



LATE CRETACEOUS FORAMINIFERAL
BIOFACIES OF THE NORTHEASTERN
INDIAN OCEAN REGION

BY

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VOLUME 2.

ATLAS

INTRODUCTION

All photographs were taken on the ETEC Autoscan scanning electron microscope at the Electron Optical Centre, University of Adelaide.

Preparation for photography involved mounting selected specimens on a gum tragacanth coated glass slide, which was already attached to an aluminium rivet. The specimens were then coated with either gold in a sputter coater or a gold/paladium mix using a vacuum coater. Photographs were taken on Panatomic-X fine grained film.

Specimens illustrated from the Carnarvon Basic sections have been deposited in the palaeontological collection at the Bureau of Mineral Resources, Canberra, Australia. The remainder are held at the Geology Department, University of Adelaide.

PLATE 1

Figs.

- 1-2 *Bathysiphon* spp.
 1 × 60, Withnell No. 1, W1779
 2 × 60, Withnell No. 1, W1779
- 3 *Pelosina* sp.
 3 × 60, Withnell No. 1, W1505
- 4 *Ammodiscus?cretaceus* (Reuss)
 4 × 60, Korojon Calcarenite, 0124
- 5 *Ammodiscus* sp. 1
 5 × 130, Withnell No. 1, W1440
- 6 *Glomospira gordialis* (Jones and Parker)
 6 × 100, Korojon Calcarenite, 0125
- 7-8 *Glomospira pileolus* Subbotina
 7 × 100, Withnell No. 1, W1440
 8 × 100, Minilya No. 1, M1779
- 9-10 *Haplophragmoides* sp. 1
 9 × 70, Withnell No. 1, W2005
 10 × 70, Minilya No. 1, M1779
- 11-12 *Haplophragmoides* sp. 2
 11 × 80, Withnell No. 1, W1505
 12 × 120, Withnell No. 1, W1505
- 13 *Lituola grandis* (Reuss)
 13 × 10, Miria Marl, 0153
- 14 *Ammobaculites* sp. 1
 14 × 40, Gaj River, 27(20-30)
- 15-16 *Placopsilina* sp. 1
 15 × 70, Korojon Calcarenite, 0130
 16 × 70, Korojon Calcarenite, 0130



Figs.

- 17-18 *Spiroplectamina grzybowskii*, Frizzell
17 × 70, Korojon Calcarenite, 0130
18 × 30, Korojon Calcarenite, 0130
- 19 *Spiroplectamina laevis* (Roemer)
19 × 40, Korojon Calcarenite, 0128
- 20 *Spiroplectamina paula* Belford
20 × 60, Korojon Calcarenite, 0130

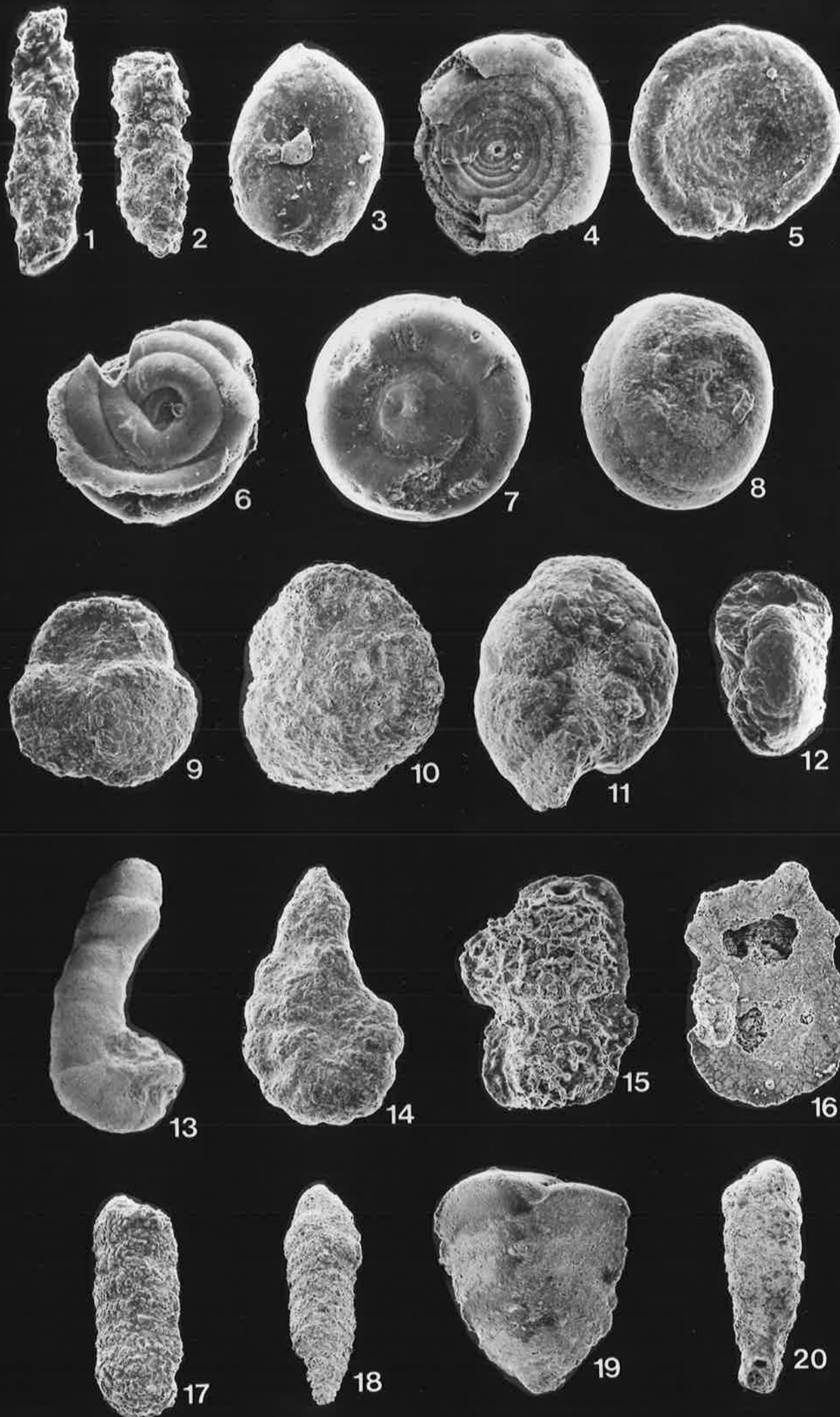


PLATE 2

Figs.

- 1 *Textularia* Sp. 1
1 × 60, Korojon Calcarenite, 0130
- 2 *Textularia* Sp. 2
2 × 100, Miria Marl, 0155
- 3-4 *Trochammina* cf. *boehmi* Franke
3 × 50, Minilya No. 1, M1810
4 × 50, Minilya No. 1, M1810
- 5-6 *Trochammina* Sp. 1
5 × 80, Miria Marl, 0154
6 × 80, Miria Marl, 0154
- 7-8 *Verneuilina parri* Cushman
7 × 70 Korojon Calcarenite, 0149
8 × 70 Korojon Calcarenite, 0149
- 9-10 *Verneuilina* aff. *tricarinata* d'Orbigny
9 × 50, Korojon Calcarenite, 1046
10 × 100, Korojon Calcarenite, 0138
- 11-12 *Gaudryina australis* Belford
11 × 90, Toolonga Calcilutite, 0039
12 × 80, Toolonga Calcilutite, 0039
- 13-14 *Gaudryina healyi* Finlay
13 × 30, Miria Marl, 0162
14 × 40, Miria Marl, 0162
- 15-16 *Gaudryina laevigata* Franke
15 × 40, Gaj River, 27(20-30)
16 × 40, Gaj River, 27(20-30)
- 17-19 *Gaudryina* aff. *pulvina* Belford
17 × 60, Site 217, 21CC
18 × 60, Site 217, 21CC
19 × 800, Detail of composition of wall, Site 217,
21CC.

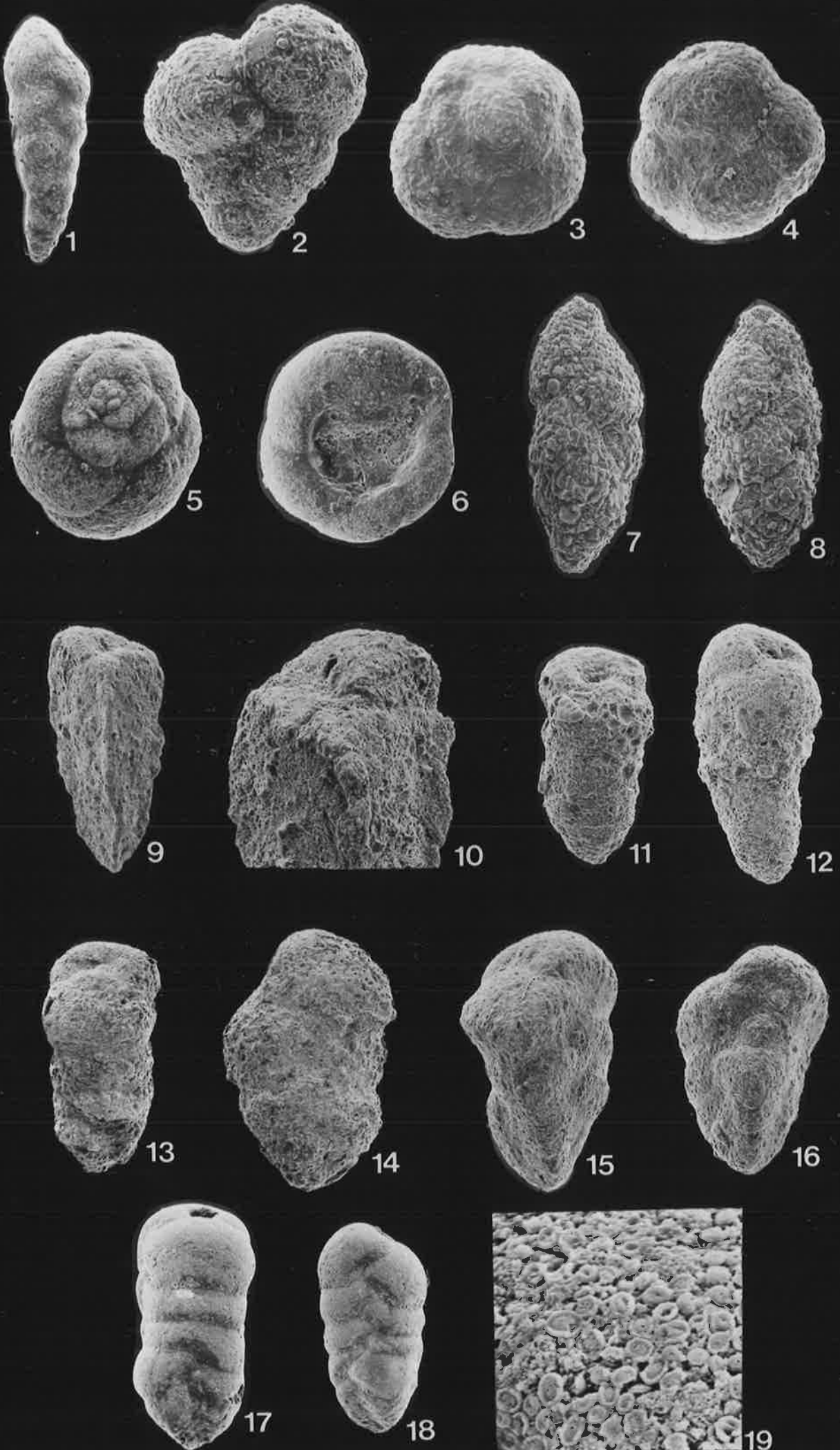


PLATE 3

Figs.

