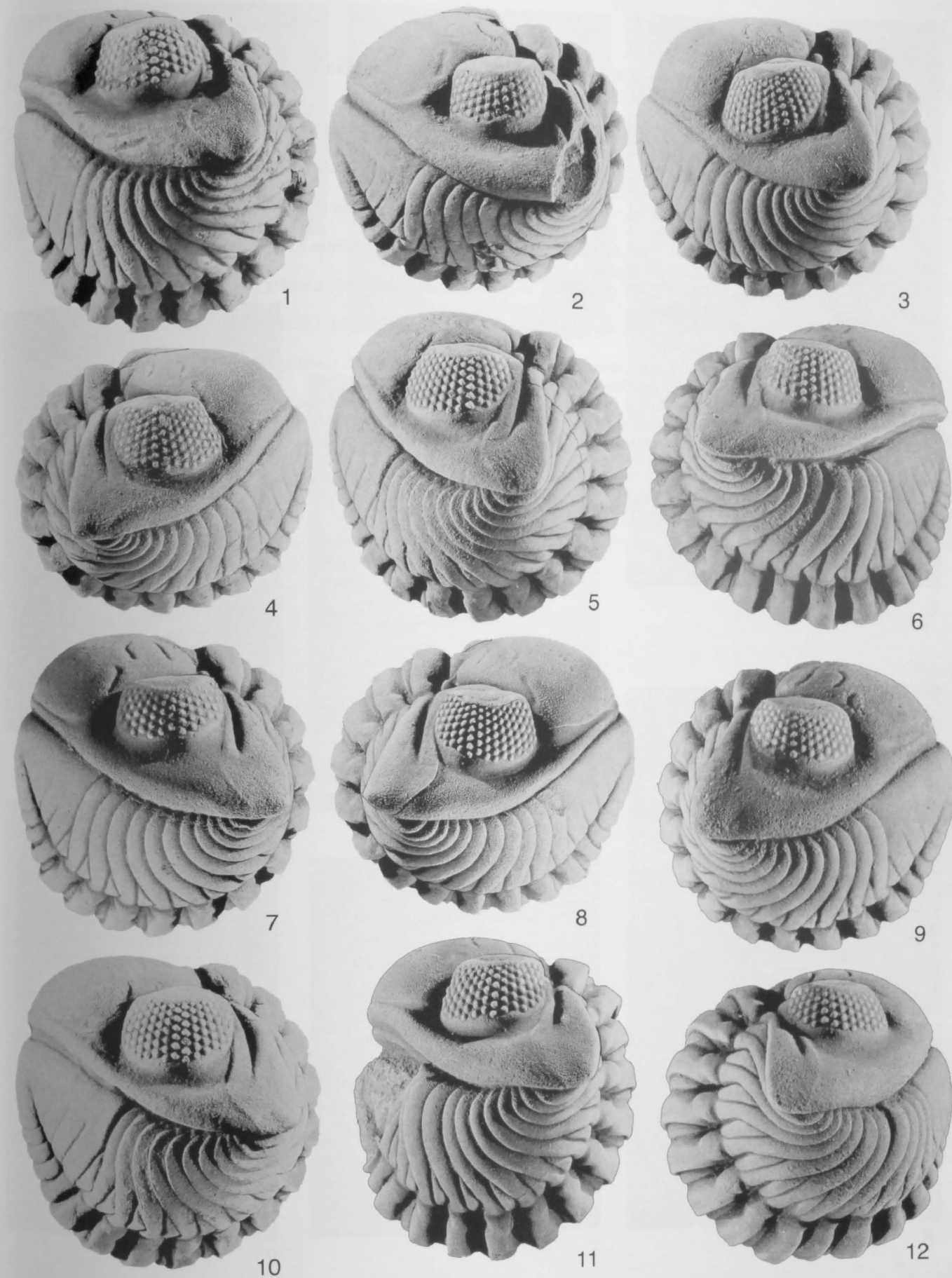


PLATE 31

Figs. 1-8. *Acernaspis orestes* (Billings, 1860). All are from Jupiter Formation, except where noted otherwise.

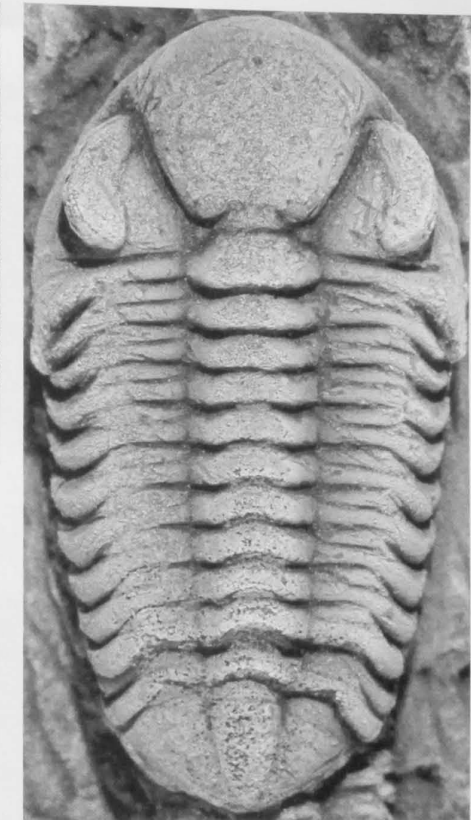
1. GSC122330, and GSC122331, dorsal view of two small articulated specimens X6.7. Locality AN15, Goéland Member.
2. GSC122332, ventral view of exoskeleton with hypostome X13. Locality AN15, Goéland Member.
3. GSC122333, dorsal view of small articulated meraspid Degree 10 (last meraspid stage) X13.6. Locality AN15, Goéland Member.
4. GSC122334, dorsal view of incomplete articulated specimen X3.15. Locality AN15, Goéland Member.
5. GSC122335, dorsal view of articulated specimen X3.5. Locality AN15, Goéland Member.
6. GSC122336, dorsal view of articulated specimen X4. Locality AN57, Cybèle Member.
7. GSC122337, dorsal view of thorax and pygidium X3.75. Locality AN56, Macgilvray Member of Gun River Formation.
8. GSC122338, dorsal view of damaged articulated specimen X4. Locality AN8b, Richardson or Cybèle Member.



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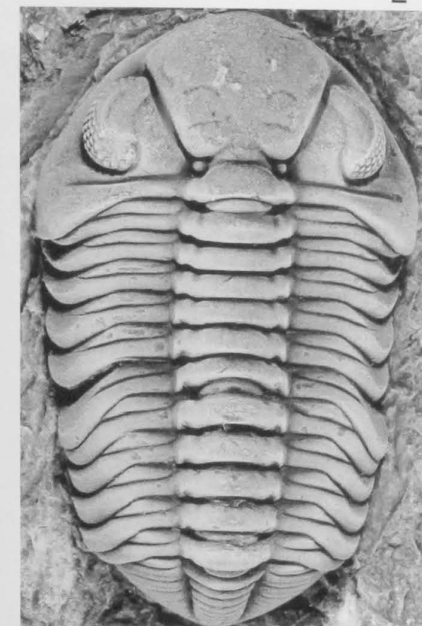
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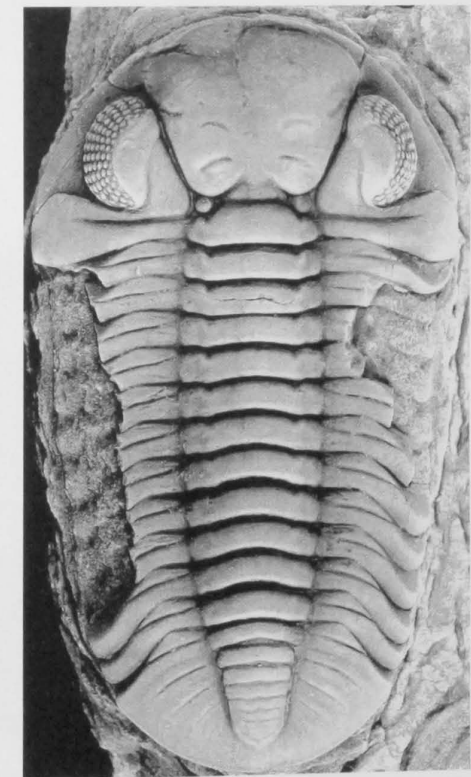
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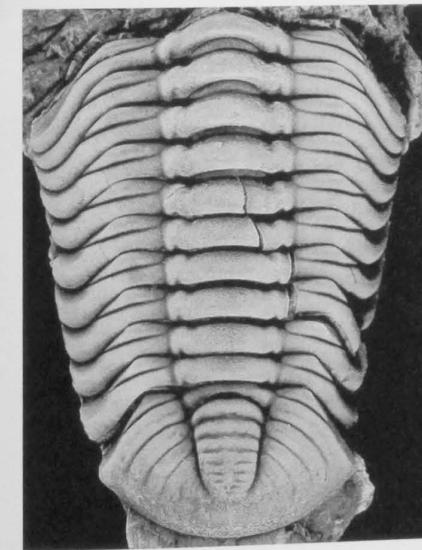
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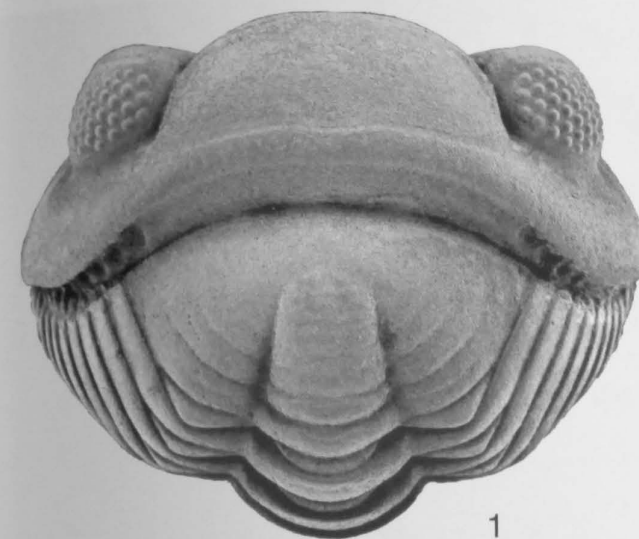


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PLATE 32

Figs. 1-6. *Acernaspis orestes* (Billings, 1860). All pictures are scanning electron micrographs. All are from Jupiter Formation.

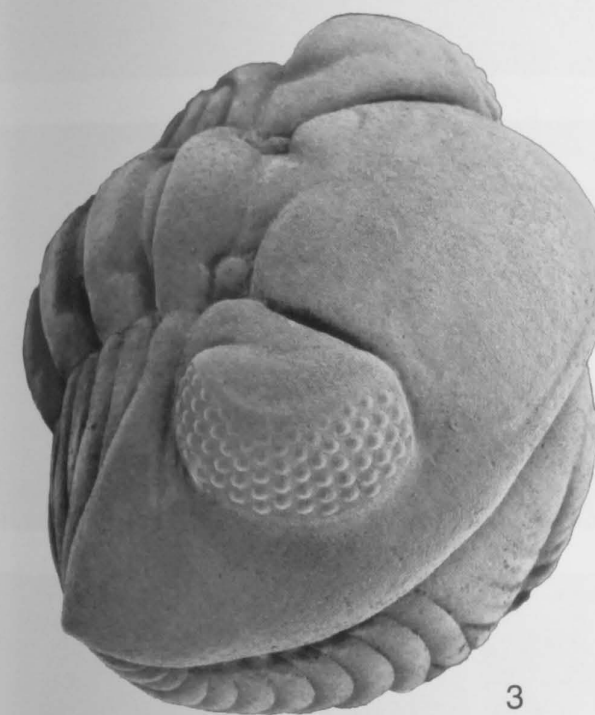
- 1-3. GSC122339, anterior, dorsal and dorsolateral views of enrolled articulated specimen X9.4, X9 and X10. Locality AN68, Richardson or Cybèle Member.
- 4-6. GSC122340, anterior, dorsal and right lateral views of enrolled articulated exoskeleton X6.6, X6.3 and X7.6. Locality A1158, lower Cybèle Member.



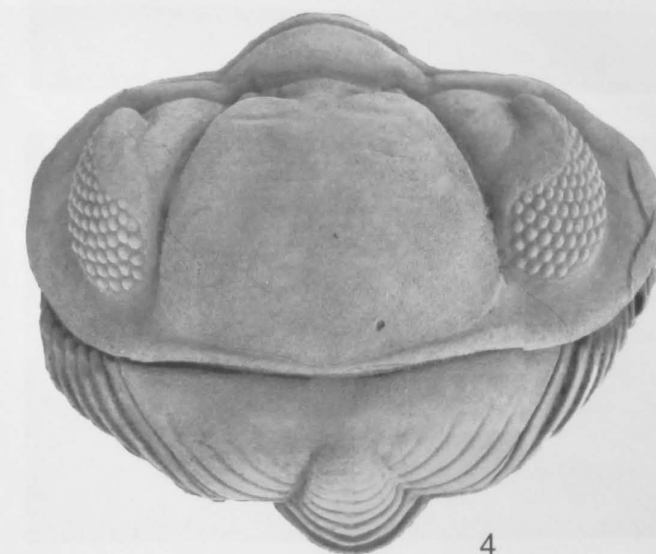
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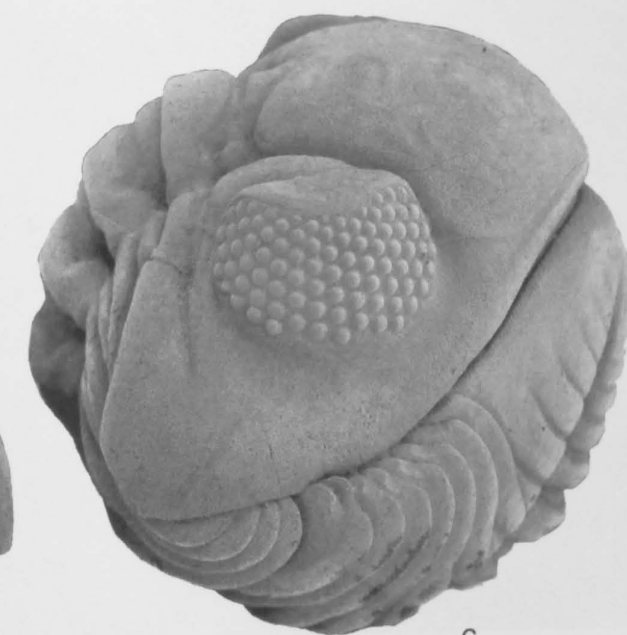
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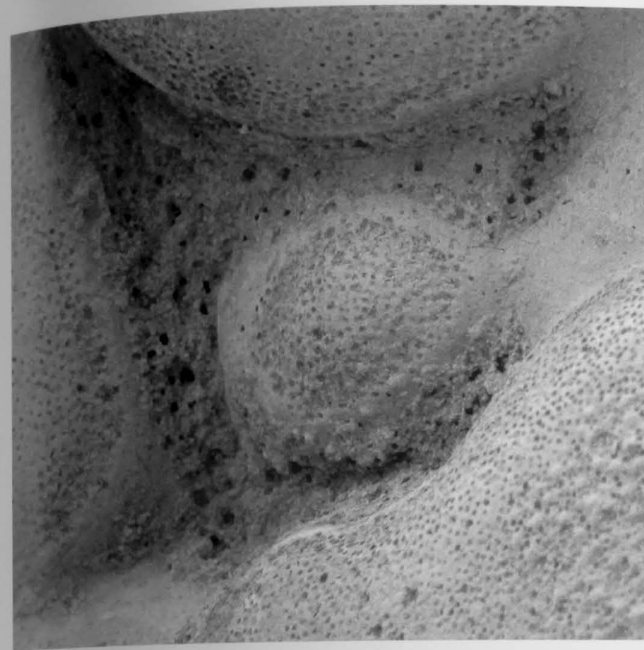


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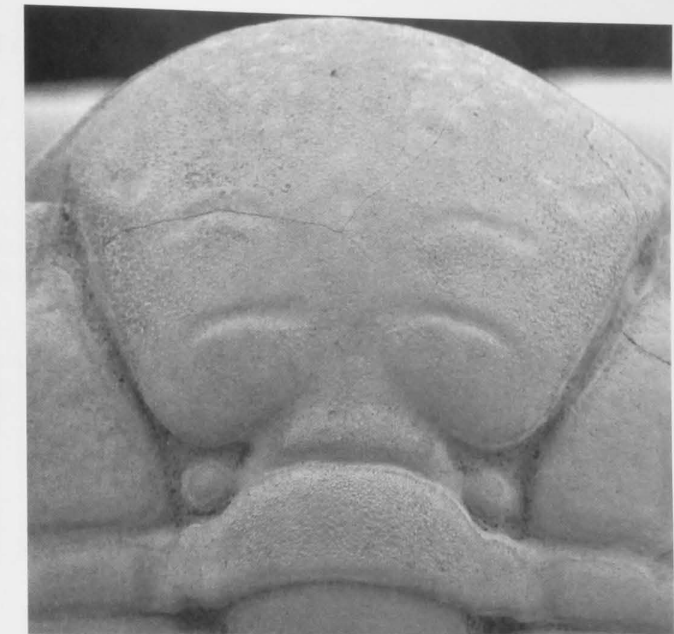
PLATE 33

Figs. 1-6. *Acernaspis orestes* (Billings, 1860). All pictures are scanning electron micrographs. All are of GSC122340 (see pl.32, figs 4-6), Locality A1158, lower Cybèle Member of Jupiter Formation.

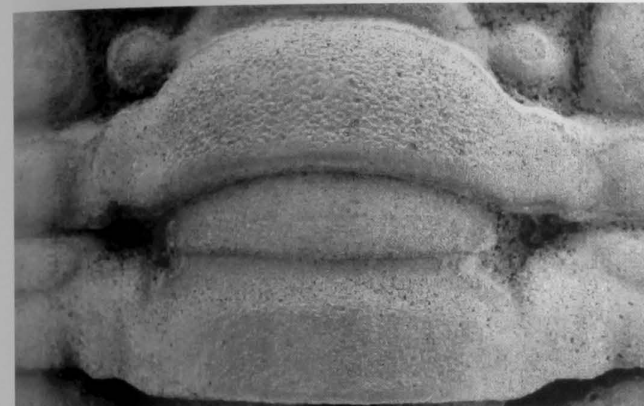
1. Detail of cephalon, showing L1 and part of L0, left fixed cheek and left side of glabella X75.
2. Dorsal view of middle of cephalon X14.
3. Dorsal view of median part of L0 and anteriormost thoracic segment X19.
4. Detail of sculpture on axial ring of second thoracic segment X105.
5. Detail of anterodorsal part of left eye X93.
6. Anterodorsal view of left eye X25.



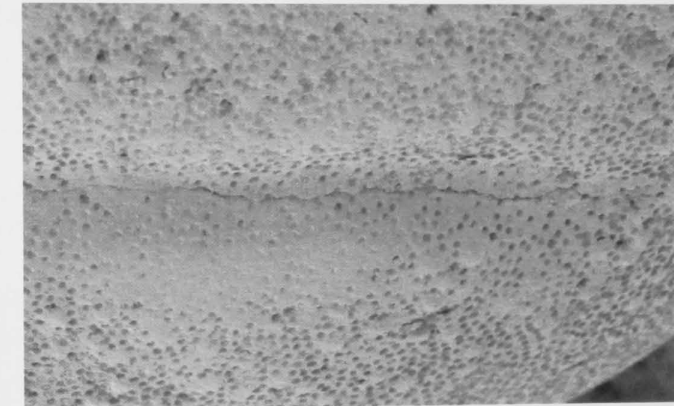
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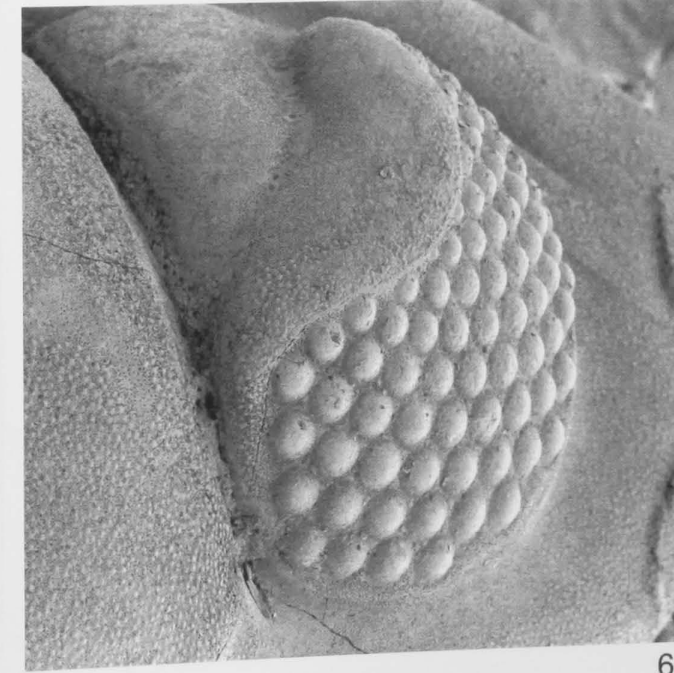
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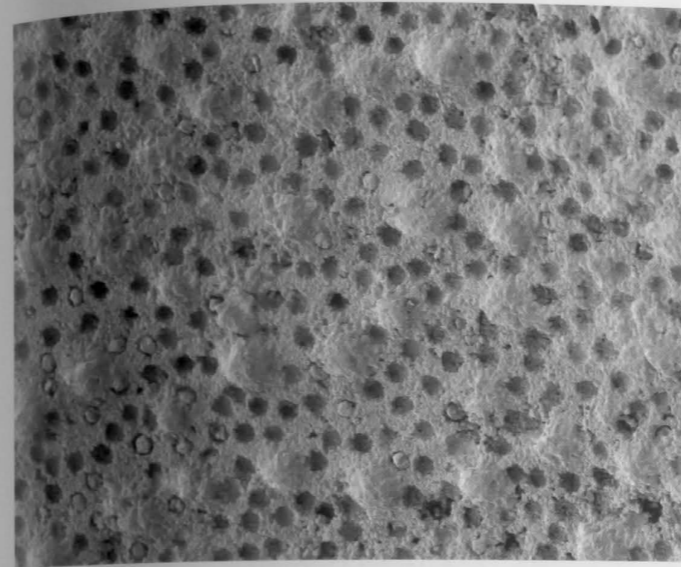


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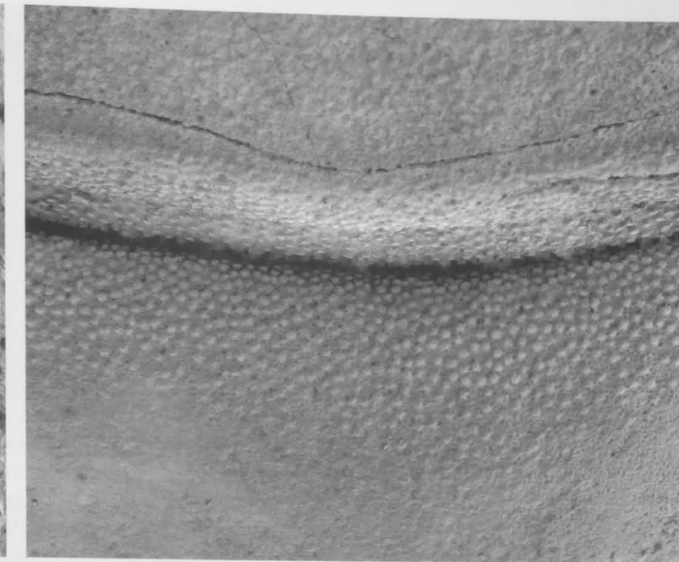
PLATE 34

Figs. 1-6. *Acernaspis orestes* (Billings, 1860). All pictures are scanning electron micrographs of enrolled, articulated specimen GSC122340 (see pl.32, figs 4-6), Locality A1158, lower Cybèle Member of Jupiter Formation.

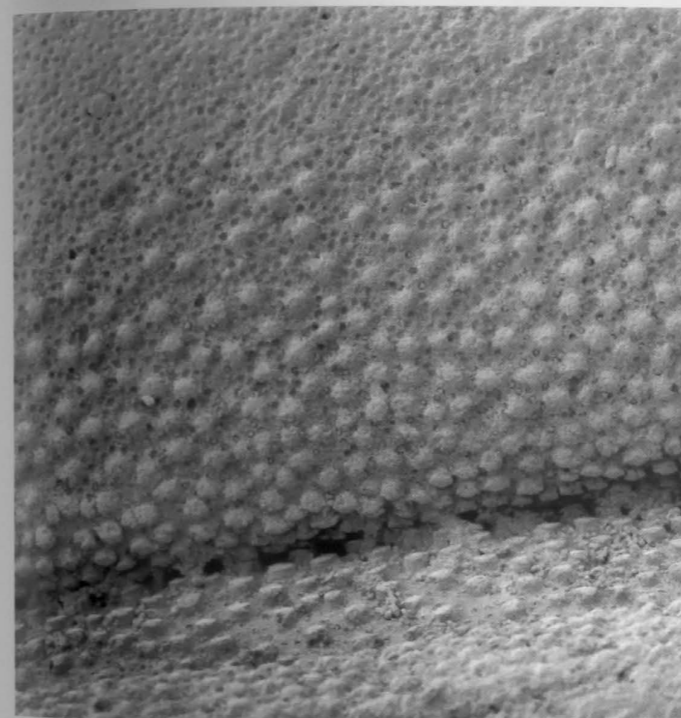
1. Detail of granulose and pitted microsculpture on margin of pygidium X260.
2. Anterior view of margin of cephalon and pygidium X43.
- 3, 4. Progressively more magnified views of margin of pygidium and cephalon X90 and X350.
5. View of sculpture on doublure of cephalon (above), showing asymmetrical shape of granules X200. Edge of pygidium at bottom of picture.
6. Close view of axial furrow in right side of cephalon, showing pitted microsculpture in and adjacent to furrow X220.



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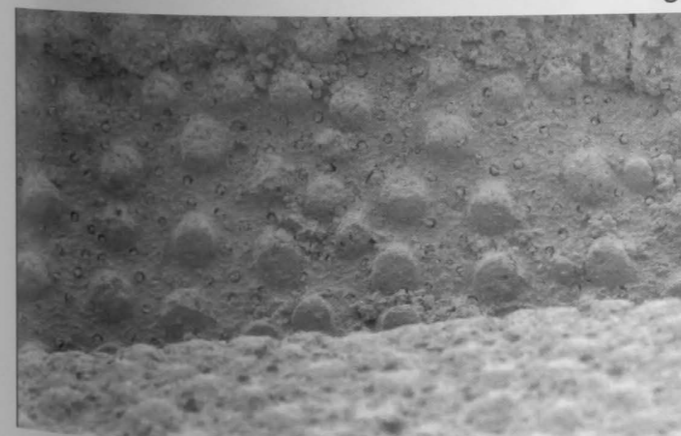
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PLATE 35

Figs. 1-14. *Acernaspis becsiensis* Lespérance and Letendre, 1982.

- 1-3. Holotype GSC67146, anterior, dorsal, and dorsolateral views of partial cephalon, Becscie Formation, GSC locality 33650, "95,325-92,725 feet above mouth of Salmon River", x9.7, x8.1, and x9.1. Note genal angle is present on this specimen in illustrations of Lespérance and Letendre, but was not present on specimen when we borrowed it to rephotograph it.
4. GSC67148 (note this number is assigned to this specimen in GSC type collections, but same number is assigned to paratype small pygidium in Lespérance and Letendre, 1982), dorsal view of pygidium from same locality as holotype, x7.
5. Paratype GSC69147, ventral view of part of cephalic doublure, on same rock specimen as holotype, x10.8.
6. GSC67147b, dorsal view of slightly crushed pygidium on same rock as holotype and paratypes GSC67148 and 69147, x9.3.
- 7-10, 12-14. GSC122341, enrolled partly crushed exoskeleton from Becscie Formation, GSC locality 62235, "La Loutre Road. (Laurentide Pool Road) near junction." 7 - 10, dorsal, dorsolateral, anterior and lateral views, x4, x4, x4.5, x5.2. 12, 13, 14, details in dorsal view, x15, x5.6, x8.
11. Paratype GSC67148, dorsal view of small pygidium, on same block of rock as holotype and GSC69147, x12.5.

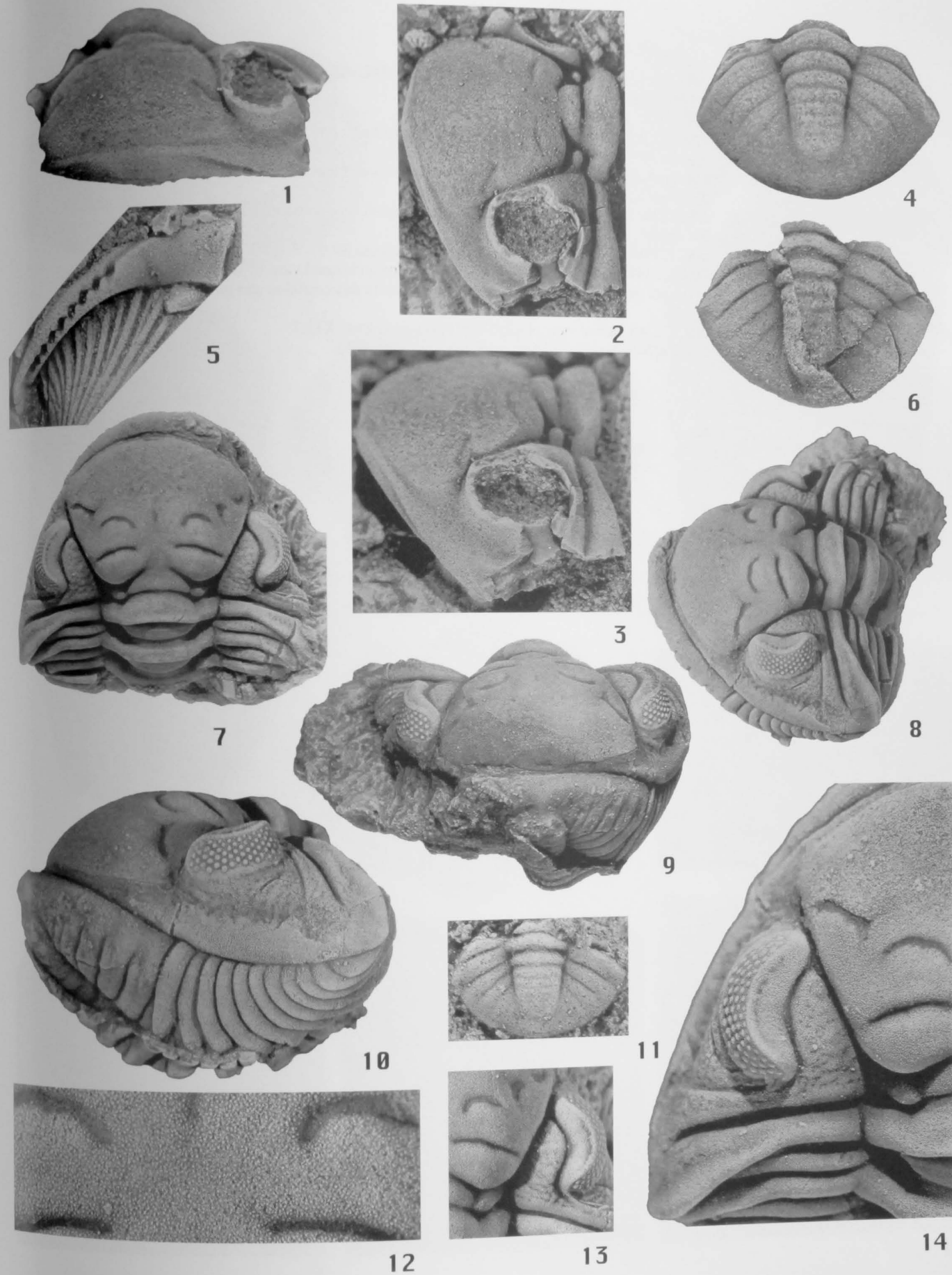


PLATE 36

Figs. 1-11. *Acernaspis boltoni* Lespérance and Letendre, 1982. All specimens from Locality AN15, Goéland Member of Jupiter Formation.

- 1, 8. GSC122342, dorsal and dorsolateral views of crushed, enrolled exoskeleton X7 and X9.4.
- 2, 4, 6. UA 9464, anterior, ventral and lateral lateral views of enrolled exoskeleton X6.2, X6.2 and X5.5.
- 3, 7. GSC122343, lateral and anterior views of enrolled, partly exfoliated exoskeleton X4.4 and X4.5.
5. GSC122380, dorsal view of outstretched exoskeleton X4.5.
9. GSC122344, ventral view of incomplete cephalon and lateral view of some thoracic segments (probably, but not definitely, belonging to this cephalon and this species) X13.3.
10. GSC122345, dorsal view of partly enrolled exoskeleton X12.7.
11. GSC122346, dorsolateral view of part of cephalon X 7.8.

