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**Autor:** Brönnimann, Paul / Rigassi, Danilo  
**Anhang:** Plates  
**Autor:** [s.n.]  
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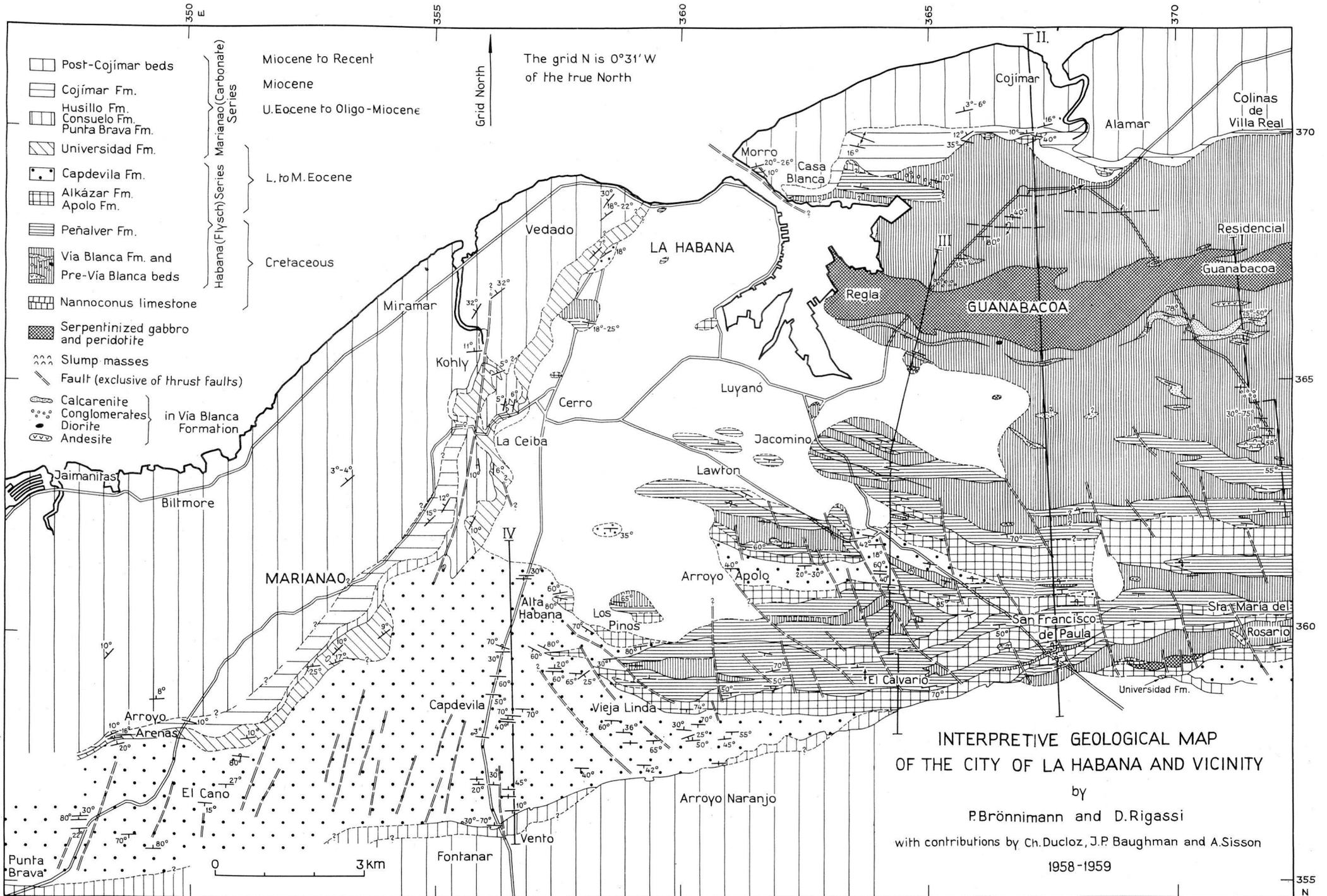
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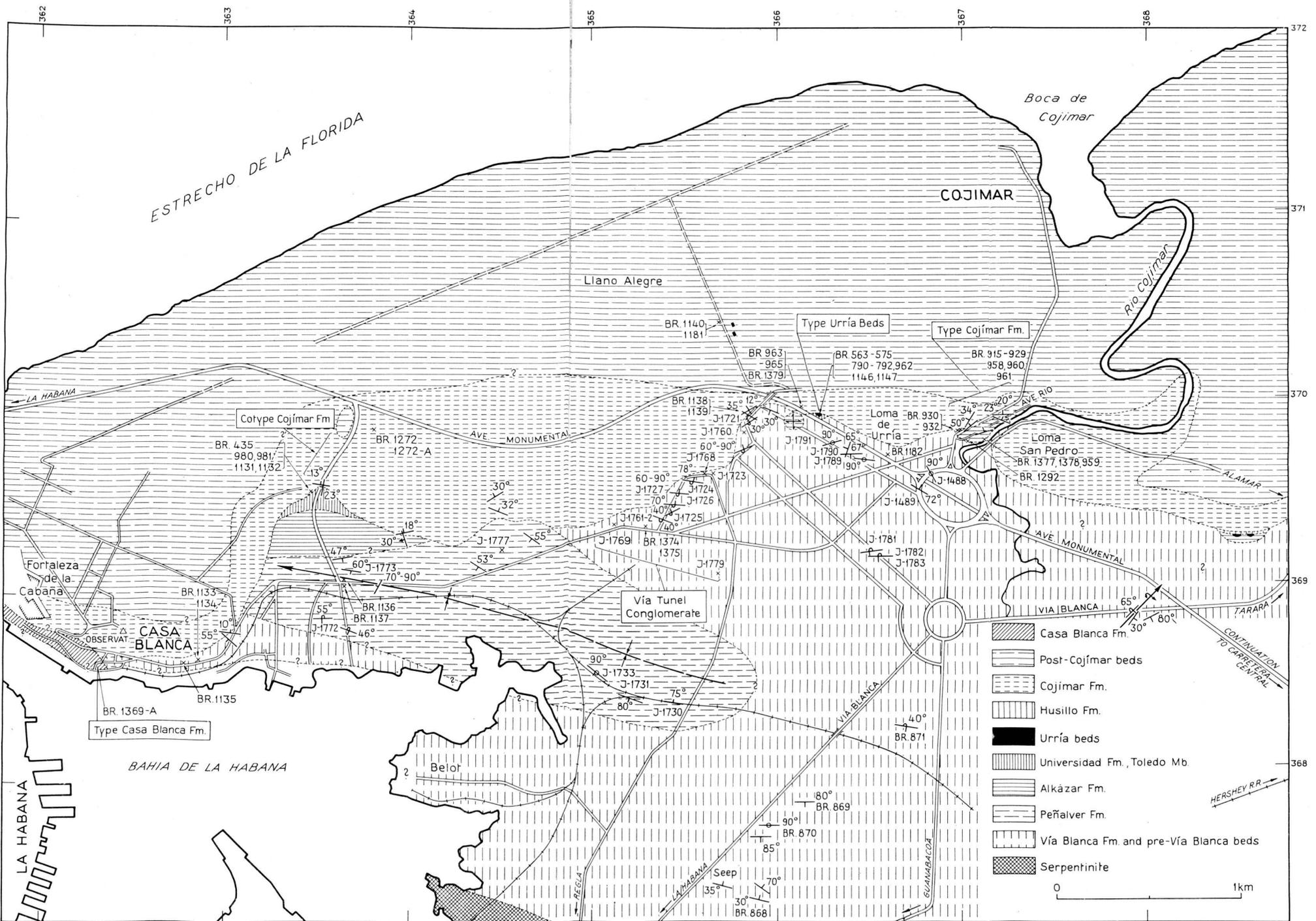
# CORRELATION CHART HABANA AREA