- 1-2 *Gaudryina pyramidata* Cushman
1 × 60, Site 217, 28-2(18-20)
2 × 100, Gaj River, 26(90-100)
- 3-4 *Gaudryina* Sp. 1
3 × 50, Miria Marl, 0161
4 × 60, Miria Marl, 0161
- 5 *Spiroplectinata compressiuscula* (Chapman)
5 × 30, Toolonga Calcilutite, 0038
- 6-7 *Pseudoclavulina* cf. *gaultina* Morozova
6 × 30, Site 217, 36CC
7 × 80, Site 217, 25-1(118-120)
- 8 *Tritaxia aspera* (Cushman)
8 × 40, Site 217, 23-1(48-50)
- 9 *Tritaxia trifidus* (Belford)
9 × 70, Toolonga Calcilutite, 0037
- 10-11 *Tritaxia* Sp. 1
10 × 30, Gaj River, 28(200-215)
11 × 80, Gaj River, 28(200-215)
- 12-13 *Dorothia biformis* Finlay
12 × 30, Korojon Calcarenite, 0127
13 × 40, Korojon Calcarenite, 0127
- 14-15 *Dorothia bulletta* (Carsey)
14 × 70, Toolonga Calcilutite, 0039
15 × 70, Toolonga Calcilutite, 0040
- 16-17 *Dorothia pupa* (Reuss)
16 × 30, Toolonga Calcilutite, 0149
17 × 30, Miria Marl, 0162

Figs.

- 18-19 *Marssonella ellisorae* Cushman
18 × 30, Miria Marl, 0162
19 × 60, Miria Marl, 0161
- 20-21 *Marssonella oxycona* (Reuss)
20 × 80, Korojon Calcarenite, 0142
21 × 70, Korojon Calcarenite, 0142
- 22 *Eggerella?trochoides* (Reuss)
22 × 120, Withnell No. 1, W1460

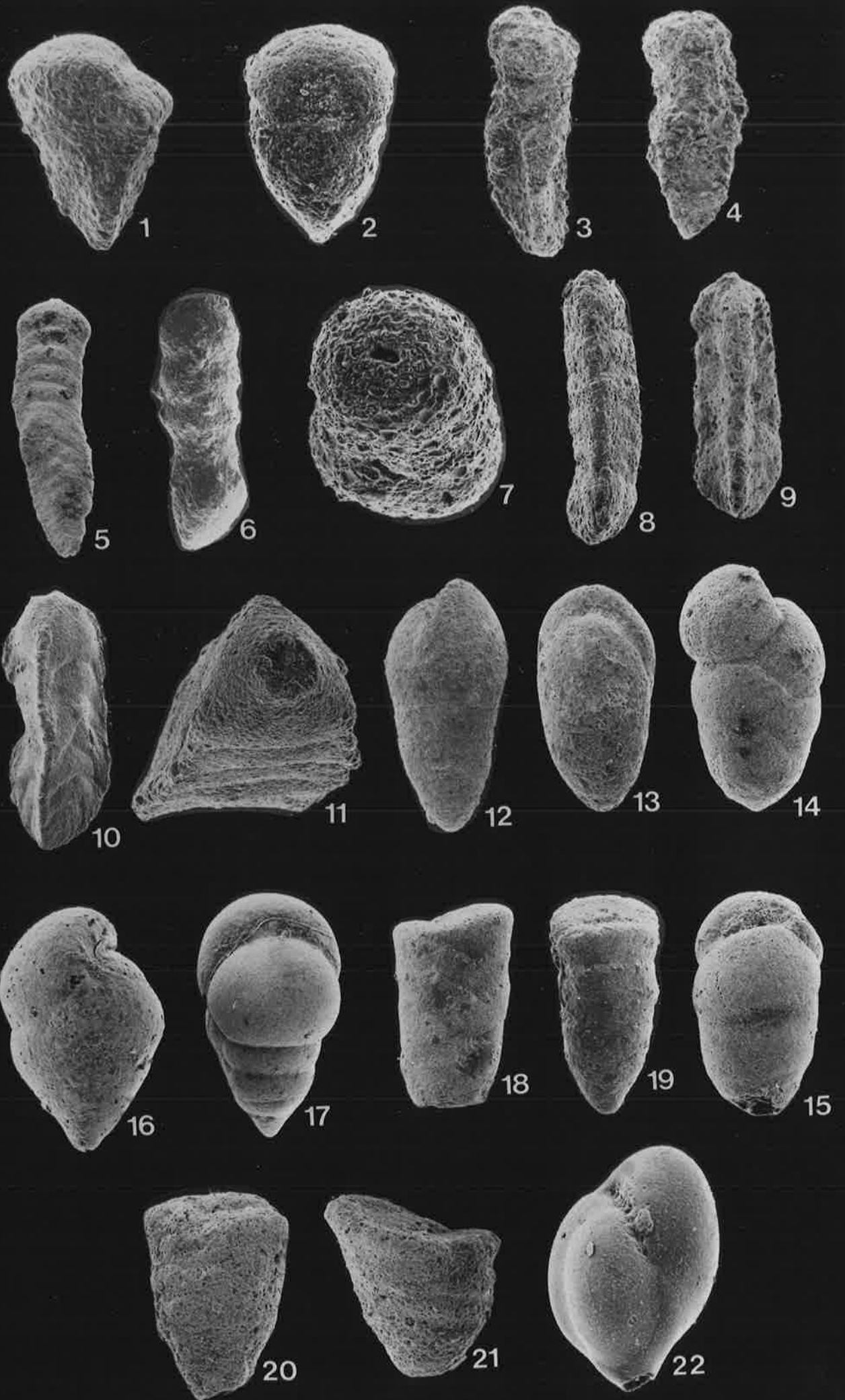


PLATE 4

Figs.

- 1-2 *Goesella chapmani* Cushman
1 × 60, Korojon Calcarenite, 0130
2 × 110, Korojon Calcarenite, 0151
- 3-4 *Miliolid* Sp. 1
3 × 80, Withnell No. 1, W1555
4 × 60, Korojon Calcarenite, 0121
- 5 *Miliolid* Sp. 2
5 × 70, Korojon Calcarenite, 0148
- 6-7 *Nodosaria intercostata* Reuss
6 × Korojon Calcarenite, 0127
7 × Withnell No. 1, W1440
- 8 *Nodosaria limbata* d'Orbigny
8 × 50, Korojon Calcarenite, 0132
- 9 *Nodosaria* cf. *proboscidea* Reuss
9 × 40, Site 217, 32-2 Base
- 10 *Nodosaria* ? *velascoensis* Cushman
10 × 40, Gaj River, 28(100-110)
- 11 *Nodosaria* Sp. 1
11 × 40, Miria Marl, 0162
- 12 *Nodosaria* Sp. 2
12 × 50, Site 217, 33-3 Base
- 13 *Nodosaria* Sp. 3
13 × 40, Site 217, 33-3 Base
- 14 *Astacolus* Sp. 1
14 × 50, Gaj River, 26(0-10)
- 15 *Astacolus* Sp. 2
15 × 60, Korojon Calcarenite, 0133

Figs.

- 16 *Astacolus* Sp. 3
 16 × 80, Site 217, 24-4(118-120)
- 17 *Citharina geisendoerferi* (Franke)
 17 × 80, Korojon Calcarenite, 0128
- 18 *Dentalina basiplanata* Cushman
 18 × 30, Korojon Calcarenite, 0121
- 19 *Dentalina ?catenula* Reuss
 19 × 40, Korojon Calcarenite, 0138
- 20 *Dentalina cylindroides* Reuss
 20 × 50, Withnell No. 1, W1700
- 21 *Dentalina delicatula* Cushman
 21 × 20, Toolonga Calcilutite, 0037
- 22 *Dentalina luma* Belford
 22 × 50, Korojon Calcarenite, 0121
- 23 *Dentalina megalopolitana* Reuss
 23 × 10, Miria Marl, 0153
- 24 *Dentalina mareki* Reuss
 24 × 70, Toolonga Calcilutite, 0417
- 25 *Dentalina pertinens* Cushman
 25 × 60, Korojon Calcarenite, 0122
- 26 *Dentalina solvata* Cushman
 26 × 200, Withnell No. 1, W1555
- 27 *Dentalina* Sp. 1
 27 × 40, Site 217, 36CC

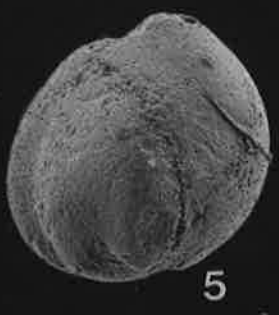
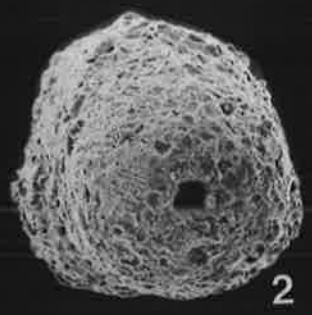
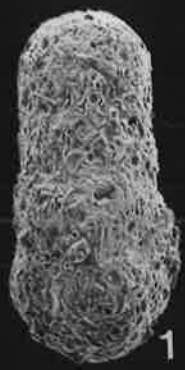


PLATE 5

Figs.

- 1 *Frondicularia archiaciana* d'Orbigny
1 × 20, Toolonga Calcilutite, 0413
- 2 *Frondicularia bulla* Belford
2 × 40, Toolonga Calcilutite, 0041
- 3 *Frondicularia* cf. *bulla* Belford
3 × 50, Korojon Calcarenite, 0130
- 4 *Frondicularia costulifera* Belford
4 × 20, Toolonga Calcilutite, 0037
- 5 *Frondicularia ?disjuncta* Belford
5 × 20, Toolonga Calcilutite, 0041
- 6 *Frondicularia mucronata* Reuss
6 × 50, Toolonga Calcilutite, 0041
- 7 *Frondicularia planifolium* Chapman
7 × 30, Toolonga Calcilutite, 0040
- 8 *Frondicularia teuria* Finlay
8 × 30, Toolonga Calcilutite, 0041
- 9 *Frondicularia* Sp. 1
9 × 50, Korojon Calcarenite, 0128
- 10 *Frondicularia* Sp. 2
10 × 50, Minilya No. 1, M1720
- 11 *Frondicularia* Sp. 3
11 × 30, Miria Marl, 0153
- 12 *Lagena hexagona* Williamson
12 × 100, Miria Marl, 0153
- 13 *Lagena hispida* Reuss
13 × 100, Miria Marl, 0153

Figs.

- 14 *Lagena stavensis* Bandy
 13 × 90, Gaj River, 26(40-50)
- 15 *Lagena sulcata* Walker and Jacob
 15 × 200, Miria Marl, 0163
- 16 *Lenticulina muensteri* (Roemer)
 16 × 40, Toolonga Calcilutite, 0414
- 17 *Lenticulina cf. muensteri* (Roemer)
 17 × 60, Korojon Calcarenite, 0121
- 18 *Lenticulina pondi* (Cushman)
 18 × 80, Toolonga Calcilutite, 0414
- 19 *Lenticulina sublatus* (Reuss)
 19 × 70, Korojon Calcarenite, 0131
- 20 *Lenticulina* Sp. 1
 20 × 50, Miria Marl, 0153
- 21 *Lenticulina* Sp. 2
 21 × 100, Korojon Calcarenite, 0124