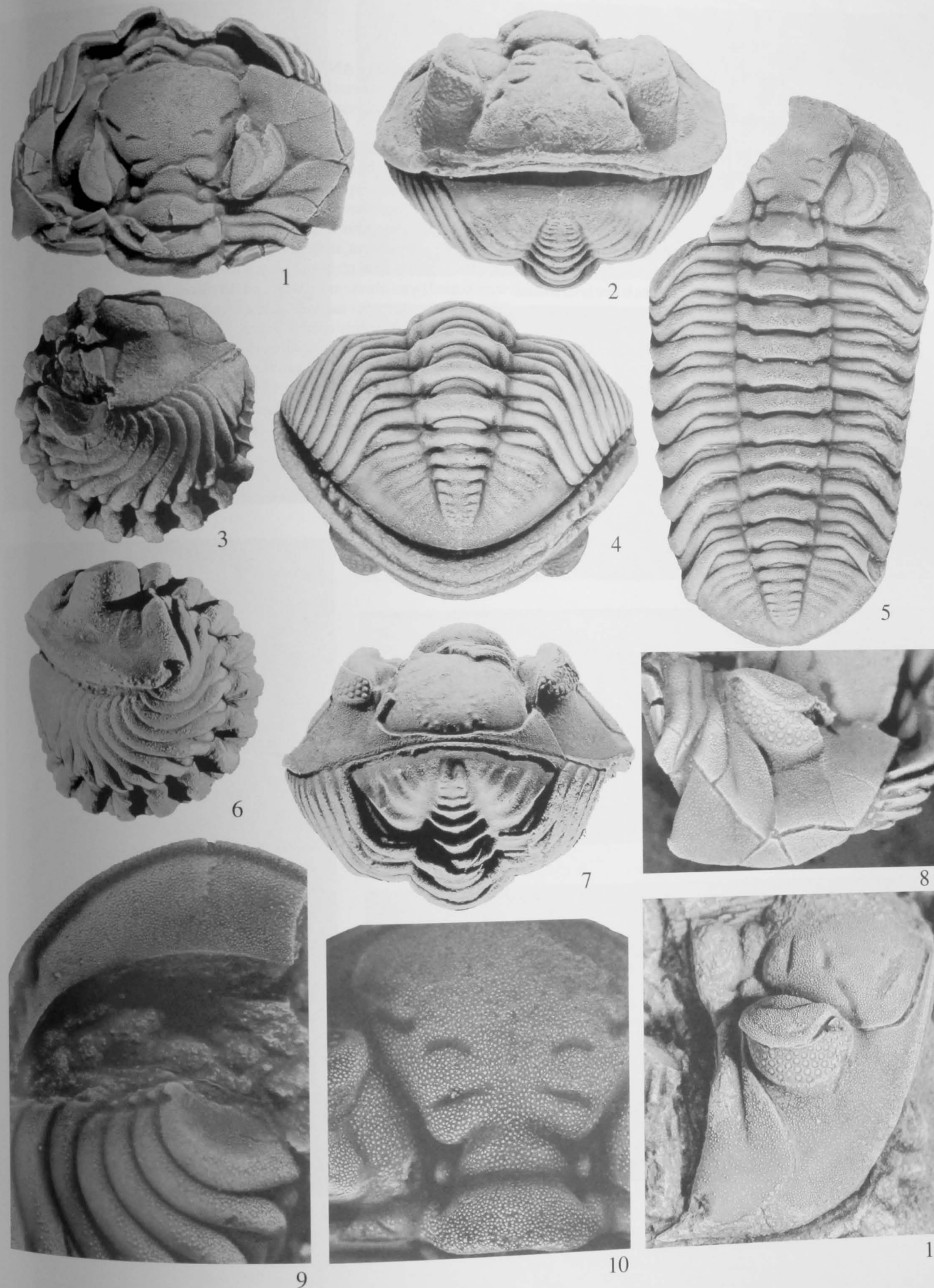


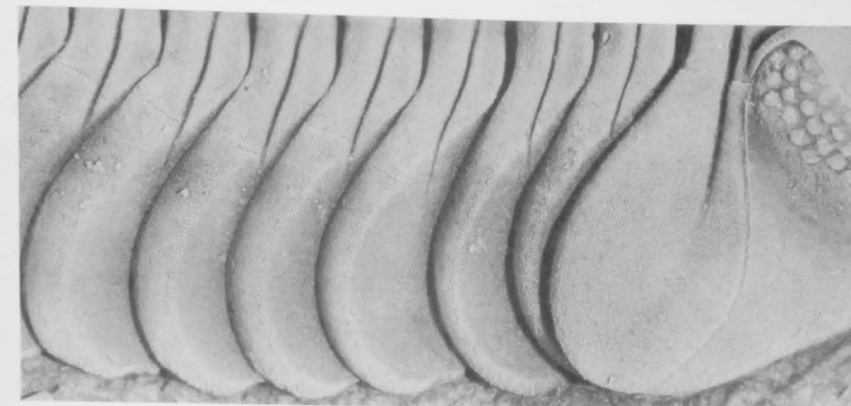
PLATE 37

Figs. 1-6. *Acernaspis copperi* n. sp. All specimens from Locality AN78, at approximate low tide mark, immediately to west of Jumper's (see appendix for more details), south coast of Anticosti Island, Québec. Near base of Pavillon Member of Jupiter Formation.

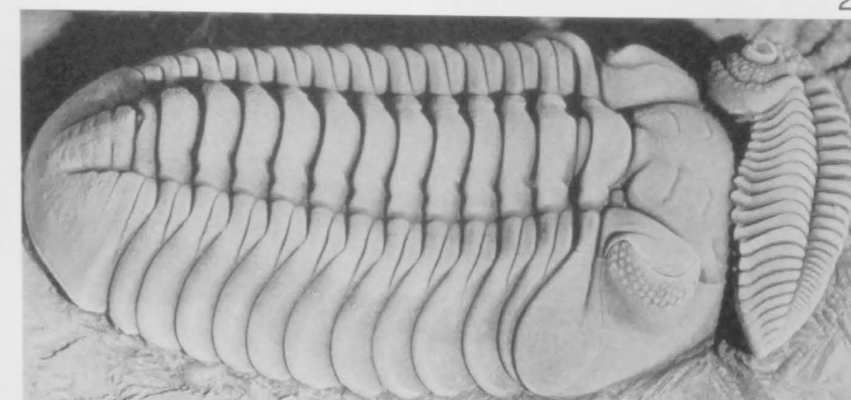
1. Paratype GSC122347, dorsal view of cephalon and thorax X6.
- 2-6. Holotype GSC122348, specimen with a complete small exoskeleton of *Rielaspis elegantula* (Billings, 1866) on the front of the holotype of *Acernaspis copperi* n. sp. This unusual juxtaposition of two carcasses could have been caused by a variety of events. The completeness of both specimens suggests that they were either buried alive, or if they were disturbed by any physical event, it was before any substantial degree of decay had taken place. One scenario to explain the juxtaposition of these specimens is that both animals were buried by an obrution deposit, and the *Acernaspis* animal bumped into and turned sideways the *Rielaspis* individual as it unsuccessfully attempted to escape forwards (and upwards?) from this muddy grave. The *Rielaspis* acting as an obstruction could have foiled it in its escape. Another possibility is that the *Acernaspis* animal was ploughing through the muddy substrate when it ran into the *Rielaspis* animal. Somehow the two animals locked together and died before they could separate. It is difficult to argue that one animal was scavenging or preying on the other, since there are no signs of disarticulation or damage (other than flattening as a result of diagenesis) to either of the specimens.
2. Close up of the right flank of the holotype of *Acernaspis copperi* X10.
- 3-6. Dorsolateral and dorsal views X4.3, X4.3, X4.4, and 4.3.



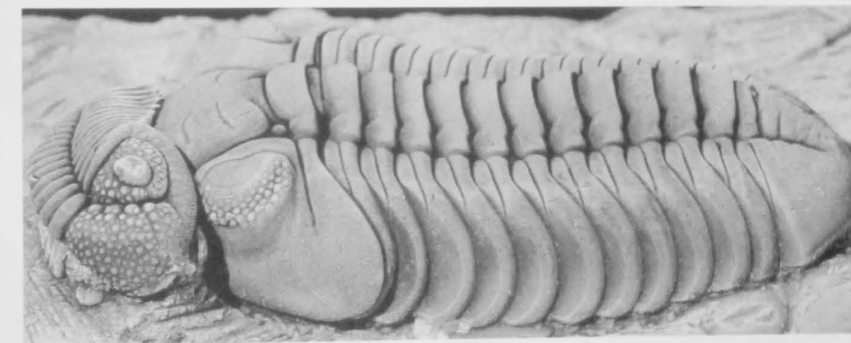
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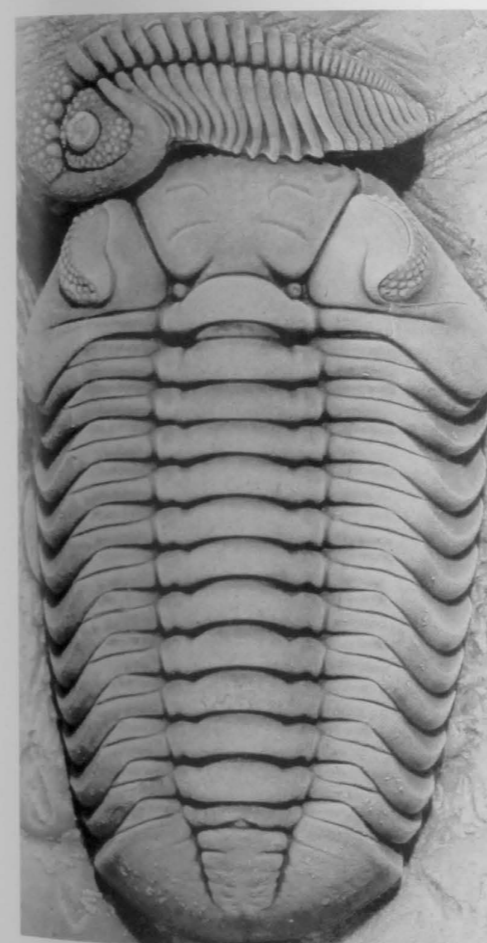
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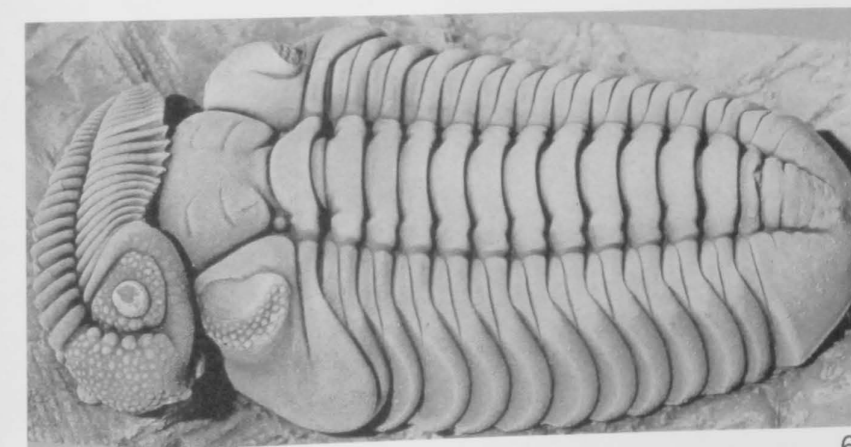
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PLATE 38

Figs. 1-13. *Acernaspis copperi* n. sp. All are from Pavillon Member of Jupiter Formation.

1. Paratype GSC122317, lateral view of enrolled articulated specimen X5.8. Locality AN12.
2. Paratype GSC122349, ventral view of incomplete cephalon X7.8. Locality AN12.
3. Paratype GSC122350, dorsal view of cephalon X5.6. Locality AN12.
- 4, 7, 8. Paratype GSC122351, dorsal, anterior and lateral views of cephalon X5.3, X5.1. Locality AN12.
- 5, 6. Paratype GSC122352, left lateral and anterodorsal views of cephalon and thorax X6 and X5.1. Locality AN36.
9. Paratype GSC122353, dorsal view of pygidium X5.4. Locality AN12.
10. Paratype GSC122354, dorsal view of pygidium X6. Locality AN78, basal part of member.
11. Paratype GSC122355, dorsal view of thorax and pygidium X6.45. Locality AN36.
- 12, 13. Paratype GSC122356, dorsal and dorsolateral views of almost complete exoskeleton X4.5 and X4.3. Locality AN36.

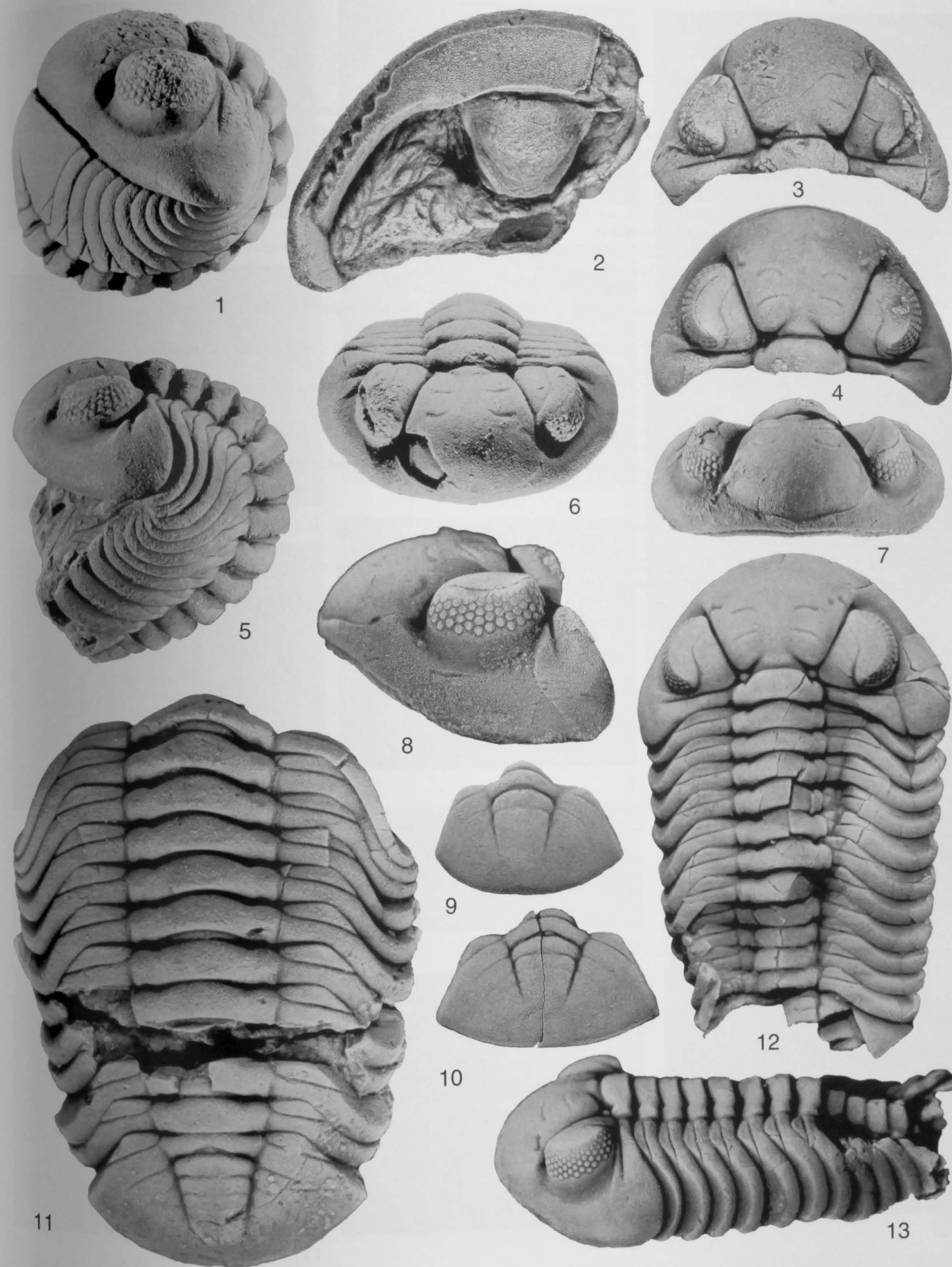


PLATE 39

Figs 1-6. *Dalmanites jupiterensis* Twenhofel, 1928.

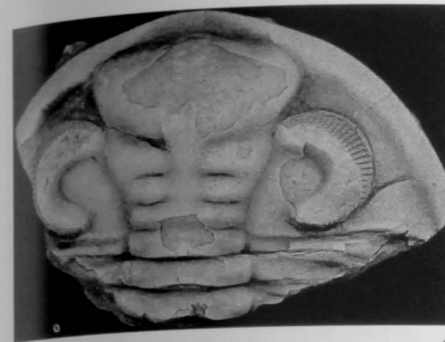
1. Holotype YPM 22763, dorsal view of incomplete exoskeleton X2.2. From cliffs east of Jupiter River, Zone 7 Jupiter Formation (? Richardson or Cybèle Member).
- 2-4. GSC122357, anterodorsal, dorsal and dorsolateral views of cephalon X4, X4.4 and X3.9. Locality unknown (collected by Pierre Gonin), Jupiter Formation, Anticosti Island.
5. GSC122358, dorsal view of pygidium X8.6. Locality AN88, Goéland Member of Jupiter Formation.
6. GSC122360, dorsal view of pygidium X3.4. Locality AN15, Goéland Member of Jupiter Formation.

Figs. 8, 9, 11, 12. *Daytonia jollieti* n. sp. All are from Goéland Member of Jupiter Formation.

8. Paratype GSC67067, dorsal view of largely exfoliated cephalon X2.1. Locality AN23, uppermost part of member (GSC locality 66803).
9. Paratype GSC122359, detail of microsculpture on cranidium X8. Locality AN23, uppermost part of member.
11. Paratype GSC29689, dorsal view of cephalon X1.3. Locality AN23, uppermost part of member (GSC locality 66803).
12. Paratype GSC29688, dorsal view of pygidium X1.3. Locality AN23, uppermost part of member (GSC locality 66803).

Figs. 7, 10, 13. *Bessazon gibbae* n. sp.

- 7, 10. Paratype GSC122361, dorsal and close-up views of cephalon X1.7 and X8.8. Locality AN23, Goéland Member of Jupiter Formation.
13. Holotype GSC122362, dorsal view of pygidium X2.6. Locality AN23, Goéland Member of Jupiter Formation.



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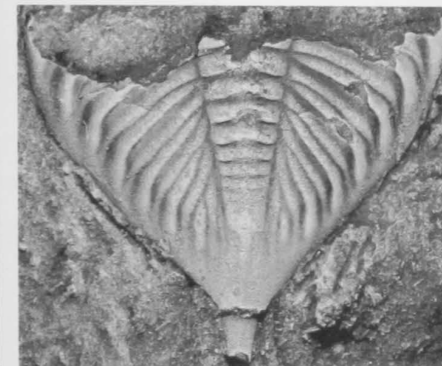
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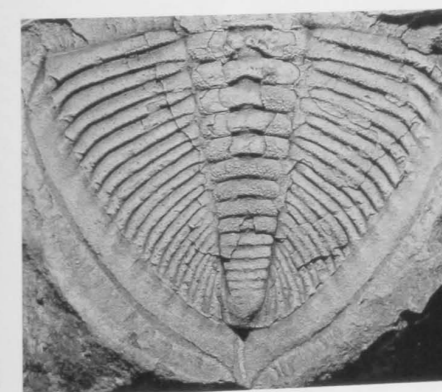
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PLATE 40

Figs. 1, 4, 6, 7. *Daytonia jollieti* n. sp.

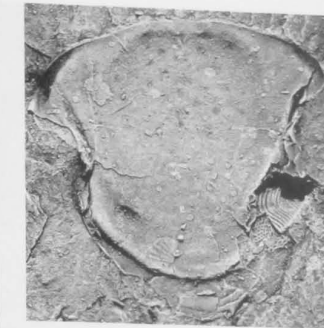
- 1, 4. Counterparts of holotype GSC122363a and GSC122363b, ventral and dorsal views of cephalon X2.4. Locality AN23, Goéland Member of Jupiter Formation.
6. Paratype GSC122364, dorsal view of pygidium X2.5. Locality AN23, Goéland Member of Jupiter Formation.
7. Paratype GSC122367, dorsal view of cephalon X2.35. Locality AN23, Goéland Member of Jupiter Formation.

Figs. 2, 3. *Daytonia jollieti* n. sp. or *Bessazon gibbae* n. sp. It is not, at present, possible to assign this hypostome to either of these two species. Both are present where it was found.

- 2, 3. Counterparts of GSC122365a and GSC122365b, dorsal and ventral views of hypostome X3.7. Locality AN23, Goéland Member of Jupiter Formation.

Fig. 5. *Bessazon gibbae* n. sp.

5. Paratype GSC122361b, ventral view of cephalon X2.3. Locality AN23, Goéland Member of Jupiter Formation.



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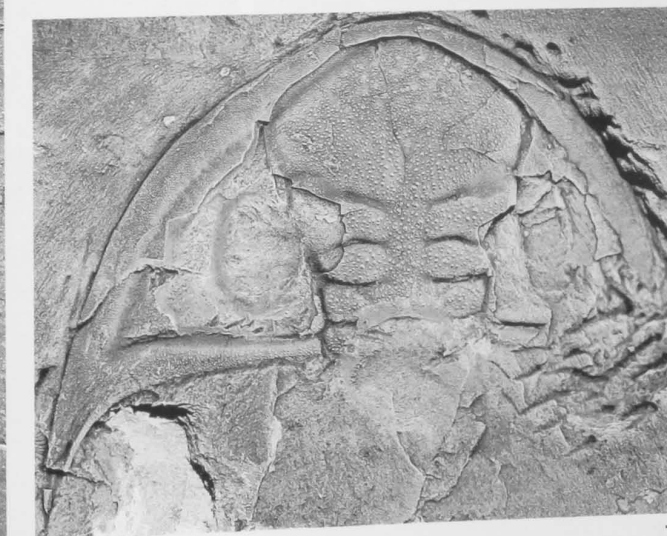
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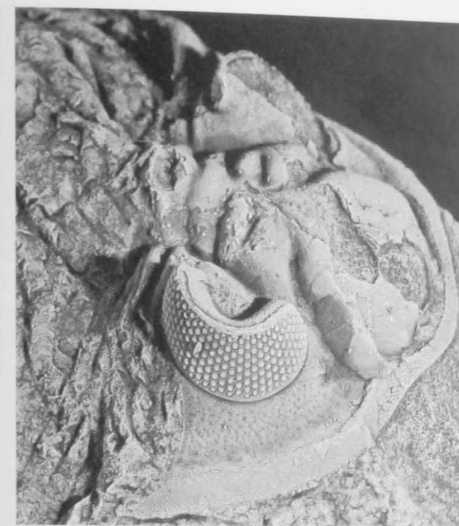
PLATE 41

Figs. 1-10. *Dalmanites jupiterensis* (Twenhofel, 1928). All are from locality AN88, Goéland Member of Jupiter Formation.

- 1, 5. GSC122520, dorsal, dorsolateral, and dorsolateral views of cephalon X2, and X6.
 2, 3, 4, 8. GSC123142, dorsolateral, dorsal, dorsolateral and anterodorsal views of cephalon X4.4, X2.5, X8.5, and X10.
 6. GSC123143, dorsal view of cephalon X2.6.
 7. GSC123144, dorsal view of latex of pygidium X2.85.
 9, 10. GSC123145, dorsal views of pygidium X10 and X4.2.



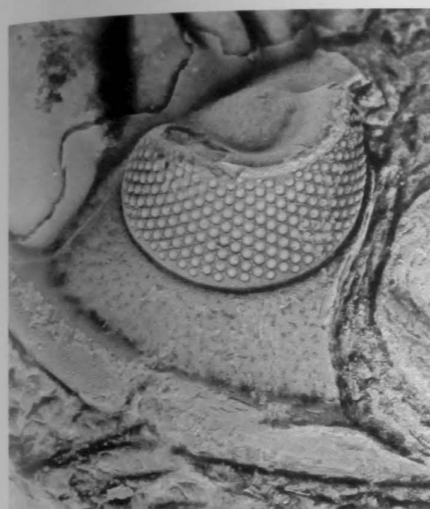
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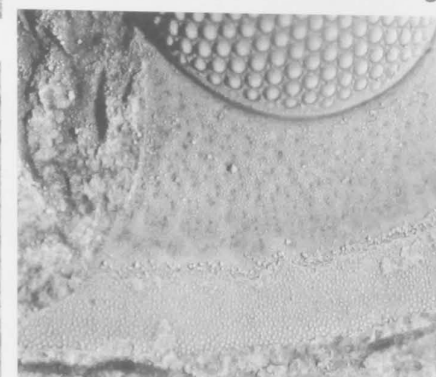
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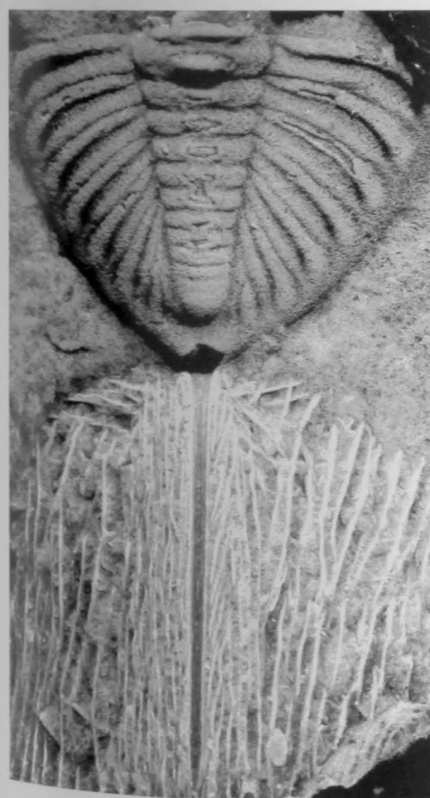
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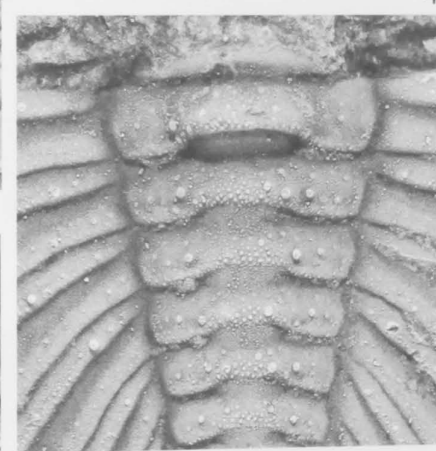
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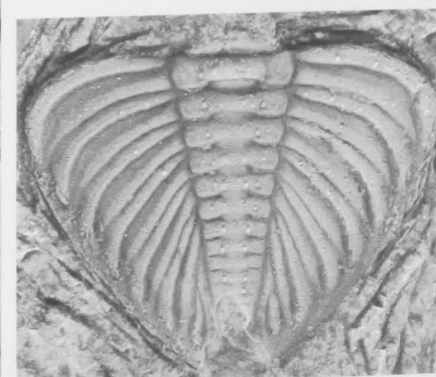
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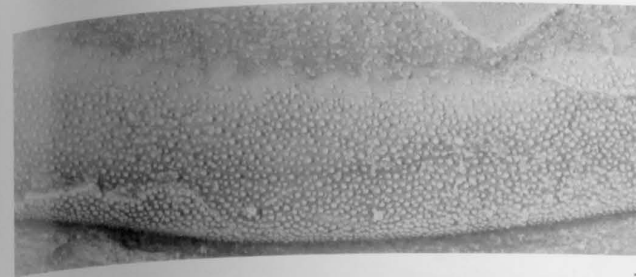
PLATE 42

Figs. 1, 3-6. *Daytonia jollieti* n. sp. All are from locality AN23, uppermost Goéland member of Jupiter Formation.

- 1, 3. Paratype GSC122367, details of dorsal surface of cephalon (left free cheek, and middle of glabella) X8.4, and X14.
4. Holotype GSC122363b, detail of ventral surface of cheek of X11.
5. Paratype GSC122364, detail of dorsal surface of pygidium (axis and inner region of right pleura) X13.
6. Paratype GSC122366, ventral view of part of pygidium X12.

Fig. 2, 7. *Bessazon gibbae* n. sp. All are from locality AN23, uppermost Goéland member of Jupiter Formation.

2. Paratype GSC123146, detail of dorsal surface of back of glabella of incomplete articulated individual X8.6.
7. Holotype GSC122362, detail of dorsal surface of pygidium (axis and part of right pleura) X18. Locality AN23.



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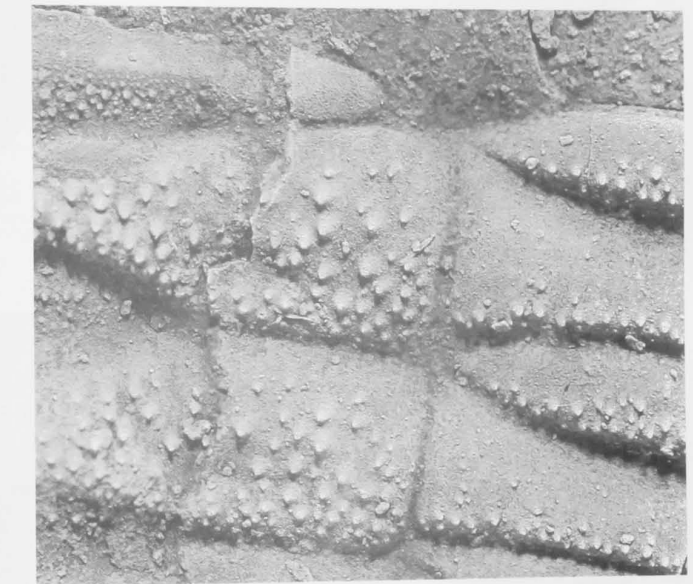
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PLATE 43

Figs. 1-9. *Calymene barnesi* n. sp. All are from lower Becscie Formation, Fox Point Member (?).

- 1, 2. Holotype GSC122369, dorsal and lateral views of articulated specimen X6.1 and X6.75. Locality AN22.
- 3, 9. Paratype GSC122370, lateral view of cephalon and dorsal view of pygidium X6.8 and X6.1. Locality AN22.
- 4, 7. Paratype GSC122371, dorsolateral and dorsal views of silicon rubber cast from external mould X3.4, X5.8. Locality AN6, 800T.
5. Paratype GSC122372, dorsal views of exoskeleton X4.75. Locality AN22.
- 6, 8. Paratype GSC122373, lateral and dorsal views of exoskeleton X4.9 and X7. Locality AN22.

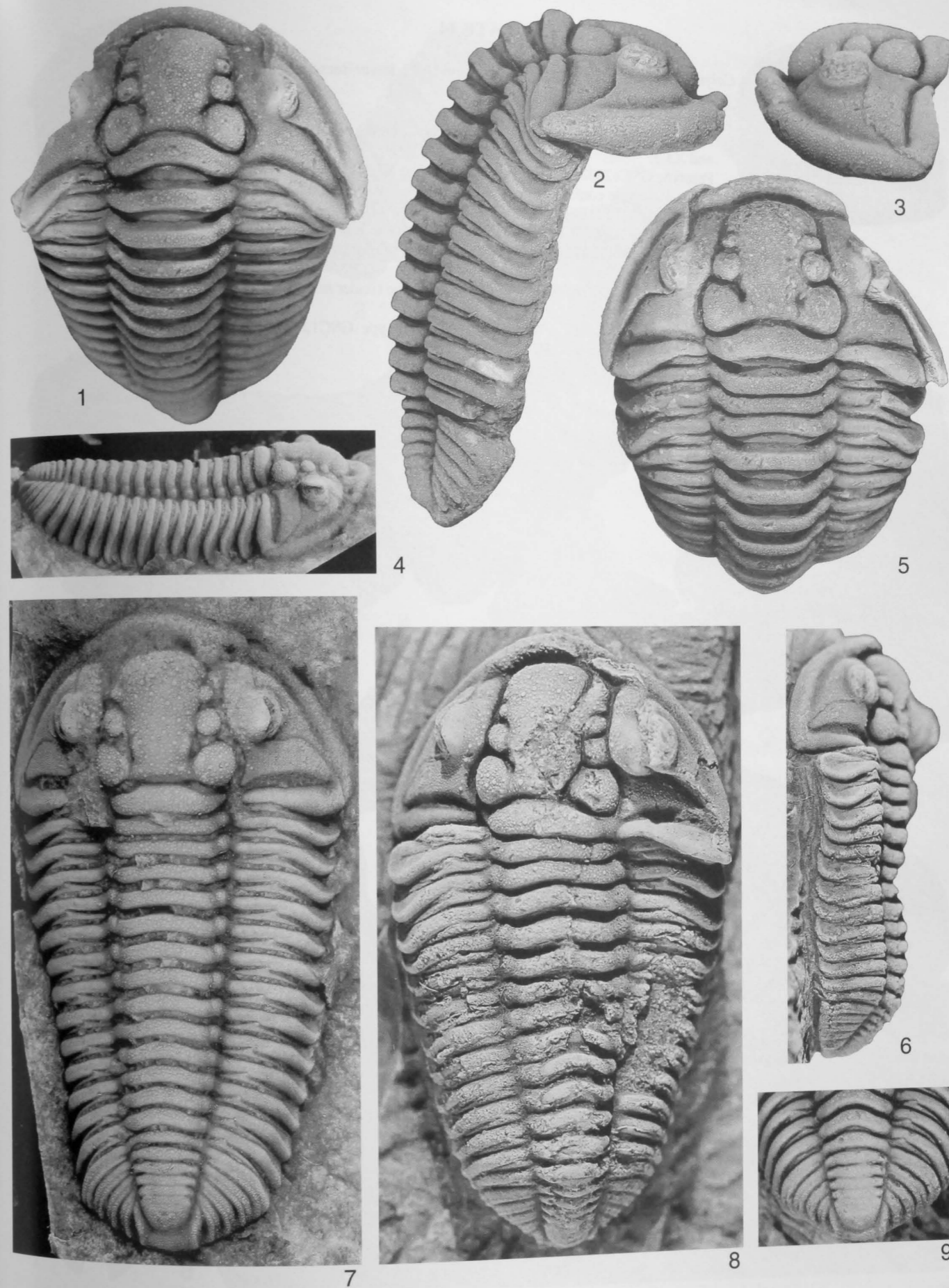


PLATE 44

Figs. 1-8. *Calymene barnesi* n. sp. All are from locality AN22, lower Becscie Formation, Fox Point Member (?).