EPOCH AND STAGE	BIOSTRATIGRAPHIC ZONES			GROUPS OF FORMATIONS	PUNTA BRAVA	JAIMANITAS AUTOPISTA DEL MEDIO DEL CANG	TEJAR ANDRADE CANTERA POGOLOTTI	CANTERA HUSILLO TEJAR CONSUELO	ALMENDARES VEDADO NUEVO VEDADO	CAPDEVILA VENTO	ALTA HABANA	ARROYO NARANJO ALKAZAR APOLO	PLAZA DE LA REPUBLICA AVE. DE LOS PRESIDENTES HABANA VIEJA	CASA BLANCA COJIMAR ALAMAR	CONTINUATION VIA MONUMENTAL FROM VIA BLANCA TO CARRETERA CENTRAL	SAN FRANCISCO DE PAULA	SANTA MARIA DEL ROSARIO COTORRO	
	Planktonic Foraminifera	Discoasterids	Larger Foraminifera															
RECENT			Archaios angulatus	MARIANO GROUP CARBONATE FACIES		RECENT DEPOSITS			RECENT DEPOSITS	RECENT DEPOSITS			RECENT DEPOSITS	RECENT DEPOSITS				
PLEISTOCENE	Globorotalia menardii						Santa Fe Fm								Casa Blanca Fm			
PLIOCENE							?								?			
							Cangrejas Fm.			Vedado Fm.	Guines Fm.			Rosario Fm. ?			Rosario Fm.	Rosario Fm.
OLIGO - MIOCENE	Globorotalia mayeri		Operculinoides															
	Globorotalia foehli																	
	Globigerinatella insueta	Discoaster deflandrei	Miogypsina					Cajimar Fm.	Cajimar Fm.	Cajimar Fm.	Cajimar Fm. ?							
	Catapsydrax dissimilis		Lepidocyclina (Lep.)						Husillo Fm.	Husillo Fm.	Husillo Fm.							
	Globorotalia kugleri		Miogypsina															
	Gl. ciperensis - Gl. opima	Discoaster woodringi	Lepidocyclina (Lep.)															
	Globigerina amplioperlura		Lepidocyclina (Eulep)															
	Globorotalia cerroazulensis	Discoaster barbadiensis	Lepidocyclina s.l.															
	Globigeropsis seminvoluta		Discocyclina															
	Hank. dumbei - Globigerinatheka barri	Discoaster																
Hank. mexicana - Gl. aragonensis	Iodoensis																	
EOCENE	LOWER	Gl. bullbrookii - Gl. aragonensis	Discoaster Iodoensis	Eoconuloides wellsi														
		Globorotalia palmare		Boreloides cubensis														
		Gl. brodermanni - Gl. pseudoscutula	Marthasterites tribrachiatus															
		Gl. rex - Gl. formosa																
		Gl. velascoensis - Gl. pseudomenardi	D. multiradiatus - M. bramlettei - M. contortus	"Operculina" catenula														
Danian	Gl. daubjergensis - Gl. compressa																	
MESOZOIC AND OLDER	CRETACEOUS	Maastrichtian	Rugofruncana mayaroensis	Coccoliths Assemblages	HABANA GROUP FLYSCH FACIES													
		Rugofruncana gansseri																
	Campanian	Globotruncana* linneiana																
	Santonian to Coniacian	Gl. fornicata * Gl. concavata Gl. coronata																
Turonian	Helvetogil. helvetica Rot. turonica																	
Senomanian	Rot. appenninica Thalm. multiloculata																	
Albian to Aptian	Hedbergella trocoidea	Nannoconus fruitii																
Barremian to Neocomian		Nannoconus steinmanni																
Upper Jurassic and older																		

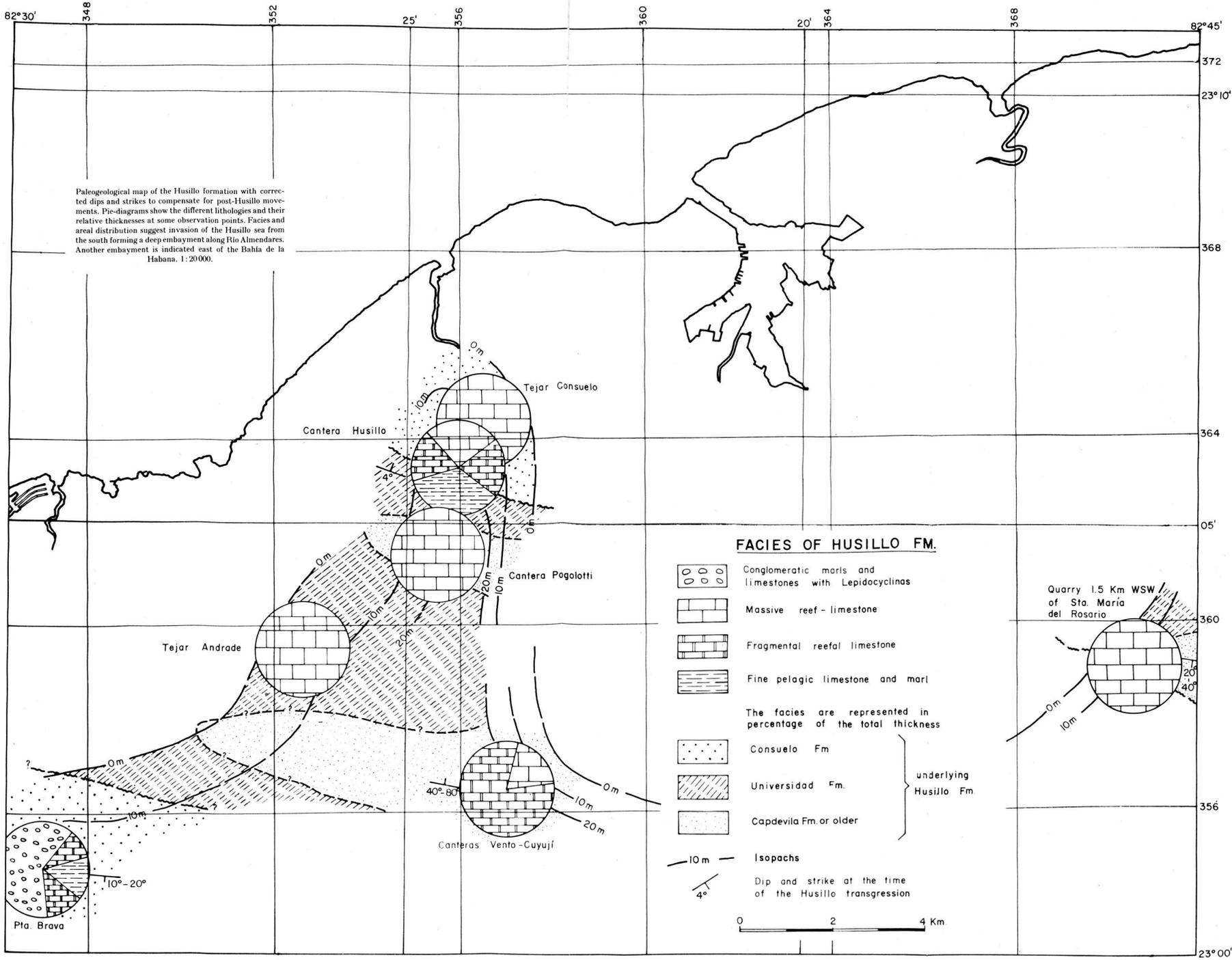
\* Zonation not definitely established



INTERPRETIVE GEOLOGICAL MAP  
 OF THE CITY OF LA HABANA AND VICINITY  
 by  
 P.Brönnimann and D.Rigassi  
 with contributions by Ch.Ducloz, J.P. Baughman and A.Sisson  
 1958-1959



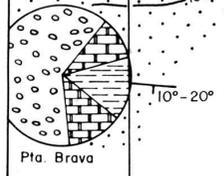
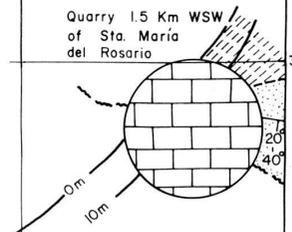