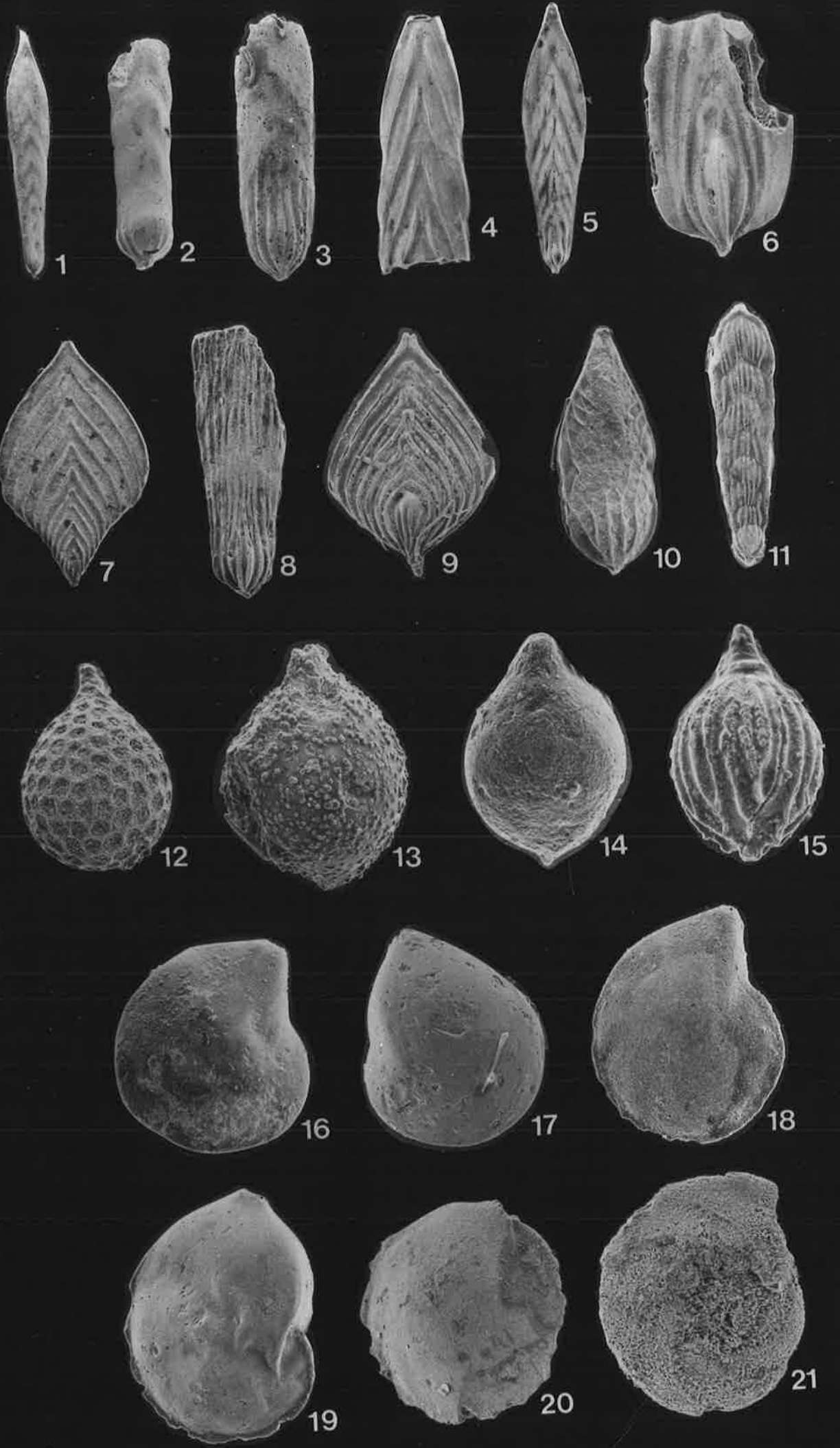


PLATE 6

Figs.

- 1 *Lenticulina* Sp. 3
1 × 30, Toolonga Calcilutite, 0415
- 2 *Marginulina* ?*jarvisi* Cushman
2 × 50, Korojon Calcarenite, 0121
- 3 *Marginulina* Sp. 1
3 × 70, Korojon Calcarenite, 0121
- 4 *Marginulina* Sp. 2
4 × 50, Korojon Calcarenite, 0128
- 5 *Marginulina* Sp. 3
5 × 80, Withnell No. 1, W1950
- 6 *Marginulina* Sp. 4
6 × 60, Site 217, 33-3(8-9)
- 7 *Marginulinopsis texasensis* (Cushman)
7 × 70, Gaj River, 26(0-10)
- 8 *Marginulinopsis* Sp. 1
8 × 60, Site 217, 33-3(8-9)
- 9 *Neoflabellina praereticulata* Hiltermann
9 × 70, Korojon Calcarenite, 0133
- 10 *Neoflabellina reticulata* (Reuss)
10 × 50, Korojon Calcarenite, 0152
- 11 *Neoflabellina rugosa* (d'Orbigny)
11 × 60, Gaj River, 26(0-10)
- 12 *Palmula pilulata* Cushman
12 × 30, Toolonga Calcilutite, 0413
- 13 *Planularia* Sp. 1
13 × 60, Korojon Calcarenite, 0121

Figs.

- 14 *Planularia* Sp. 2
14 × 50, Korojon Calcarenite, 0123
- 15 *Planularia* Sp. 3
15 × 90, Toolonga Calcilutite, 0412
- 16 *Pseudonodosaria manifesta* (Reuss)
16 × 80, Toolonga Calcilutite, 0417
- 17 *Saracenaria* aff *colei* Srinivasan
17 × 70, Toolonga Calcilutite, 0412
- 18 *Saracenaria triangularis* (d'Orbigny)
18 × 70, Toolonga Calcilutite, 0412
- 19 *Saracenaria* Sp. 1
19 × 50, Korojon Calcarenite, 0121
- 20 *Vaginulina cretacea* Plummer
20 × 30, Gaj River, 26 (90-100)
- 21 *Vaginulinopsis* Sp. 1
21 × 30, Korojon Calcarenite, 0135
- 22 *Globulina lacrima* (Reuss)
22 × 100, Korojon Calcarenite, 0122
- 23 *Globulina lacrima horrida* Reuss
23 × 70, Korojon Calcarenite, 0138



PLATE 7

Figs.

- 1 *Guttulina* Sp. 1
1 × 100, Korojon Calcarenite, 0125
- 2 *Guttulina* Sp. 2
2 × 100, Withnell No. 1, W1700
- 3 *Ramulina pseudoaculeata* (Olsson)
3 × 50, Korojon Calcarenite, 0124
- 4 *Tristix* Sp. 1
4 × 230, Site 217, 18CC
- 5 *Fissurina* cf. *orbignyana* Seguenza
5 × 110, Miria Marl, 0153
- 6 *Fissurina* Sp. 1
6 × 120, Minilya No. 1, M1681
- 7 *Praebulimina carseyae* (Plummer)
7 × 130, Miria Marl, 0162
- 8 *Praebulimina kickapooensis* (Cole)
8 × 80, Gaj River, 26(0-10)
- 9 *Praebulimina laevis* (Beissel)
9 × 80, Miria Marl, 0161
- 10-11 *Praebulimina reussi* (Morrow)
10 × 120, Gaj River, 30(60-70)
11 × 100, Korojon Calcarenite, 0152
- 12 *Praebulimina* Sp. 1
12 × 130, Site 217, 24-5(18-20)
- 13 *Praebulimina* Sp. 2
13 × 80, Site 217, 22-2, 118-120
- 14 *Bolivina incrassata* Reuss
14 × 70, Gaj River, 27(170-180)

Figs.

- 15 *Bolivina incrassata gigantia* Wicher
15 × 40, Gaj River, 29(160-170)
- 16 *Bolivinoides* cf. *culverensis* Barr
16 × 150, Site 217, 19-3(18-20)
- 17 *Bolivinoides draco* (Marsson)
17 × 160, Site 217, 17-3(24-26)
- 18 *Bolivinoides giganteus* Hiltermann and Koch
18 × 60, Miria Marl, 0162
- 19 *Bolivinoides ?giganteus* Hiltermann and Koch
19 × 170, Site 217, 17-3(24-26)
- 20 *Bolivinoides miliaris* Hiltermann and Koch
20 × 100, Site 217, 21CC

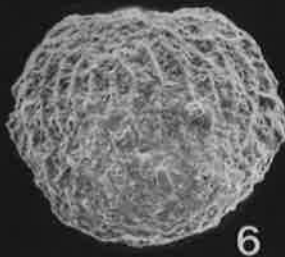
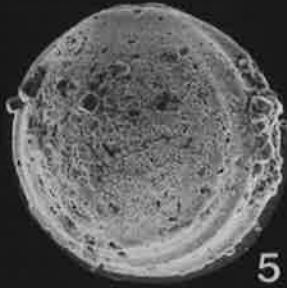
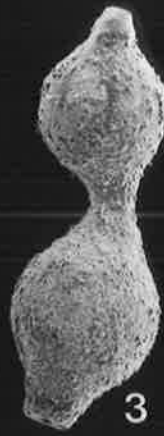


PLATE 8

Figs.

- 1 *Bolivinooides* Sp. 1
1 × 150, Site 217, 18CC
- 2 *Loxostomoides cushmani* Wickenden
2 × 80, Gaj River, 31(40-50)
- 3 *Eouvigerina americana* Cushman
3 × 110, Miria Marl, 0162
- 4 *Eouvigerina gracilis* (Reuss)
4 × 120, Miria Marl, 0162
- 5 *Stilostomella aspera* (Reuss)
5 × 60, Korojon Calcarenite, 0129
- 6 *Stilostomella ?sagrinensis* (Bagg)
6 × 100, Site 217, 19-3(118-120)
- 7 *Bulimina proluxa* Cushman and Parker
7 × 100, Korojon Calcarenite, 0142
- 8 *Bulimina pseudospinulosa* (Troelsen)
8 × 90, Site 217, 24-5(18-20)
- 9 *Bulimina* Sp. 1
9 × 60, Gaj River, 26(0-10)
- 10 *Bulimina* Sp. 2
10 × 90, Miria Marl, 0161
- 11 *Reussella szajnochae* (Grzybowski)
11 × 100, Korojon Calcarenite, 0141
- 12 *Pseudouvigerina plummerae* Cushman
12 × 80, Gaj River, 26(90-100)
- 13-15 *Heronallenia* Sp. 1
13 × 80, Korojon Calcarenite, 0143
14 × 120, Korojon Calcarenite, 0142
15 × 80, Korojon Calcarenite, 0148

Figs.

- 16-18 *Nuttallinella coronula* (Belford)
16 × 70, Toolonga Calcilutite, 0043
17 × 70, Toolonga Calcilutite, 0043
18 × 100, Toolonga Calcilutite, 0043
- 19-21 *Nuttallinella* Sp. 1
19 × 70, Gaj River, 26(0-10)
20 × 70, Gaj River, 26(0-10)
21 × 90, Gaj River, 26(0-10)
- 22-24 *Nuttallides* cf. *galiciensis* Fisher
22 × 70, Site 217, 18CC
23 × 100, Site 217, 18CC
24 × 140, Site 217, 18CC

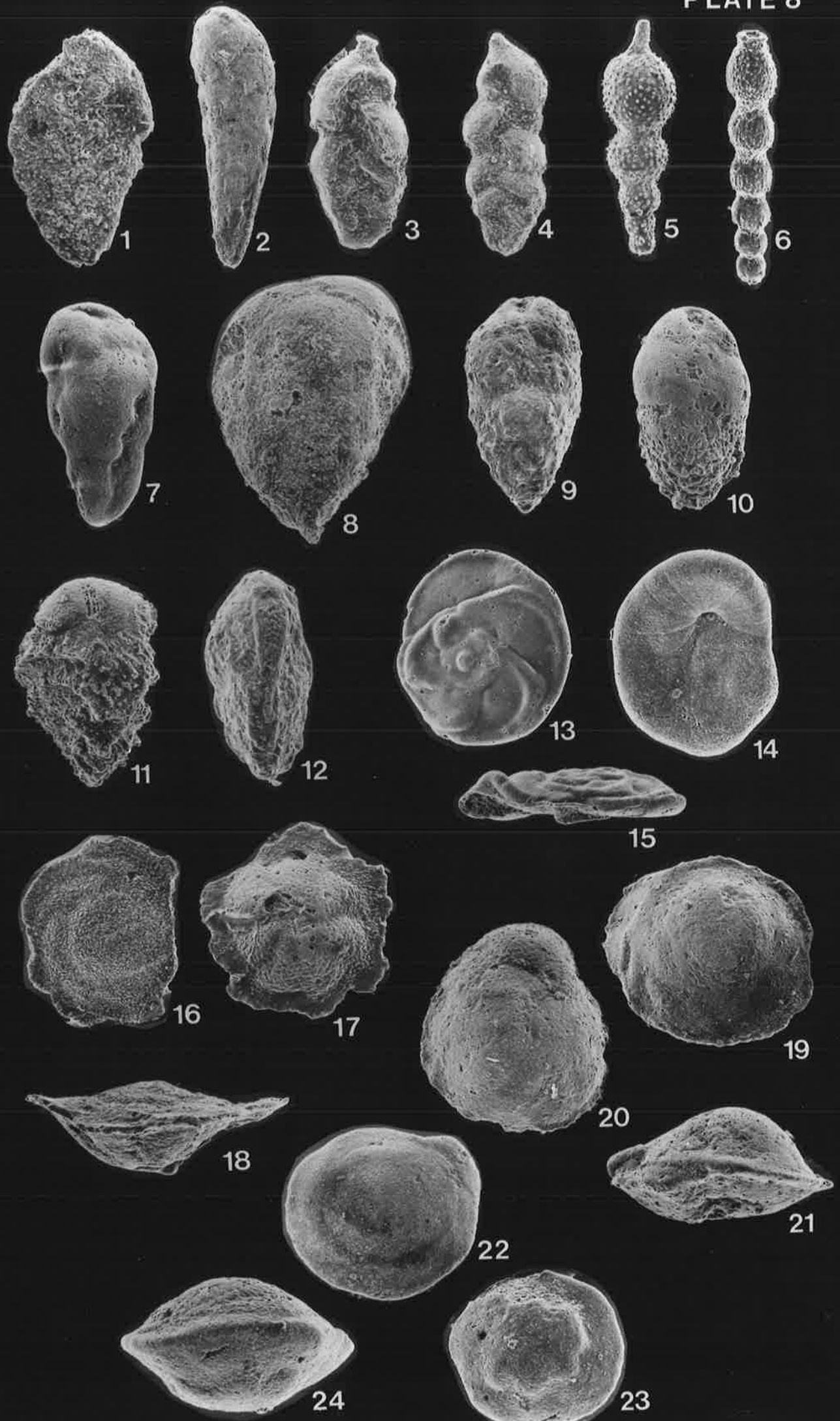


PLATE 9

Figs.