- 1, 2. Holotype GSC122369, dorsal and dorsolateral views of articulated specimen X3.6 and X3.7.
3. Paratype GSC122374, lateral view of cephalon X5.7.
4. View of sample containing several specimens, the holotype GSC122369 (on left), paratype GSC122374 (on right), and paratype GSC122375 X5 (middle).
5. Paratype GSC122370, anterior view of exoskeleton X6.3.
6. Paratype GSC122372, ventral view of part of paratype exoskeleton showing hypostome X7.7.
7. Paratype GSC122376, ventral view of hypostome (under middle specimen of figure 8), X10.
8. View of sample with several specimens, paratype GSC122370 (left), paratype GSC122372, paratype GSC122376 (middle), X5.

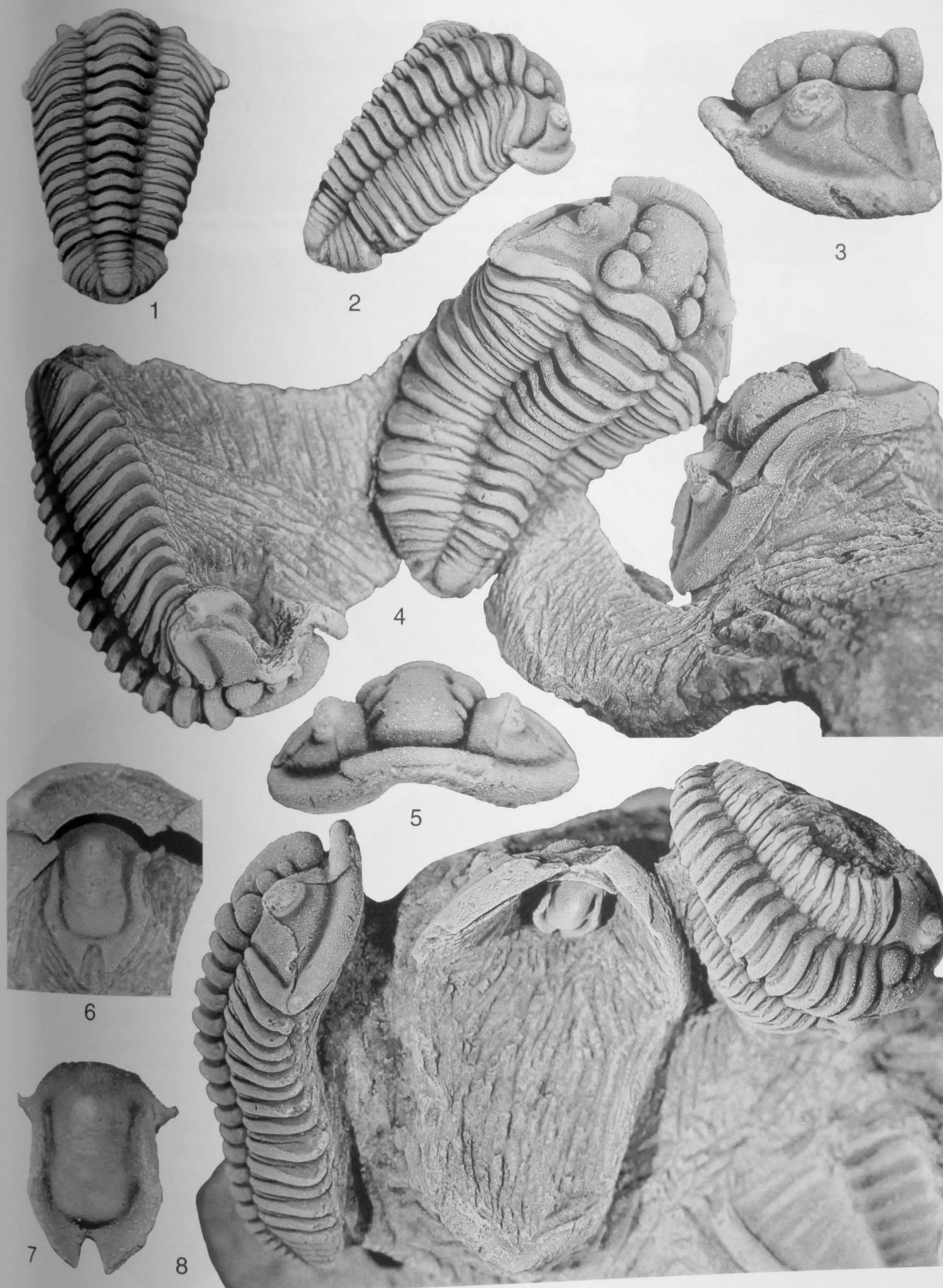


PLATE 45

Figs. 1-10. *Calymene gamachei* n. sp. All are from Pavillon Member of Jupiter Formation.

- 1, 2, 9, 10. Holotype GSC122377 dorsolateral, anterior, posterodorsal and dorsal views of articulated specimen X3.5, X3.8, X5, and X3.7. Locality AN36.
 3, 8. Paratype UA9471, dorsolateral and dorsal views of exoskeleton X2.9 and X2.9. Locality AB87-17.
 4. Paratype GSC122378, posterodorsal view of pygidium on exoskeleton X4.4. Locality AN36.
 5, 7. Paratype GSC122379, dorsal and anteroventral views of enrolled exoskeleton X2.7 and X2.7. Locality AN78.
 6. Paratype GSC66065, anterior view of enrolled exoskeleton X3. Locality AN12 (GSC76200), collected about 3m below Chicotte Formation.

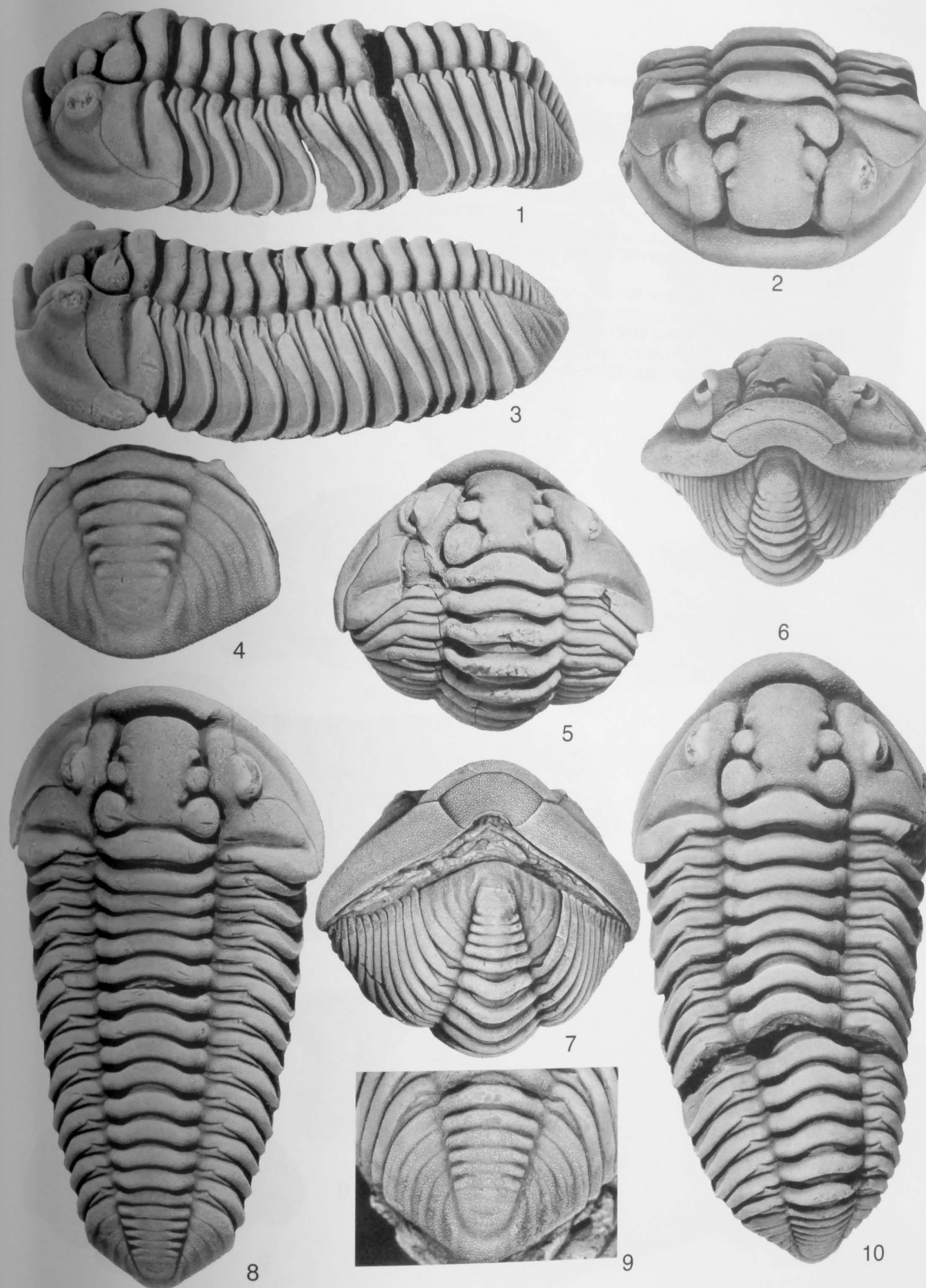


PLATE 46

Figs. 1-10. *Calymene gamachei* n. sp. All are from Pavillon Member of Jupiter Formation.

1. Paratype GSC122382, ventral view of articulated specimen X2.4. Locality AN36.
2. Paratype GSC122384, dorsal view of exoskeleton X6.3. Locality AN36.
- 3, 4, 6. Paratype GSC122383, dorsal view of exoskeleton X3.65, X 3.65, and X4.3. Locality A101, Ferrum or Pavillon Member.
5. GSC122385, dorsal view of slightly worn (on sea floor before burial?) cranidium X2.35. Locality AN36.
- 7, 8. Paratype GSC122381, ventrolateral and ventral views of hypostome X 4.85. Locality AN78.
9. Paratype GSC66065, dorsal view of enrolled exoskeleton X2.9. Locality AN12, specimen collected from about 3m beneath contact with Chicotte Formation.
10. Paratype GSC122713a-GSC 122713d, dorsal view of two complete (122713a on left; 122713b on right) and one partial exoskeleton (122713c) and ventral view of hypostome (122713d) X1.9. Locality AN36.

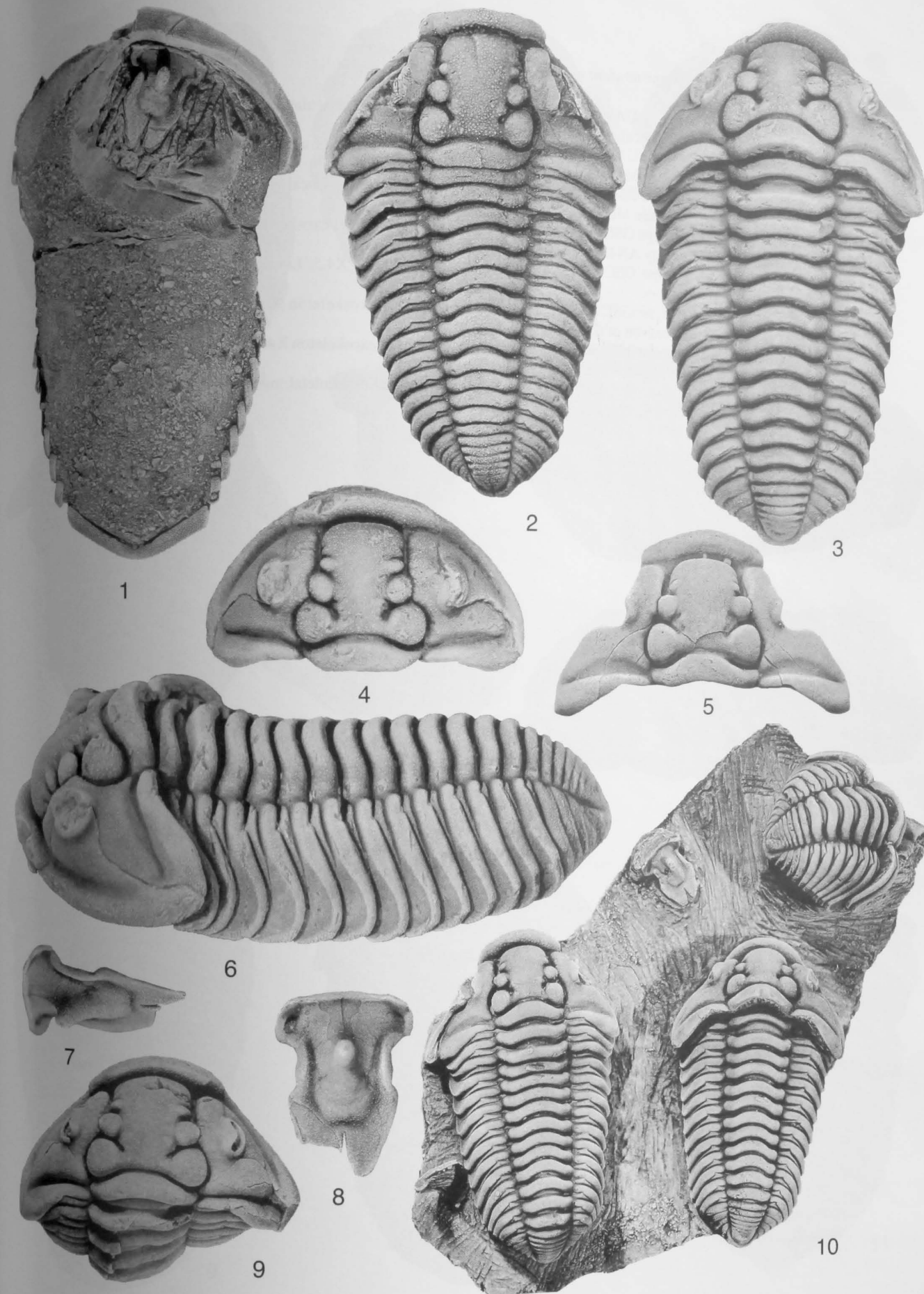


PLATE 47

Figs. 1-11. *Calymene nowlani* n. sp. All are from Jupiter Formation.

- 1, 3. Paratype UA9469, lateral and anterior views view of articulated specimen X4.6 and X3.3. Locality AN42, Richardson or Cybèle Member.
2. Paratype UA9470, lateral view of partly enrolled exoskeleton X4.25. Locality AN15, Goéland Member.
4. Paratype GSC122386, ventral view of hypostome X4.9. Locality AN42, Richardson or Cybèle Member.
- 5, 9. Holotype GSC122387, dorsolateral and dorsal views of exoskeleton X4.5 and X5.2. Locality AN42, Richardson or Cybèle Member.
6. Paratype GSC122388, ventral view of exoskeleton X4.5. Locality AN64, Cybèle Member.
7. Paratype GSC122389, ventral view of partial exoskeleton X3. Locality AN43, Richardson or Cybèle Member.
- 8, 11. Paratype GSC122390, lateral and dorsal views of exoskeleton X4.9 and X5. Locality AN44c, Richardson or Cybèle Member.
10. Paratype GSC122391, dorsal view of articulated exoskeletal moult X4.4. Locality AN64, Cybèle Member.

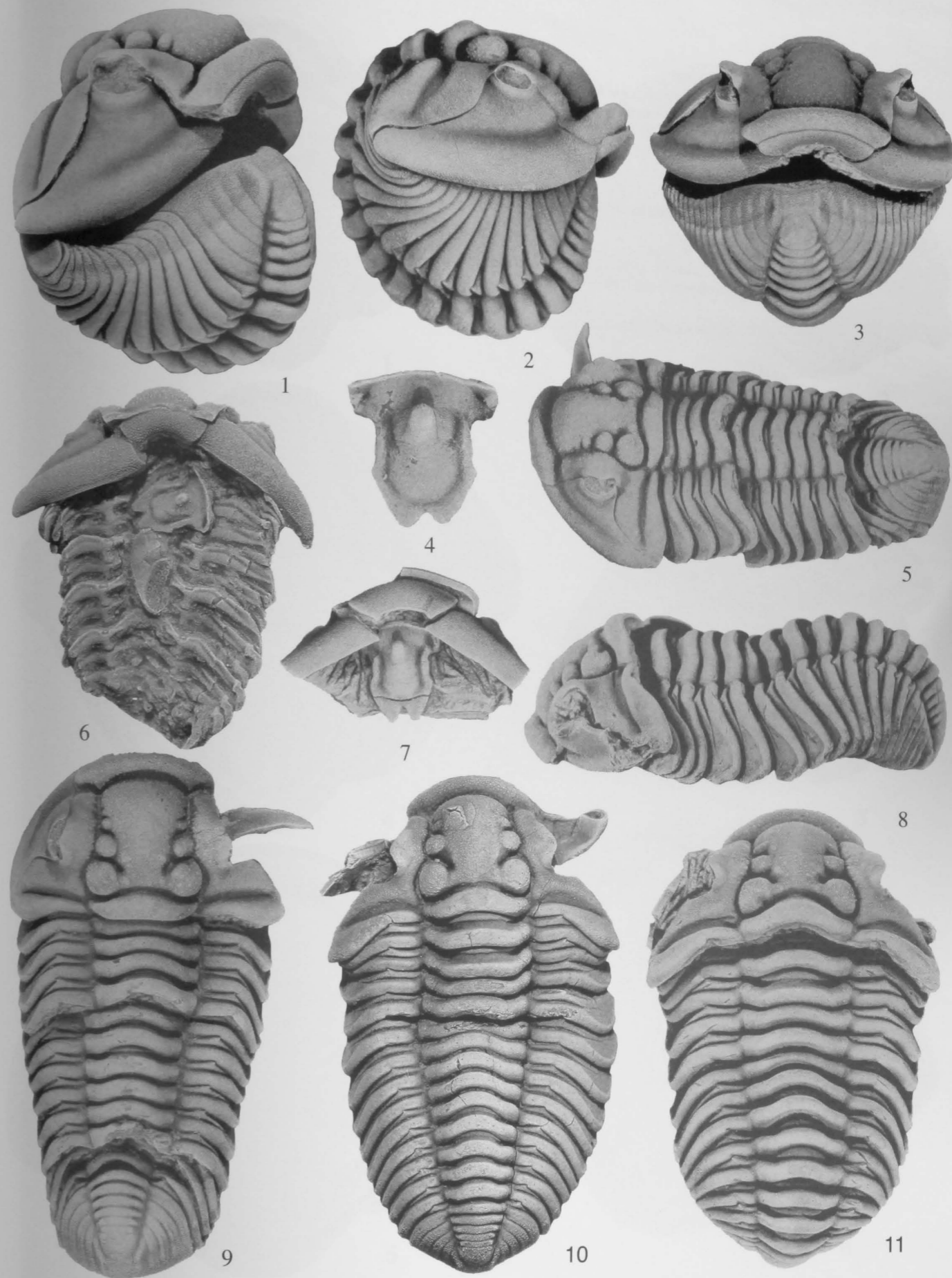


PLATE 48

Figs. 1-3. *Diacalymene schucherti* (Twenhofel, 1928). Locality AN44c, Richardson or Cybèle Member of Jupiter Formation.

1-3. GSC122392, anterior, dorsal and anterolateral views of small enrolled exoskeleton X10.

Figs 4-6. *Calymene nowlani* n. sp. Locality AN44c, Richardson or Cybèle Member of Jupiter Formation.

4-6. Paratype GSC122393, anterior, dorsal and anterolateral views of enrolled exoskeleton X14.

All pictures are scanning electron micrographs.

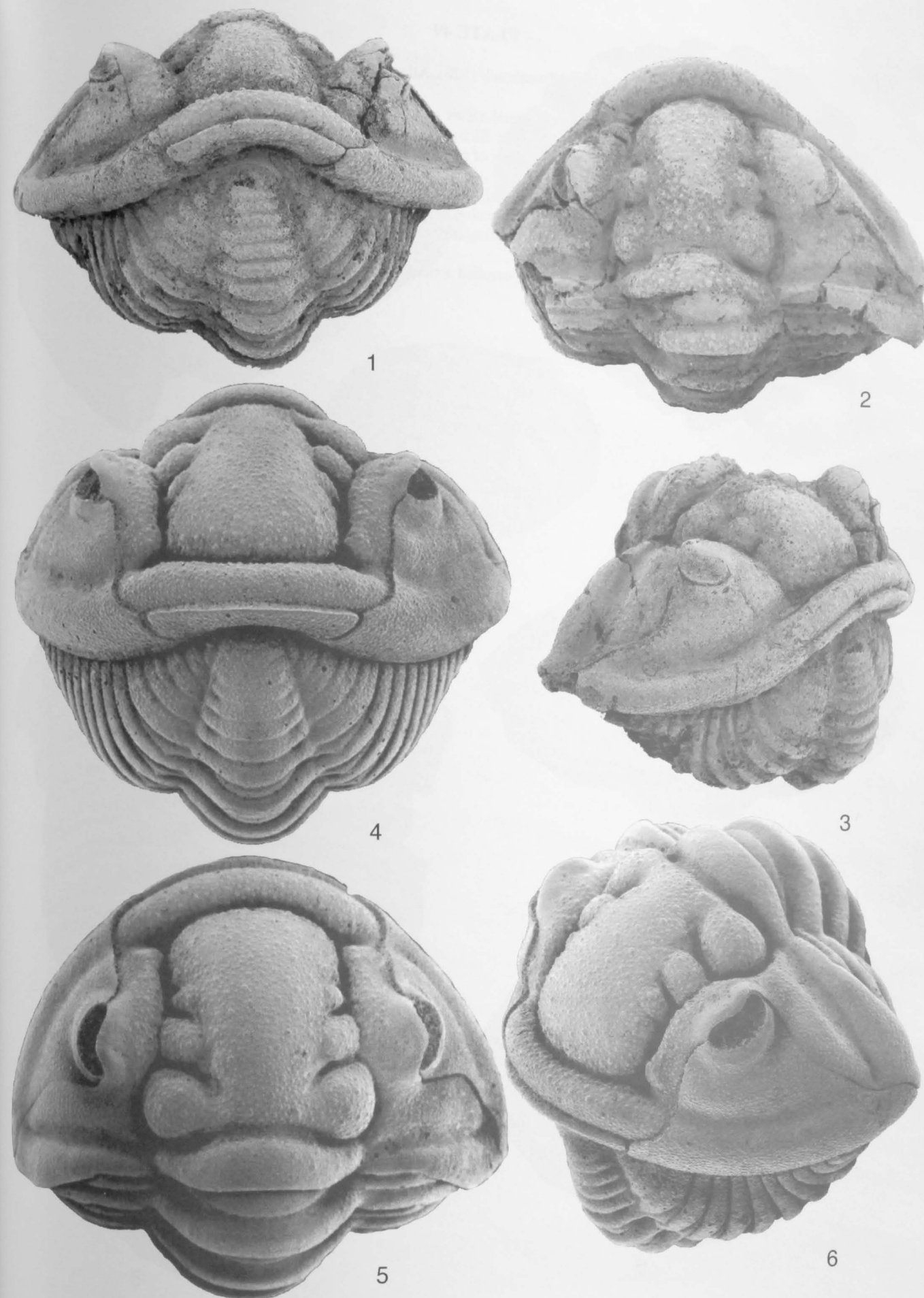


PLATE 49

Figs. 1-6. *Diacalymene schucherti* (Twenhofel, 1928). All are from Jupiter Formation.

- 1, 2. GSC122394, ventral and lateral views of enrolled articulated partial exoskeleton X1.5, and 1.6. Locality AN 44c. Richardson or Cybèle Member.
3. GSC122395, posterodorsal view of pygidium X2.3. Locality AN42. Richardson or Cybèle Member.
4. GSC122396, dorsal view of slightly disarticulated enrolled exoskeleton X4.4. Locality AN42. Richardson or Cybèle Member.
5. GSC122397, dorsal view of articulated exoskeleton X2. Locality A937, Cybèle Member.
6. GSC122398, dorsal view of enrolled articulated exoskeleton X4. Locality AN57, Cybèle Member.

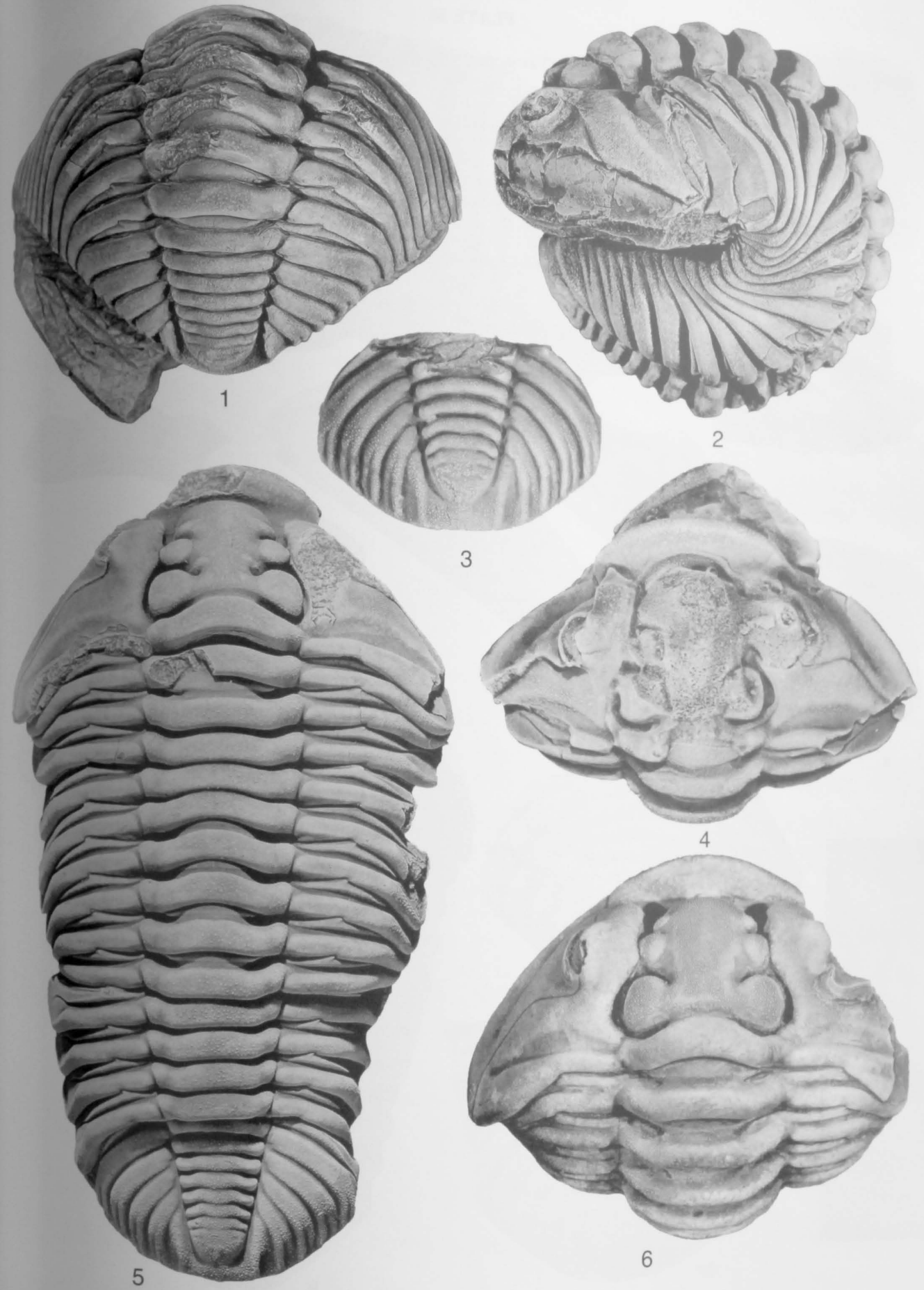


PLATE 50

Figs. 1-11. *Diacalymene schucherti* (Twenhofel, 1928). All are from Richardson or Cybèle Member of Jupiter Formation.

- 1, 6, 9. YPM7914, dorsolateral, ventral and dorsal views of articulated exoskeleton X1.5. Locality AN 33 (=YPM locality 835).
- 2, 3. GSC122400, dorsal and anterior views of cranidium X1.7 and X1.6. Locality AN8B.
- 4, 5. GSC122401, anterolateral and dorsal views of cranidium X1.7. Locality AN8B.
- 7. GSC122402, dorsal view of articulated, exfoliated thorax and pygidium X1.6. Locality AN8B.
- 8. GSC122403, posterodorsal view of pygidium X1.5. Locality AN8B.
- 10. GSC122404, dorsal view of posterior part of incomplete articulated exoskeleton X1.8. Locality AN8B.
- 11. GSC122405, lateral view of thoracic segment X3.2. Locality AN33.

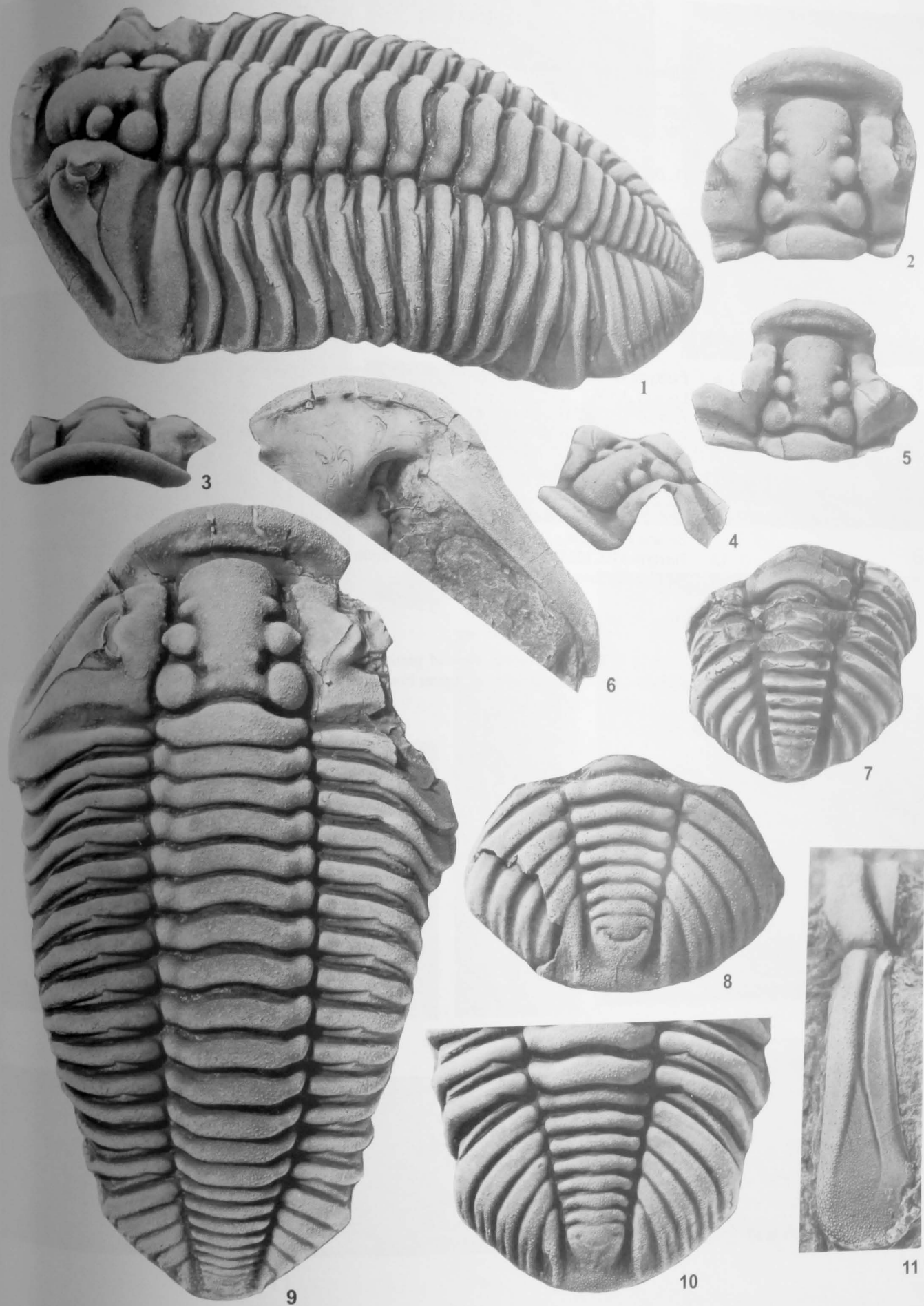


PLATE 51

Figs. 1, 12. *Calymene gamachei* n. sp. Both are from Pavillon Member of Jupiter Formation.

1. GSC122406, ventral view of cranidium X3.1. Locality AN36.
12. GSC122407, ventral view of rostral plate X7.1. Locality AN36.

Figs. 2, 4, 5, 11. *Diacalymene schucherti* (Twenhofel, 1928).

2. GSC122408, ventral view of hypostome X3.5. Locality AN63, Cybèle (?) Member of Jupiter Formation.
- 4, 5, 11. GSC122409, dorsal view, dorsal close-up of right gena, and ventral view of rostral plate and anterior doublure X1.2, X5.7 and X 2. Locality AN8B, Richardson or Cybèle Member of Jupiter Formation.

Figs. 3, 6, 9, 10. *Diacalymene leserancei* n. sp. All are from Pavillon Member of Jupiter Formation.

- 3, 6. Paratype GSC122410, ventral and lateral views of hypostome X4.6 and X4.9. Locality AN36.
9. Paratype GSC122411, lateral view of hypostome X6.7. Locality AN36.
10. Paratype GSC122412, ventral view of cranidium X4.9. Locality AN36.