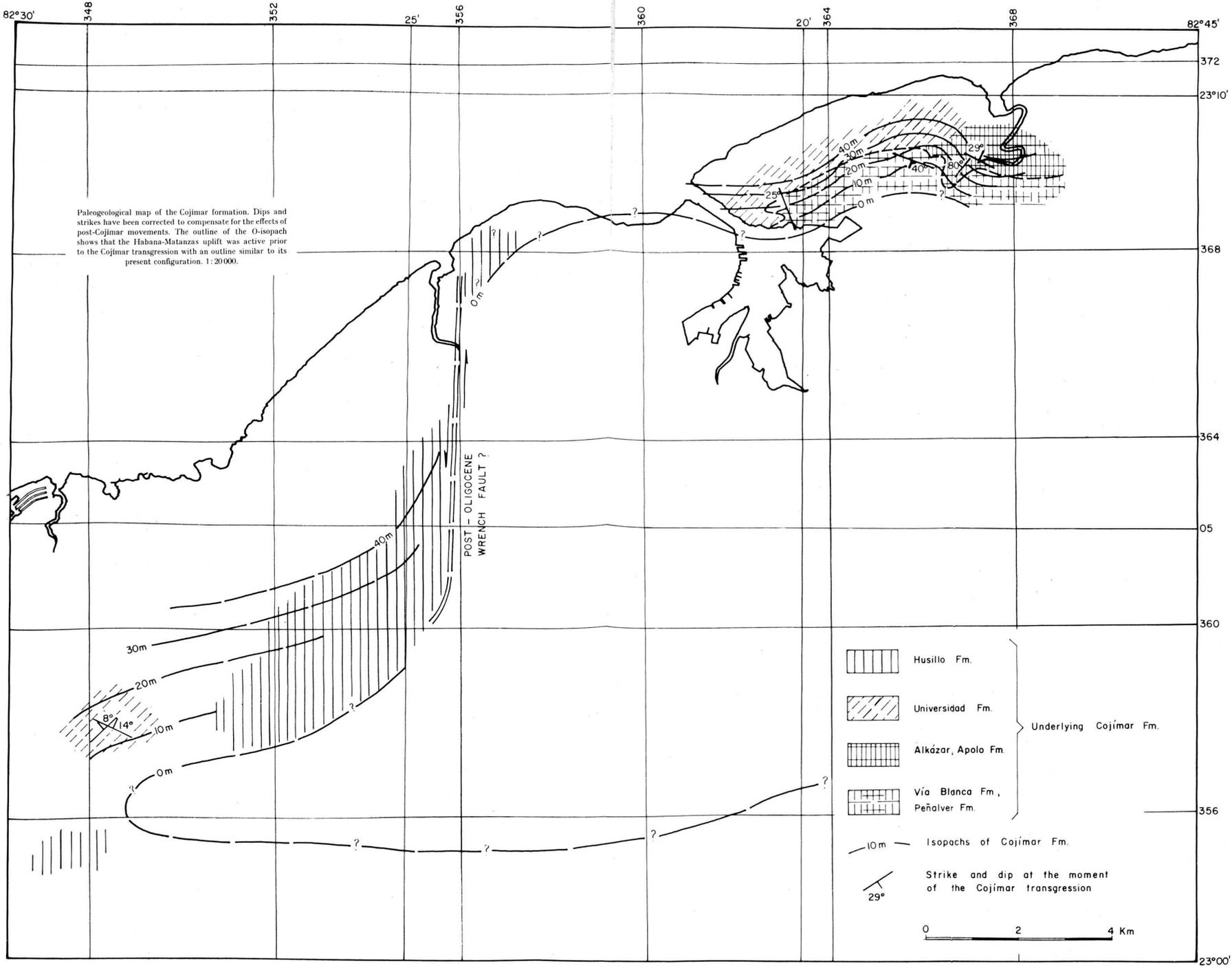


Paleogeological map of the Husillo formation with corrected dips and strikes to compensate for post-Husillo movements. Pie-diagrams show the different lithologies and their relative thicknesses at some observation points. Facies and areal distribution suggest invasion of the Husillo sea from the south forming a deep embayment along Rio Almendares. Another embayment is indicated east of the Bahía de la Habana. 1:20000.

**FACIES OF HUSILLO FM.**

-  Conglomeratic marls and limestones with *Lepidocyclinas*
  -  Massive reef-limestone
  -  Fragmental reefal limestone
  -  Fine pelagic limestone and marl
- The facies are represented in percentage of the total thickness
-  Consuelo Fm.
  -  Universidad Fm.
  -  Capdevila Fm. or older
- } underlying Husillo Fm.
- Isopachs**
-  10 m
-  Dip and strike at the time of the Husillo transgression





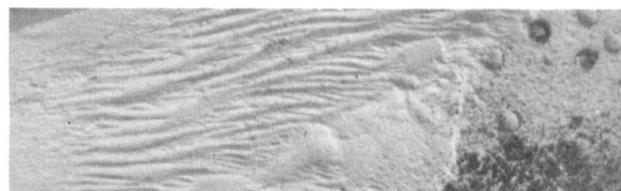
Paleogeological map of the Cojimar formation. Dips and strikes have been corrected to compensate for the effects of post-Cojimar movements. The outline of the 0-isopach shows that the Habana-Matanzas uplift was active prior to the Cojimar transgression with an outline similar to its present configuration. 1:20 000.

-  Husillo Fm.
  -  Universidad Fm.
  -  Alkazar, Apolo Fm.
  -  Vía Blanca Fm., Peñalver Fm.
- } Underlying Cojimar Fm.

 10m — Isopachs of Cojimar Fm.

 Strike and dip at the moment of the Cojimar transgression

0 2 4 Km



### Plate VIII

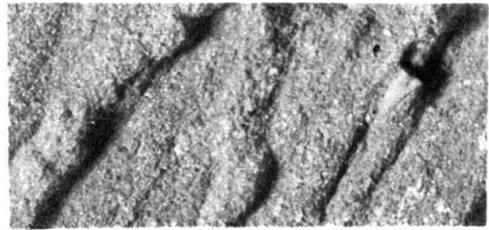
Figs. 1-3. "Hieroglyphic" markings formed by sandy material filling animal borings on mud surface.

Fig. 1. Baughman station 1743. 2.2 ×.

Figs. 2, 3 Baughman station 1944. 2.2 ×.

SEILACHER (1959, p. 1070, text-fig. 29, Tabelle II) explains the forms illustrated by fig. 1 as "Langgestreckte Gangfüllung mit wenigen geweihartigen Verzweigungen. Ursprünglich mit Tonpillen austapeziert, daher stets scharf von der umgehenden Schichtfläche abgesetzt" (cf. *Granularia* POMEL). Our fig. 3 may be identical with SEILACHER's problematic form illustrated by his text-fig. 35, Tabelle II (*Terebellina* ULRICH).

Fig. 4. Ripple mark on top of sandy bed. Baughman station 2037. 1.5 ×.



## Plate IX

Figs. 1-6. Chondrites of different types from the calcilutite in the upper part of the Vía Blanca formation, continuation of the Avenida Monumental. BR stations 667 and 667 A.

Fig. 1 1.7 ×.

Fig. 2. Detail of surface structure. 2.2 ×.

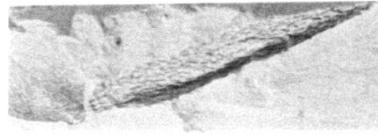
Figs. 3, 4 1.8 ×.

Figs. 5, 6 2.2 ×.

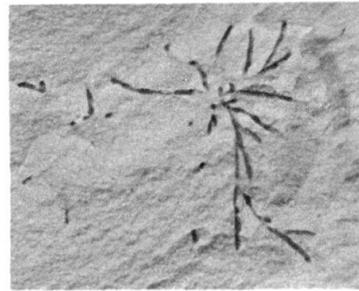
SEILACHER (1959, p. 1072, Tabelle III, text-fig. 50) refers the form illustrated by our fig. 1 to *Chondrites* ("Fressbau"). Figs. 3 and 4 are identical with SEILACHER's fig. 49, Tabelle 3, referred to *Chondrites intricatus* BROGNIART. Figs. 5 and 6 appear to be intermediate forms of *Chondrites* and fig. 2 shows the filling of the "Fressbau" with ellipsoidal coprolites.