- 1-3 *Eponides ?concinna* Brotzen
1 × 90, Toolonga Calcilutite, 0417
2 × 70, Toolonga Calcilutite, 0417
3 × 80, Toolonga Calcilutite, 0417
- 4-6 *Eponides* aff. *concinna* Brotzen
4 × 90, Gaj River, 27(170-180)
5 × 70, Gaj River, 27(170-180)
6 × 80, Gaj River, 27(170-180)
- 7-9 *Eponides ?diversus* Belford
7 × 50, Korojon Calcarenite, 0121
8 × 120, Korojon Calcarenite, 0122
9 × 60, Korojon Calcarenite, 0121
- 10-12 *Eponides simplex* (White)
10 × 60, Gaj River, 26(0-10)
11 × 60, Gaj River, 27(20-30)
12 × 70, Gaj River, 26(0-10)
- 13-15 *Cibicides bembix* (Marsson)
13 × 70, Korojon Calcarenite, 0127
14 × 80, Korojon Calcarenite, 0150
15 × 120, Korojon Calcarenite, 0127
- 16-18 *Cibicides stellula* (Belford)
16 × 80, Toolonga Calcilutite, 0414
17 × 80, Toolonga Calcilutite, 0414
18 × 70, Toolonga Calcilutite, 0414
- 19-21 *Cibicides monterelensis* (Marie)
19 × 60, Site 217, 25-5(19-21)
20 × 70, Site 217, 25-5(19-21)
21 × 70, Site 217, 25-5(19-21)

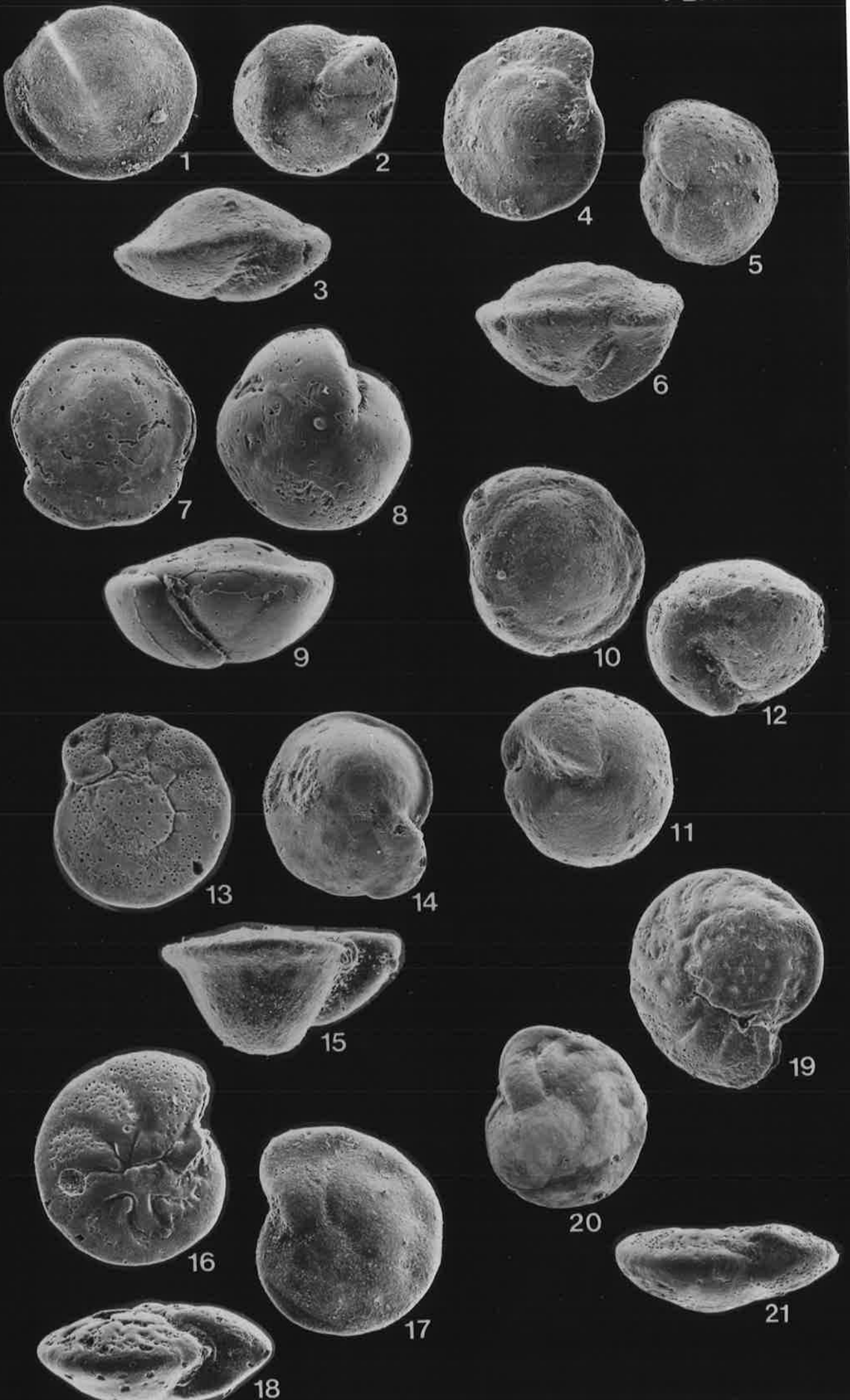


PLATE 10

Figs.

- 1-3 *Cibicides vultziana* (d'Orbigny)
1 × , Miria Marl, 0153
2 × , Miria Marl, 0162
3 × , Miria Marl, 0162
- 4-6 ?*Cibicides* Sp. 1
4 × 50, Gaj River, 26 (90-100)
5 × 60, Gaj River, 26 (90-100)
6 × 80, Gaj River, 26 (90-100)
- 7-8 *Planorbulina* Sp. 1
7 × 50, Korojon Calcarenite, 0148
8 × , Korojon Calcarenite, 0148
- 9-11 *Carpenteria conica* (Belford)
9 × 50, Toolonga Calcilutite, 0414
10 × 60, Toolonga Calcilutite, 0414
11 × 50, Toolonga Calcilutite, 0414
- 12-14 *Carpenteria globosa* (Belford)
12 × 60, Toolonga Calcilutite, 0413
13 × 70, Toolonga Calcilutite, 0413
14 × 80, Toolonga Calcilutite, 0413
- 15-16 *Pleurostomella subnodosa* Reuss
15 × 70, Korojon Calcarenite, 0139
16 × 70, Korojon Calcarenite, 0139
- 17-18 *Pleurostomella torta* Cushman
17 × 30, Site 217, 25CC
18 × 30, Site 217, 25CC
- 19-20 *Ellipsoidella* Sp. 1
19 × 60, Site 217, 33-3 Base
20 × 60, Site 217, 33-3 Base

Figs.

- 21-22 *Ellipsoidella* Sp. 2
21 × 30, Site 217, 23-1(48-50)
22 × 30, Site 217, 23-1(48-50)
- 23-24 *Ellipsoidella* Sp. 3
23 × 80, Withnell No. 1, W1485
24 × 80, Withnell No. 1, W1485
- 25-26 *Loxostomum eleyi* (Cushman)
25 × 60, Korojon Calcarenite, 0122
26 × 50, Korojon Calcarenite, 0122
- 27 *Aragonia velascoensis* (Cushman)
27 × 70, Site 217, 25-5(19-21)
- 28-29 *Quadriformina allomorphinoides* (Reuss)
28 × 90, Toolonga Calcilutite, 0045
29 × 90, Toolonga Calcilutite, 0048

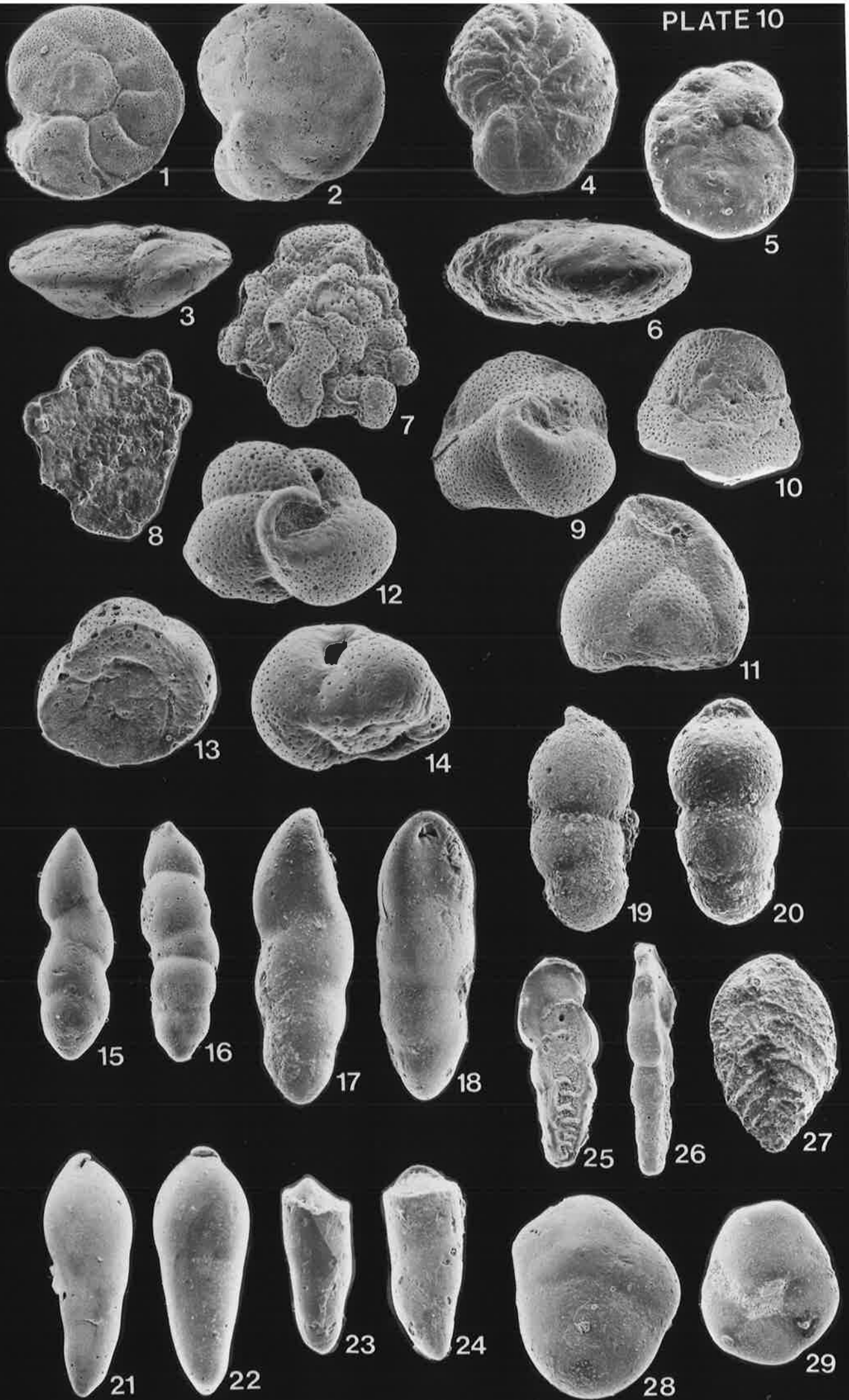


PLATE 11

Figs.