Figs. 7, 13. *Calymene barnesi* n. sp.

7. GSC122413, dorsal view of rostral plate X7.5. Locality AN6 (+700cm), basal Becscie Formation.
13. Paratype GSC122414, dorsal view of cranidium X7. Locality AN22, Fox Point Member (?), lower Becscie Formation.

Fig. 8. *Calymene nowlani* n. sp.

8. Paratype GSC122415, ventral view of partial exoskeleton X6. Locality AN44C, Richardson or Cybèle Member of Jupiter Formation.

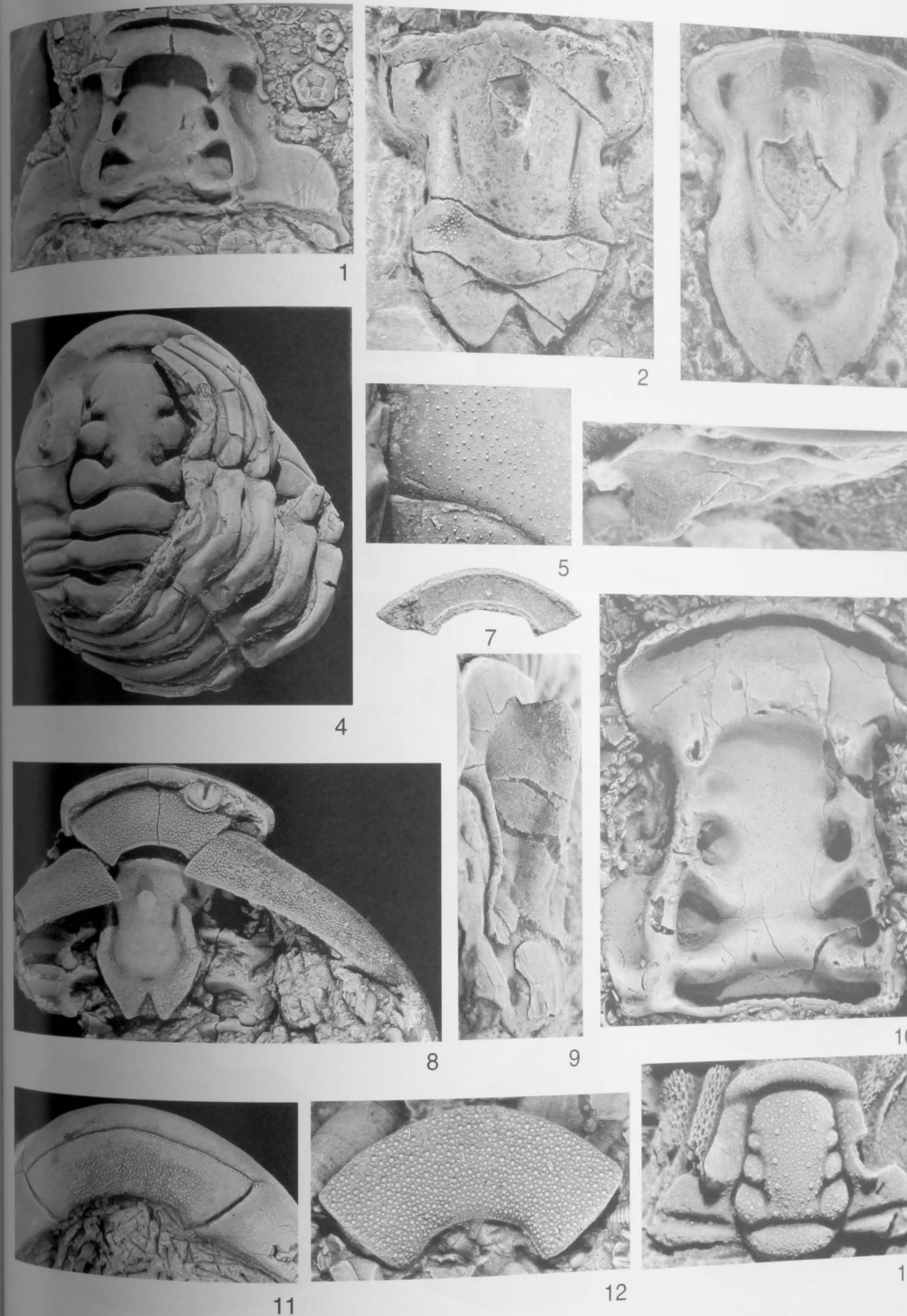


PLATE 52

Figs. 1-12. *Diacalymene leserancei* n. sp. All are from Pavillon Member of Jupiter Formation.

- 1, 2. Holotype GSC122416, dorsal and anterior views of cranidium X2.7. Locality AN78.
3. GSC122417, view of part of upper surface of tempestite slab, showing 3 cranidia and 3 pygidia of *Diacalymene leserancei*, as well as specimens of *Calymene nowlani*, *Rielaspis elegantula* (Billings, 1866), *Distyrax maccormicki* n. sp., and gastropods, etc. X1.5. Locality AN36.
4. Paratype GSC122418, ventral view of rostral plate X 4.75. Locality AN36.
5. Paratype GSC122419, ventral view of rostral plate X2.7. Locality AN12.
6. Paratype GSC122420, posterodorsal view of pygidium X2.8. Locality AN36.
7. Paratype GSC122421, dorsal view of cranidium X4.2. Locality AN12.
8. Paratype GSC122422, posterodorsal view of pygidium X2.6. Locality AN36.
9. Paratype GSC122423, posterodorsal view of pygidium X2.8. Locality AN36.
- 10, 11. Paratype GSC122424, posterodorsal and lateral views of pygidium X4 and X4.3. Locality AN12.
12. Paratype GSC122425, posterodorsal view of pygidium X2.675 Locality AN36.

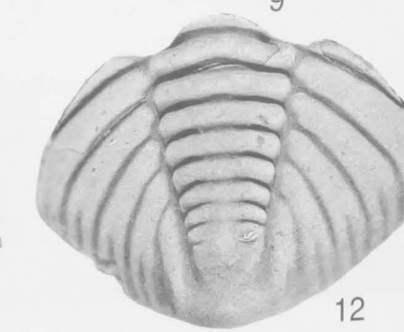
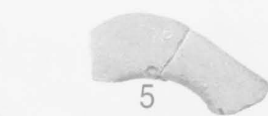
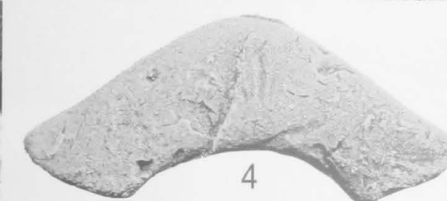
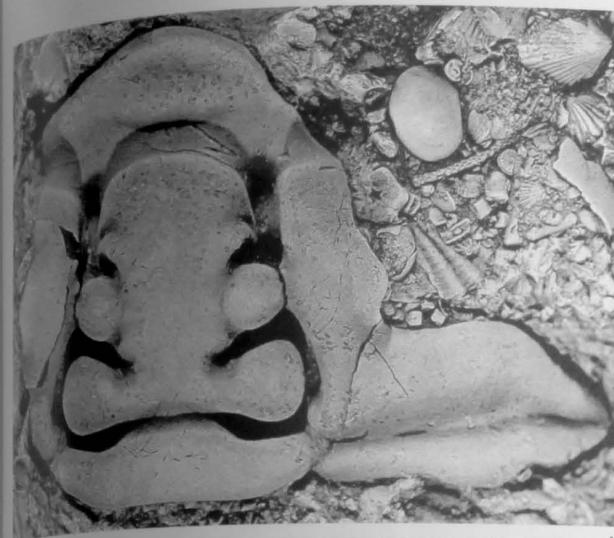


PLATE 53

Figs. 1-14. *Diacalymene lespancei* n. sp. All are from Pavillon Member of Jupiter Formation.

1. Paratype GSC122426, external view of free cheek X2.9. Locality AN12.
2. Paratype GSC122427, external view of free cheek X2.8. Locality AN12.
3. Paratype GSC122428, external view of free cheek X2.8. Locality AN36.
4. Paratype GSC122429, ventral view of rostral plate X6.2. Locality AN12.
- 5, 7. Paratype GSC123147, lateral and anterodorsal views of cranium X2.75, and X2.2. Locality AN78.
6. Paratype GSC122430, dorsal view of cranium X2.8. Locality AN36.
8. Paratype GSC122431 posterodorsal view of pygidium X2.75. Locality AN36.
9. Paratype GSC122425, posterior view of pygidium X3.8. Locality AN36.
10. Paratype GSC122432, lateral view of pygidium X5. Locality AN36.
11. Paratype GSC123148, posterodorsal view of pygidium X3.8. Locality AN78.
- 12, 13. Paratype GSC122433, posterodorsal views of pygidium X9.5 and X3. Locality AN36.
14. Paratype GSC122434, posterodorsal view of pygidium X3.9 Locality AN78.

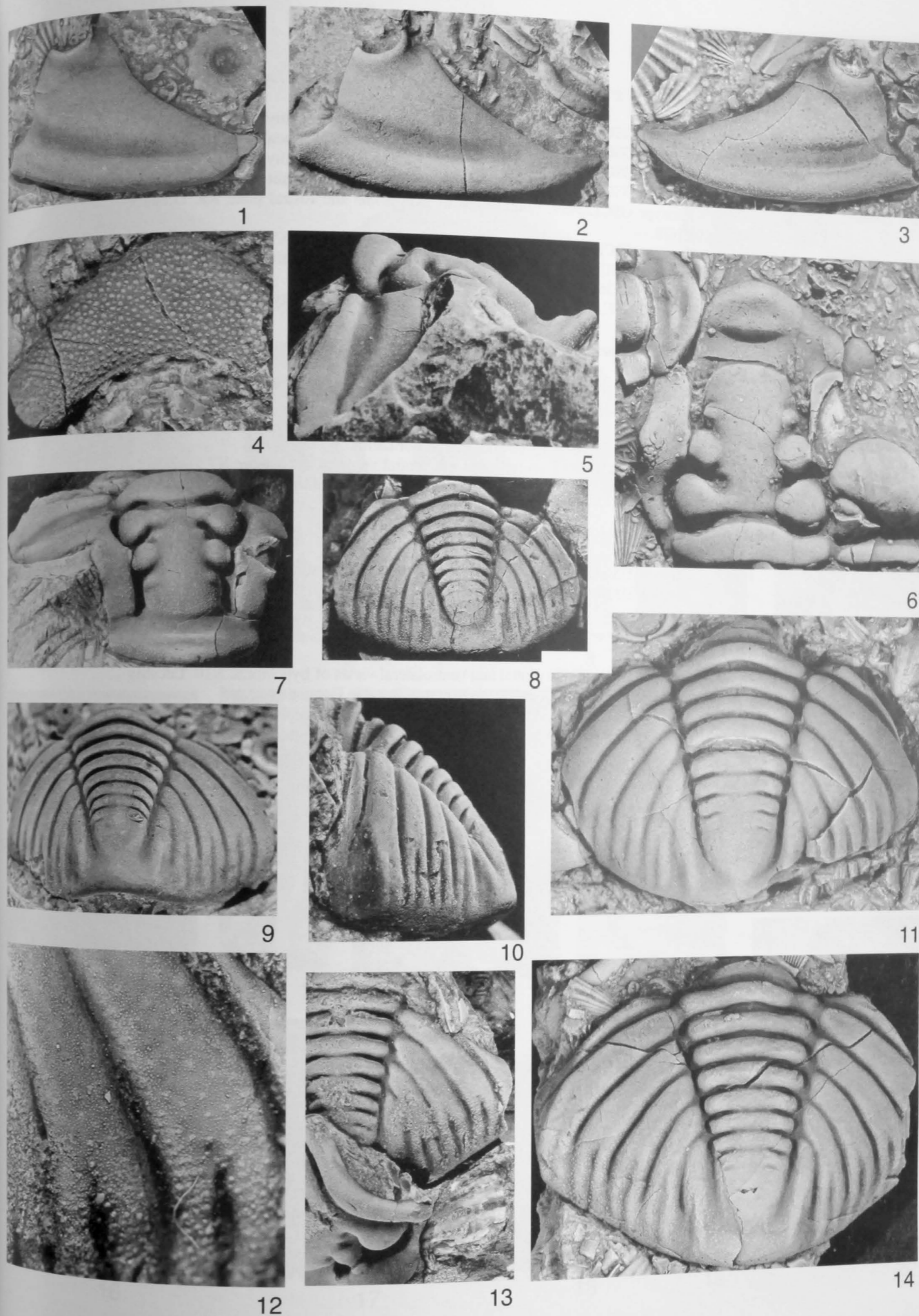


PLATE 54

Figs. 1-9, 13. *Calymene gamachei* n. sp. All are from Pavillon Member of Jupiter Formation.

1. Paratype GSC122435, ventral view of rostral plate X6. Locality AN12.
2. Paratype GSC122436, ventral view of rostral plate X6.75. Locality AN12.
3. Paratype GSC122437, ventral view of rostral plate X6. Locality AN12.
4. Paratype GSC122438, dorsal view of rostral plate X5.8. Locality AN12.
5. Paratype GSC122439, ventral view of hypostome and rostral plate X8. Locality AN78.
- 6, 7. Paratype GSC122440, ventral and lateral views of hypostome X9.2. Locality AN78.
- 8, 9. Paratype GSC122441, ventral and lateral views of hypostome X7.65 and X9.35. Locality AN36.
13. Paratype GSC122442, ventral view of hypostome X8. Locality AN32.

Figs. 10-12, 16, 17. *Calymene nowlani* n. sp.

10. Paratype GSC122389, ventrolateral view of underside of cephalon X7.7. Locality AN43, Richardson or Cybèle Member of Jupiter Formation.
- 11, 12. Paratype GSC122443, ventral and lateral views of hypostome X8. Locality AN42, Richardson or Cybèle Member of Jupiter Formation.
- 16, 17. Paratype GSC122444, ventrolateral and ventral views of hypostome X7.5. Locality AN62, Goéland or Richardson member of Jupiter Formation.

Figs. 14, 15. *Diacalymene leserancei* n. sp.

- 14, 15. Paratype GSC122445, ventral and lateral views of hypostome X5. Locality AN78, Pavillon Member of Jupiter Formation.

Figs. 18-20. *Calymene barnesi* n. sp.

- 18, 19. Paratype GSC122376, ventral and ventrolateral views of hypostome X10. Locality AN22, Fox Point Member (?), lower part of Becscie Formation.
20. Paratype GSC122372, ventrolateral view of underside of cephalon with hypostome X10. Locality AN22, Fox Point Member (?), lower part of Becscie Formation.



PLATE 55

Figs. 1-11. *Hadromeros nuperus* (Billings, 1866). All are from Jupiter Formation, except figures 4, 8, 11.

1. GSC122446, dorsal, slightly ventral view of incomplete cranidium X4.2. Locality AN15, Goéland Member.
- 2, 3, 5. GSC122447, lateral, anterior and dorsal views of cranidium X3.5, X3 and X3.2. Locality AN8, Richardson or Cybèle Member.
- 4, 8, 11. GSC122448, lateral, dorsal and ventral views of slightly disarticulated enrolled individual (missing free cheek and hypostome?), X4.5, X4.4, and X4.8. Locality A266, Chicotte Formation.
6. GSC122449, ventral view of hypostome X4.4. Locality AN8, Richardson or Cybèle Member.
7. GSC122450, dorsal view of pygidium X8. Locality AN15, Goéland Member.
9. GSC122451, ventral view of incomplete pygidium X9. Locality AN8, Richardson or Cybèle Member.
10. GSC122452, dorsal view of pygidium X12. Locality AN62, Goéland or Richardson Member.

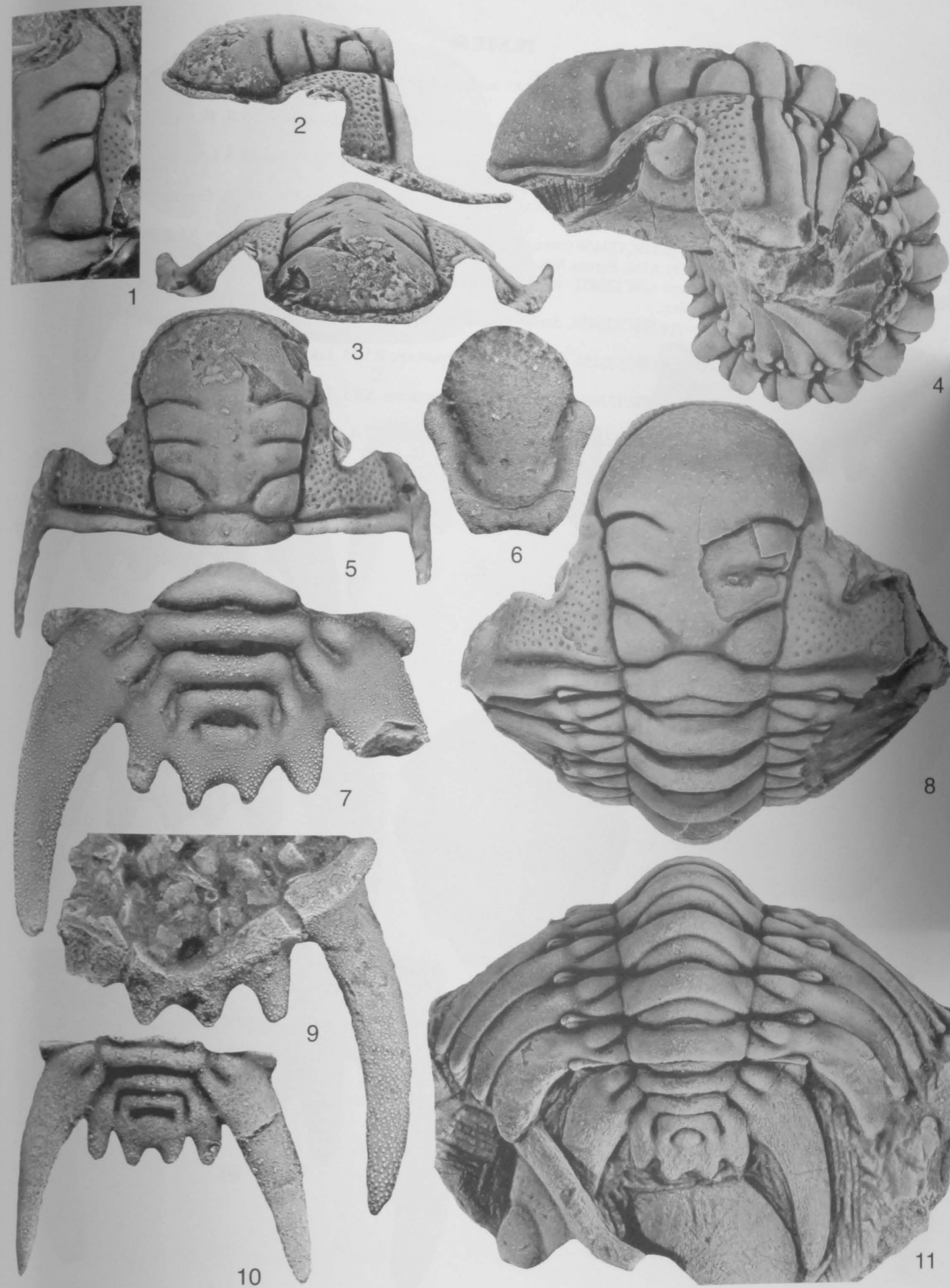


PLATE 56

Figs. 1-11. *Hadromeros edgecombei* n. sp. All are from Jupiter Formation.

1. Paratype GSC122453, dorsal view of free cheek X7.3. Locality A168, Ferrum Member.
- 2, 3. Paratype GSC122454, dorsal and lateral views of cranidium X7.25 and X7.5. Locality A253, Pavillon Member of Jupiter Formation.
4. Paratype GSC122455, ventral view of pygidium, X8.7. Locality AN18, Ferrum Member?
5. Paratype GSC122456 (same block as fig. 1 above), dorsal view of pygidium X6.9. Locality A168, Ferrum Member.
6. Paratype GSC122457, ventral view of pygidium X10. Locality AN12, Pavillon Member.
7. Paratype GSC122458, dorsal view of pygidium X8.4. Locality AN36, Pavillon Member.
8. Paratype GSC122459, ventral view of hypostome X5.75. Locality AN12, Pavillon Member.
9. Paratype GSC122460, ventral view of hypostome X6.3. Locality A245, Pavillon Member.
10. Paratype GSC122461, dorsal view of pygidium X7.4. Locality AN36, Pavillon Member.
11. Paratype GSC122462, dorsal view of pygidium X9. Locality AN12, Pavillon Member.

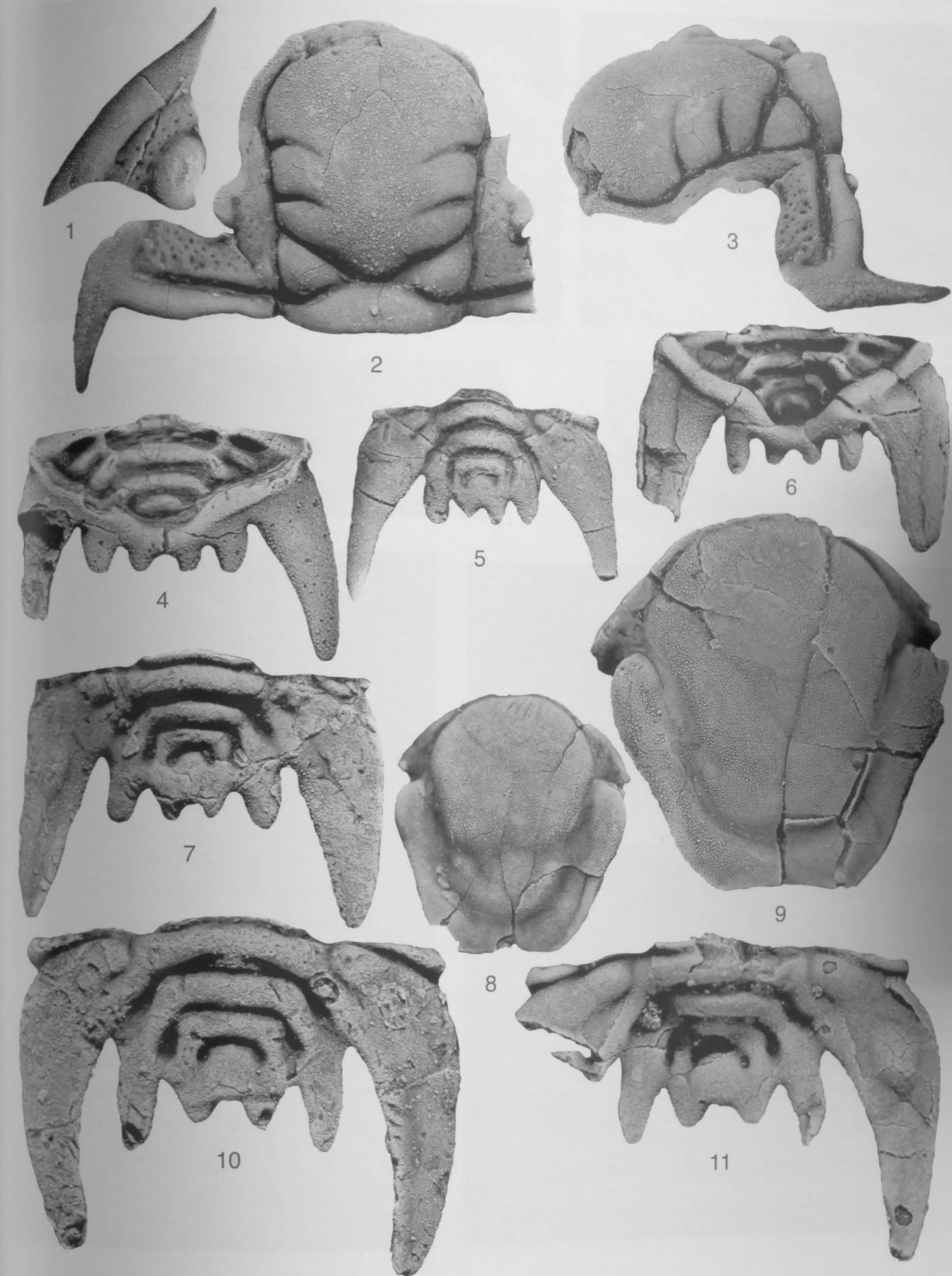
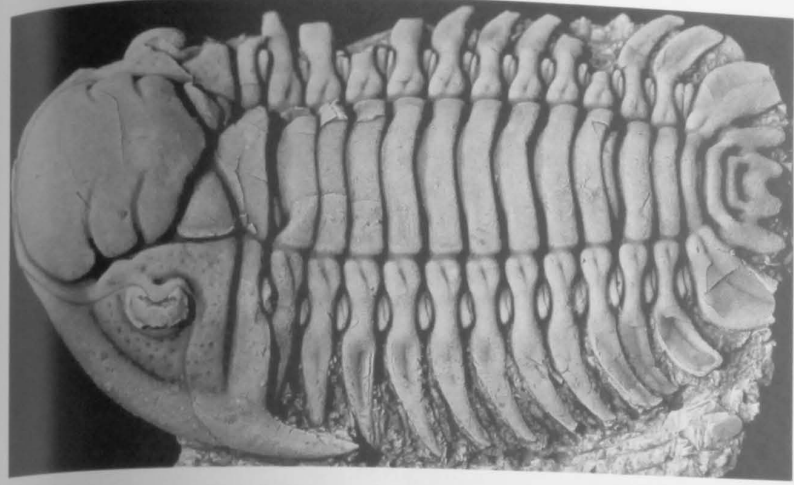


PLATE 57

Figs. 1-7. *Hadromeros edgecombei* n. sp. All are from Pavillon Member of Jupiter Formation.

- 1, 2, 6. Holotype UA7482, dorsolateral, ventral, and dorsal views of articulated exoskeleton (almost complete) X3.3, X4.4 and X4. Locality AN12.
- 3. Paratype GSC122454, anterior view of cranidium X6.7. Locality A253.
- 4, 5, 7. Paratype GSC122463, lateral, anterior and dorsal views of front half of articulated exoskeleton, X3. Locality A246.



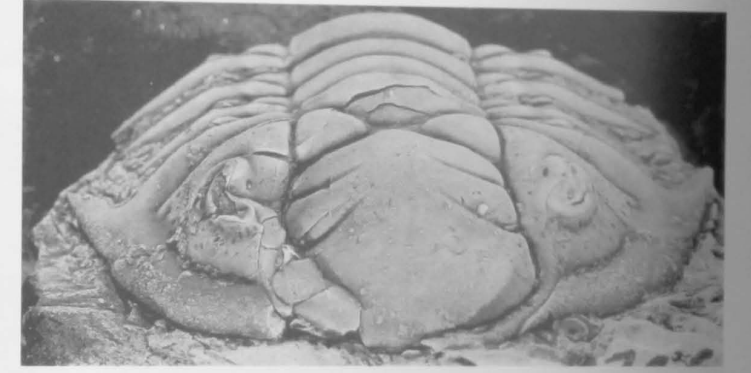
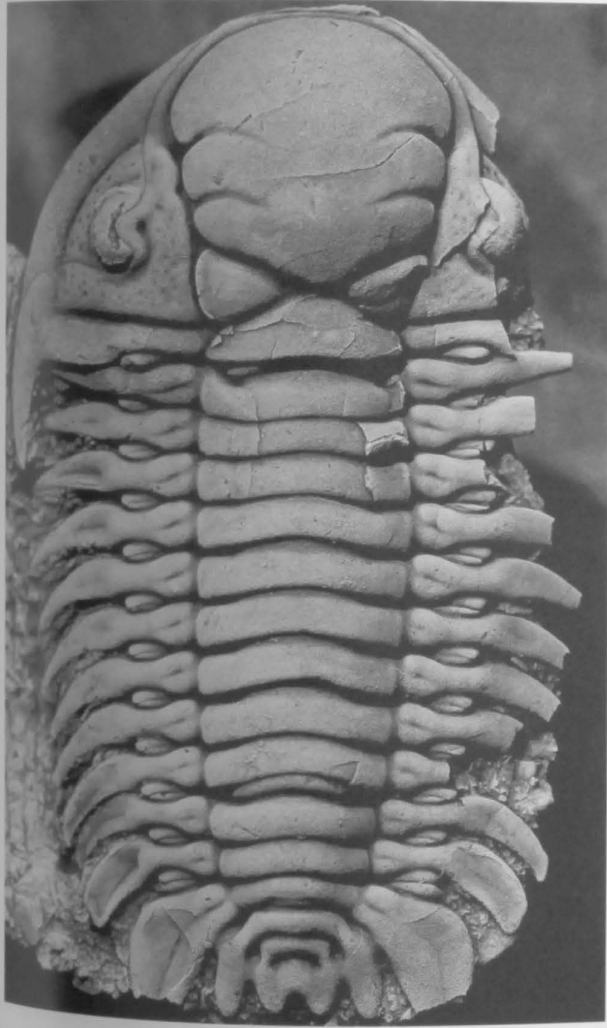
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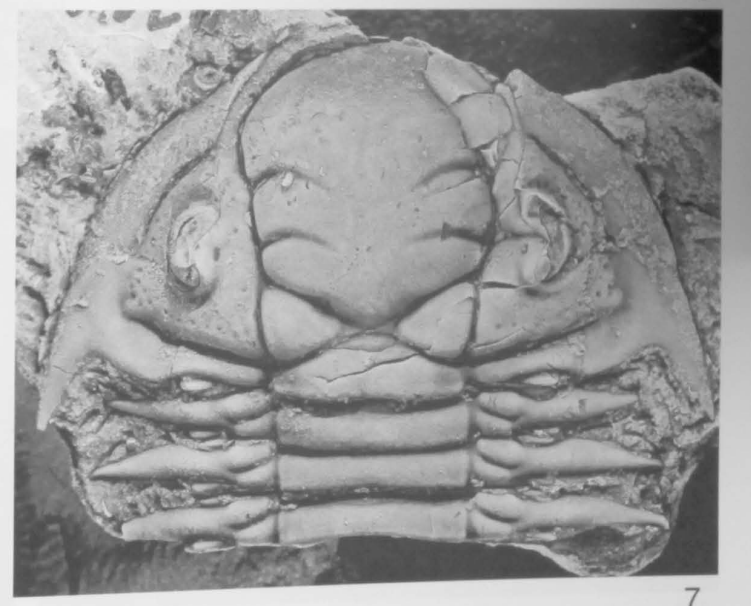


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PLATE 58

Figs. 1-12. *Radiurus adraini* n. sp. All are from Pavillon Member of Jupiter Formation.

1. Paratype GSC122464, dorsal view of cranidium X1.7. Locality AN36.
2. Paratype GSC122465, dorsal view of corner of cranidium X2.8. Locality AN36.
3. Paratype GSC122466, external view of free cheek X2.6. Locality AN12.
4. Paratype GSC122467, dorsal view of cranidium X5.1. Locality AN78.
5. Paratype GSC122468, external view of free cheek X4.3. Locality AN36.
6. Paratype GSC122469, ventral view of latex mould of hypostome X3.4. Locality AN12.
7. Paratype GSC122470, external view of free cheek X3.3. Locality AN36.
8. Paratype GSC122471, dorsal view of anterolateral corner of pygidium X4.9. Locality AN12.
9. Paratype GSC122472, dorsal view of small pygidium X6. Locality AN12.
10. Paratype GSC122473, dorsal view of pygidium X3.3. Locality AN36.
11. Holotype GSC122474, dorsal view of pygidium X4.5. Locality AN78.
12. Paratype GSC122475, ventral view of pygidium X6.5. Locality AN78.

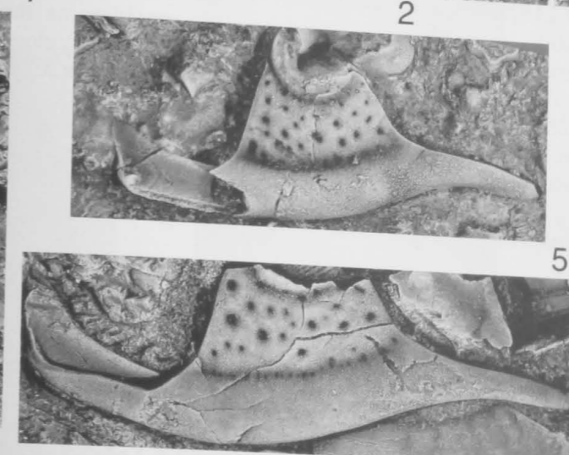
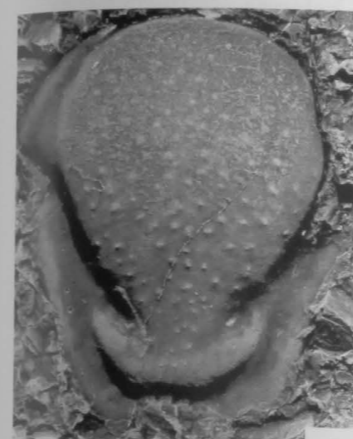
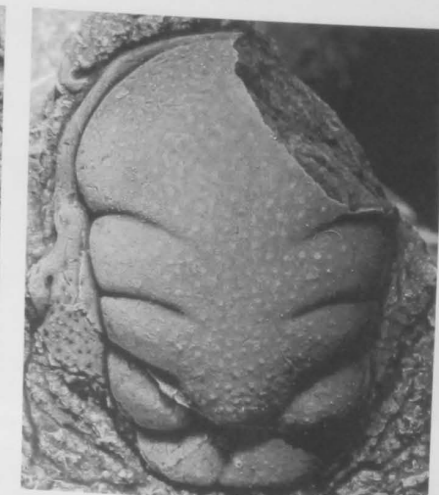
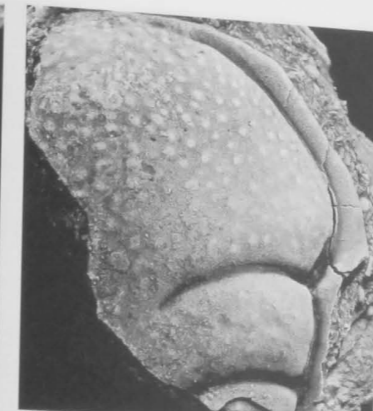


PLATE 59

Figs. 1-4. *Radiurus adraini* n. sp. All are from Pavillon Member of Jupiter Formation.