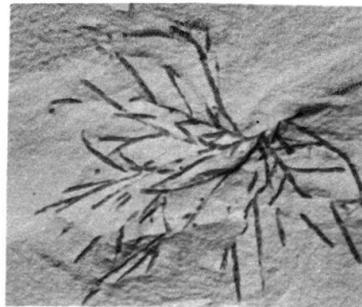
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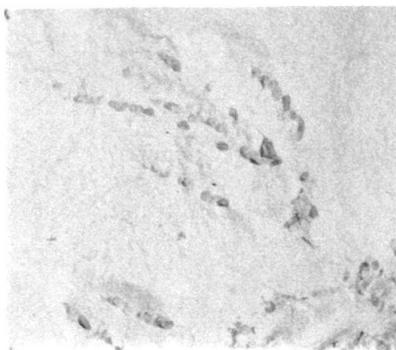
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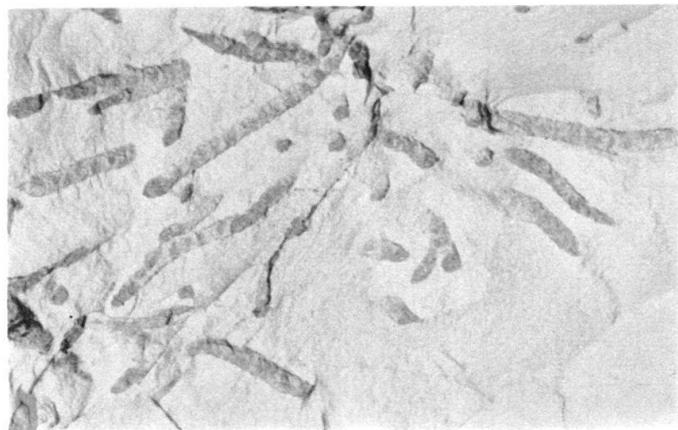
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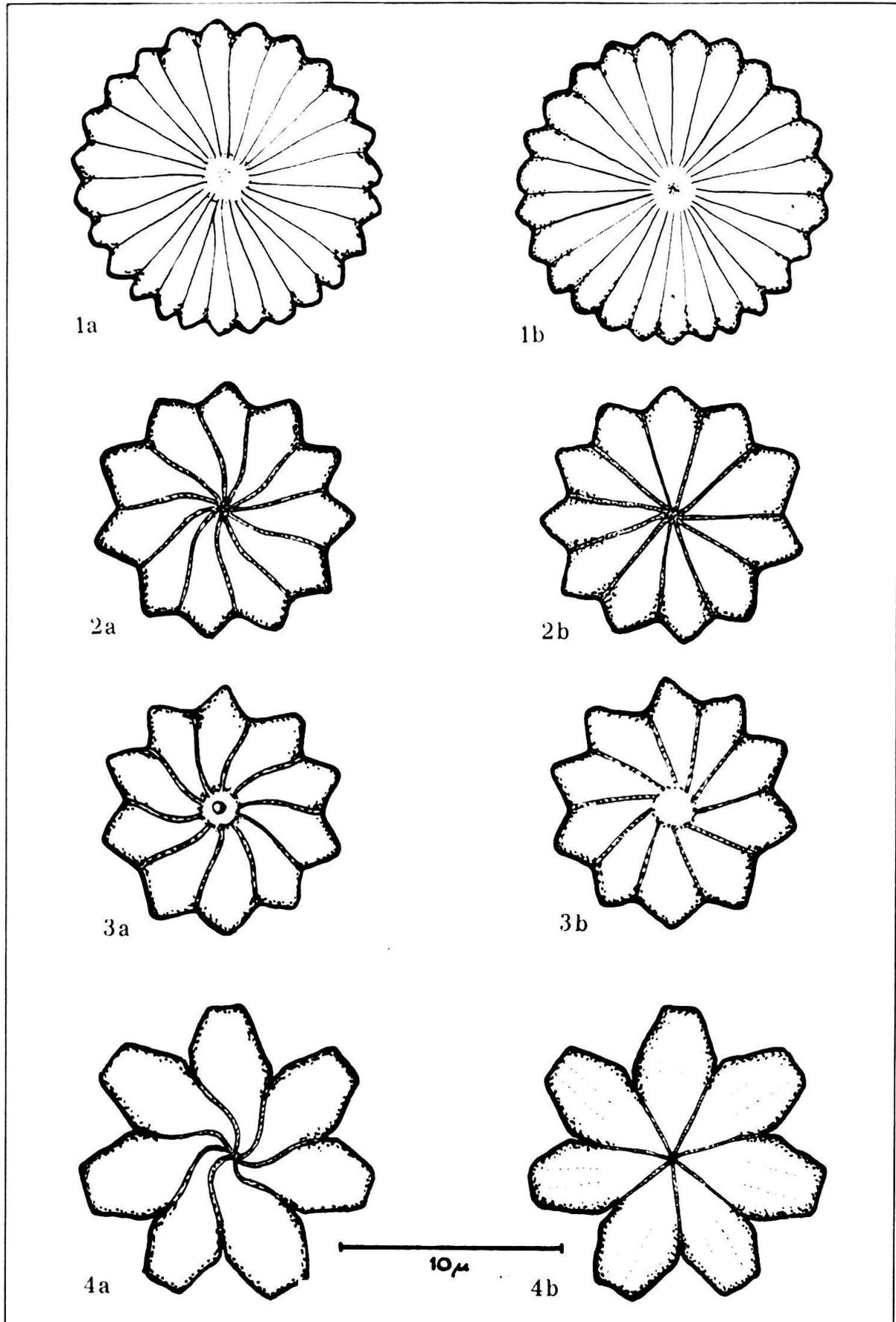
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6