- 1-2 *Pullenia coryelli* White
1 × 140, Korojon Calcarenite, 0122
2 × 90, Korojon Calcarenite, 0122
- 3-4 *Pullenia cretacea* Cushman
3 × 130, Site 217, 23-1(48-50)
4 × 80, Site 217, 23-1(48-50)
- 5-6 *Pullenia? americana* Cushman
5 × 100, Toolonga Calcilutite, 0417
6 × 90, Toolonga Calcilutite, 0417
- 7-9 *Alabamina australis* Belford
7 × 110, Toolonga Calcilutite, 0036
8 × 80, Toolonga Calcilutite, 0036
9 × 110, Toolonga Calcilutite, 0036
- 10-12 *Alabamina dorsoplana* (Brotzen)
10 × 100, Toolonga Calcilutite, 0036
11 × 110, Toolonga Calcilutite, 0036
12 × 110, Toolonga Calcilutite, 0036
- 13-15 *Osangularia* Sp. 1
13 × 70, Site 217, 21CC
14 × 70, Site 217, 25-5(19-21)
15 × 70, Site 217, 19CC
- 16-18 *Osangularia* Sp. 2
16 × 90, Withnell No. 1
17 × 110, Withnell No. 1
18 × 130, Withnell No. 1
- 19-21 *Globorotalites michelinianus* (d'Orbigny)
19 × 70, Toolonga Calcilutite, 0043
20 × 70, Toolonga Calcilutite, 0043
21 × 80, Toolonga Calcilutite, 0043

Figs.

22-24 *Globorotalites* Sp. 1

22 × 110, Gaj River, 26 (40-50)

23 × 110, Gaj River, 26 (40-50)

24 × 110, Gaj River, 26 (40-50)

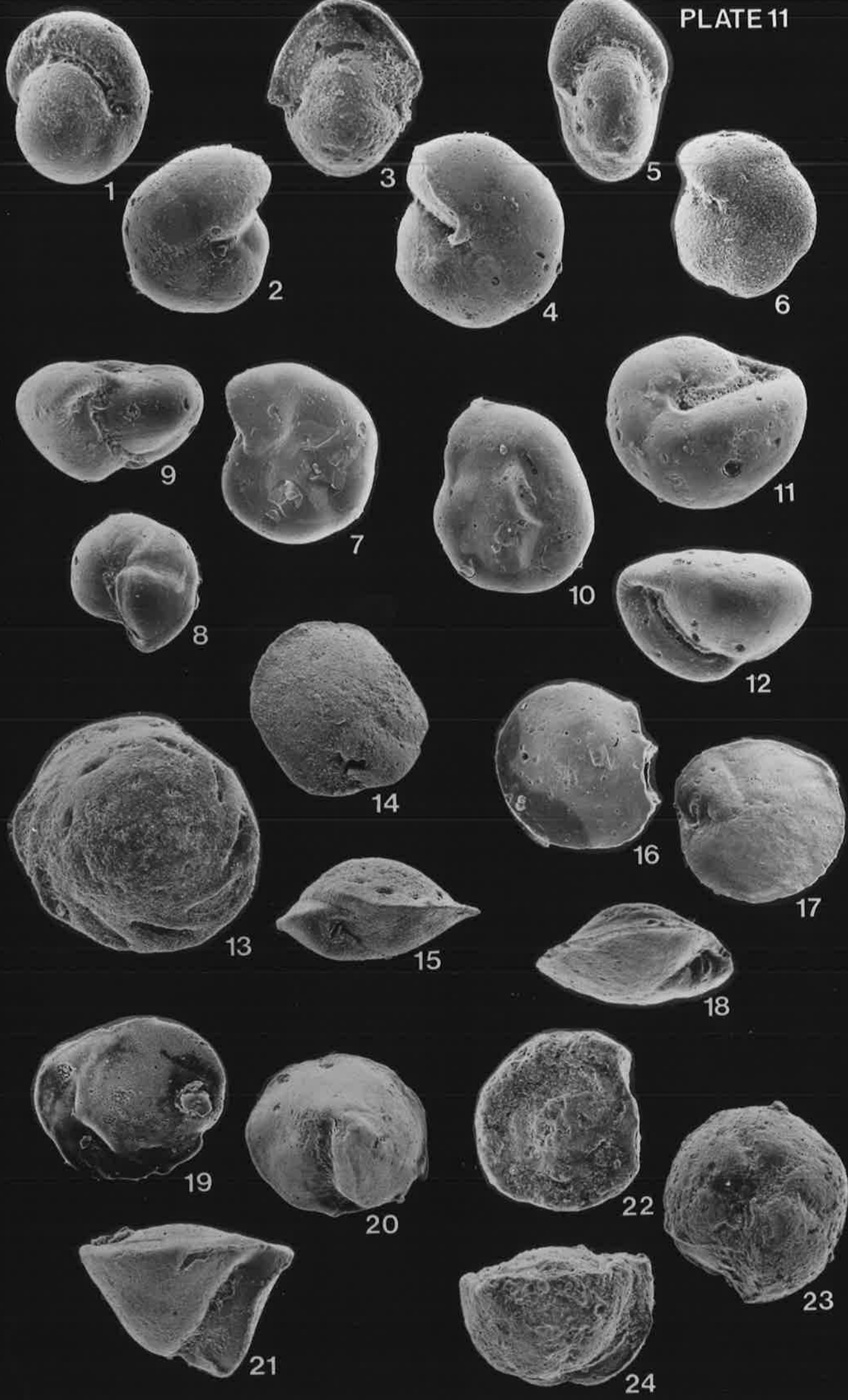


PLATE 12

Figs.

- 1-3 *Gyroidinoides nitida* (Reuss)
1 × 100, Korojon Calcarenite, 0149
2 × 60, Korojon Calcarenite, 0147
3 × 70, Korojon Calcarenite, 0149
- 4-6 *Gyroidinoides* aff. *pontoni* Brotzen
4 × 110, Korojon Calcarenite, 0152
5 × 120, Korojon Calcarenite, 0151
6 × 70, Site 217, 19CC
- 7-9 *Gyroidinoides umbilicata* d'Orbigny
7 × , Gaj River, 27(170-180)
8 × , Gaj River, 27(170-180)
9 × , Gaj River, 27(120-130)
- 10-12 *Gyroidinoides girardana* (Reuss)
10 × 60, Korojon Calcarenite, 0150
11 × 70, Korojon Calcarenite, 0150
12 × 50, Korojon Calcarenite, 0150
- 13-15 *Anomalinoides ?henbesti* (Plummer)
13 × 90, Korojon Calcarenite, 0139
14 × 90, Korojon Calcarenite, 0139
15 × 110, Korojon Calcarenite, 0139
- 16-18 *Anomalinoides insculpta* (Belford)
16 × 60, Toolonga Calcilutite, 0047
17 × 60, Toolonga Calcilutite, 0047
18 × 80, Toolonga Calcilutite, 0047
- 19-21 *Anomalinoides* aff. *pinguis* (Jennings)
19 × 50, Miria Marl, 0162
20 × 60, Miria Marl, 0162
21 × 60, Miria Marl, 0162

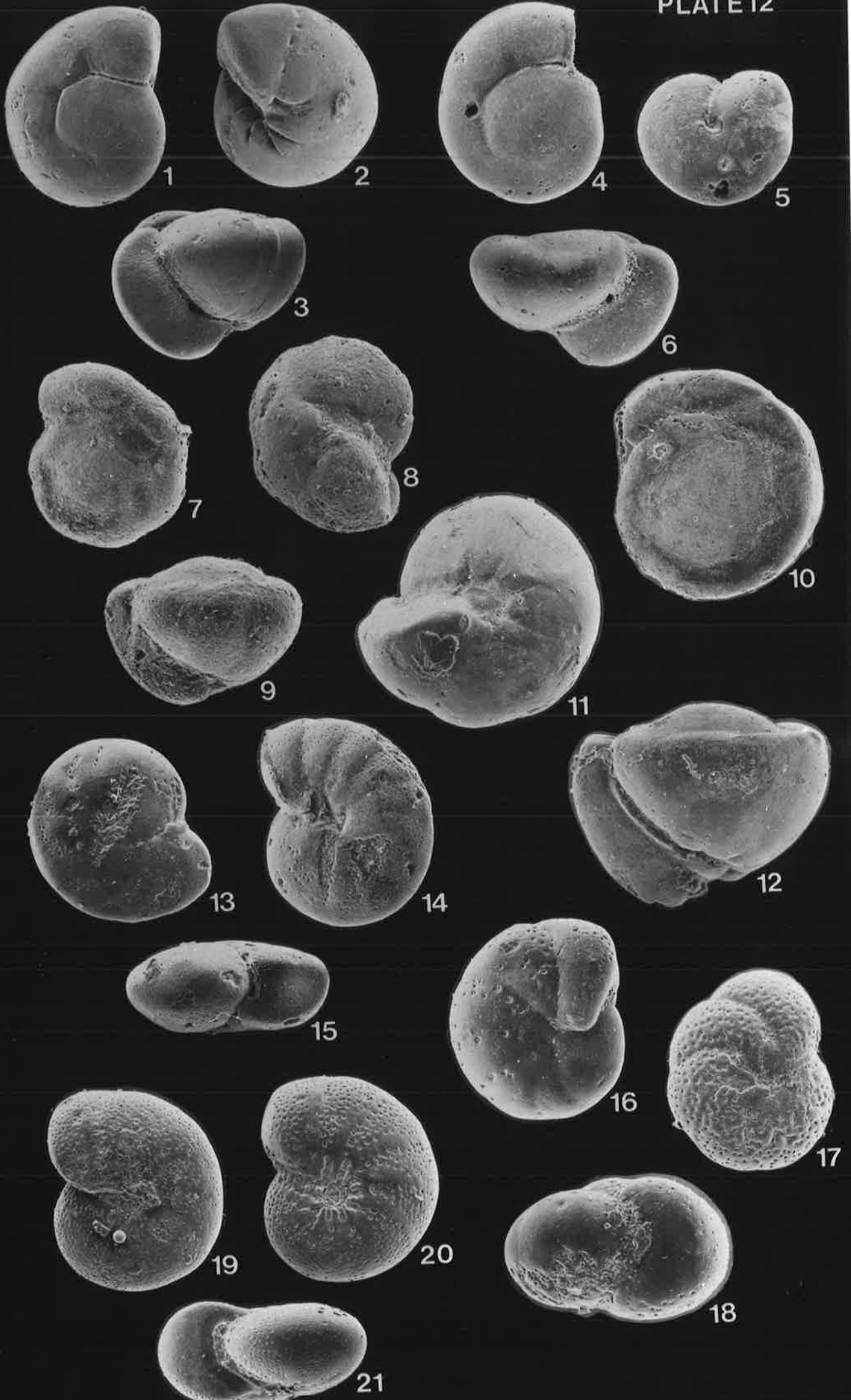


PLATE 13



Figs.