- 1, 2. Paratype GSC122476, dorsal and lateral views of cranidium X3. Locality AN12.
3. Paratype GSC122477, dorsal view of partial pygidium X4. Locality AN36.
4. Paratype GSC122478, dorsal view of partial pygidium X4.7. Locality AN78.

Figs. 5-10. *Hyrokybe canadensis* (Billings, 1866).

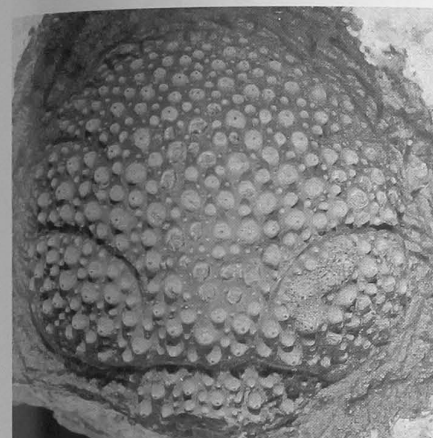
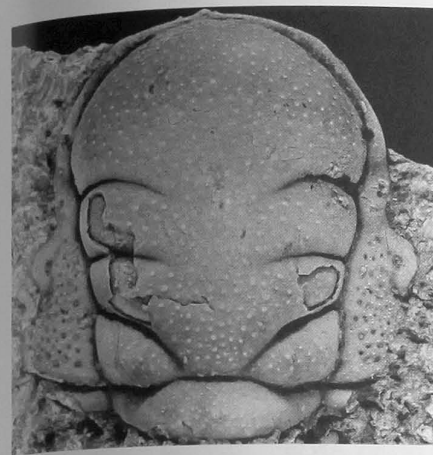
5. GSC123725, dorsal view of medial part of cranidium X2.8. GSC 92410 Jupiter Formation, Jupiter Fire Tower Road, south of first creek south of 12 mile road junction (same locality as 76148), Bolton, 1975, field number BF296.
6. Paratype GSC2557a, lateral view of cranidium (one of Billings' types) X2.8. Note that Twenhofel, 1928, plate 50, illustrates this specimen as the holotype. Chicotte Formation, Zone 2, Southwest Point (same locality as or very close to AN21).
- 7, 10. GSC122479, dorsolateral and dorsal views of partial cranidium X5.2 and X3.65. Locality AN21, lower part of Chicotte Formation.
- 8, 9. Holotype GSC2557, anterior and dorsal views of cranidium X2.1 and X2. Chicotte Formation, Southwest Point (same locality as or very close to AN21).

Figs. 11, 12. *Hadromeros nuperus* (Billings, 1866).

- 11, 12. GSC122480, dorsal and lateral views of cranidium X3.3. Locality AN8, Richardson or Cybèle Member of Jupiter Formation.

Figs. 13-16. *Hadromeros edgecombei* n. sp. All are from Pavillon Member of Jupiter Formation.

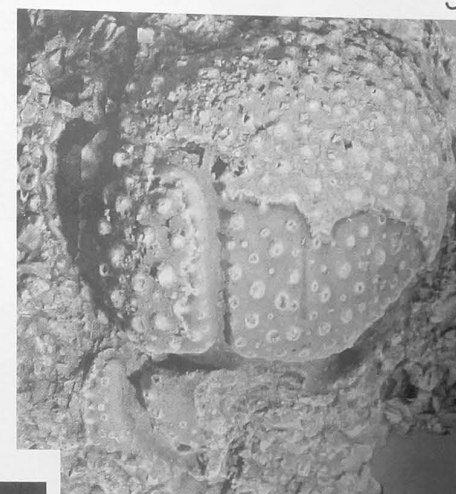
13. Paratype GSC122481, ventral view of hypostome X2.4. Locality AN78.
14. Paratype GSC122482, ventral view of hypostome X5.5. Locality AN12.
15. Paratype GSC122483, ventral view of hypostome X10. Locality AN36.
16. Paratype GSC122484, dorsal view of cranidium and hypostome (latter only questionably assigned to this taxon, as could belong to *Radiurus*, which occurs in same strata, and it is too large to belong to individual that left this cranidium) X4. Locality A245.



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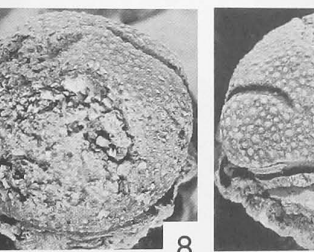


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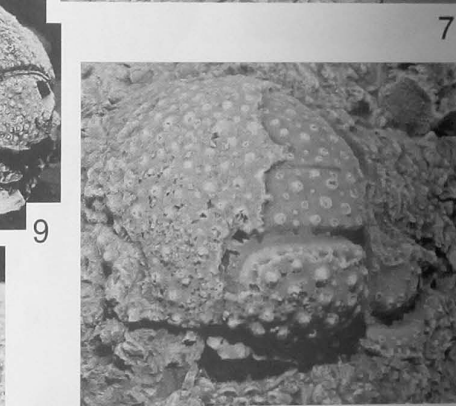


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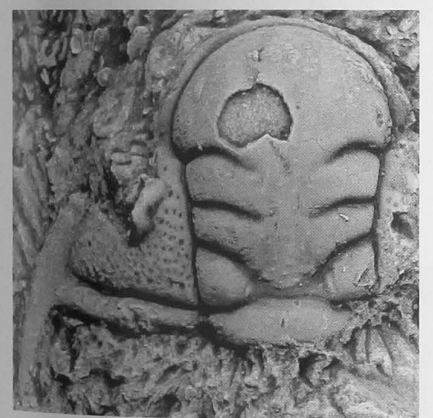
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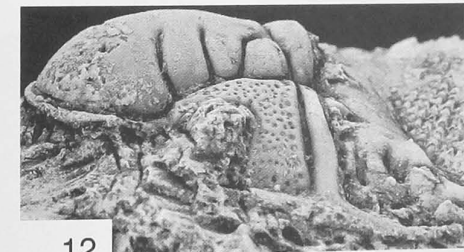


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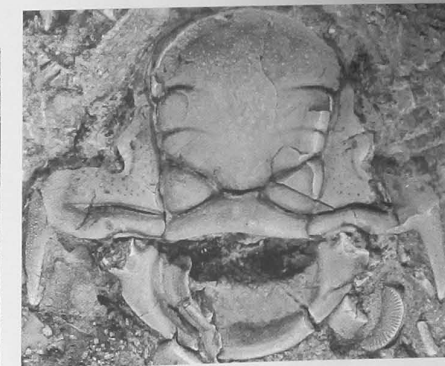
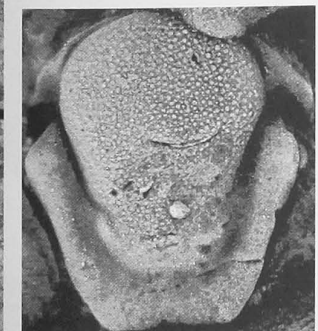
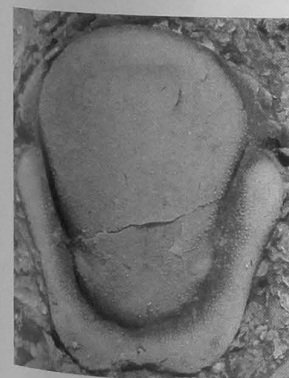
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PLATE 60

Figs. 1-17. *Distyrax maccormicki* n. sp. All are from Pavillon Member of Jupiter Formation.

- 1. Paratype GSC122485, internal view of free cheek X4.5. Locality AN36.
- 2. Paratype GSC122486, ventral view of hypostome X8.7. Locality AN36.
- 3. Paratype GSC122487, external view of free cheek X4.6. Locality AN12.
- 4. Paratype GSC122488, external view of free cheek X3.5. Locality AN36.
- 5. Paratype GSC122489, external view of free cheek X3.9. Locality AN12.
- 6. Paratype GSC122490, ventral view of hypostome X5.9. Locality AN12.
- 7. Paratype GSC122491, external view of free cheek X4. Locality AN36.
- 8. Paratype GSC122492, external view of part of free cheek X5. Locality AN36.
- 9. Holotype GSC122493, posterodorsal view of pygidium X5.75. Locality AN78, basal part of member.
- 10. Paratype GSC122494, posterodorsal view of pygidium X3.7. Locality AN36.
- 11. Paratype GSC122495, dorsal view of pygidium X5.5. Locality AN12.
- 12. Paratype GSC122496, dorsal view of pygidium X5. Locality AN36.
- 13. Paratype GSC122497, lateral view of pygidium X4. Locality AN36.
- 14. Paratype GSC122498, ventral view of pygidium X5.3. Locality AN36.
- 15. Paratype GSC122499, posterior view of pygidium X4.6. Locality A418(5).
- 16. Paratype GSC122500, ventral view of pygidium X5.6. Locality AN36.
- 17. Paratype GSC122501, dorsal view of pygidium X3.5. Locality AN36.

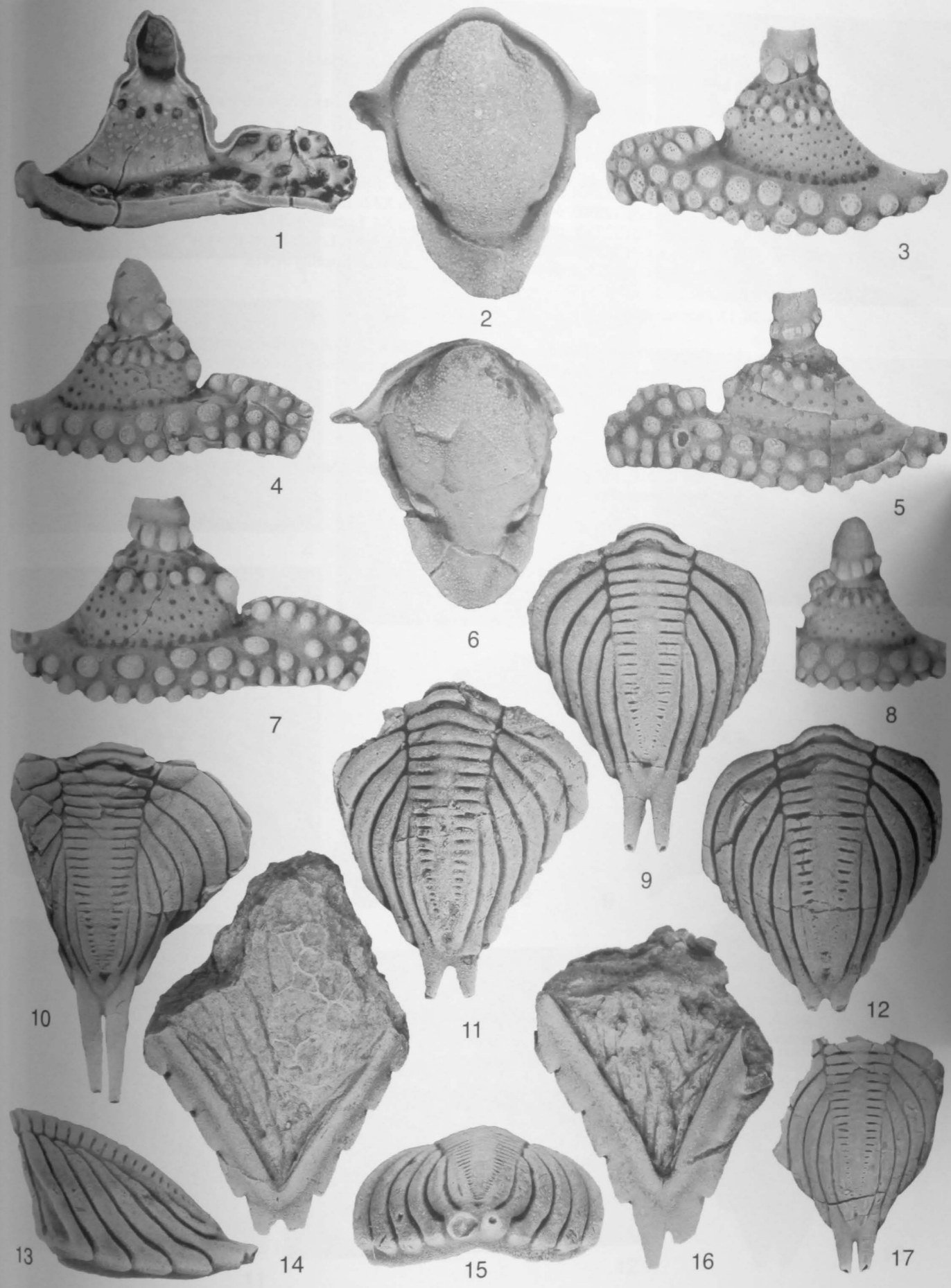


PLATE 62

Figs. 1-14. *Encrinurus deomenos* Tripp, 1962.

1. GSC122511, ventral view of hypostome X8. Locality AN39, Gun River Formation.
- 2, 4, 6. GSC122512, dorsal, posterior and right lateral views of pygidium X6.6, X5.7, and X5.5. Locality AN39, Gun River Formation.
3. GSC122513, dorsal view of cranidium X4. Locality AN39, Gun River Formation.
- 5, 11. GSC122514, left lateral and dorsal views of pygidium X3.3 and X4. Locality AN62, Goéland Member? of Jupiter Formation.
7. GSC67062, dorsal view of pygidium X4.5. Gun River Formation, Locality GSC BF503B, 9 km south of Shallop River bridge.
- 8, 10. GSC122516, left lateral and dorsal views of pygidium X3 and X3.5. Locality AN18, Ferrum Member? of Jupiter Formation.
- 9, 12. GSC122517, right lateral and dorsal views of pygidium X3.1 and X3.4. Locality at mouth of Gun River, Gun River Formation (pygidium removed from multiple slab illustrated in Plate 63).
13. GSC123149, dorsal view of partly disarranged exoskeleton X4.5. Locality AN39, Gun River Formation.
14. GSC122518, dorsal views of cephalon and part of thorax X9.6 and X4.5. Locality AN47, Richardson or Cybèle Member of Jupiter Formation.

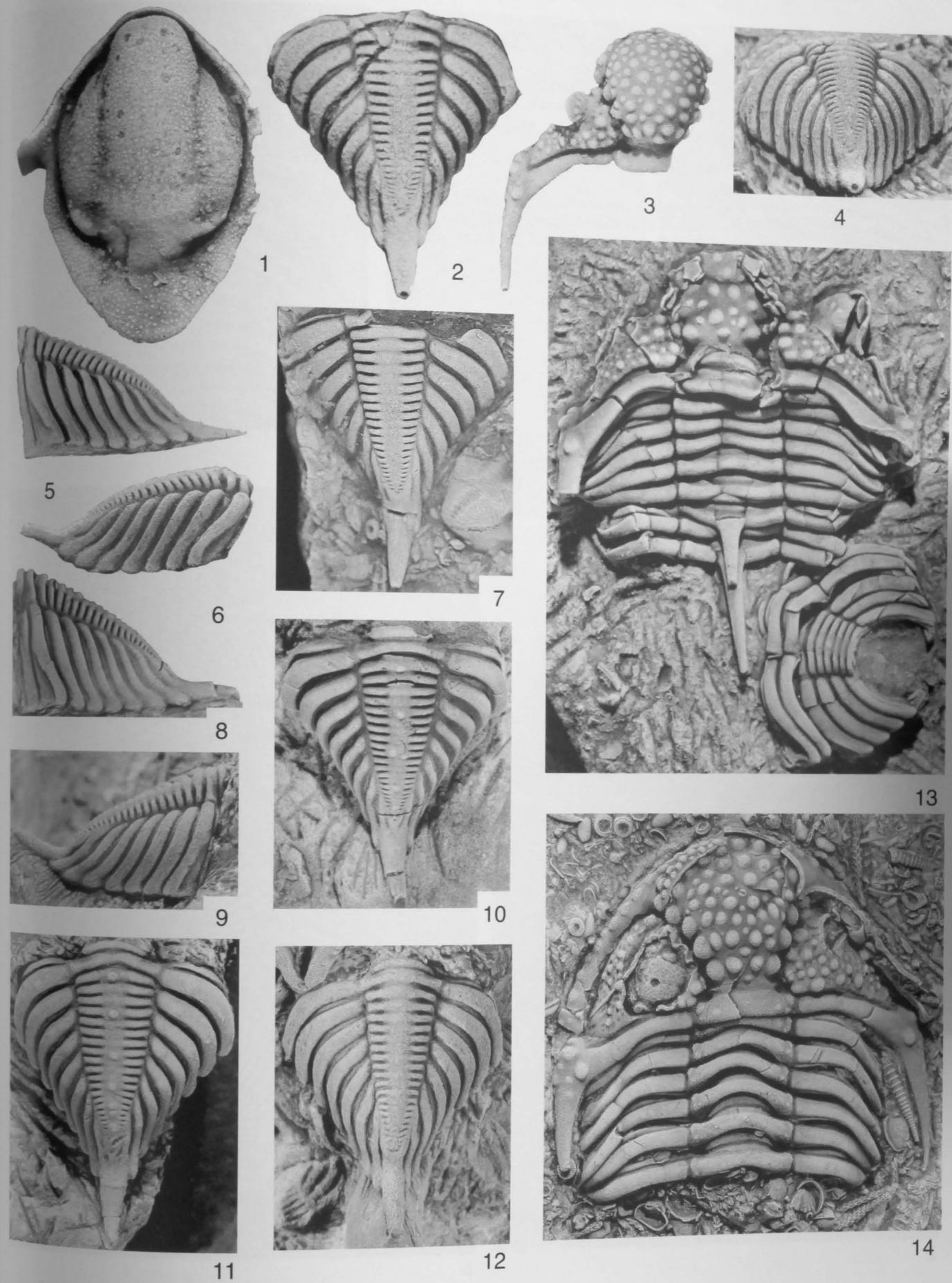
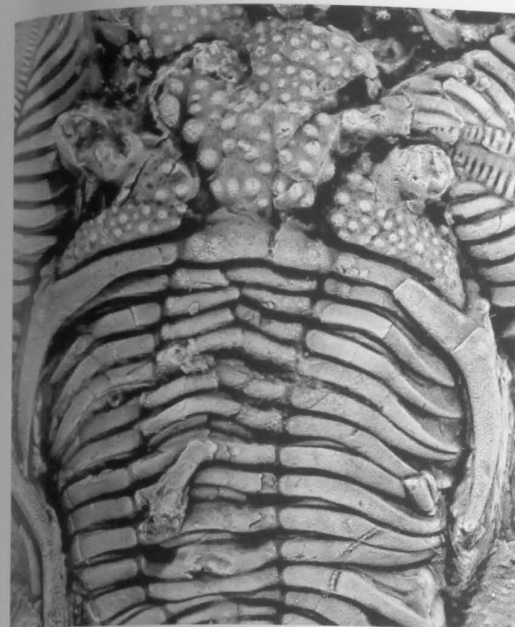


PLATE 63

Figs. 1-5. *Encrinurus deomenos* Tripp, 1962. All pictures are of same surface of slab. Sample comes from Gun River Formation on shore close to mouth of Gun River (Rivière au Fusil), collected by Pierre Gonin. Entire slab given same GSC number = GSC122519.

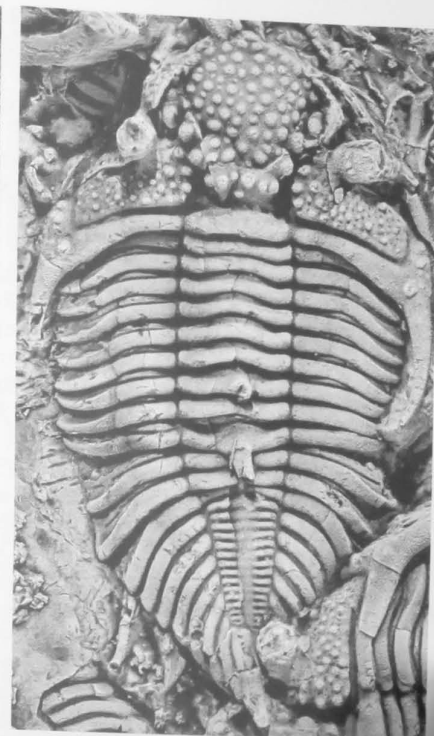
1. Dorsal view of part of exoskeleton GSC122519a X4.5.
2. Dorsal view of exoskeleton 122519b X3.6.
3. Dorsal view of exoskeleton 122519c X3.7.
4. View of about half of surface of slab X2.
5. View of part of slab (slightly overlapping fig.4 at base) X2.



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PLATE 64

Figs. 1-11. *Encrinurus deomenos* Tripp, 1962.

- 1, 5, 6. Paratype YPM10397, posterodorsal, dorsal and dorsolateral views of pygidium X7, X7, and X5.9. Zone 1 (Goéland Member) Jupiter Formation, East Cliff, Anticosti Island.
- 2-4. Holotype YPM25650, ventral, detailed anterior and dorsal views of enrolled articulated specimen X3.8, X20, and X 3.8. Specimen collected from Jupiter Formation, Zone 4 (Richardson or Cybèle members), Sand Cliff, Anticosti Island. Note that this specimen has been poorly prepared, and the eyes have been broken off and glued back on rather roughly. Also, in original Twehofel picture of this specimen (1928, pl. LIX, fig. 10), there was a genal spine on right side (looked coarse and artificial) and no left eye. Fig. 3 was photographed under glycerine to show that there is a rostral plate in the holotype.
- 7, 8. GSC122521, dorsal and lateral views of partial exoskeleton, X1.8 and X1.65. Unknown locality in Gun River Formation, specimen collected by Pierre Gonin.,
- 9-11. GSC122522, external and lateral views of partly enrolled exoskeleton, X2.4. Locality AN 75, Goéland (?) Member of Jupiter Formation.

Fig. 12. *Celtenocrinurus laurentinus* (Twehofel, 1928). This specimen has been included here because it was included in the types of *Encrinurus deomenos* by Tripp (1962). We have not found this species in a horizon above the Upper Ordovician Ellis Bay Formation, and so doubt the Jupiter Formation (Zone 1) locality that is associated with this specimen. The pygidium and hypostome on this specimen are distinct morphologically from those assigned to any other encrinurid from Anticosti Island.

12. YPM104502, ventral view of hypostome and partial pygidium X5. Locality information associated with the specimen (which we doubt) states that it was collected from west of the Jupiter River in Zone 1 of the Jupiter Formation.

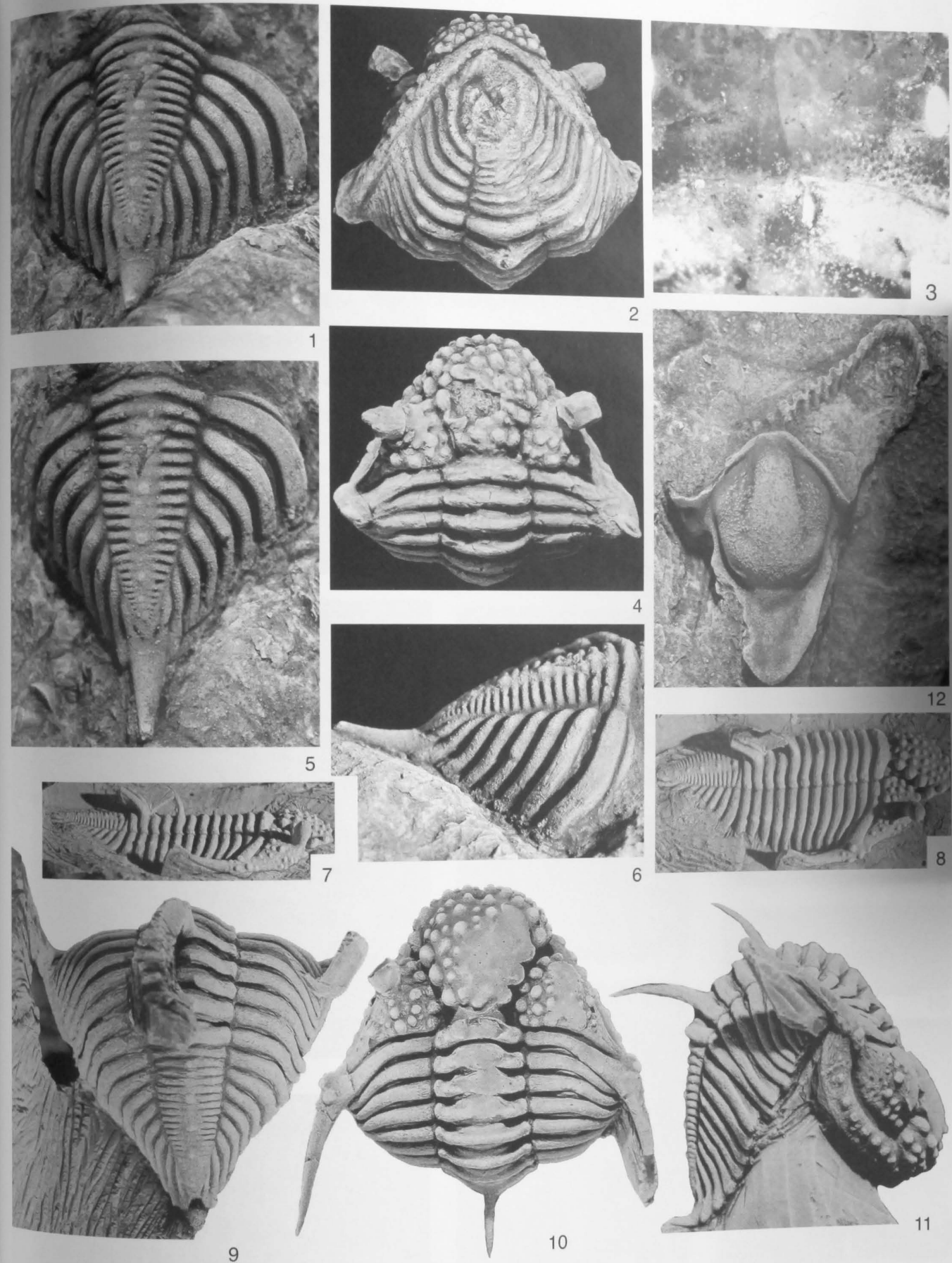
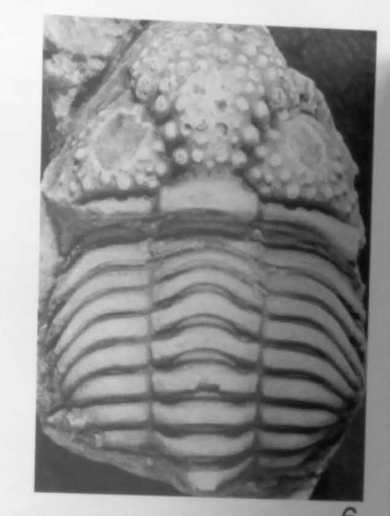
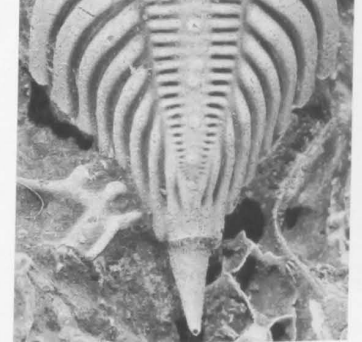
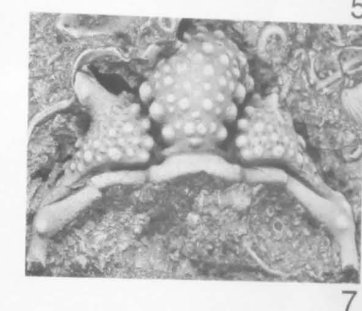
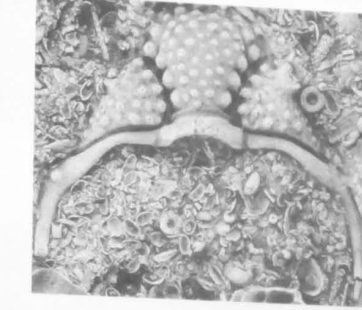
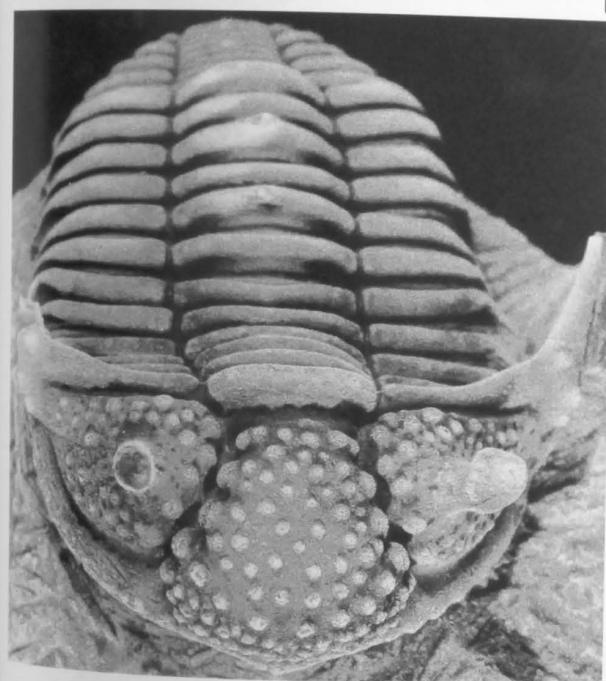
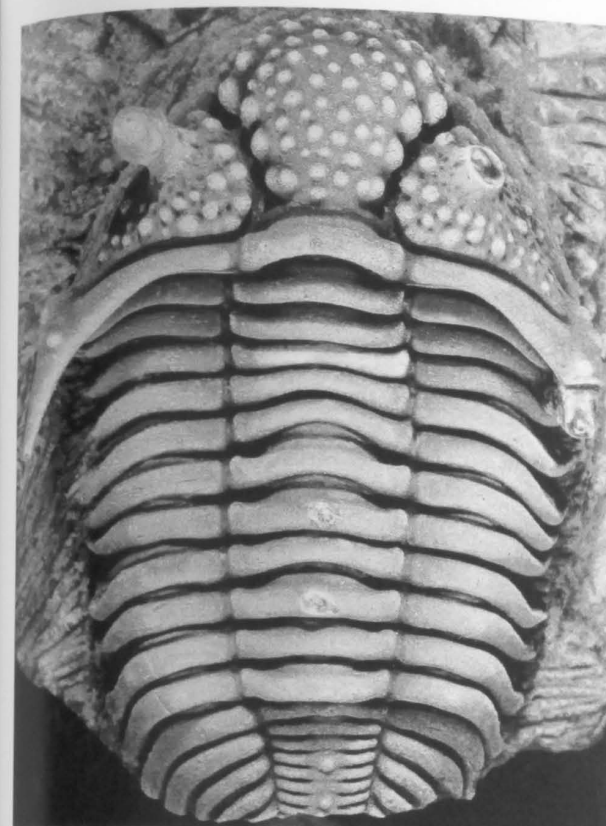


PLATE 65

Figs. 1-12. *Encrinurus deomenos* Tripp, 1962. All are from Jupiter Formation.

- 1-4. GSC122523, dorsal, anterolateral, anterodorsal and lateral views of exoskeleton X4.1, X6.25, X4.25 and X3.3. Locality AN15, Goéland Member.
- 5. GSC122524, dorsal view of cranidium X2.8. Locality AN49, Richardson or Cybèle Member.
- 6. GSC122525, dorsal view of exoskeleton X3.5. Locality AN15, Goéland Member.
- 7. GSC122526, dorsal view of cranidium X3. Locality AN49, Richardson or Cybèle Member.
- 8. GSC122527, external view of free cheek X6.3. Locality AN49, Richardson or Cybèle Member.
- 9. GSC122528, external view of free cheek X5. Locality AN49, Richardson or Cybèle Member.
- 10. GSC122529, external view of free cheek X4.3. Locality AN49, Richardson or Cybèle Member.
- 11. GSC122530, dorsal view of pygidium X5. Locality AN49, Richardson or Cybèle Member.
- 12. GSC122531, dorsal view of pygidium X4.7. Locality AN49, Richardson or Cybèle Member.



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PLATE 66

Figs. 1-13. *Encrinurus jini* n. sp. All are from Jupiter Formation.

- 1-3. Paratype GSC122532, left lateral, anterior and dorsal views of enrolled articulated exoskeleton X6. GSC locality 66790.
4. Paratype GSC122533, ventral view of enrolled articulated exoskeleton X4.4. Locality A1150. Cybèle Member.
5. Paratype GSC122534, anterior view of enrolled articulated exoskeleton X3.45. Locality AN68, Richardson or Cybèle Member.
- 6, 13. Paratype GSC122535, anterior and dorsal views of enrolled articulated exoskeleton X3.4 and X3.3. Locality AN68, Richardson or Cybèle Member.
7. Paratype GSC122536, ventral view of partial cephalon X7.4. Locality AN68, Richardson or Cybèle Member.
8. Paratype GSC122537, ventral view of enrolled exoskeleton X3.75. Locality AN68, Richardson or Cybèle Member.
- 9, 12. Holotype GSC122539, ventral and dorsal views of enrolled articulated exoskeleton X3.1. Locality AN68, Richardson or Cybèle Member.
10. Paratype GSC122540, ventral view of enrolled articulated specimen X3.1. Locality AN44, Richardson or Cybèle Member.
11. Paratype GSC122541, dorsal view of enrolled articulated specimen X3.15. Locality AN68, Richardson or Cybèle Member.