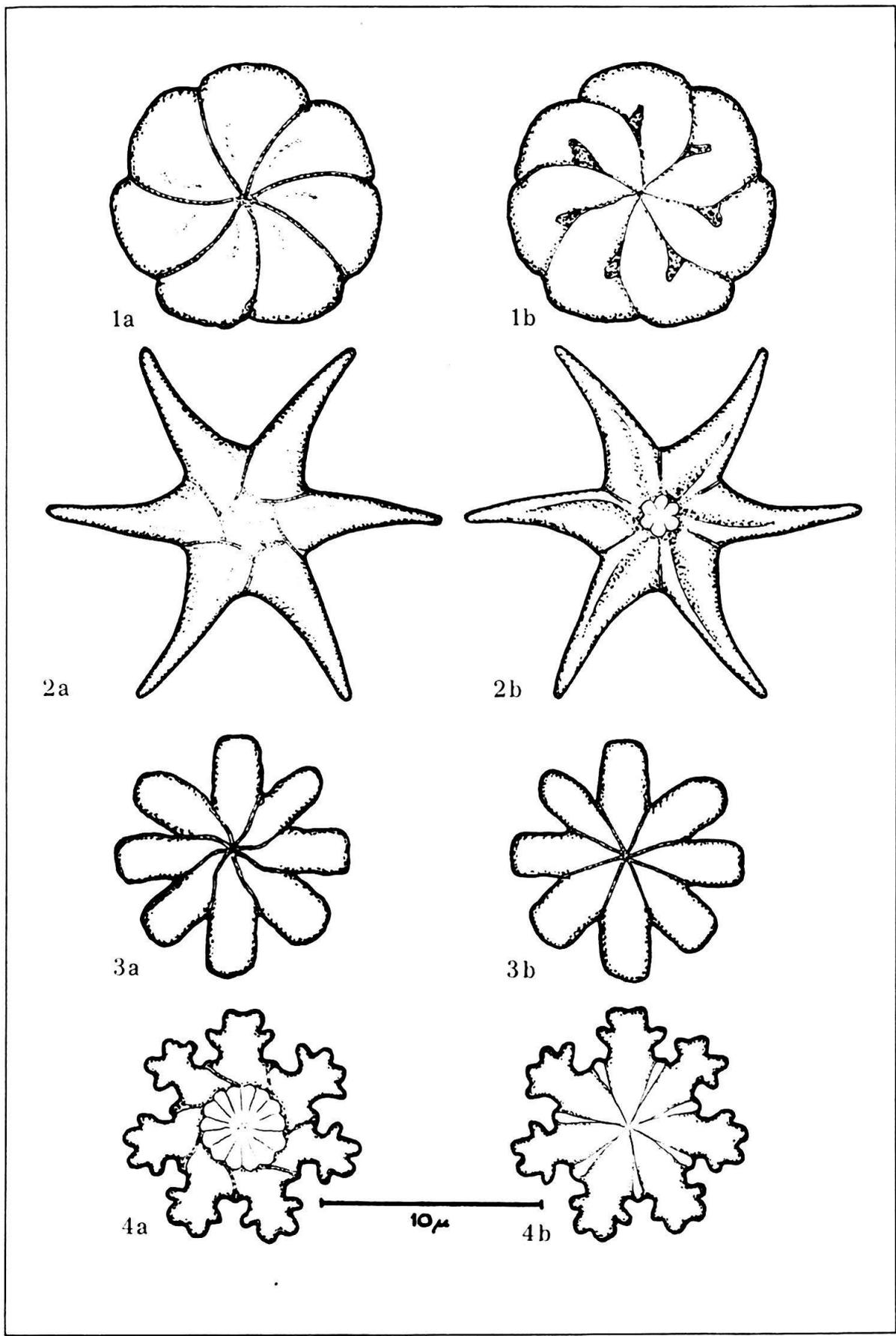
## Plate X

- Fig. 1. *Discoaster multiradiatus* BRAMLETTE and RIEDEL  
a) Facies superior  
b) Facies inferior
- Fig. 2. *Discoaster bebalaini* (TAN SIN HOK) nov. comb.  
a) Facies superior  
b) Facies inferior
- Fig. 3. *Discoaster aecus* BRÖNNIMANN and STRADNER  
a) Facies superior  
b) Facies inferior
- Fig. 4. *Discoaster geometricus* BRÖNNIMANN and STRADNER  
a) Facies superior  
b) Facies inferior



## Plate XI

- Fig. 1. *Discoaster uncinatus* BRÖNNIMANN and STRADNER  
a) Facies superior  
b) Facies inferior
- Fig. 2. *Discoaster lodoensis* BRAMLETTE and RIEDEL  
a) Facies superior  
b) Facies inferior
- Fig. 3. *Discoaster hilli* TAN SIN HOK  
a) Facies superior  
b) Facies inferior
- Fig. 4. *Discoaster mirus* DEFLANDRE  
a) Facies superior  
b) Facies inferior



## Plate XII

Fig. 1. *Discoaster binodosus* MARTINI

- a) Facies superior
- b) Facies inferior

Fig. 2. *Discoaster corniger* SHAMRAY and LAZAREVA

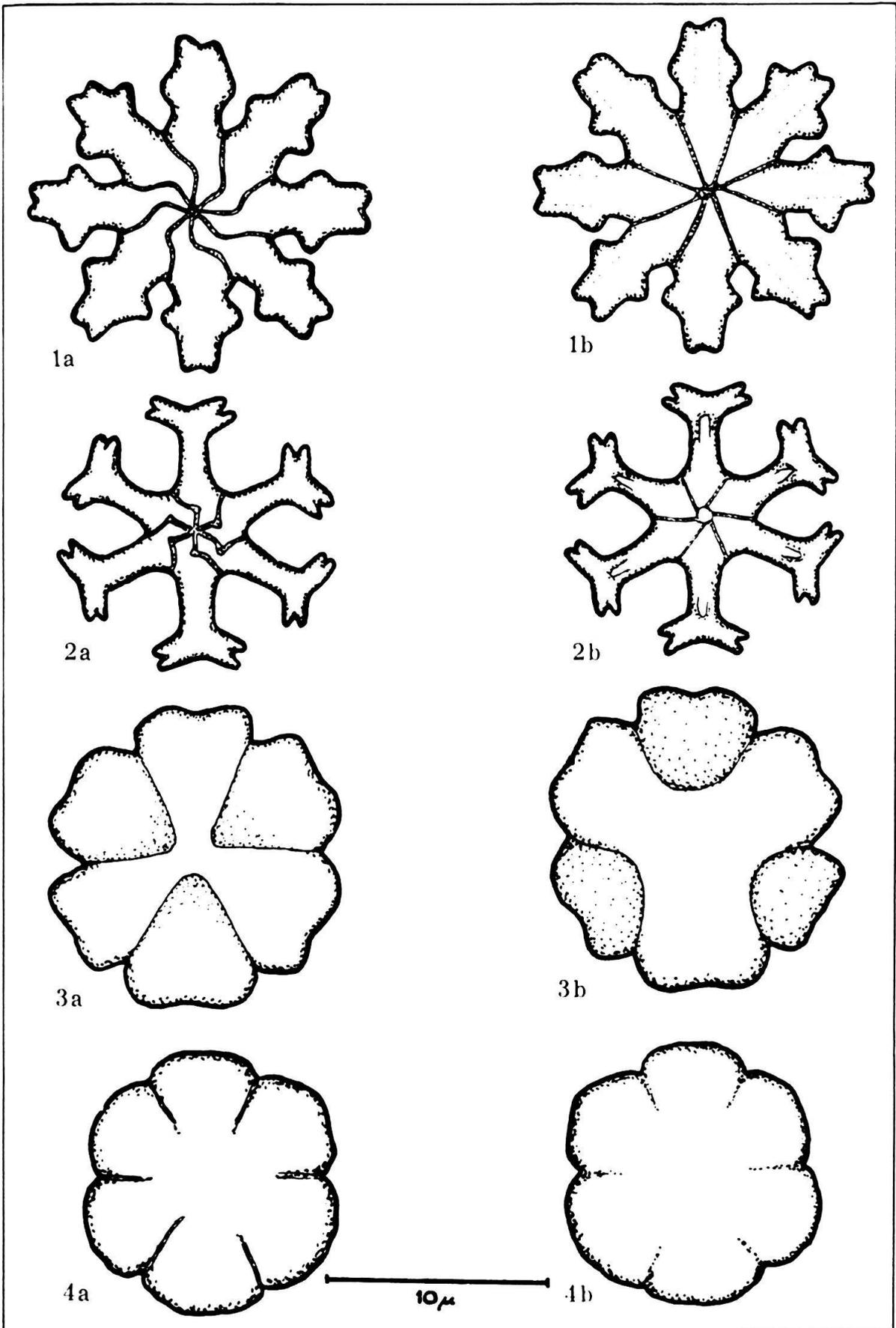
- a) Facies superior
- b) Facies inferior