- 1-3 *Anomalinoidea murchisonensis* Belford
1 × 60, Toolonga Calcilutite, 0037
2 × 40, Toolonga Calcilutite, 0037
3 × 50, Toolonga Calcilutite, 0037
- 4-6 *Anomalinoidea velascoensis* (Cushman)
4 × 60, Korojon Calcarenite, 0142
5 × 50, Korojon Calcarenite, 0142
6 × 70, Korojon Calcarenite, 0142
- 7-9 *Anomalinoidea* Sp. 1
7 × 30, Miria Marl, 0162
8 × 40, Miria Marl, 0162
9 × 30, Miria Marl, 0162
- 10-12 *Anomalinoidea* Sp. 2
10 × 70, Korojon Calcarenite, 0149
11 × 70, Korojon Calcarenite, 0149
12 × 100, Korojon Calcarenite, 0149
- 13-15 *Angulogavelinella bettenstaedti* Hofker
13 × 70, Site 217, 19CC
14 × 90, Site 217, 19CC
15 × 80, Site 217, 19CC
- 16-18 ?*Angulogavelinella cayeuxi* (de Lapparent)
16 × 50, Miria Marl, 0162
17 × 70, Miria Marl, 0162
18 × 70, Miria Marl, 0162
- 19-21 *Angulogavelinella rakauroana* (Finlay)
19 × 60, Toolonga Calcilutite, 0045
20 × 60, Toolonga Calcilutite, 0045
21 × 70, Toolonga Calcilutite, 0045

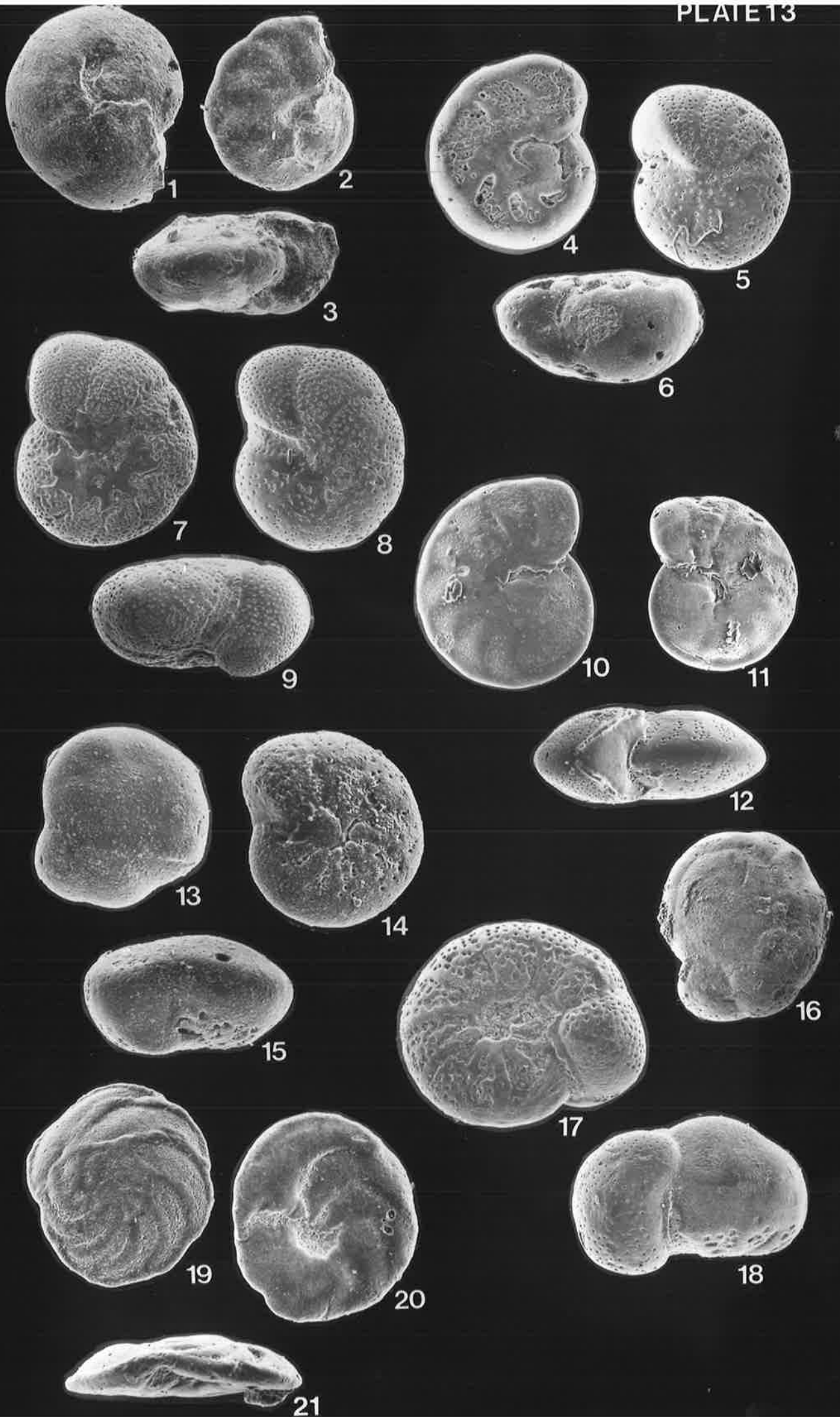
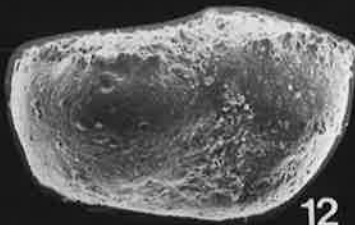
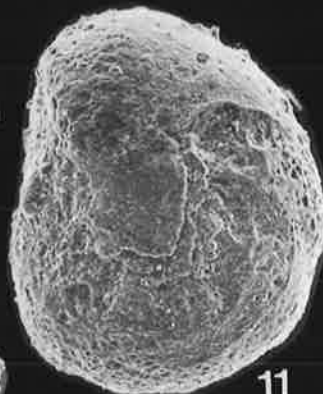
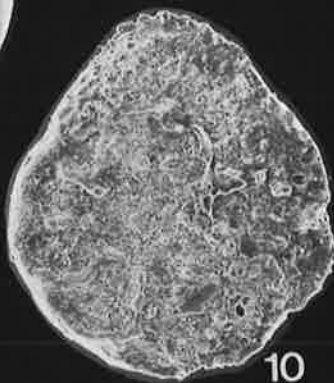
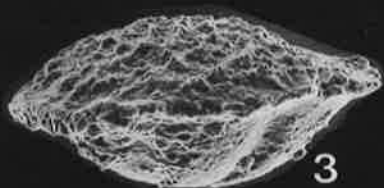
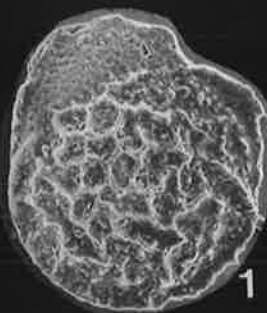


PLATE 14

Figs.

- 1-3 *Coleites* Sp. 1
1 × 100, Miria Marl, 0162
2 × 110, Miria Marl, 0162
3 × 70, Miria Marl, 0162
- 4-6 *Karrerria* aff. *beaumontiana* (d'Orbigny)
4 × 60, Toolonga Calcilutite, 0047
5 × 60, Toolonga Calcilutite, 0047
6 × 80, Toolonga Calcilutite, 0047
- 7-9 *Karrerria* Sp. 1
7 × 50, Miria Marl, 0162
8 × 60, Miria Marl, 0162
9 × 50, Miria Marl, 0162
- 10-12 *Stensioenia pommerana* Brotzen
10 × 80, Site 217, 24-4(118-120)
11 × 130, Site 217, 24-4(118-120)
12 × 90, Site 217, 24-4(118-120)
- 13-15 ?*Stensioenia* Sp. 1
13 × 100, Gaj River, 26(10-20)
14 × 100, Gaj River, 26(10-20)
15 × 100, Gaj River, 26(10-20)
- 16-18 *Ceratolamarckina* Sp. 1
16 × 80, Korojon Calcarenite, K0122
17 × 110, Korojon Calcarenite, K0122
18 × 80, Korojon Calcarenite, K0122



Figs.

- 19-21 *Pseudoguembelina costulata* (Cushman)
19 × 180, Site 288A, 9-2(30-31)
20 × 170, Site 288A, 9-2(30-31)
21 × 800, Detail of supplementary apertures
Site 288A, 9-2 (30-31)

PLATE 15

Figs.

- 1-2 *Heterohelix glabrans* (Cushman)
1 × 120, Miria Marl, 0161
2 × 120, Miria Marl, 0161
- 3-4 *Heterohelix moremani* (Cushman)
3 × 140, Site 217, 32-Base
4 × 160, Site 217, 33-3(8-9)
- 5-6 *Heterohelix planata* (Cushman)
5 × 160, Gaj River, 30(60-70)
6 × 170, Gaj River, 30(60-70)
- 7-8 *Heterohelix pulchra* (Brotzen)
7 × 100
8 × 110, Gaj River, 28(100-110)
- 9-10 *Heterohelix?punctulata* (Cushman)
9 × 90, Korojon Calcarenite, 0121
10 × 110, Korojon Calcarenite, 0121
- 11-12 *Heterohelix striata* (Ehrenberg)
11 × 120, Gaj River, 29(160-170)
12 × 160, Miria Marl, 0161
- 13-14 *Heterohelix ultimumida* (White)
13 × 100, Site 217, 25-3(118-120)
14 × 100, Site 217, 25-3(118-120)
- 15-16 *Heterohelix* Sp. 1
15 × 130, Site 288A, 9-3(30-31)
16 × 180, Site 288A-9CC
- 17 *Gublerina cuvillieri* Kikoine
17 × 90, Gaj River, 26(0-10)
- 18 *Gublerina reniformis* (Marie)
18 × 90, Gaj River, 27(120-130)

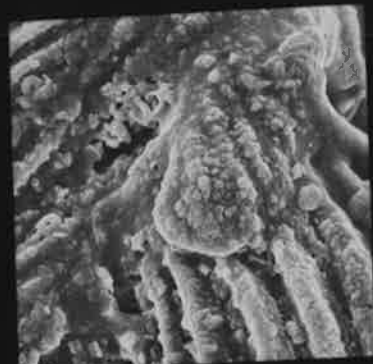
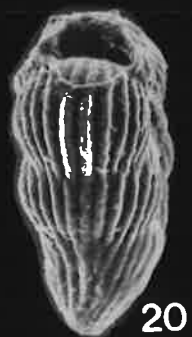
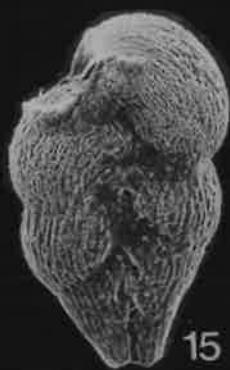
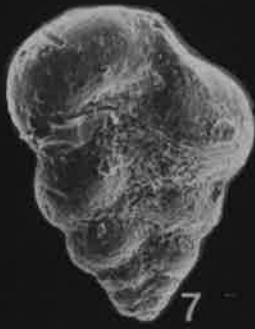
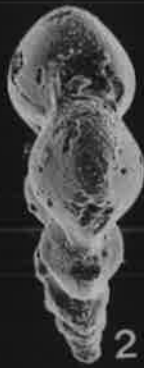


PLATE 16

Figs.

- 1-3 *Pseudoguembelina excolata* (Cushman)
1 × 110, Site 288A, 9-2(30-31)
2 × 120, Site 288A, 9-2(30-31)
3 × 400, Detail of supplementary apertures
Site 288A, 9-2(30-31)
- 4-5 *Pseudoguembelina kempensis* Esker
4 × 190, Gaj River, 28(200-215)
5 × 180, Gaj River, 28(200-215)
- 6-8 *Pseudoguembelina* Sp. 1
6 × 100, Korojon Calcarenite, 0128
7 × 130, Korojon Calcarenite, 0128
8 × 500, Detail of supplementary apertures
Korojon Calcarenite, 0128
- 9 *Ventilabrella multicamerata* de Klasz
9 × 60, Site 217, 20CC
- 10-11 *Pseudotextularia deformis* (Kikoine)
10 × 90, Site 288A, 9-1(21-22)
11 × 80, Site 217, 22-2(118-120)
- 12-13 *Pseudotextularia elegans* (Rzehak)
12 × 80, Gaj River, 26(0-10)
13 × 70, Miria Marl, 0162
- 14 *Planoglobulina acervulinoides* (Egger)
14 × 100, Gaj River, 27(170-180)
- 15-16 *Racemiguembelina varians* (Rzehak)
15 × 70, Site 217, 19CC
16 × 60, Site 217, 19CC
- 17-21 *Globigerinelloides multispinatus* (Lalicker)
17 × 200, Miria Marl, 0163
18 × 180, Miria Marl, 0155
19 × 180, Miria Marl, 0163
20 × 190, Miria Marl, 0155
21 × 170, Gaj River, 27(20-30)



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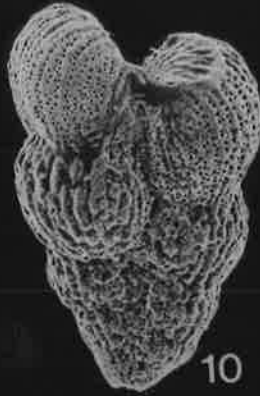
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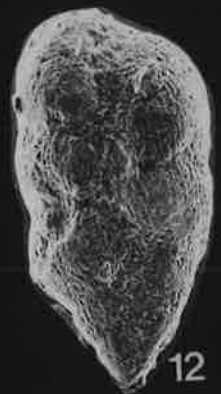
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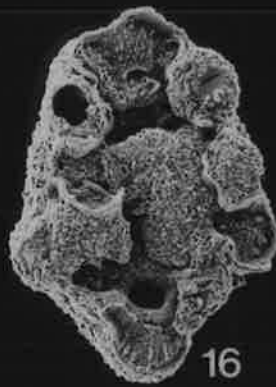
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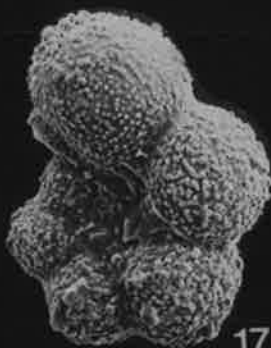
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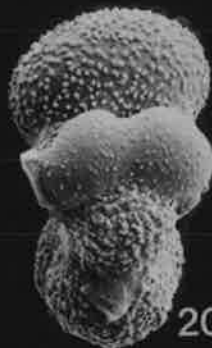
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18



19



20



21

PLATE 17

Figs.