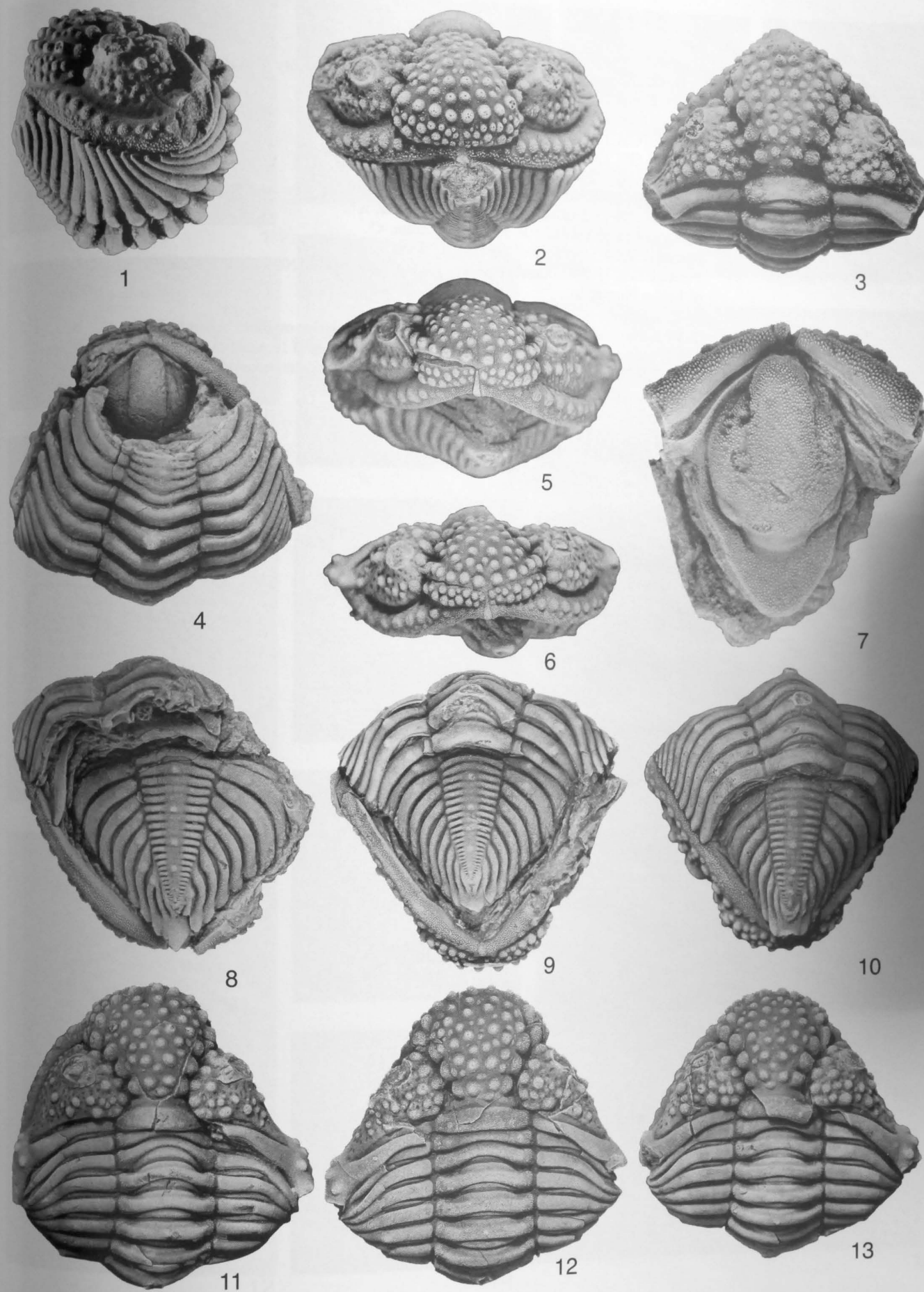


PLATE 67

Figs. 1-4, 6, 10, 11, 13. *Encrinurus jini* n. sp. All except figure 13 are from locality AN44, Richardson or Cybèle Member, Jupiter Formation, Bell River Road.

1. Paratype GSC122542, dorsal view of cranidium, x3.
2. Paratype GSC122543, dorsal view of cranidium, x2.85.
3. Paratype GSC122544, external view of free cheek, x3.9.
4. Paratype GSC122545, external view of free cheek, X4.5.
6. Paratype GSC122546, ventral view of hypostome, X7.
10. Paratype GSC122547, dorsal view of pygidium, x5.
11. Paratype GSC122548, dorsal view of pygidium, x3.6.
13. Paratype GSC122549, dorsal view of pygidium, x4.9. From AN69, Cybèle Member of Jupiter Formation

Figs. 5, 7-9, 12, 14. *Encrinurus deomenos* Tripp, 1962. Specimen from talus on shore beneath cliff immediately east of Cape Ottawa, AN33, Richardson or Cybèle Member of Jupiter Formation.
5, 7-9, 12, 14. GSC122550, anterior, lateral, dorsolateral, anterodorsal, posterodorsal, and dorsal views, x3, x3.4, x3, x3.3, x3.3, x5.2.

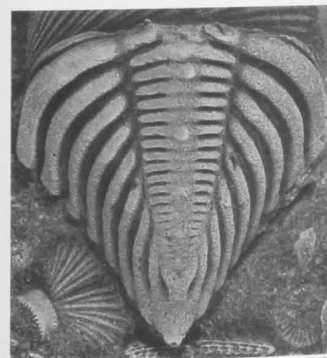
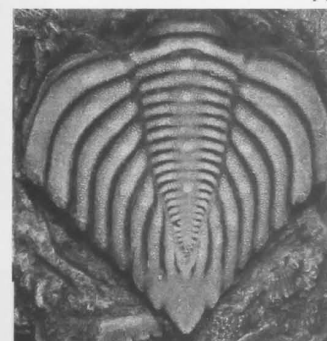
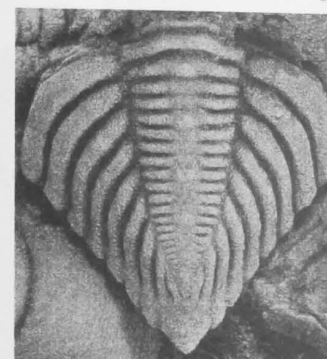
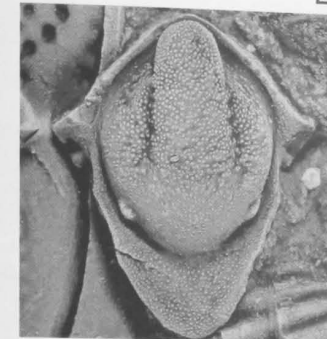
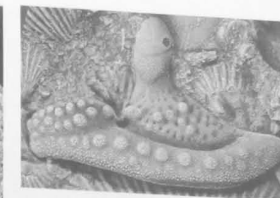
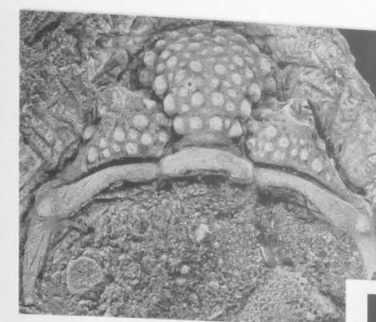
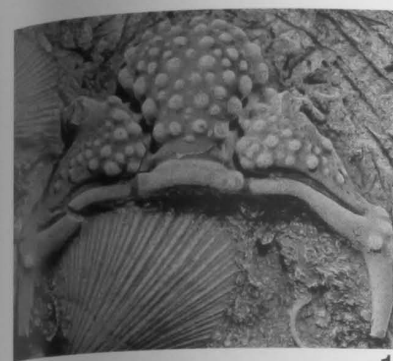


PLATE 68

Figs. 1-14. *Encrinurus jini* n. sp. All are from Richardson or Cybèle Member of Jupiter Formation.

1. Paratypes GSC122551, external view of cranidium (122551a) and hypostome (122551b) X3.9. Locality AN68.
2. Paratype GSC122552, dorsal view of cranidium X2.8. Locality AN44b.
3. Paratype GSC122553, internal view of left free cheek X4.6. Locality AN44.
4. Paratype GSC122554, ventral view of hypostome X4.1. Locality AN44.
5. Paratype GSC122555, lateral view of pygidium X2.1. Locality AN44.
6. Paratypes GSC122556, dorsal view of cranidium (122556a) and free cheek (122556b) X3. Locality AN44.
7. Paratype GSC122557, dorsal view of pygidium X7.5. Locality AN44.
- 8, 13. Paratypes GSC122558, GSC122559 and GSC122560, dorsal views of pygidia X5.6 and X6.7. Locality AN44.
9. Paratype GSC122561, dorsal view of pygidium X8. Locality AN44.
10. Paratype GSC122562, dorsal view of teratological pygidium X7.3. Locality AN44.
- 11, 14. Paratype GSC122563, ventral and lateral views of pygidium X4.5 and X3. Locality AN44.
12. Paratypes GSC122564, dorsal view of two pygidia (122564a, 122564b) and a hypostome (122564c) and ventral view of a pygidium (122564d) and a hypostome (122564e) X3. Locality AN44.

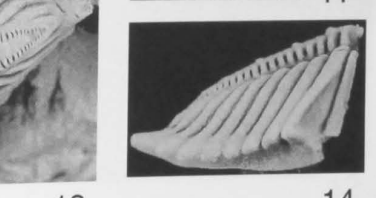
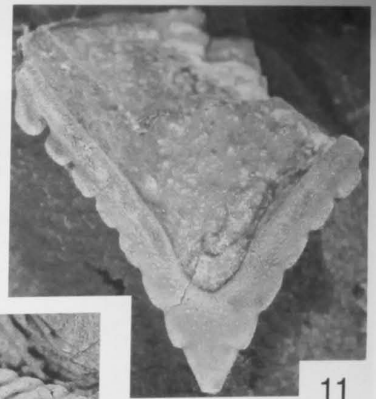
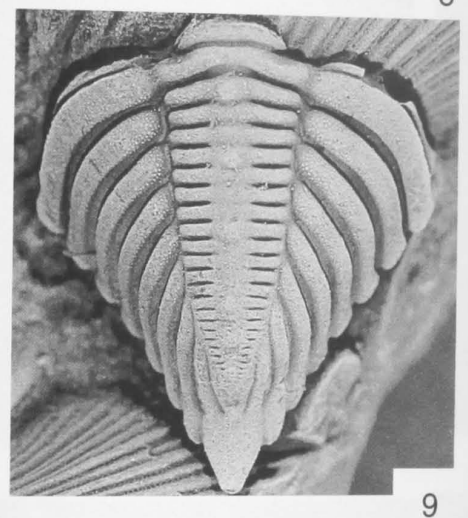
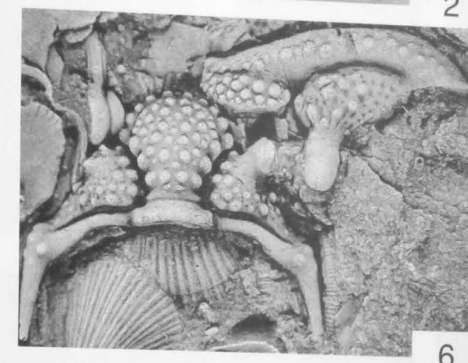
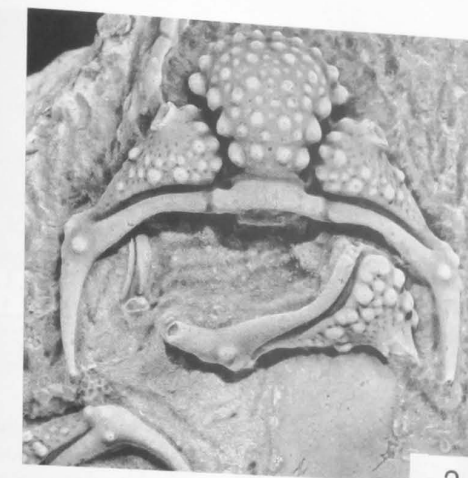
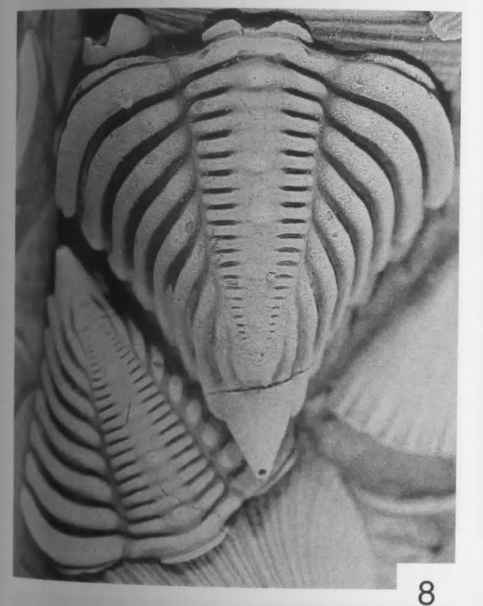
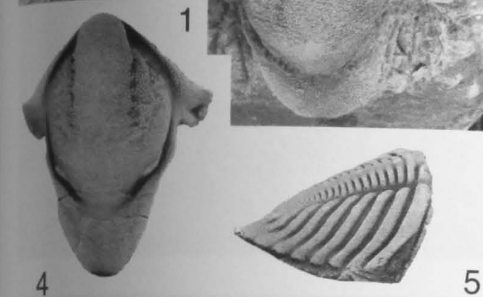


PLATE 69

Figs. 2-7, 9-12. *Encrinurus longi* n. sp. All are from Pavillon Member of Jupiter Formation

2. Paratype GSC122566, external view of left free cheek X4. Locality AN12.
3. Paratype GSC122567, external view of left free cheek X4.6. Locality AN36.
4. Paratype GSC122568, dorsal view of cranidium X5.1. Locality AN36.
5. Paratype GSC122569, lateral view of pygidium X5. Locality AN12.
6. Paratype GSC122570, dorsal view of cranidium X3.1. Locality AN36.
7. Paratype GSC122571, ventral view of pygidium X4.7. Locality AN36.
9. Holotype GSC122572, dorsal view of pygidium X5.5. Locality AN36.
10. Paratype GSC122573 (on same rock as holotype), dorsal view of pygidium X5. Locality AN36.
11. Paratype GSC122574, dorsal view of pygidium X6. Locality AN36.
12. Paratype GSC122575, dorsal view of pygidium X5. Locality AN36.

Figs. 1, 8. *Encrinurus jini* n. sp. Both from AN44, Richardson or Cybèle Member of Jupiter Formation.

1. Paratype GSC122565, external view of right free cheek X5.5.
8. Paratype GSC122576, ventral view of pygidium X6.7.

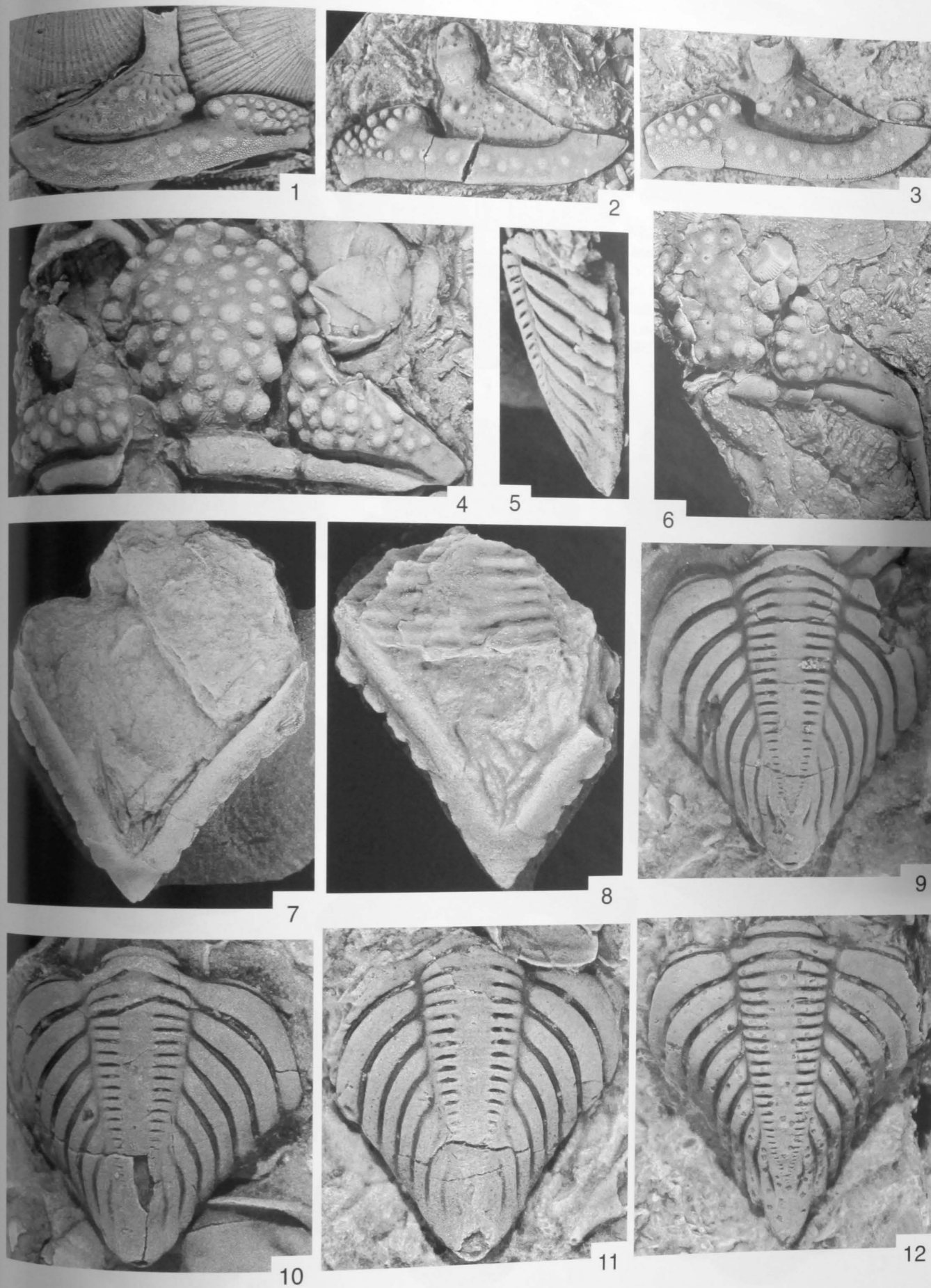


PLATE 70

Figs. 1-12. *Nucleurus anticostiensis* (Twenhofel, 1928). All are from Jupiter Formation.

- 1, 2. GSC122577, dorsal and ventral views of enrolled exoskeleton, x4.2, X4.3. From Richardson or Cybèle Member, Bell River Road, 0.6 km from junction with main island highway.
3. GSC122578, dorsal view of pygidium X3.9. Locality AN44, Richardson or Cybèle Member.
- 4, 8. GSC122579, ventral and anterior views of partial exoskeleton, x5.2. Locality AN68, Richardson or Cybèle Member.
- 6, 7, 9, 10-12. GSC29716, lateral, anterior, anteroventral, ventral, dorsal and anteroventral views, about x5 (ranging from 4.92-5.2). Specimen collected by Bolton from "west bank of Shallop River, approximately 2.6 miles above mouth". This specimen was illustrated by Bolton (1972) as "*Encrinurus elegantulus*".
5. GSC122580, dorsal view of enrolled exoskeleton, x3.5. Locality AN77, Cybèle (?) Member.

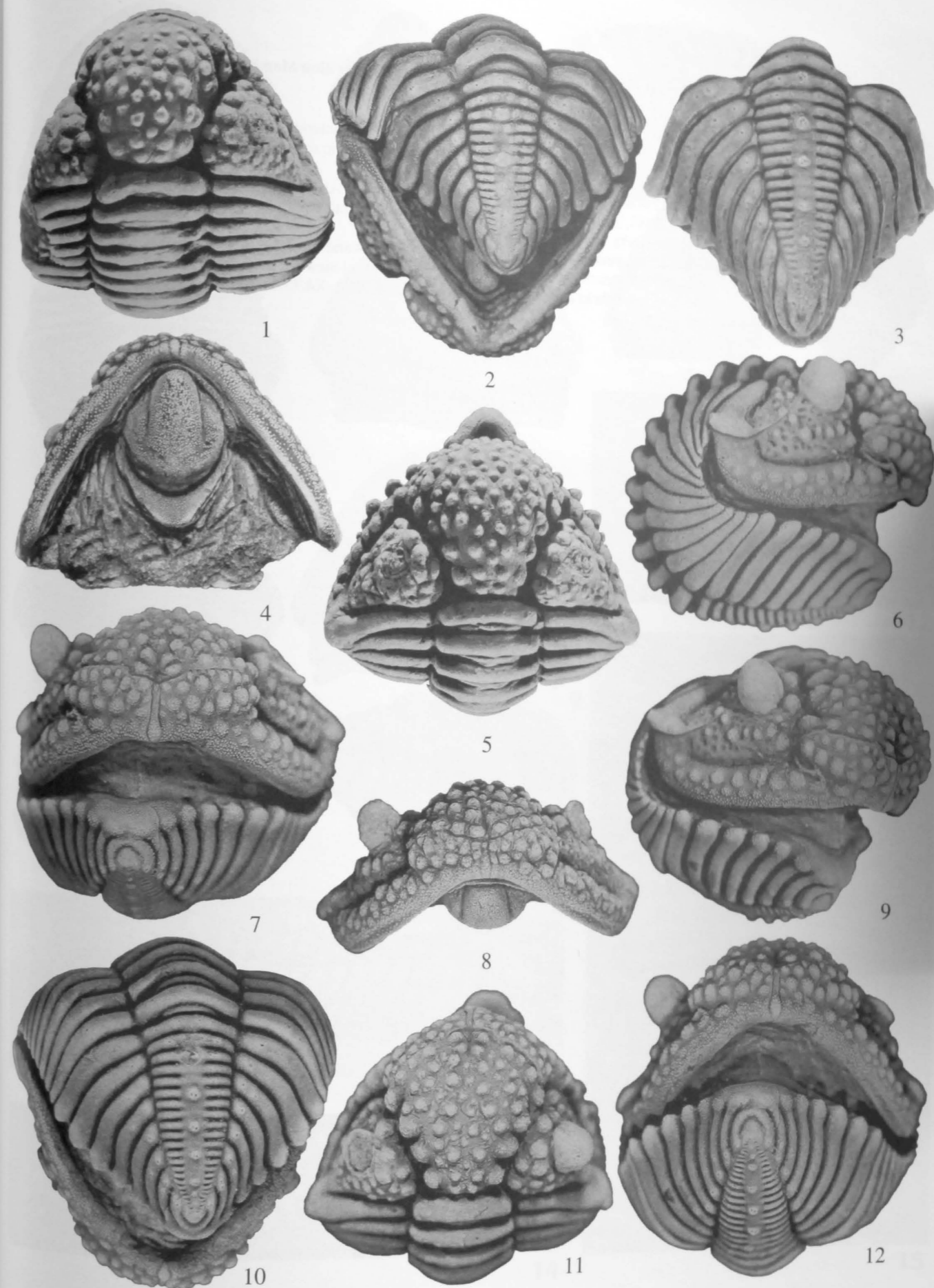


PLATE 71

Figs. 1-15. *Rielaspis elegantula* (Billings, 1866). All are from Pavillon Member of Jupiter Formation.

- 1, 6-11. GSC122581, ventral, anterodorsal, slightly anterodorsal, anterior, dorsal, left lateral and right lateral views of cephalon and front three thoracic segments X4.75, X4.4, X4.4, X4.75, X5.75 and X5.75. Locality AN36.
 2. GSC122582, ventral view of hypostome X 3.6. Locality AN78.,.
 3. GSC122583, lateral view of articulated exoskeleton (slightly crushed laterally) X7.4. Locality AN78, basal part of member.
 4, 5. GSC122584, ventral and dorsal views of pygidium X4 and X3.9. Locality AN36.
 12-15. GSC122585, anterior, right lateral, left lateral and dorsal views of articulated moult (missing free cheeks and hypostome?) X4.75, X4.4, X4.4, X4.75. Locality AN36.

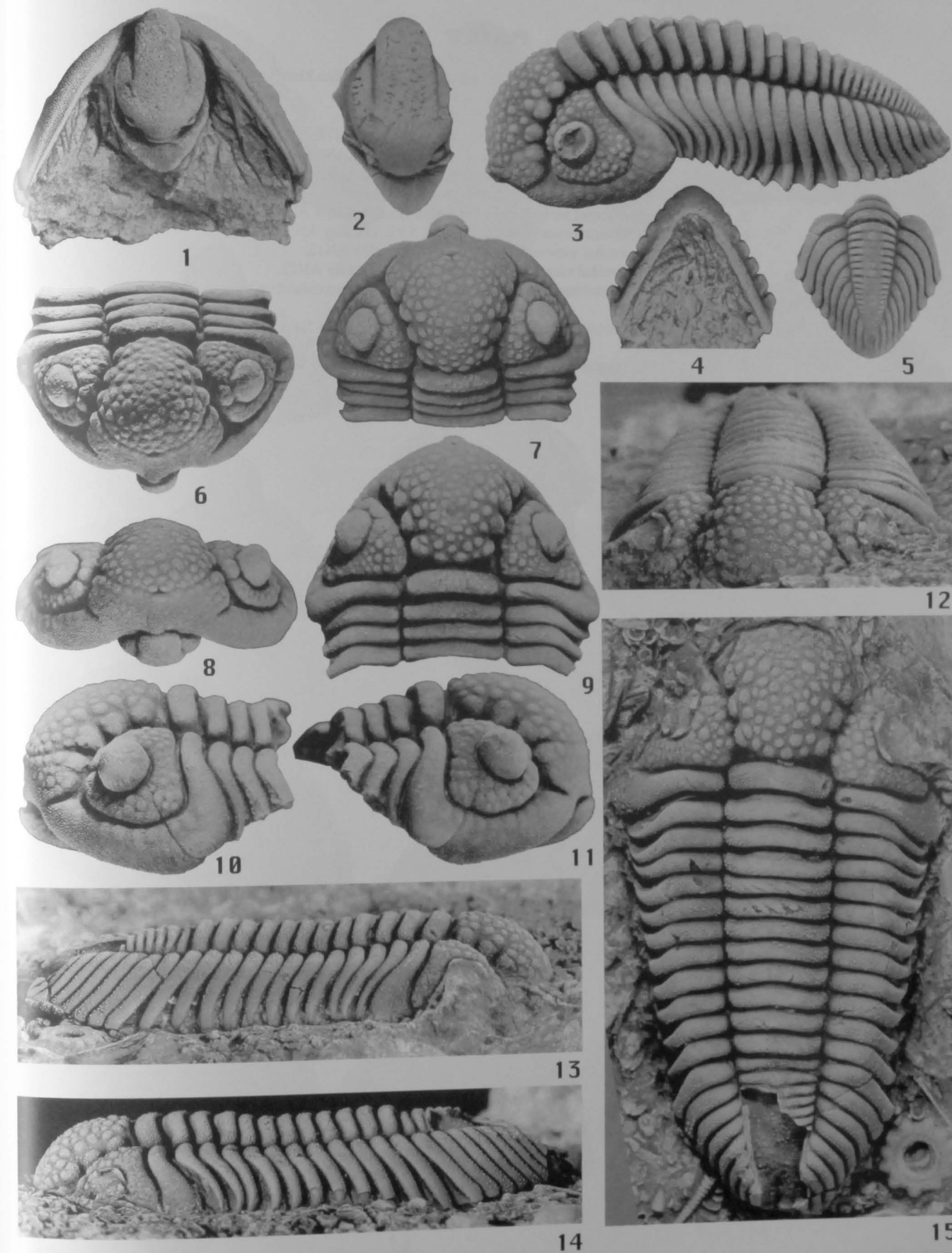


PLATE 72

Figs. 1-14. *Rielaspis elegantula* (Billings, 1866). All are from the Pavillon Member of the Jupiter Formation.

1. GSC122586, dorsal view of cranidium X5.4. Locality AN78.
2. GSC122587, ventral view of hypostome X6.5. Locality AN78.
3. GSC122588, dorsal view of cranidium X5.3. Locality AN12.
4. GSC122589, external view of left free cheek X4.6. Locality AN36.
5. GSC122590, external view of right free cheek X5.8. Locality AN36.
6. GSC122591, external view of left free cheek X6.2. Locality AN78.
7. GSC122592, ventral view of hypostome X9.4. Locality AN12.
8. GSC122593, internal view of left free cheek X5.6. Locality AN12.
- 9, 14. GSC122594, anterolateral and dorsal views of incomplete exoskeleton X6 and X5.2. Locality AN12.
- 10, 12, 13. GSC122595, lateral, posterior and dorsal views of pygidium X4.3, X4.5 and X4.5. Locality AN36.
11. GSC122596, ventral view of pygidium X6.8. Locality AN36.

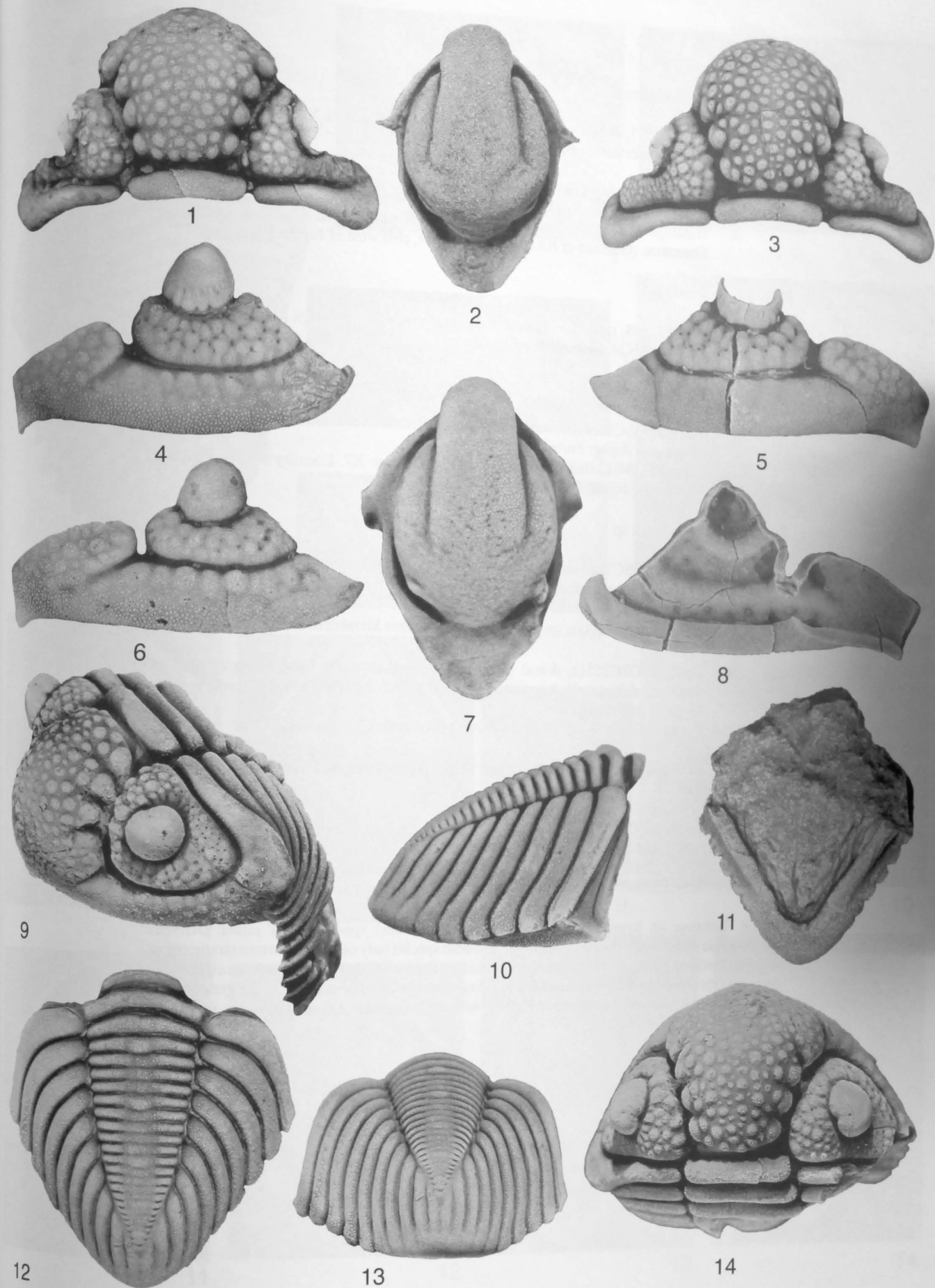


PLATE 73

Figs. 1, 2. Encrinurid genus?

- 1, 2. GSC122597, dorsal and anterodorsal views of cranidium X2.7 and X3. Locality AN21, lower part of Chicotte Formation.

Fig. 3. *Nucleurus anticostiensis* (Twenhofel, 1928).

3. Holotype YPM10395, dorsal view of incomplete exoskeleton X3.1. Zone 1 of Jupiter Formation (Goéland or Richardson Member), cliff west of Jupiter River.

Figs. 4-6. *Distyrax* sp. C.

- 4-6. GSC122598, posterior, lateral and dorsal views of pygidium X5.1, X5, and X5. Locality AN24, Chicotte Formation.

Figs. 7, 12. *Encrinurus longi* n. sp.