Fig. 3. *Discoaster* cf. *molengraaffi* TAN SIN HOK

- a) Facies superior
- b) Facies inferior

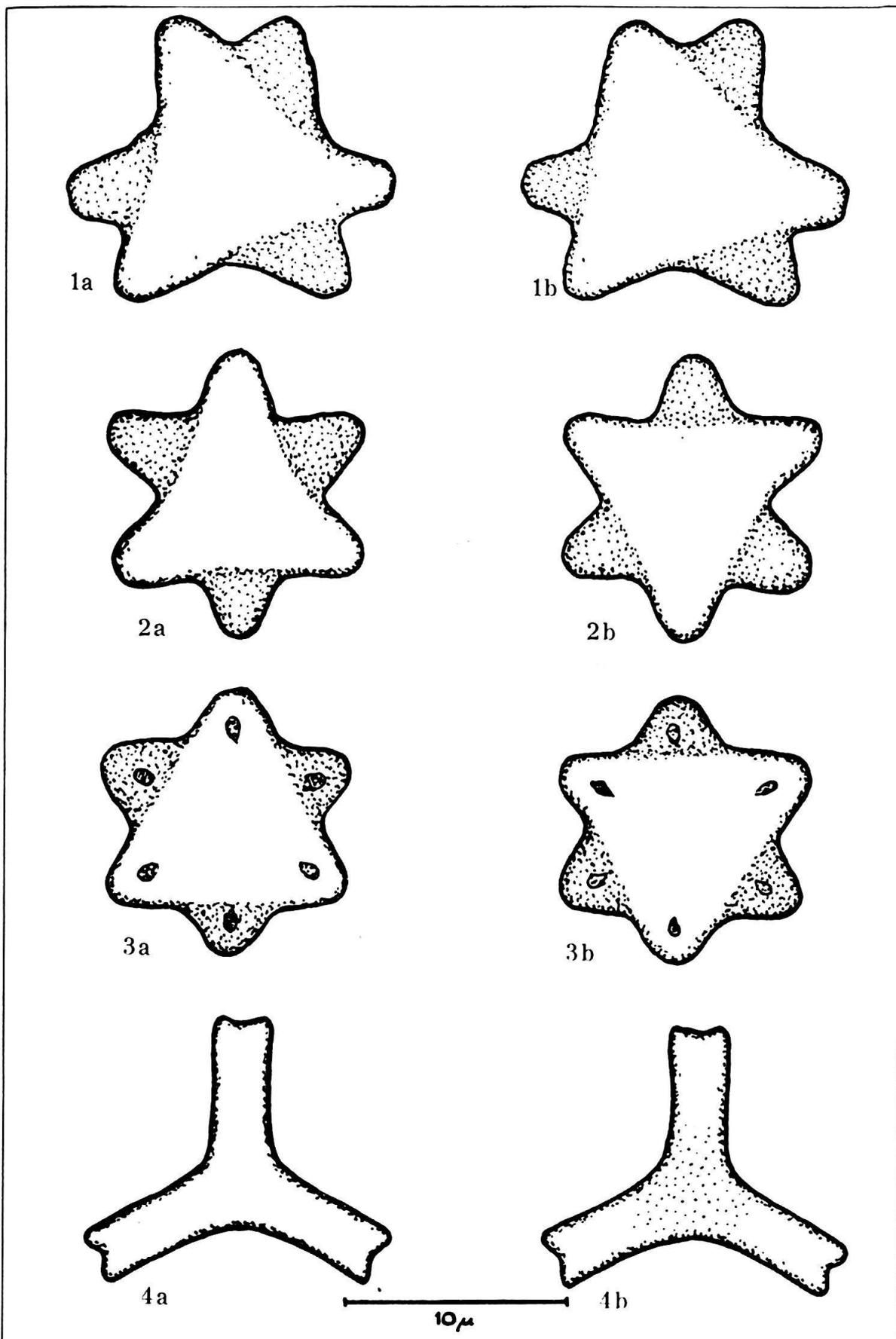
Fig. 4. *Discoaster* cf. *woodringi* BRAMLETTE and RIEDEL

- a) Facies superior
- b) Facies inferior



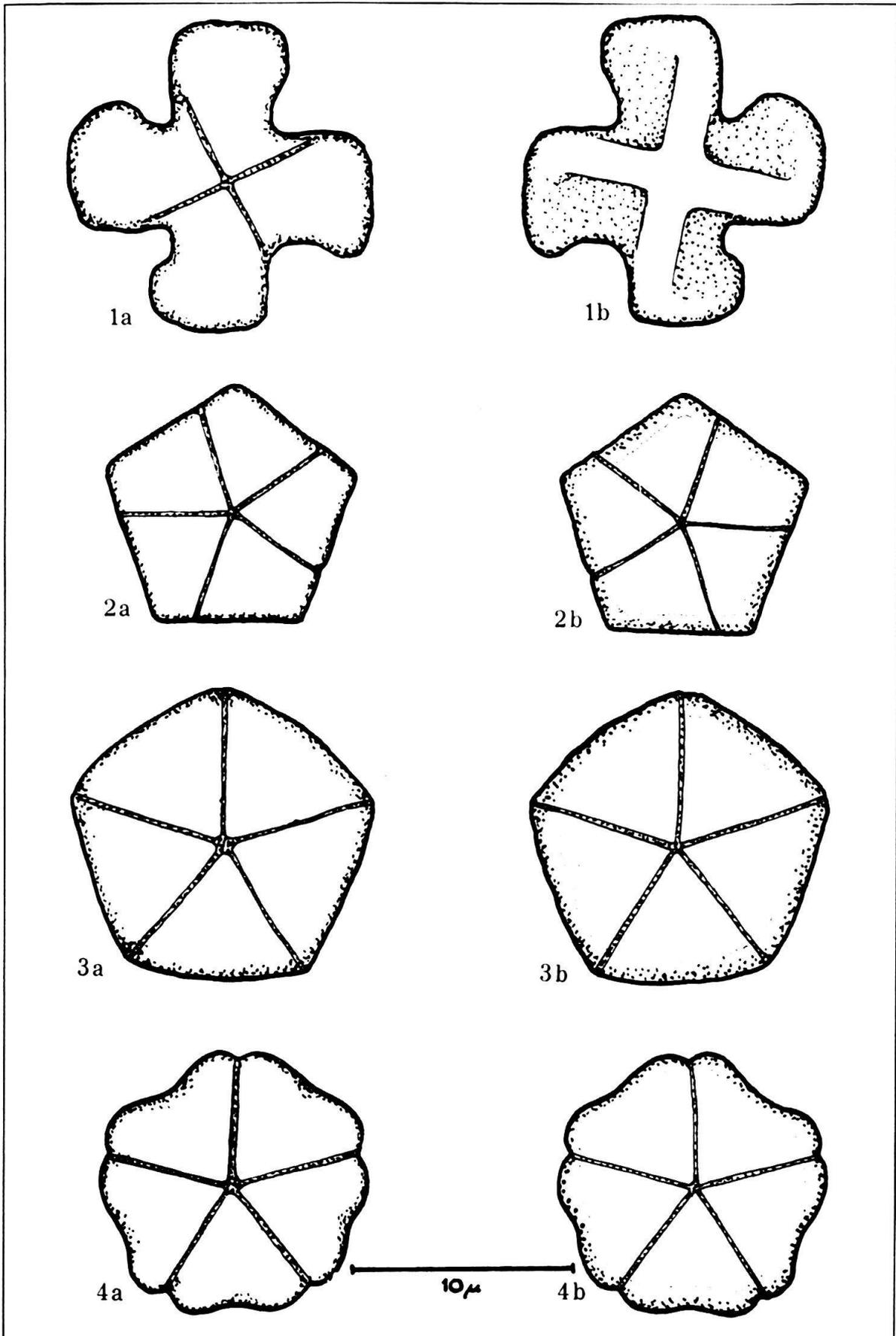
### Plate XIII

- Fig. 1. *Marthasterites contortus* (STRADNER) DEFLANDRE  
a) Facies superior  
b) Facies inferior
- Fig. 2. *Marthasterites bramlettei* BRÖNNIMANN and STRADNER  
a) Facies superior  
b) Facies inferior
- Fig. 3. *Marthasterites riedeli* BRÖNNIMANN and STRADNER  
a) Facies superior  
b) Facies inferior
- Fig. 4. *Marthasterites tribrachiatus* (BRAMLETTE and RIEDEL) DEFLANDRE  
a) Facies superior  
b) Facies inferior



## Plate XIV

- Fig. 1. *Nannotraster swasticoides* (MARTINI) MARTINI and STRADNER  
a) Facies superior  
b) Facies inferior
- Fig. 2. *Braarudosphaera bigelovi* (GRAN and BRAARUD) DEFLANDRE  
a) Facies distalis  
b) Facies proximalis
- Fig. 3. *Braarudosphaera discula* BRAMLETTE and RIEDEL  
a) Facies distalis  
b) Facies proximalis
- Fig. 4. *Braarudosphaera undata* STRADNER  
a) Facies distalis  
b) Facies proximalis