- 1-2 *Globigerinelloides subcarinata* (Bronnimann)
1 × 210, Site 288A, 9-4(30-31)
2 × 150, Miria Marl, 0155
- 3-4 *Globigerinelloides* Sp. 1
3 × 190, Site 288A, 9-4(30-31)
4 × 210, Site 217, 24-5(18-20)
- 5-7 *Hedbergella* cf. *bulbosa* (Belford)
5 × 100, Toolonga Calcilutite, 0042
6 × 120, Toolonga Calcilutite, 0042
7 × 130, Toolonga Calcilutite, 0042
- 8-10 *Globotruncana aegyptiaca* Nakkady
8 × 100, Gaj River, 28(100-110)
9 × 100, Gaj River, 28(100-110)
10 × 100, Gaj River, 28(100-110)
- 11-13 *Globotruncana arca* (Cushman)
11 × 80, Site , 9-2(30-31)
12 × 80, Site , 9-2(30-31)
13 × 70, Site , 9-2(30-31)
- 14-16 *Globotruncana* cf. *arca* (Cushman)
14 × 100, Gaj River, 26(0-10)
15 × 60, Gaj River, 26(0-10)
16 × 60, Gaj River, 26(0-10)
- 17-19 *Globotruncana bulloides* Vogler
17 × , Toolonga Calcilutite, 0036
18 × , Toolonga Calcilutite, 0036
19 × , Toolonga Calcilutite, 0036

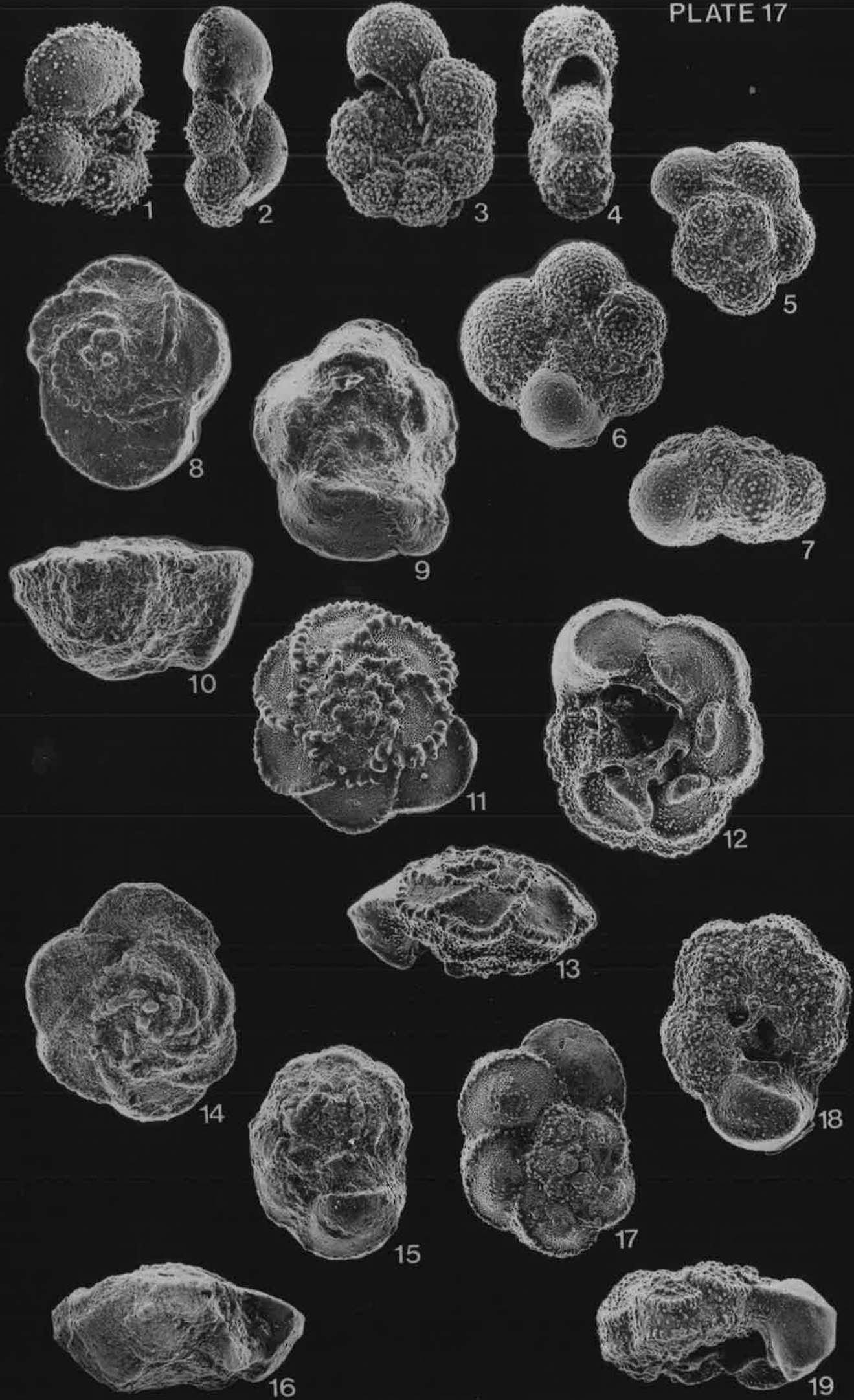


PLATE 18

Figs.

- 1-9 *Globotruncana contusa* (Cushman)
1 × 60, Site 217, 19CC
2 × 60, Site 217, 19CC
3 × 70, Site 217, 19CC
4 × 50, Gaj River, 28(100-110)
5 × 40, Gaj River, 28(100-110)
6 × 50, Gaj River, 28(100-110)
7 × 80, Site 288A, 9-6(120-121)
8 × 70, Site 288A, 9-6(120-121)
9 × 70, Site 288A, 9-6(120-121)
- 10-12 *Globotruncana* cf. *contusa* (Cushman)
10 × 70, Miria Marl, 0155
11 × 90, Miria Marl, 0155
12 × 70, Miria Marl, 0155
- 13-15 *Globotruncana conica* White
13 × 60, Gaj River, 28(100-110)
14 × 90, Gaj River, 28(100-110)
15 × 70, Gaj River, 28(100-110)
- 16-18 *Globotruncana cretacea* (d'Orbigny)
16 × 90, Korojon Calcarenite, 0134
17 × 100, Korojon Calcarenite, 0134
18 × 110, Korojon Calcarenite, 0134

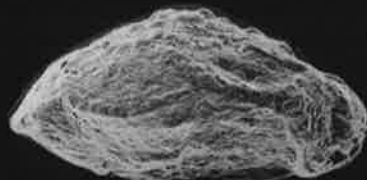
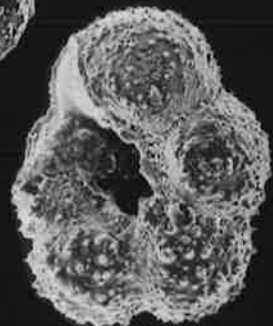
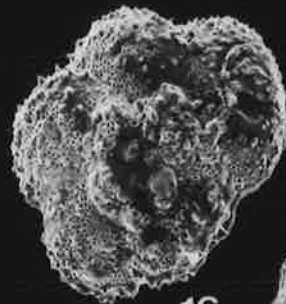
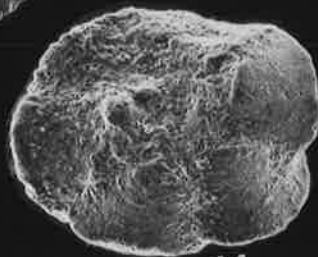
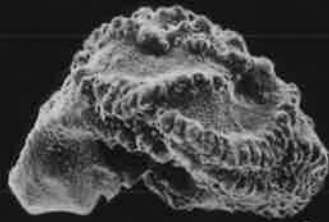
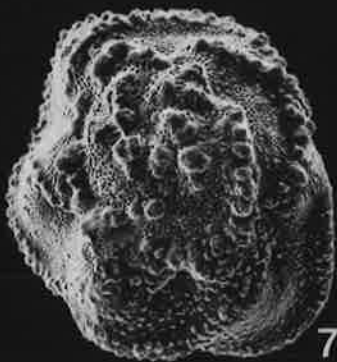
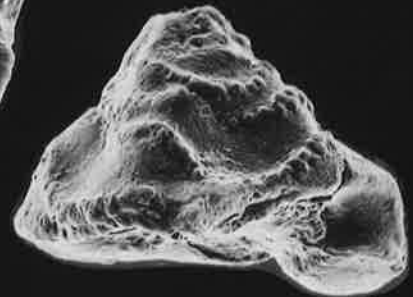
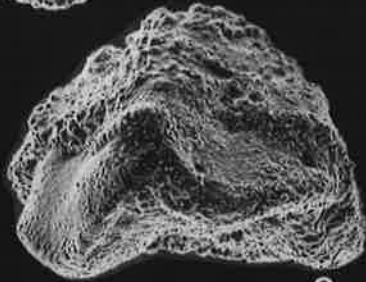
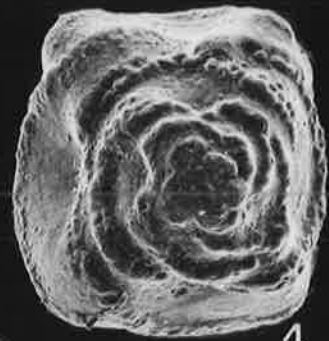
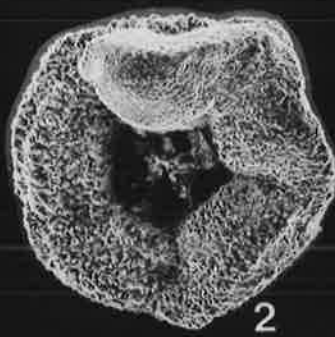


PLATE 19

Figs.