7. Paratype GSC122599, ventral view of hypostome X8.7. Locality AN12, Pavillon Member of Jupiter Formation.
12. Paratype GSC122600, ventral view of hypostome X7. Locality AN36, Pavillon Member of Jupiter Formation.

Fig. 8. *Encrinurus jini* n. sp.

8. Paratype GSC122546, ventral view of hypostome. Locality AN44, Richardson or Cybèle Member of Jupiter Formation.

Figs. 9, 11. *Distyrax maccormicki* n. sp. All are from the Pavillon Member of the Jupiter Formation.

9. Paratype GSC2551a, dorsal view of pygidium on same small lump of rock as lectotype of *Rielaspis elegantula* (see fig. 10) X3.2. At "The Jumpers" (same locality as AN12 and AN78).
11. Paratype GSC122602, ventral view of hypostome X7.3. Locality AN12.

Figs. 10, 13, 14. *Rielaspis elegantula* (Billings, 1866). All are from the Pavillon Member of the Jupiter Formation.

10. Lectotype GSC2551, dorsal view of cranidium X6.1. At "The Jumpers" (same locality as AN12 and AN78).
13. GSC122603, ventral view of hypostome X7.7. Locality AN36.
14. GSC122604, ventral view of hypostome X7.5. Locality AN78.

NOTE: Because no hypostomes were found in articulated specimens of either *Distyrax maccormicki* n. sp. or *Encrinurus longi* n. sp., and both species only occur in the same stratigraphic interval (Pavillon Member of the Jupiter Formation), it is possible that the hypostomes assigned to these species should be reversed. Association is based upon relative abundance, and a greater similarity between hypostomes assigned to *E. longi* to those assigned to *Encrinurus jini* n. sp.

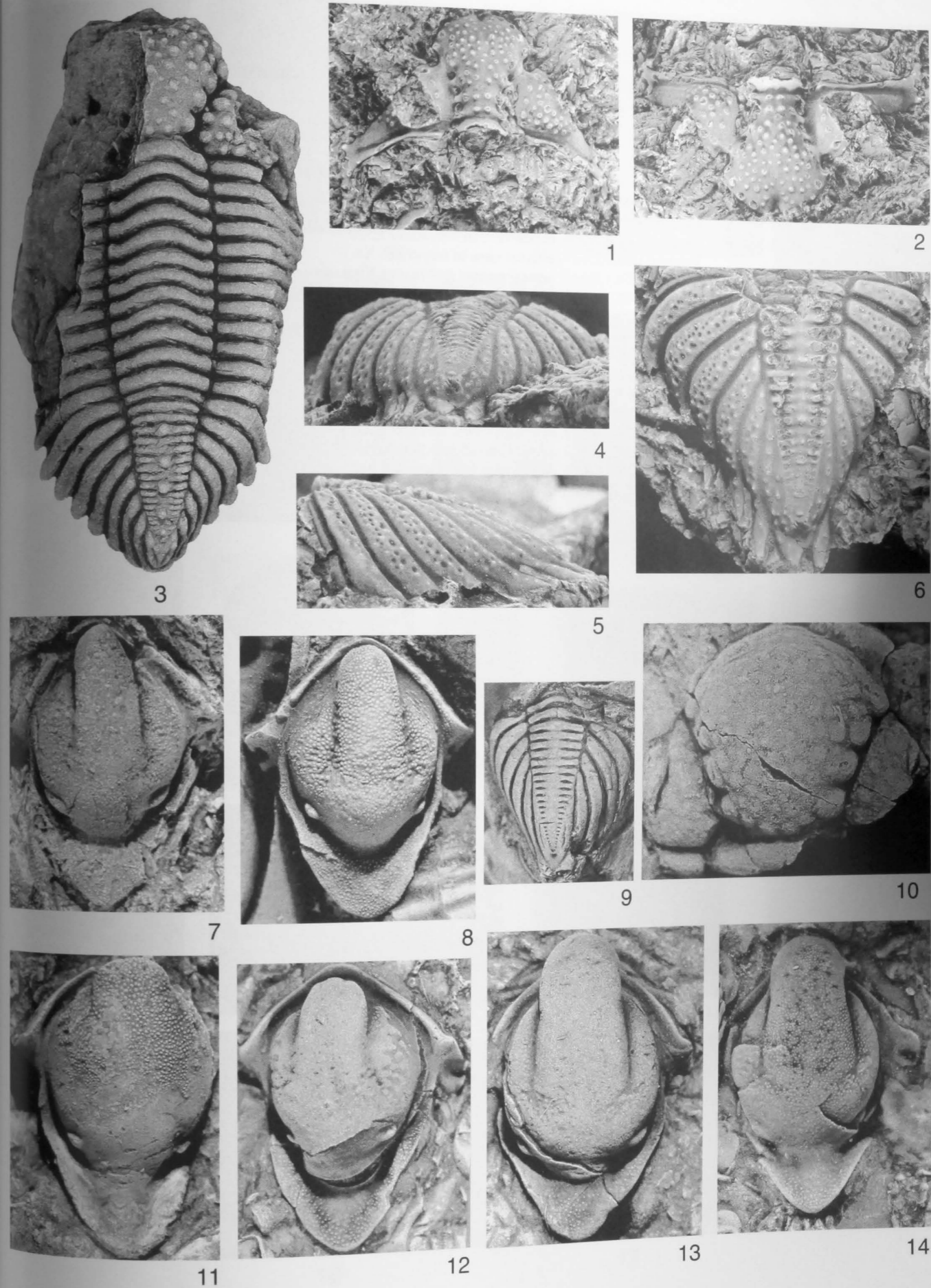


PLATE 74

Figs. 1-14. *Proetus achabae* n. sp. All specimens are from Locality AN70, Lachute Member of Gun River Formation.

1. Paratype GSC122605, external view of free cheek X7.6.
2. Holotype GSC122606, dorsal view of cranidium X8.9.
3. Paratype GSC122607, ventral view of partial hypostome X 10.5.
4. Paratype GSC122608, dorsal view of cranidium X9.3.
5. Paratype GSC122609, external view of free cheek X7.8.
6. Paratype GSC122610, dorsal view of cranidium X5.6.
7. Paratype GSC122611, internal view of free cheek X8.
8. Paratype GSC122612, ventral view of hypostome X9.8.
9. Paratype GSC122613, dorsal view of wetted cranidium, showing muscle attachment sites as darker coloured shell X4.9.
10. Paratype GSC122614, internal view of partial free cheek X7.3.
11. Paratype GSC122615, dorsal view of cranidium X10.
12. Paratype GSC122616, external view of free cheek X8.1.
13. Paratype GSC122617, dorsal view of pygidium X6.9.
14. Paratype GSC122618, external view of free cheek X4.4.
15. Paratype GSC122619, external view of free cheek X8.3.
16. Paratype GSC122620, dorsal view of pygidium X11.
17. Paratype GSC122621, dorsal view of pygidium X10.
18. Paratype GSC122622, dorsal view of pygidium X8.15.

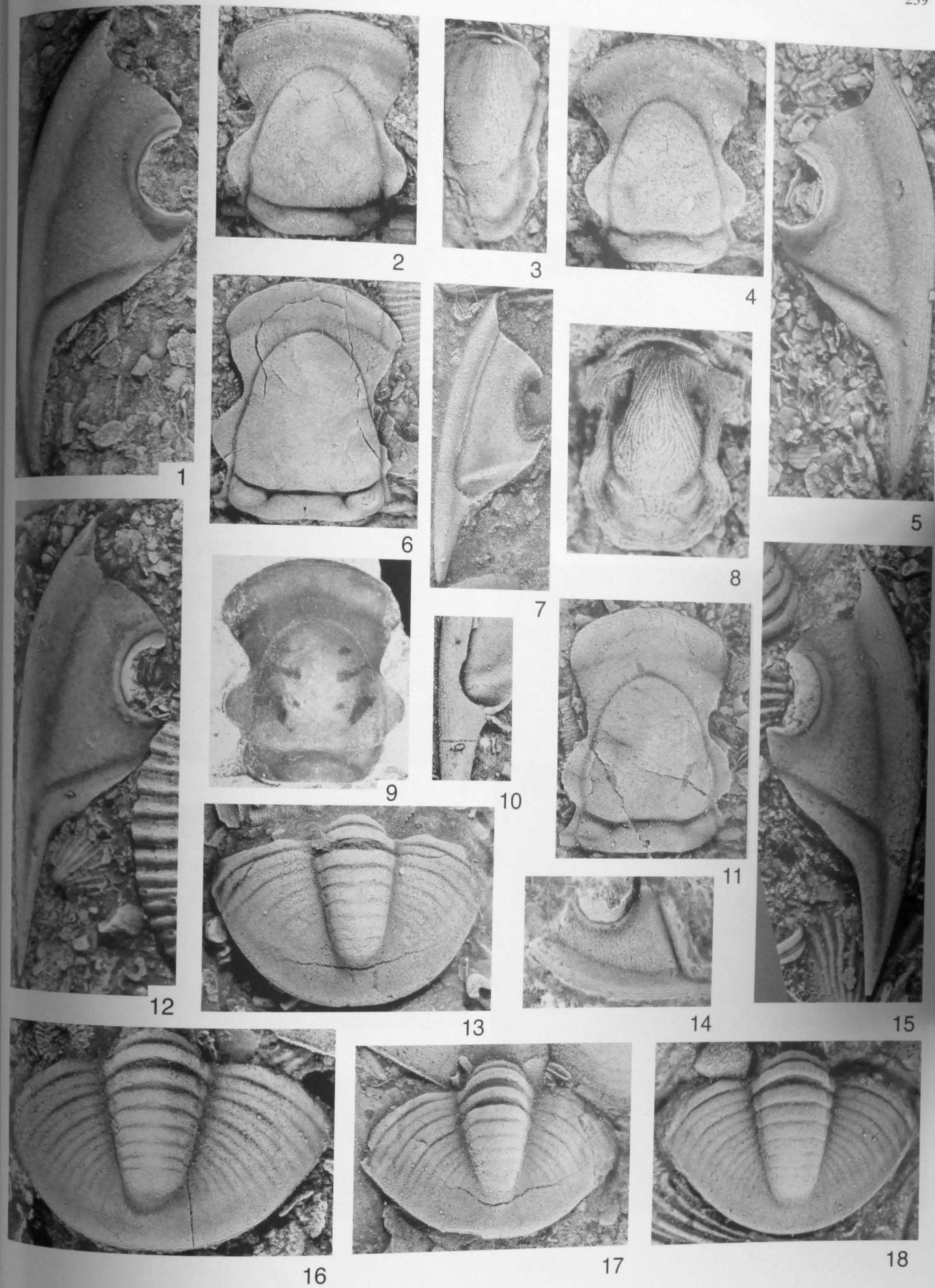
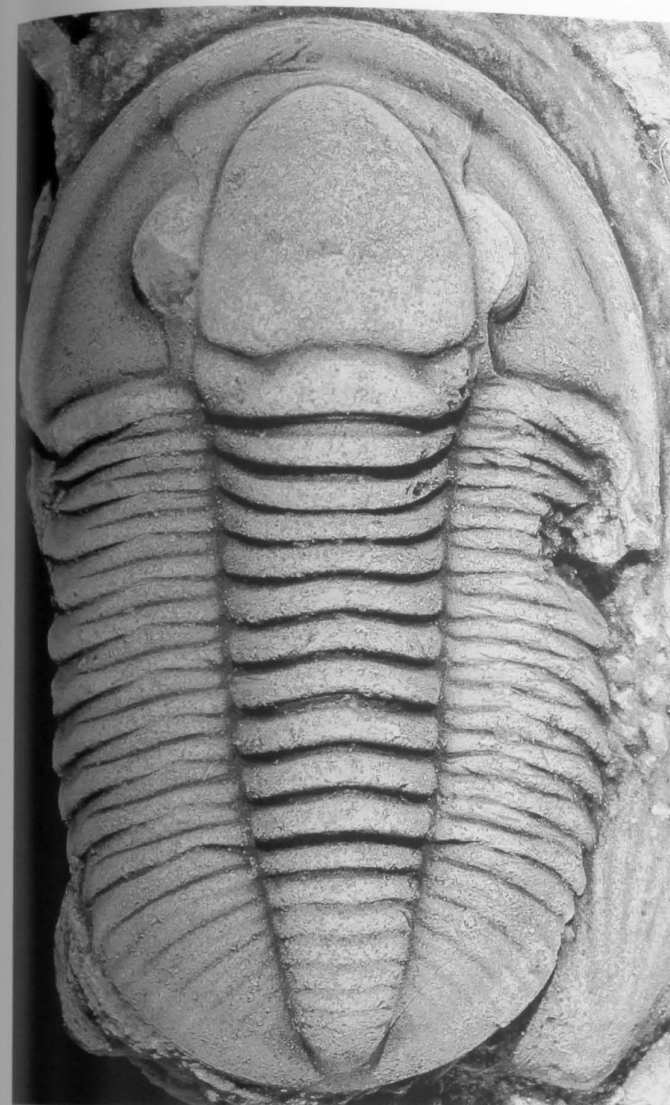


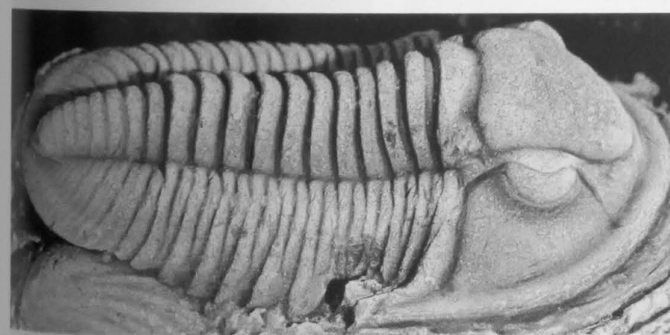
PLATE 75

Figs. 1-5. *Proetus lindoei* n. sp. Both are from lower Becscie Formation, Fox Point Member.

- 1-4. Holotype GSC122623, dorsal, anterodorsal, dorsolateral and lateral views of exoskeleton X8.6, X8.9, X5.5 and X5.5. Locality A120.
 5. Paratype GSC122624, dorsal view of exoskeleton X7.1. Locality AN22.



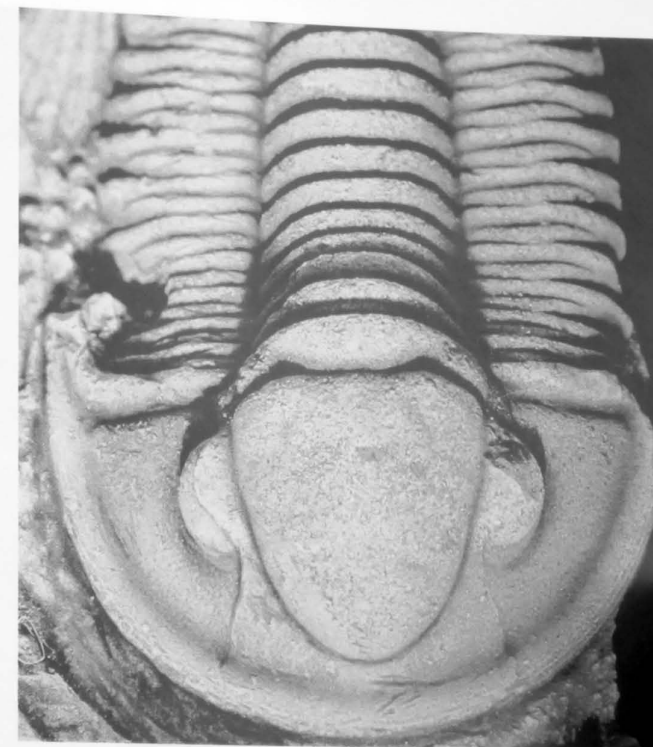
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PLATE 76

Figs. 1-12. *Decoroproetus borealis* (Twenofel, 1928). All specimens are from Locality A230, Macgilvray Member of the Gun River Formation.

1. GSC122625, dorsal view of part of cranidium X17.
2. GSC122626, dorsal view of part of cranidium X15.
3. GSC122627, external view of free cheek X15.
4. GSC122628, external view of free cheek X11.
5. GSC122629, dorsal view of part of cranidium X12.
6. GSC122630, dorsal view of cranidium X16.
7. GSC122631, view of parts of cranidium, pygidium and free cheek X5.7.
8. GSC122632, view of parts of hypostome and two free cheeks 9.6.
9. GSC122633, dorsal view of part of cranidium X17.
10. GSC122634, dorsal view of pygidium X14.5.
11. GSC122635, dorsal view of pygidium X13.
12. GSC122636 and GSC122637, view of free cheek and pygidium X14

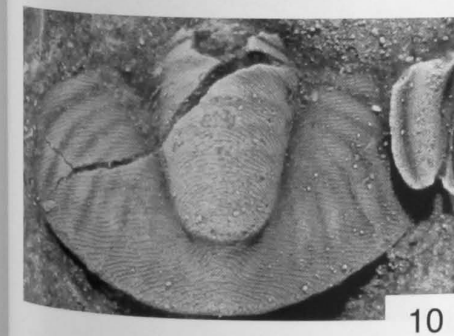
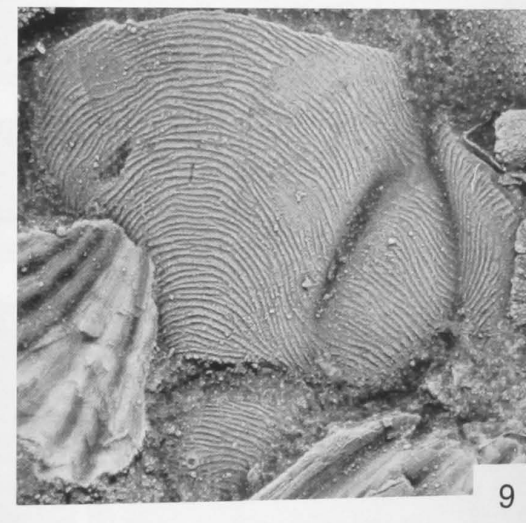
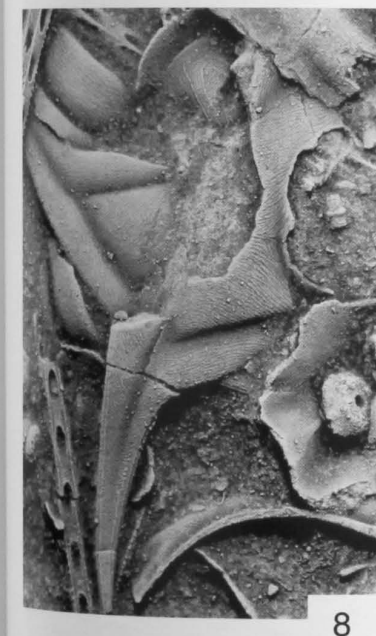
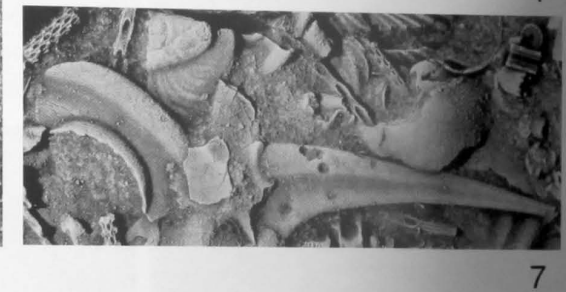
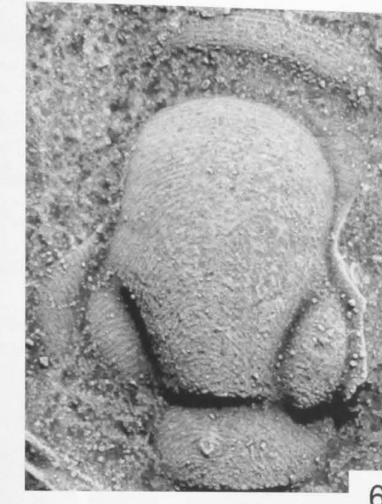
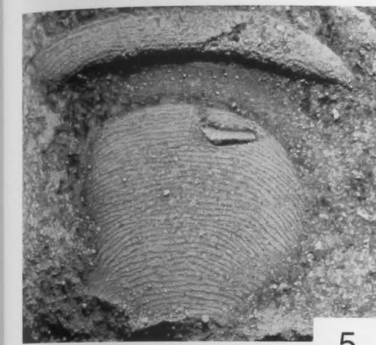
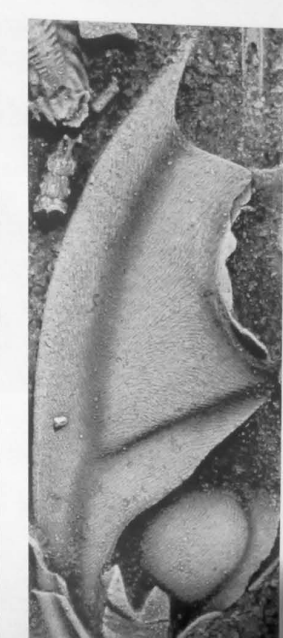
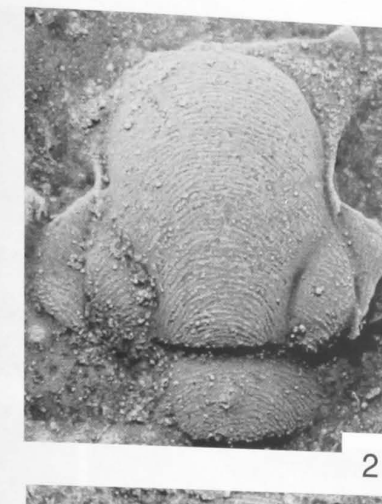


PLATE 77

Figs. 1-5. *Proetus arsenaulti* n. sp.

- 1, 4, 5. Holotype GSC123150, dorsolateral, lateral and dorsal views of complete articulated exoskeleton X9.25, X6.25 and X10. Specimen collected from lower Becscie Formation at river level, Locality AN5 +1.9 m, measured upward from biohermal bed, east side of Salmon River, slightly upstream from 9 mile pool, and south of outcrop of biohermal bed on east side of river.
- 2, 3. Paratype GSC123151, dorsolateral and dorsal views of complete articulated exoskeleton X11. Locality AN5 +1.9 m, measured upward from biohermal bed, east side of Salmon River, slightly upstream from 9 mile pool, and south of outcrop of biohermal bed on east side of river.

Figs. 6-10. *Decoroproetus borealis* (Twenhofel, 1928).

- 6, 10. Holotype YPM111086, dorsolateral and dorsal views of incomplete articulated specimen X9 and X8.7. Specimen collected from Twenhofel locality D1660, Early Silurian Becscie Formation, Cape Eagle, Anticosti Island.
- 7, 8, 9. Hypotype YPM110716, anterodorsolateral anterodorsal and dorsal views of incomplete articulated specimen X8.5, and X8.8. Collected from Twenhofel locality C8086, Gun River Formation Zone 3, Gun River, Anticosti Island.

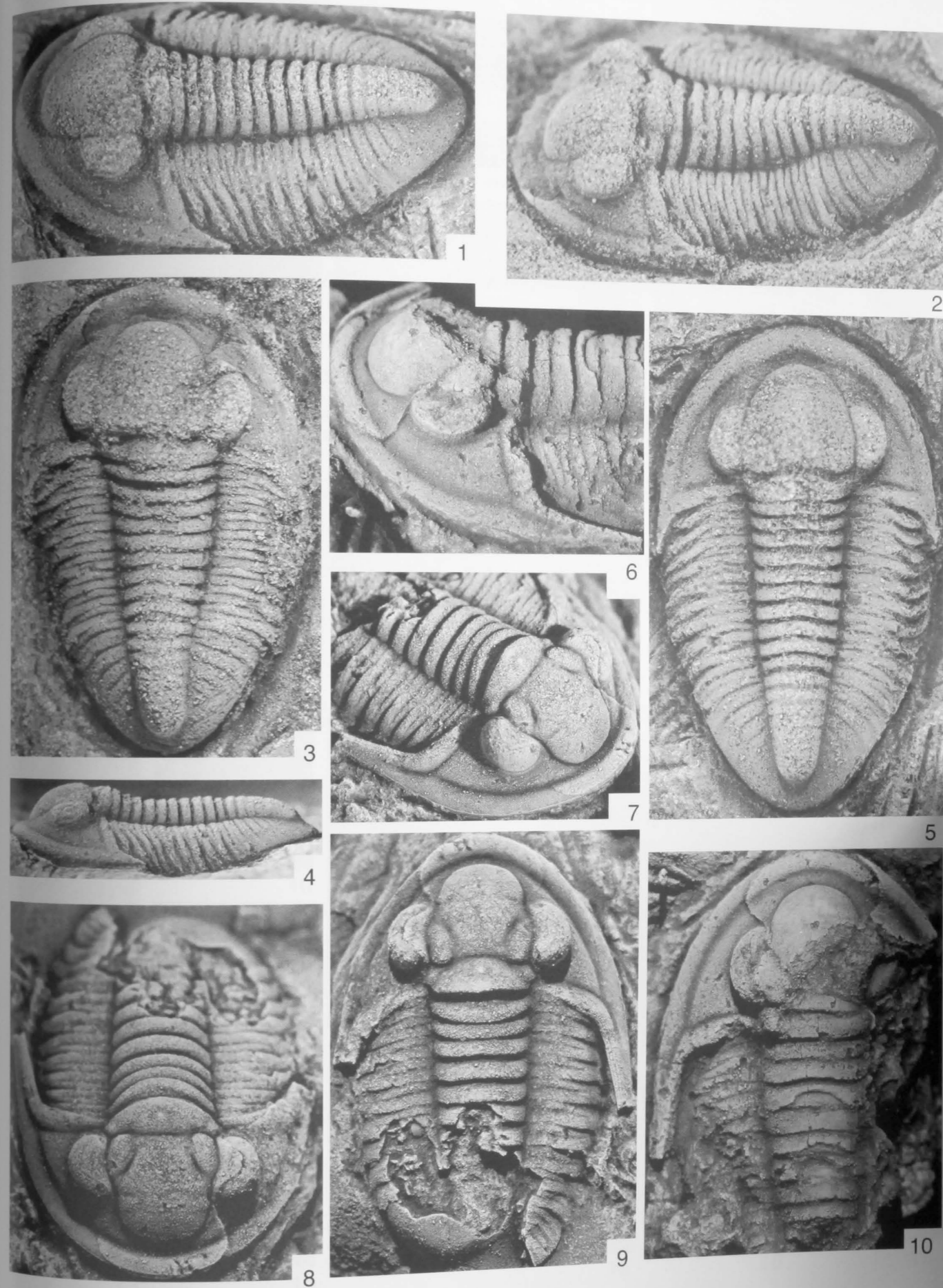


PLATE 78

Figs 1-7, 9. *Decoroproetus dewingi* n. sp. All are from Jupiter Formation.

- 1-5, 9. Holotype GSC122638, anterior, right lateral, dorsal, right anterolateral, posterodorsal and dorsolateral views of cephalon and part of thorax X7.7, X8, X7.4, X7.5, X7.1 and X10.5. Locality A101, Ferrum or Pavillon Member.
 6. Paratype GSC122639, dorsal view of cranidium X12.7. Locality AN12, Pavillon Member.
 7. Paratype GSC122640, dorsal view of pygidium X14.5. Locality AN12, Pavillon Member.

Figs. 8, 10-17. *Decoroproetus narbonnei* n. sp. All are from locality AN15, lower Goéland Member of Jupiter Formation.

8. Paratype GSC122641, dorsal view of pygidium X11.6.
 10. Paratype GSC122642, dorsal view of cranidium X6.75.
 11. Paratype GSC122643, external view of left free cheek X12.
 12. Holotype GSC122644, dorsal view of cranidium X12.
 13. Paratype GSC122645, external view of left free cheek X7.6.
 14. Paratype GSC122646, external view of right free cheek X9.6.
 15. Paratype GSC122647, dorsal view of pygidium X14.
 16. Paratype GSC122648, internal view of left free cheek X10.
 17. Paratype GSC122649, external view of right free cheek X9.4.

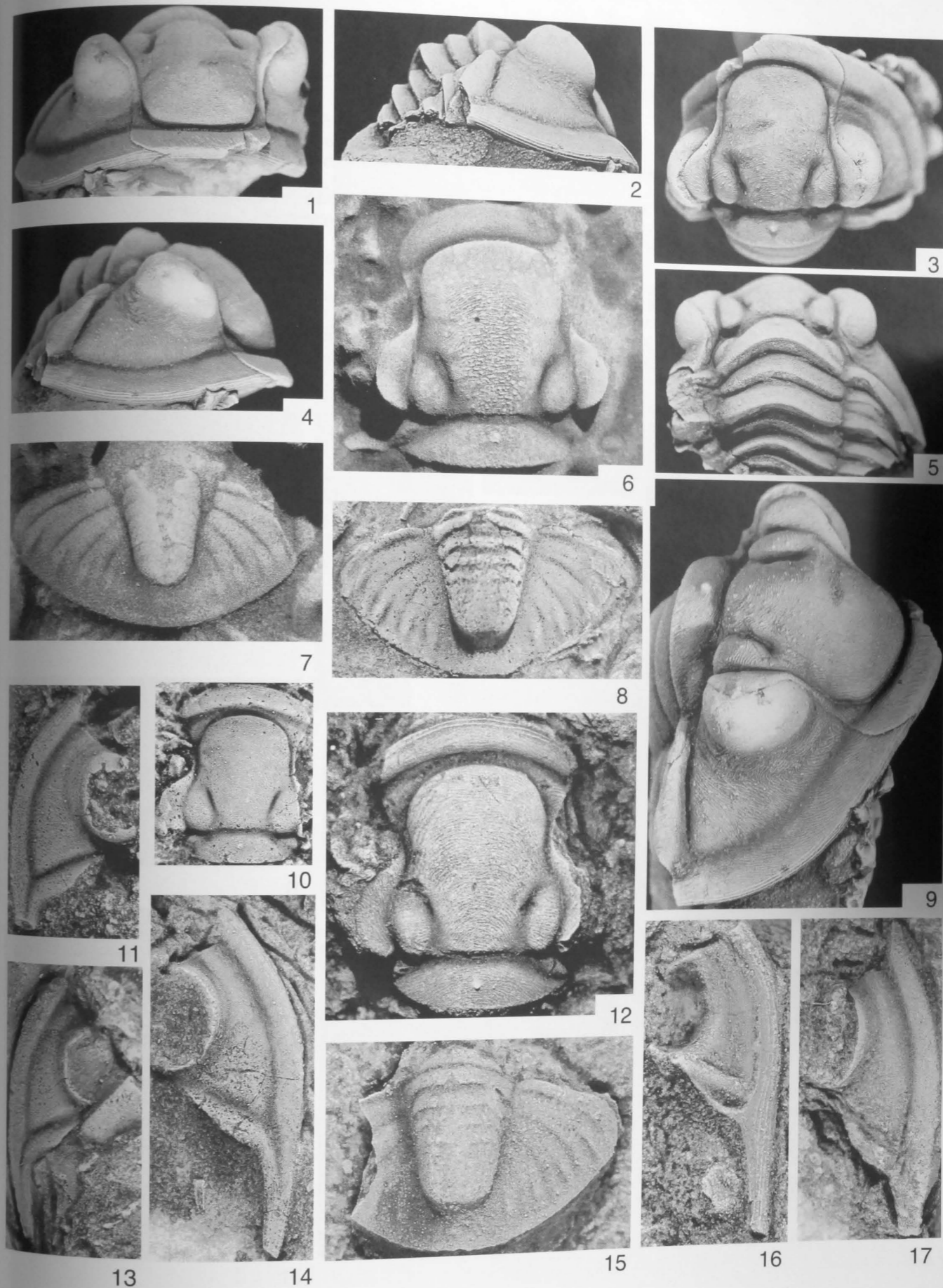


PLATE 79

Figs. 1-13. *Decoroproetus petryki* n. sp. All are from Goéland Member(?) of Jupiter Formation.

1. GSC122650, dorsal view of cranidium X13. Locality AN23.
2. GSC122651, dorsal view of thoracic segment and cranidium X4.9. Locality AN23.
- 3, 6. Paratype GSC122652, dorsolateral and lateral views of pygidium X5.6. Locality AN88.
- 4, 11. GSC122653a, dorsal views of thorax and pygidium X13 and X5. Locality AN23.
- 5, 8. Paratype GSC122654, external views of free cheek and pygidium X4.2, and X6.2. Locality AN88, Goéland Member.
7. GSC122655, ventral views of moulds of cranidium and partial pygidium, and external view of free cheek X5. Locality AN88.
9. Paratype GSC122656, dorsal view of pygidium X8.7. Locality AN88.
10. GSC122657, dorsal view of pygidium X8.3. Locality AN23.
12. GSC122653b, ventral view of mould of thorax and pygidium X5. Locality AN23.
13. GSC122658, dorsal view of disarranged partial thorax and pygidium X4.1. Locality AN23.