## Plate XV

Fig. 1. *Micrantholithus vesper* DEFLANDRE

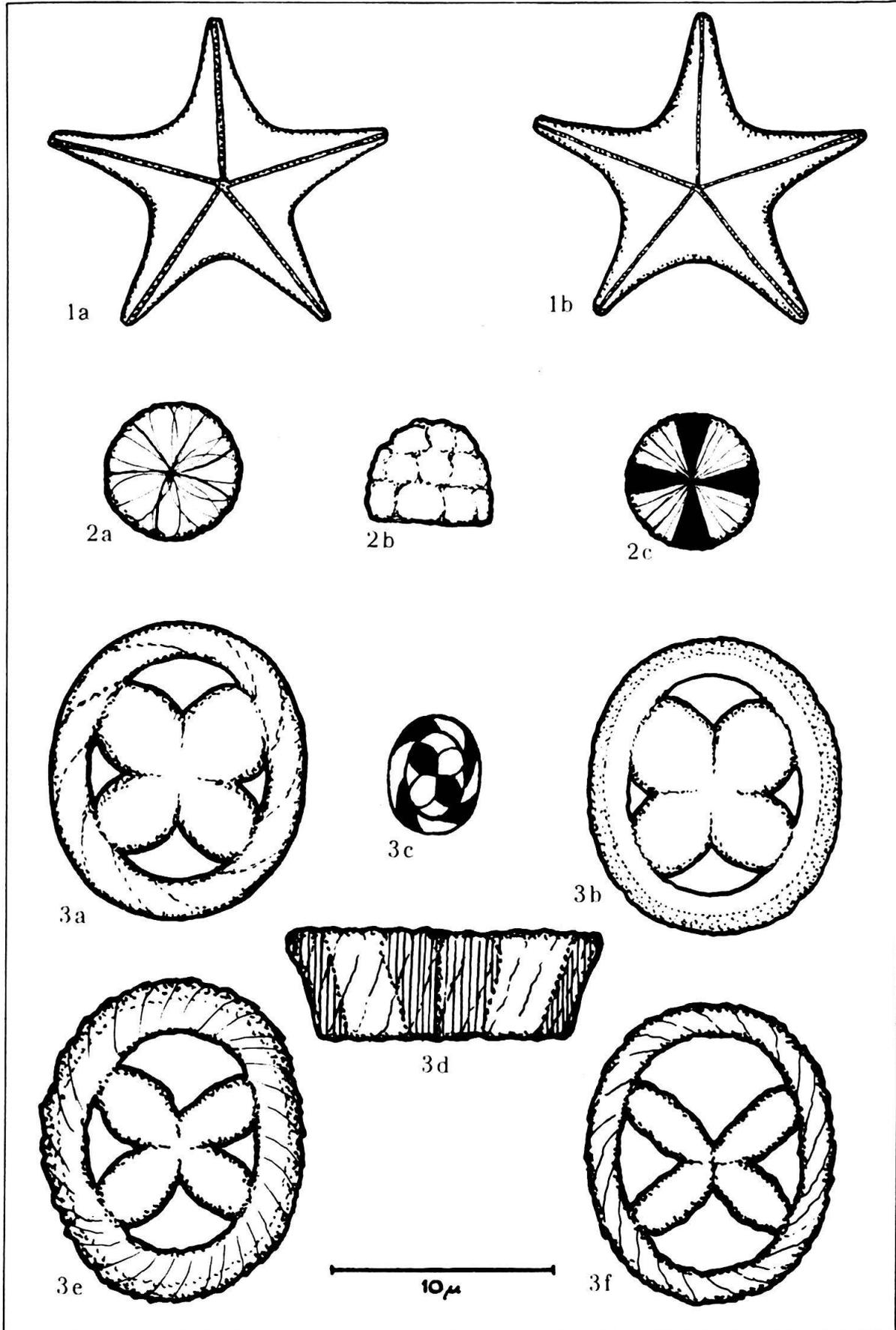
- a) Facies distalis
- b) Facies proximalis

Fig. 2. *Nannoturbella moriformis* BRÖNNIMANN and STRADNER

- a) Basal view
- b) Side view
- c) In polarized light

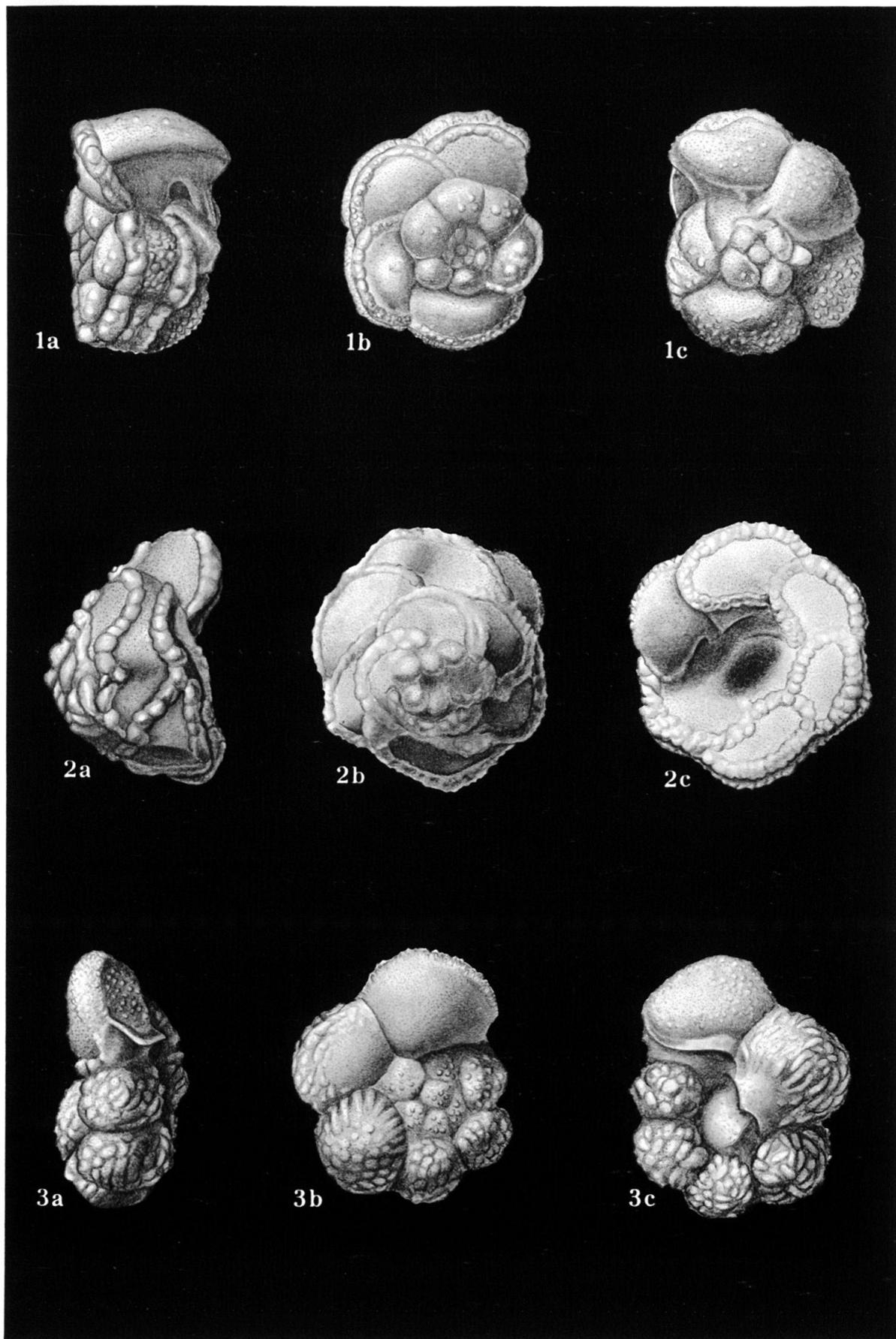
Fig. 3. *Heliorthus fallax* BRÖNNIMANN and STRADNER

- a) Facies distalis
- b) Facies proximalis
- c) In polarized light (different scale)
- d) Side view
- e) Facies proximalis of a paratype with more rugged outline
- f) Facies distalis of a paratype with slender cross and rim