- 1-3 *Globo truncana elevata* (Brotzen)
1 × 60, Site 288A, 9-3(30-31)
2 × 70, Site 288A, 9-3(30-31)
3 × 70, Miria Marl, 0162
- 4-6 *Globo truncana falsocalcarata* Kerdany and Abdelsalam
4 × 80, Gaj River, 31(40-50)
5 × 90, Gaj River, 31(40-50)
6 × 80, Gaj River, 31(40-50)
- 7-9 *Globo truncana fornicata* Plummer
7 × 90, Site 288A, 9-3(30-31)
8 × 100, Site 288A, 9-3(30-31)
9 × 130, Site 288A, 9-3(30-31)
- 10-12 *Globo truncana gansseri* Bolli
10 × 100, Gaj River, 28(100-110)
11 × 80, Gaj River, 28(100-110)
12 × 100, Gaj River, 28(100-110)
- 13-15 *Globo truncana linneiana* (d'Orbigny)
13 × 100, Site 288A, 9-2(30-31)
14 × 90, Site 288A, 9-2(30-31)
15 × 80, Site 288A, 9-2(30-31)
- 16-18 *Globo truncana patelliformis* Gandolfi
16 × 70, Site 288A, 9-6(120-121)
17 × 140, Site 288A, 9-6(120-121)
18 × 120

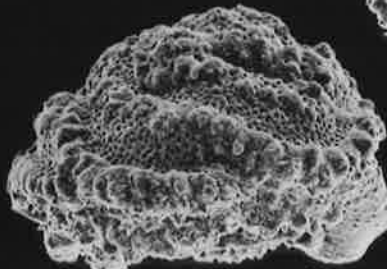
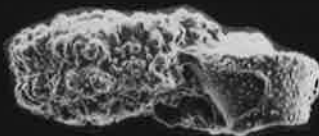
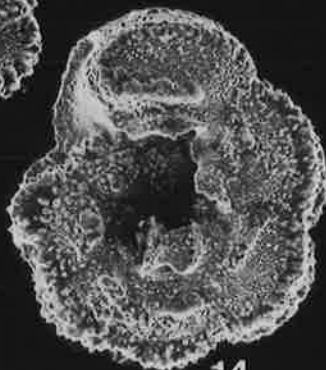
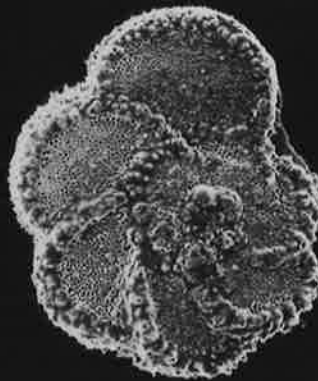
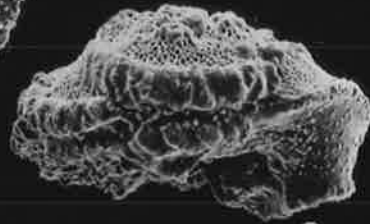
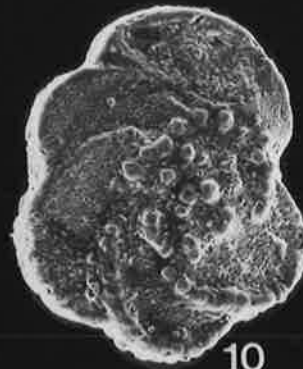
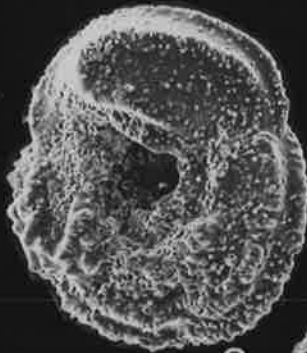
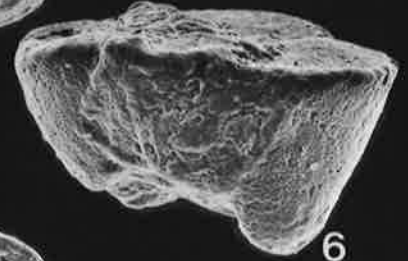
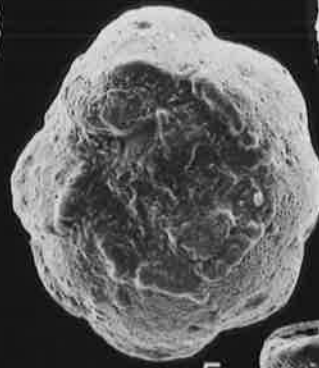


PLATE 20

Figs.

- 1-3 *Globotruncana stuarti* (de Lapparent)
1 × 60, Gaj River, 28(100-110)
2 × 60, Site 288A, 9-2(30-31)
3 × 80, Site 288A, 9-2(30-31)
- 4-6 *Globotruncana stuartiformis* Dalbiez
4 × 60, Site 288A, 9-2(30-31)
5 × 80, Site 288A, 9-2(30-31)
6 × 80, Site 288A, 9-2(30-31)
- 7-9 *Globotruncana trinidadensis* Gandolfi
7 × 70, Site 288A, 9-3(30-33)
8 × 80, Site 288A, 9-3(30-33)
9 × 60, Site 288A, 9-3(30-33)
- 10-12 *Globotruncana ventricosa* White
10 × 70, Site 217, 19CC
11 × 60, Site 217, 19CC
12 × 70, Site 217, 19CC
- 13-15 *Globotruncana* Sp. 1
13 × 60, Gaj River, 26(40-50)
14 × 80, Gaj River, 26(40-50)
15 × 80, Gaj River, 26(40-50)
- 16-18 *Globotruncana* Sp. 2
16 × 60, Site 288A, 9-1(21-22)
17 × 60, Site 288A, 9-1(21-22)
18 × 70, Site 288A, 9-1(21-22)

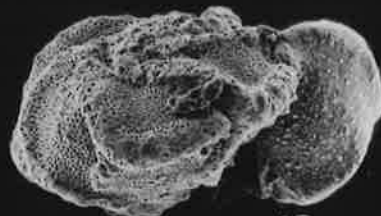
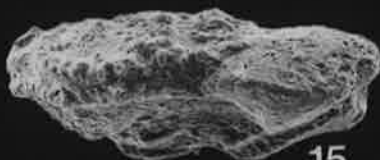
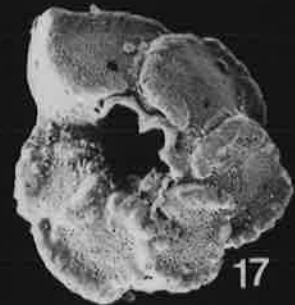
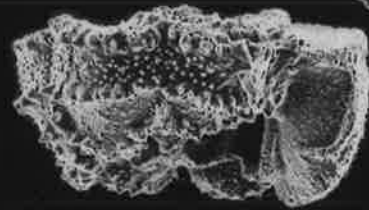
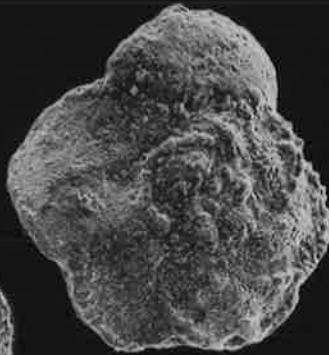
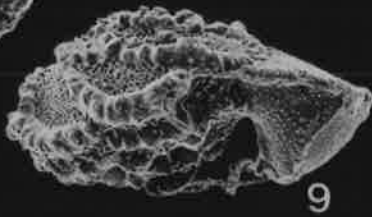
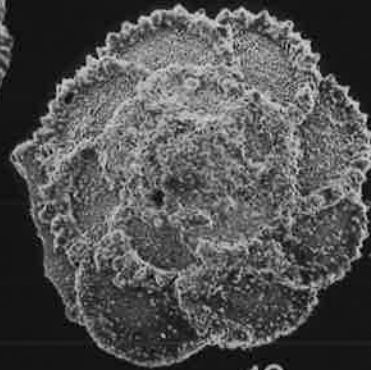


PLATE 21

Figs.

- 1-3 *Bucherina sandidgi* Bronnimann and Brown
1 × 90, Site 217, 19CC
2 × 90, Site 217, 19CC
3 × 100, Site 217, 19CC
- 4-6 *Rugoglobigerina hexacamerata* Bronnimann
4 × 140, Gaj River, 26(0-10)
5 × 140, Gaj River, 26(0-10)
6 × 120, Gaj River, 26(0-10)
- 7-9 *Rugoglobigerina macrocephala* Bronnimann
7 × 140, Site 288A, 9-6(120-121)
8 × 140, Site 288A, 9-6(120-121)
9 × 130, Site 288A, 9-6(120-121)
- 10-21 *Rugoglobigerina rugosa* (Plummer)
10 × 130, Site 217, 33-3 Base
11 × 150, Site 217, 33-3 Base
12 × 110, Site 217, 33-3 Base
13 × 80, Miria Marl, 0153
14 × 80, Miria Marl, 0153
15 × 100, Miria Marl, 0153
16 × 80, Site 217, 26-3(18-20)
17 × 80, Site 217, 26-3(18-20)
18 × 120, Site 217, 26-3(18-20)
19 × 170, Gaj River, 30(60-70)
20 × 150, Gaj River, 30(60-70)
21 × 180, Gaj River, 39(60-70)

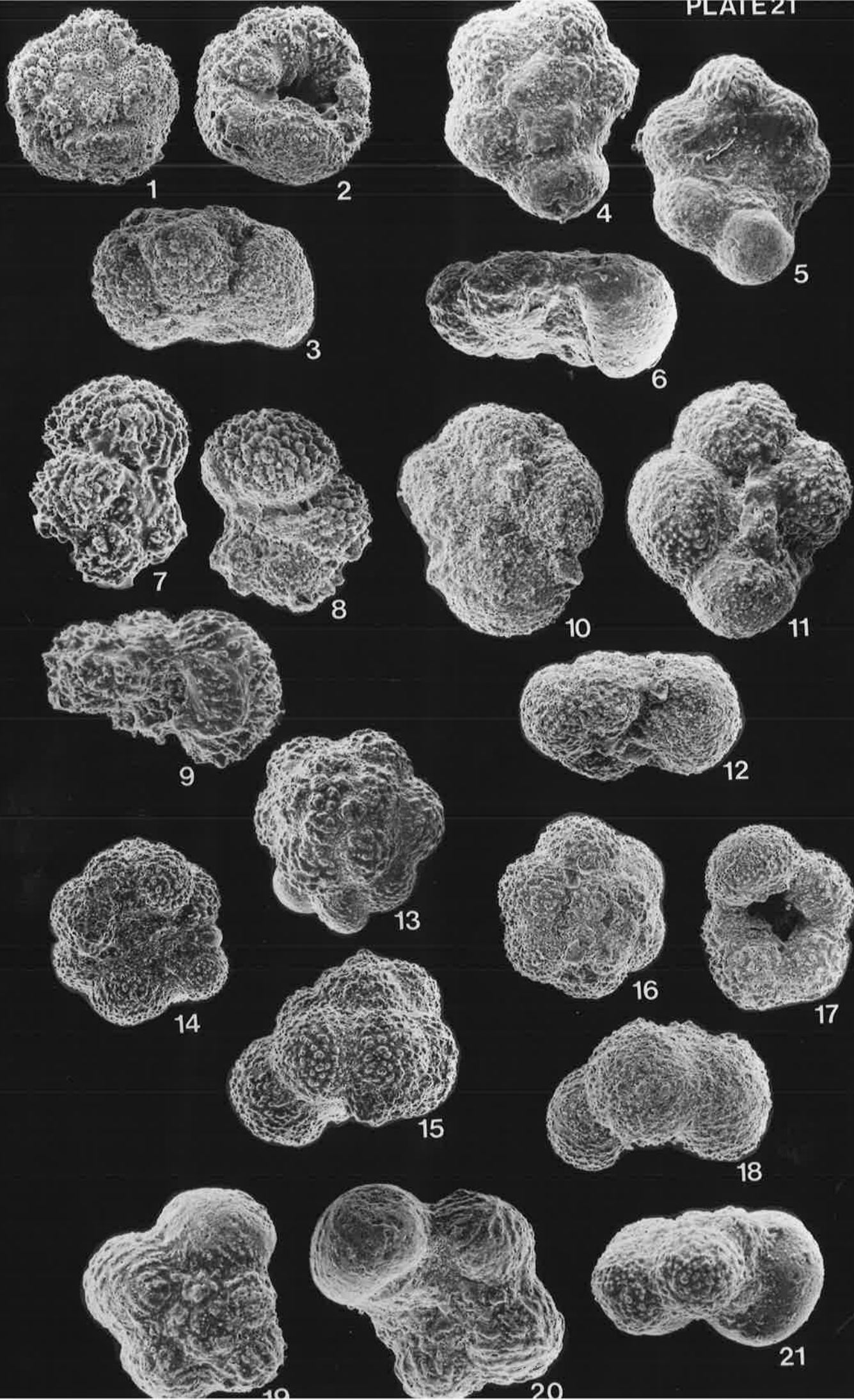


PLATE 22

Figs.

- 1-3 *Trinitella scotti* Bronnimann
1 × 120, Gaj River, 30 (60-70)
2 × 100, Gaj River, 30 (60-70)
3 × 120, Gaj River, 39 (60-70)
- 4-6 *Globotruncanella havanensis* (Voorwijk)
4 × 110, Gaj River, 28 (200-215)
5 × 300, Site 288A, 9-4 (30-31)
6 × 150, Site 288A, 9-4 (30-31)
- 7-9 *Globotruncanella intermedia* (Bolli)
7 × 90, Site 217, 19CC
8 × 90, Site 217, 19CC
9 × 80, Site 217, 19CC
- 10-12 *Globotruncanella mayaroensis* (Bolli)
10 × 90, Miria Marl, 0155
11 × 70, Site 217, 19CC
12 × 100, Miria Marl, 0155
- 13-14 *Guembelitria cretacea* Cushman
13 × 300, Miria Marl, 0153
14 × 400, Miria Marl, 0153