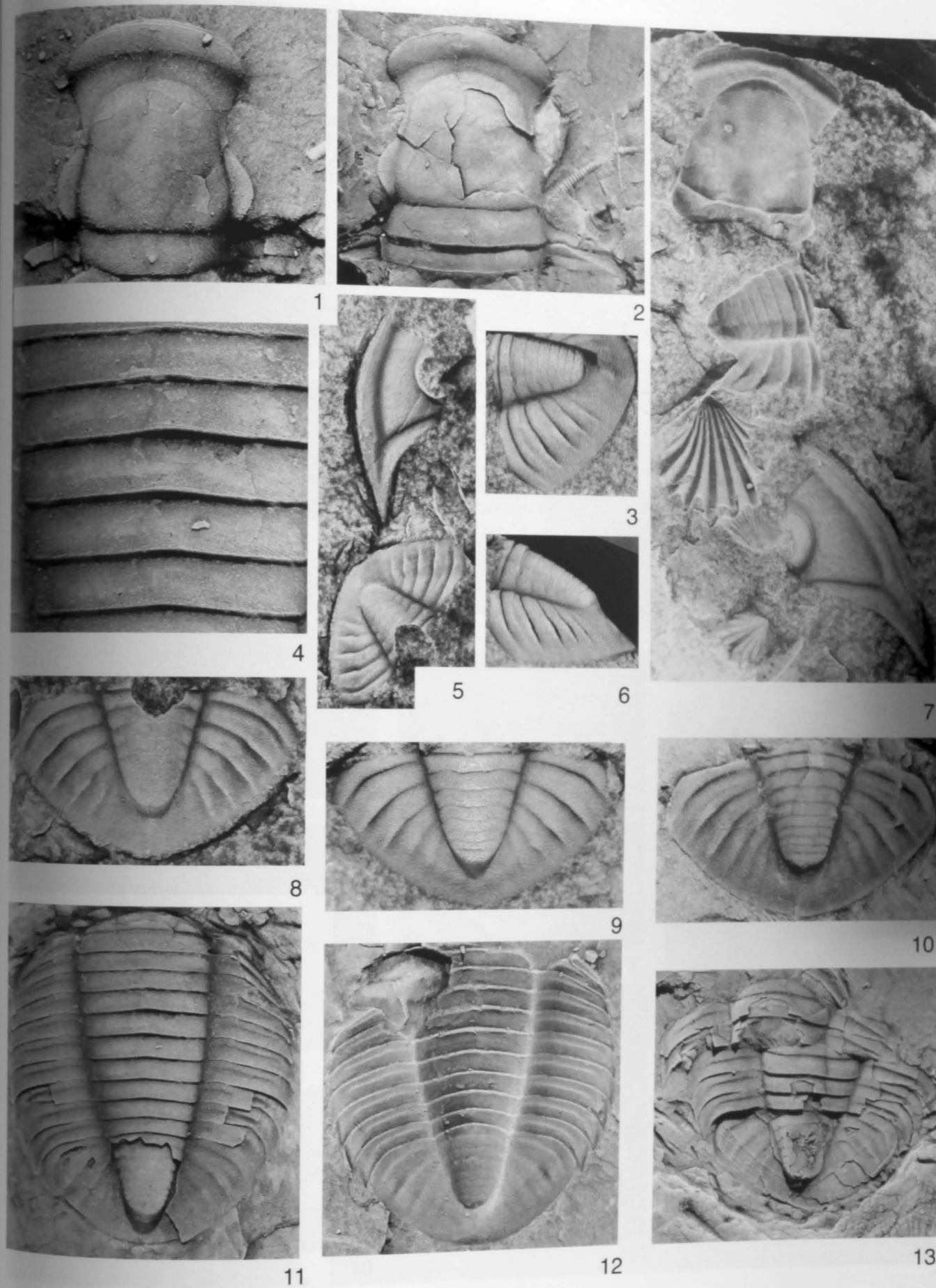


PLATE 80

Figs. 1-3, 5-9. *Decoroproetus petryki* n. sp. All are from Goéland Member(?) of Jupiter Formation.

- 1, 3. Holotype GSC122659, dorsal and lateral views of cranidium X9.8. Locality AN88.
 2, 5. Paratype GSC122660, external views of free cheek X6.7, and X15.8. Locality AN88.
 6. Paratype GSC122661, view of external mould of pygidium X10. Locality AN88.
 7-9. GSC122662, dorsal views of pygidium X13.5, X7.7, and X15.3. Locality AN23.

Fig. 4. *Decoroproetus borealis* (Twenhofel, 1928).

4. GSC122663, ventral view of hypostome X7.7. Locality A92, Macgilvray Member of Gun River Formation.

Figs. 10, 12. *Proetus lindoei* n. sp.

10. Paratype GSC122664, external view of free cheek X9. Collected from Salmon River, the lower part of the Becscie Formation.
 12. Paratype GSC122665, external view of free cheek X5.3. Locality AN22, basal Becscie Formation.

Fig. 11. *Proetus achabae* n. sp.

11. GSC122666, dorsal view of cranidium X6. Locality AN70, La Chute Member of Gun River Formation.

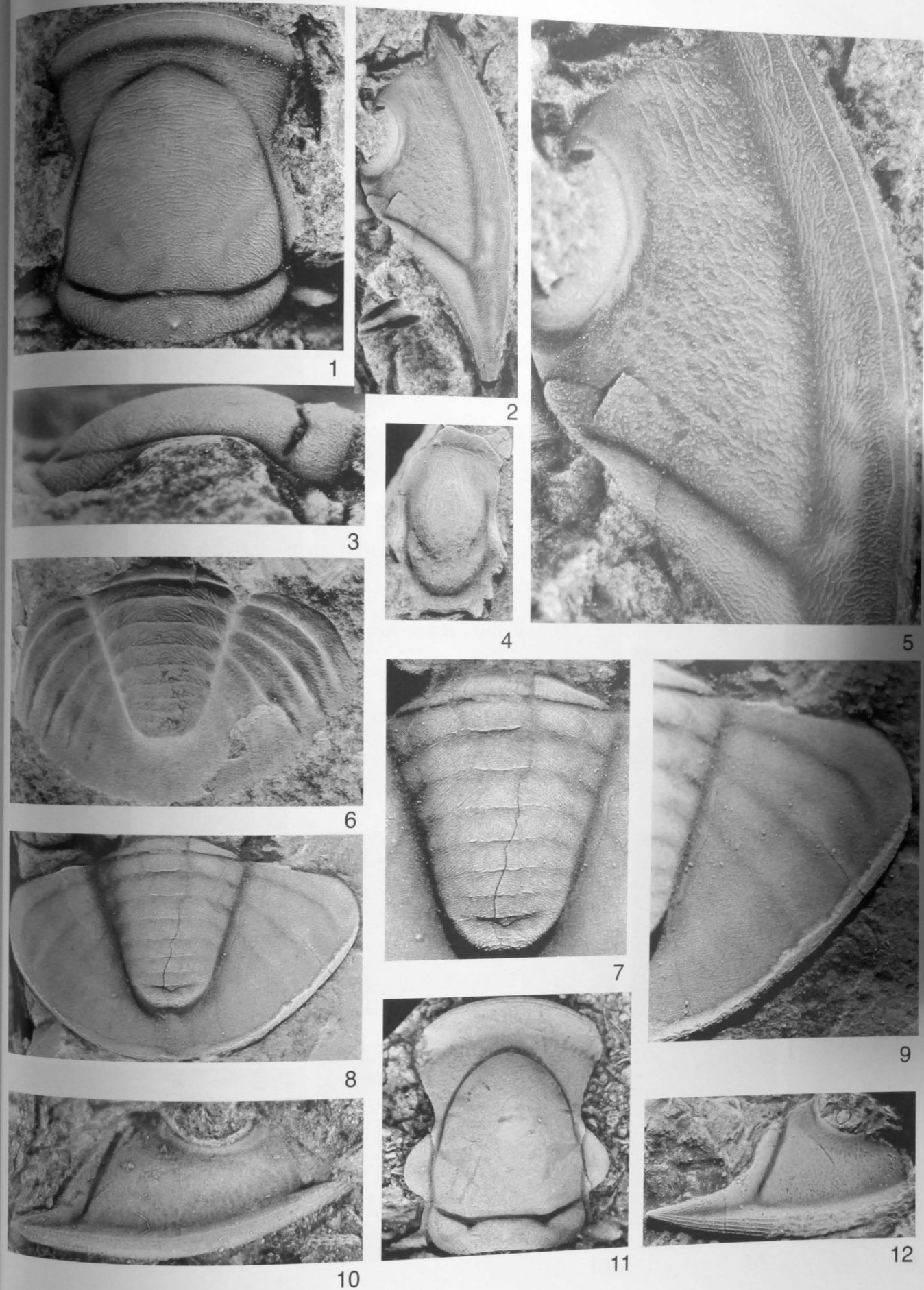


PLATE 81

Figs. 1-15. *Warburgella pratti* n. sp. All are from Jupiter Formation.

1. Paratype GSC122667, dorsal view of cranidium X8.5. Locality AN18, Ferrum Member.?
2. Holotype GSC122668, dorsal view of cranidium X9.4. Locality AN12, Pavillon Member.
3. Paratype GSC122669, dorsal view of cranidium X10.5. Locality AN18, Ferrum Member.?
4. Paratype GSC122670, external view of free cheek X9.4. Locality AN18, Ferrum Member.?
5. Paratype GSC122671, external view of free cheek X6. Locality AN18, Ferrum Member.?
6. Paratype GSC122672, dorsal view of cranidium X12. Locality AN12, Pavillon Member.
7. Paratype GSC122673, external view of free cheek X10. Locality AN36, Pavillon Member.
8. Paratype GSC122674, internal view of free cheek X6.4. Locality AN36, Pavillon Member.
9. Paratype GSC122675, external view of free cheek X6.6. Locality AN78, Pavillon Member.
10. Paratype GSC122676, external view of free cheek X4.75. Locality AN36, Pavillon Member.
11. Paratype GSC122677, dorsal view of pygidium X6.9. Locality AN12, Pavillon Member.
12. Paratype GSC122678, dorsal view of pygidium X7. Locality AN12, Pavillon Member.
13. Paratype GSC122679, dorsal view of pygidium X4.9. Locality AN36, Pavillon Member.
14. Paratype GSC122680, internal view of free cheek X6.6. Locality AN78, Pavillon Member.
15. Paratype GSC122681, external view of free cheek X7. Locality AN78, Pavillon Member.

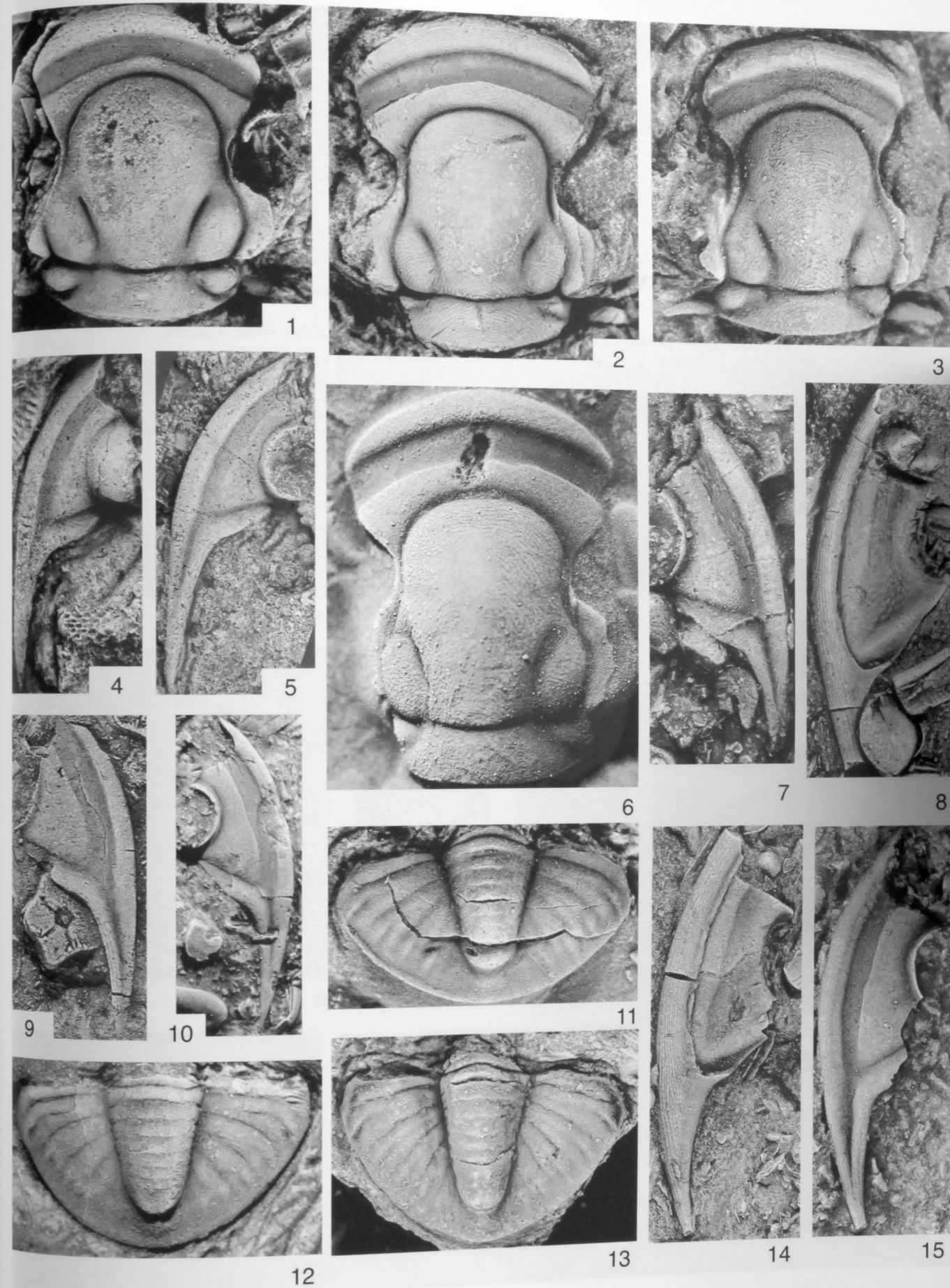


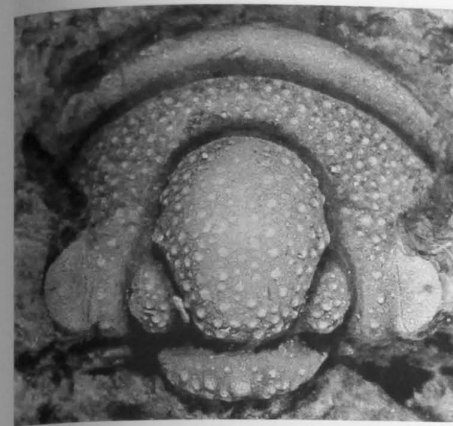
PLATE 82

Fig. 1. *Maurotarion* (?) sp.

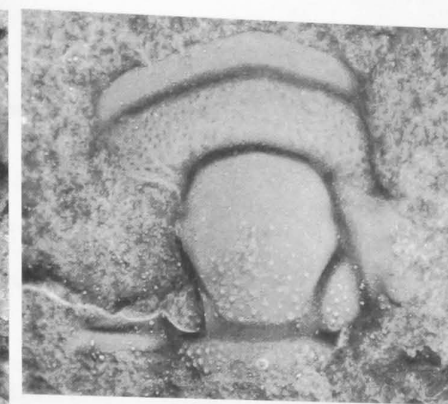
1. GSC122682, dorsal view of cranidium X12. Locality AN78, Pavillon Member of Jupiter Formation.

Figs. 2-14. *Maurotarion richardsoni* n. sp. All are from Jupiter Formation.

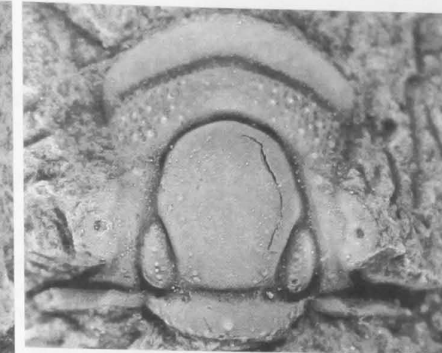
2. Paratype GSC122683, dorsal view of cranidium X15. Locality AN88, Goéland Member?
 3, 6, 7, 12. Holotype GSC122684, dorsal, right lateral, anterior, and left lateral views of cranidium X9, X12, X9, and X12. Locality AN88, Goéland Member?
 4. Paratype GSC122685, dorsal view of cranidium X12. Locality AN88, Goéland Member?
 5. Paratype GSC122686, dorsal view of cranidium X12. Locality AN88, Goéland Member?
 8. GSC122687, dorsal view of cranidium X18. Locality AN44, Richardson or Cybèle Member.
 9, 13. Paratype GSC122688, external views of free cheek X13.5 and X21. Locality AN88, Goéland Member?
 10. Paratype GSC122689, external view of free cheek X11. Locality AN88, Goéland Member?
 11. Paratype GSC122690, dorsal view of cranidium X11.5. Locality AN88, Goéland Member?
 14. Paratype GSC122691, external view of free cheek X20. Locality AN88, Goéland Member?



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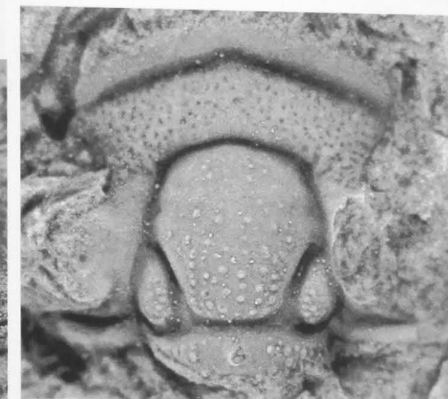
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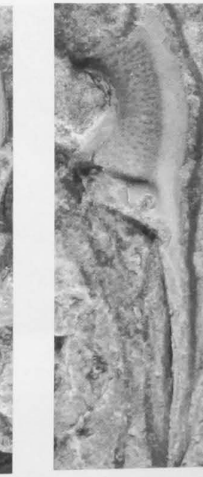
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PLATE 83

Figs. 1, 4, 6, 8-10. *Maurotarion* aff. *M. richardsoni* n. sp. All are from locality AN23, top of Goéland Member of Jupiter Formation

1. GSC122692, dorsal view of cranidium X10.5.
4. GSC122693, dorsal view of cranidium X7.
6. GSC122694, dorsal view of cranidium X6.6.
8. GSC122695a, ventral view of mould of thorax and pygidium X18.
9. GSC122695b, dorsal view of thorax and pygidium X6.5
10. GSC122700, inside of free cheek X6.

Figs. 2, 3, 5, 7. *Maurotarion richardsoni* n. sp. All are from locality AN88, Goéland Member(?) of Jupiter Formation.

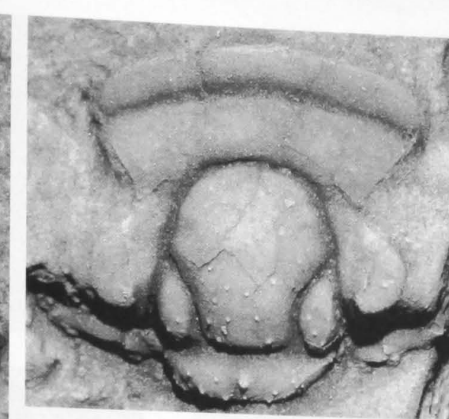
2. Paratype GSC122696, dorsal view of cranidium X10.5.
3. Paratype GSC122697, external view of free cheek X17.
5. Paratype GSC122698, dorsal view of partial thorax and ventral view of mould of cranidium X8.3.
7. Paratype GSC122699, dorsal view of pygidium X26.



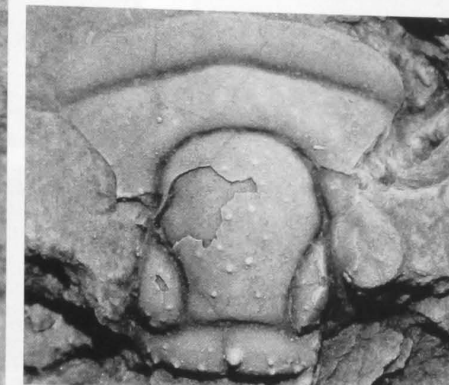
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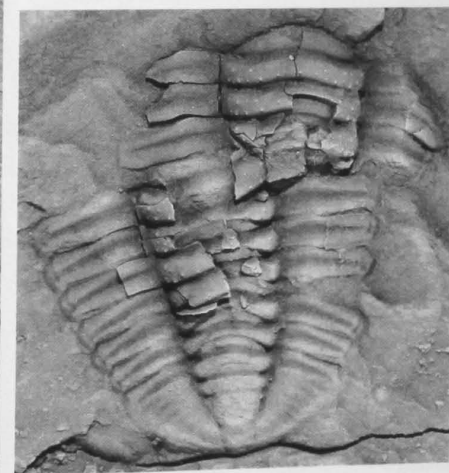
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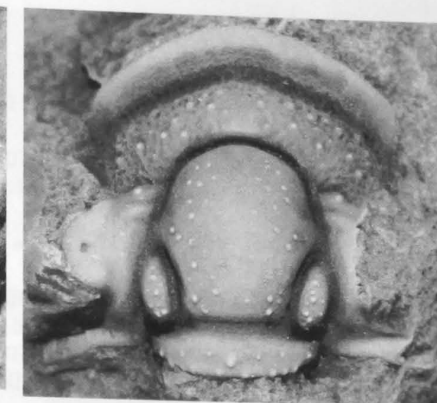
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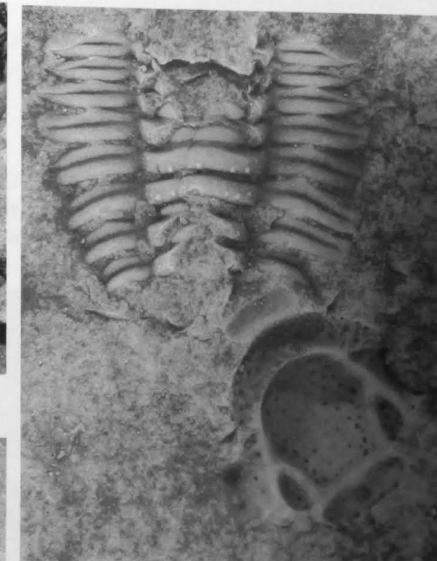
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PLATE 84

Figs. 1. *Maurotarion* ? sp.

1. GSC122702, external view of left free cheek X9.5. Locality AN44, Richardson or Cybèle Member of Jupiter Formation

Figs. 2, 3. *Maurotarion* sp. A.

2. GSC122703, dorsal view of cranidium X11. Locality AN6, 0.7m above Oncolite Bed, basal Becscie Formation.
3. GSC122704, dorsal view of cranidium X7.4. Locality Cap Henri east, 5-7m above Oncolite Bed, basal Becscie Formation.

Fig. 4. *Stenopareia* sp.

4. GSC122705, ventral view of rostral plate X1.7. Locality AN36, Pavillon Member of Jupiter Formation.

Fig. 5. *Harpidella* sp.

5. GSC122706, dorsal view of cranidium X10. GSC locality 99336, Rivière aux Saumons road, second rise, 4 km south of mouth, Member 6 of Ellis Bay Formation (uppermost Ordovician).

Fig. 6, 7. *Stelckaspis* sp. B.

- 6, 7. GSC123152, dorsal and dorsolateral views of broken cephalon X4.5, and X6.9. Locality AN43, Richardson or Cybèle Member of Jupiter Formation.

Figs. 8, 9. *Failleana wangi* n. sp.

8. Paratype GSC122707, internal view of free cheek X3.1. Locality AN57, Cybèle Member of Jupiter Formation.
9. Paratype GSC122708, dorsal view of cranidium X0.9. Locality 77AP-40-28-1F.

Fig. 10. *Stelckaspis perplexa* (Billings, 1866).

10. GSC122709, dorsal view of cephalon X4.3. Locality AN78, Pavillon Member of Jupiter Formation.

Fig. 11. *Dalaspis pustulosa* n. sp.

11. Paratype GSC122710, dorsal view of pygidium X4.7. Locality AN78, Pavillon Member of Jupiter Formation.

Fig. 12. *Scotoharpes consuetus* (Billings, 1866).

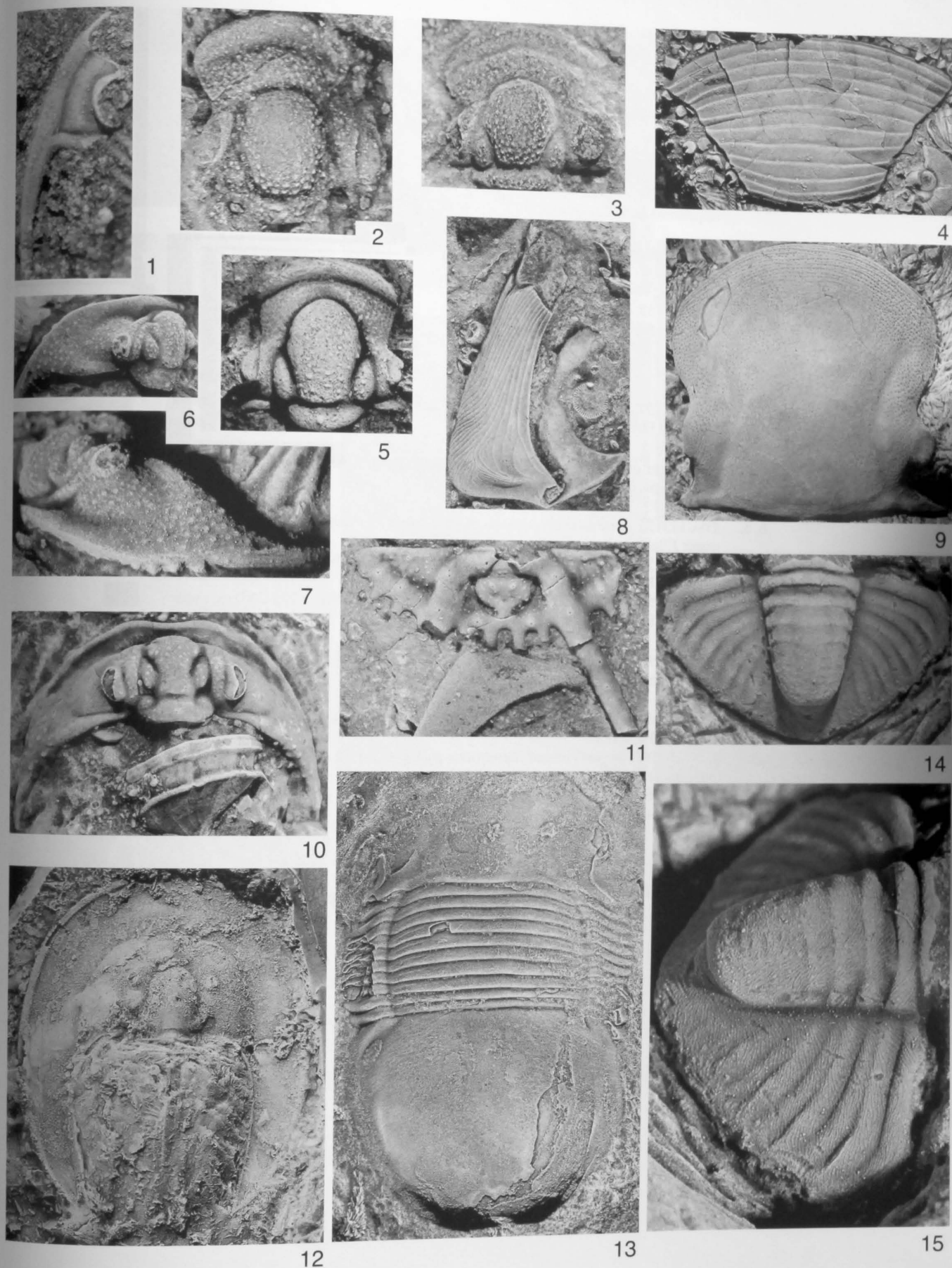
12. Holotype GSC2550, dorsal view of silicon rubber cast of upper lamella X2.4. From Chicotte Formation at Southwest Point.

Fig. 13. *Failleana magnifica* n. sp.

13. Paratype GSC122711, silicon rubber cast of exoskeleton X1.5. Locality AN22, lower part of Becscie Formation.

Figs. 14, 15. *Decoroproetus narbonnei* n. sp.

- 14, 15. Paratype GSC123153, dorsal and dorsolateral views of pygidium X8.8, and X18. Locality AN56. Macgilvray Member of Gun River Formation.



PIATE 85

Late Ordovician trilobites, from the Ellis Bay Formation, a short distance below the "Platform Bed", close to the Ordovician-Silurian boundary.

Figs. 1, 2. *Platycoryphe* sp.

- 1, 2. GSC123154, dorsal and anterior views of cranidium X5. Locality AN7 (-) 20 cm, uppermost Ellis Bay Formation.

Figs. 3, 4. *Celtencrinurus laurentinus* (Twenhofel, 1928). Both are from locality AN80, upper Ellis Bay Formation.

3. GSC123155, dorsal view of cranidium X7.
4. GSC123156, dorsal view of pygidium X5.4.

Fig. 5. Harpid trilobite.

5. GSC123157, dorsal view of partial fringe X3.5. Locality AN7 (-) 290-403 cm, upper Ellis Bay Formation.

Figs 6-9. *Toxochasmops anticostiensis* (Twenhofel, 1928). Note that the exoskeleton is missing from most of the surfaces of the specimens illustrated.

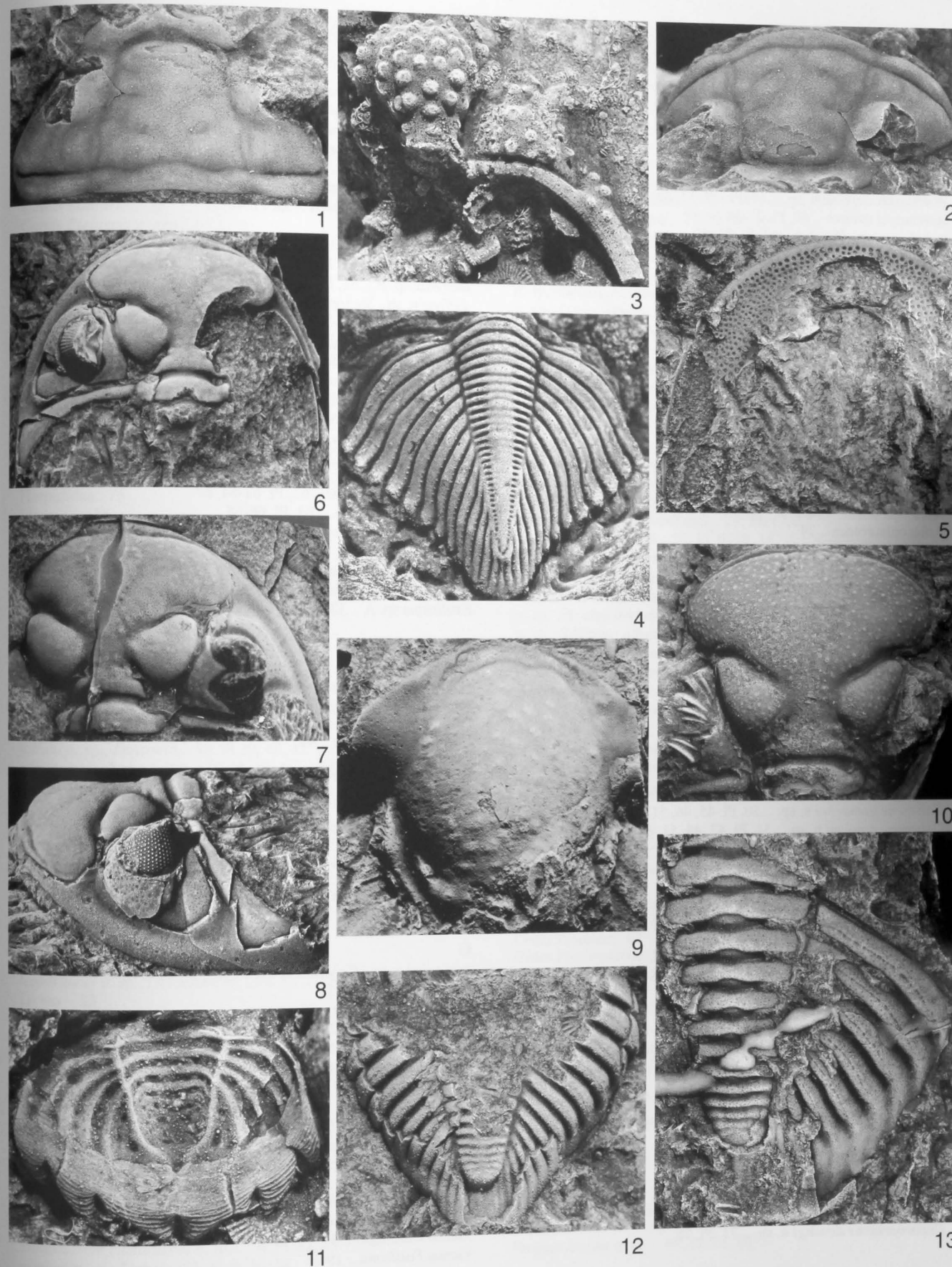
- 6, 8. GSC123158, dorsal and lateral views of cephalon X2. Locality AN6 (-) 165-246 cm, upper Ellis Bay Formation.
7. GSC123159b, dorsal view of latex mould X2.6. Locality AN6 (-) 165-246 cm, upper Ellis Bay Formation.
9. GSC123160, ventral view of hypostome X3.2. Locality AN6 (-) 165-246 cm, upper Ellis Bay Formation.

Figs. 10, 12, 13. *Toxochasmops anticostiensis*? (Twenhofel, 1928). Note that the exoskeleton is missing from most of the surfaces of the specimens illustrated.

10. GSC123161, dorsal view of partial cranidium X4. Locality AN7 (-) 20 cm, uppermost Ellis Bay Formation.
12. GSC123162, dorsal view of incomplete pygidium X7. Locality AN7 (-) 20 cm, uppermost Ellis Bay Formation.
13. GSC123163, dorsal view of pygidium X5. Locality AN7 (-) 20 cm, uppermost Ellis Bay Formation.

Fig. 11. *Hemiarges* sp.

11. GSC123164, ventral view of pygidium X10. Locality AN80, upper Ellis Bay Formation.



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