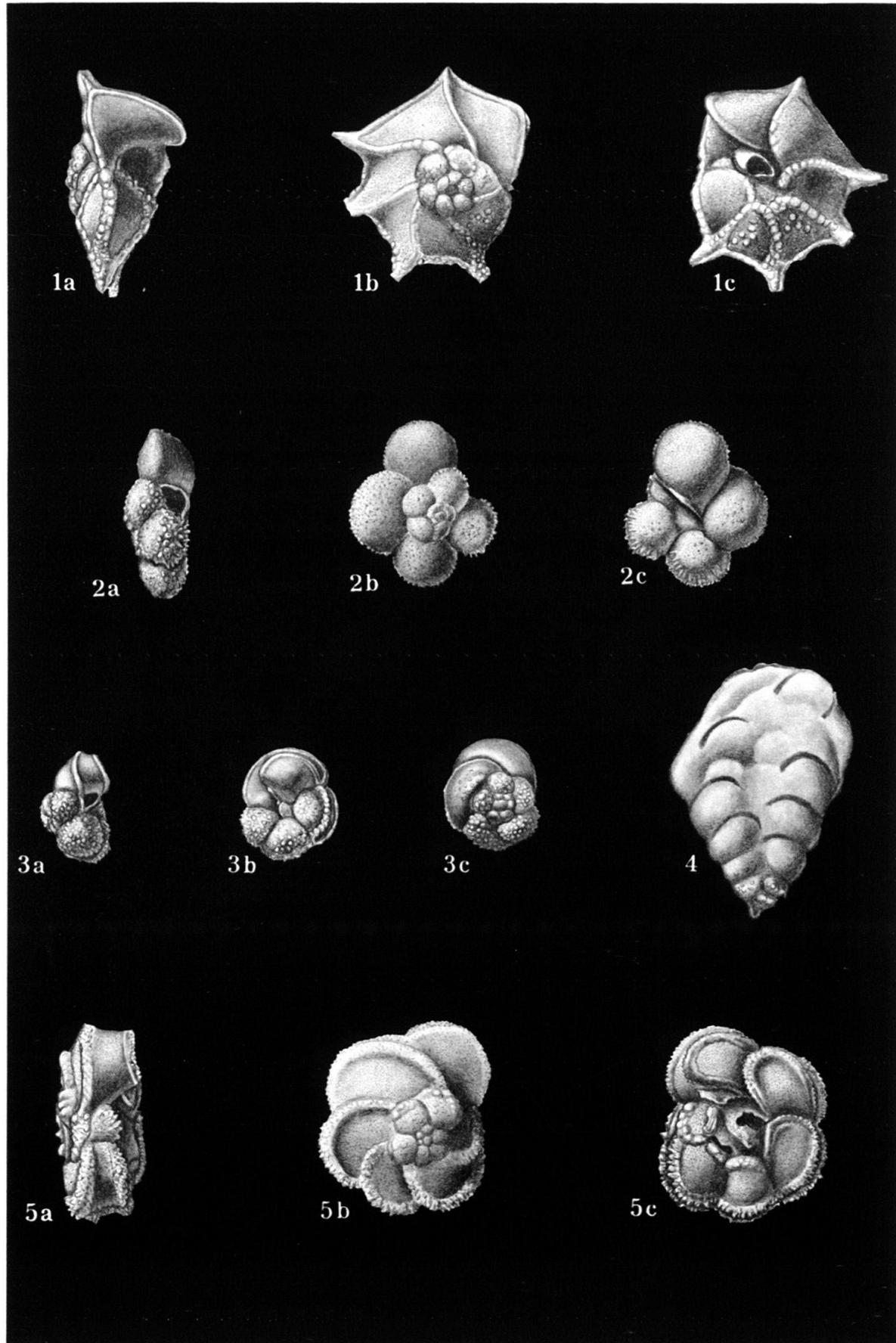
## Plate XVI

- Fig. 1. *Rugotruncana gansseri* (BOLLI)  
Baughman station 1802, Maastrichtian  
95×
- Fig. 2. *Globotruncana contusa* (CUSHMAN)  
Baughman station 1805, Maastrichtian  
60×
- Fig. 3. *Trinitella scotti* BRÖNNIMANN  
Sisson station 156, Maastrichtian  
95×



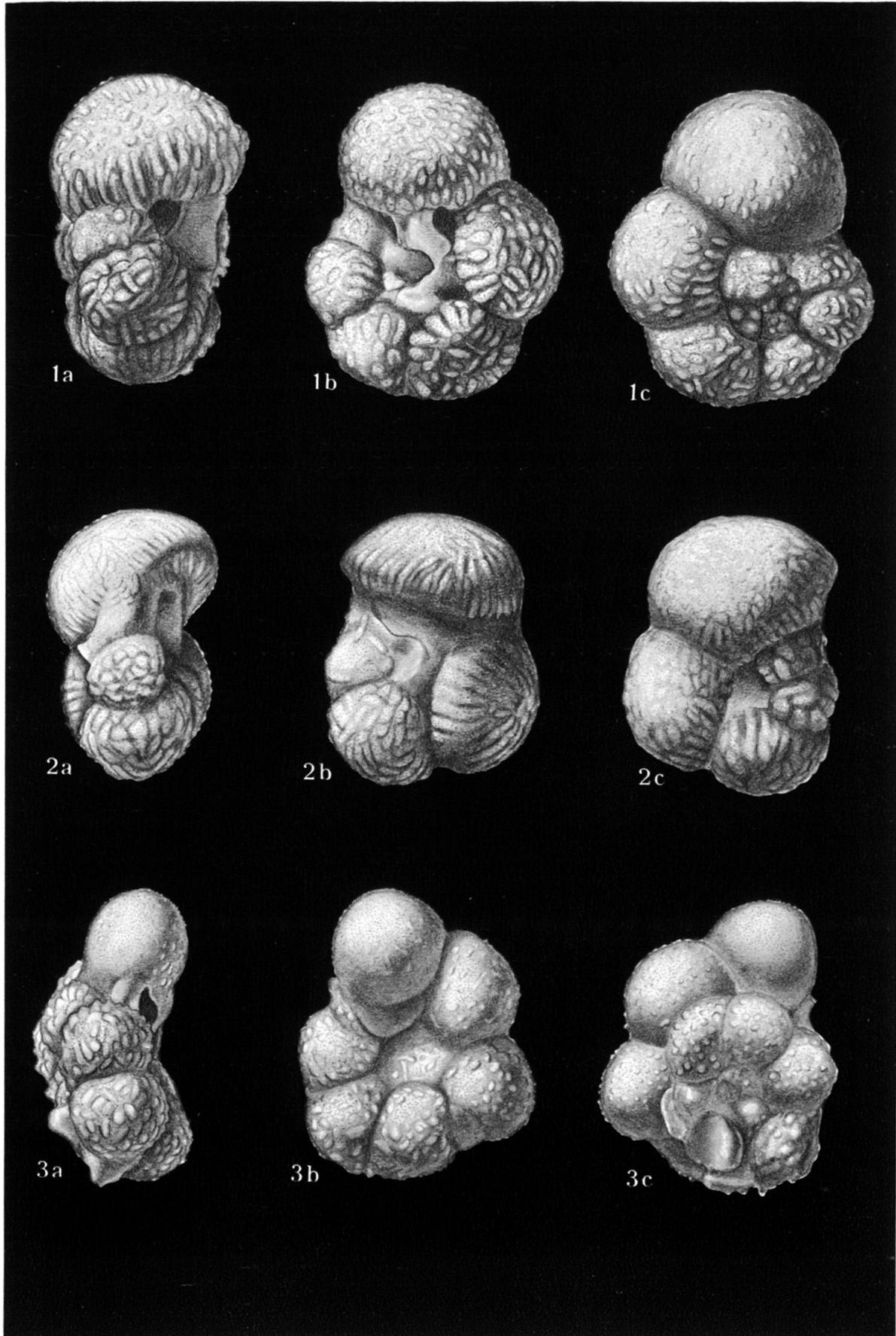
## Plate XVII

- Fig. 1. *Rugotruncana calcarata* (CUSHMAN)  
Baughman station 1839 B, Campanian  
62×
- Fig. 2. *Globotruncanella havanensis* (VOORWIJK)  
Baughman station 1839 B, Campanian  
62×
- Fig. 3. *Globotruncana fornicata* PLUMMER  
Baughman station 1839 B, Campanian  
62×
- Fig. 4. *Gublerina ornatissima* (CUSHMAN and CHURCH)  
Sisson station 156, Maastrichtian  
62×
- Fig. 5. *Globotruncana linneiana* (D'ORBIGNY)  
Baughman station 1839 B, Campanian  
62×



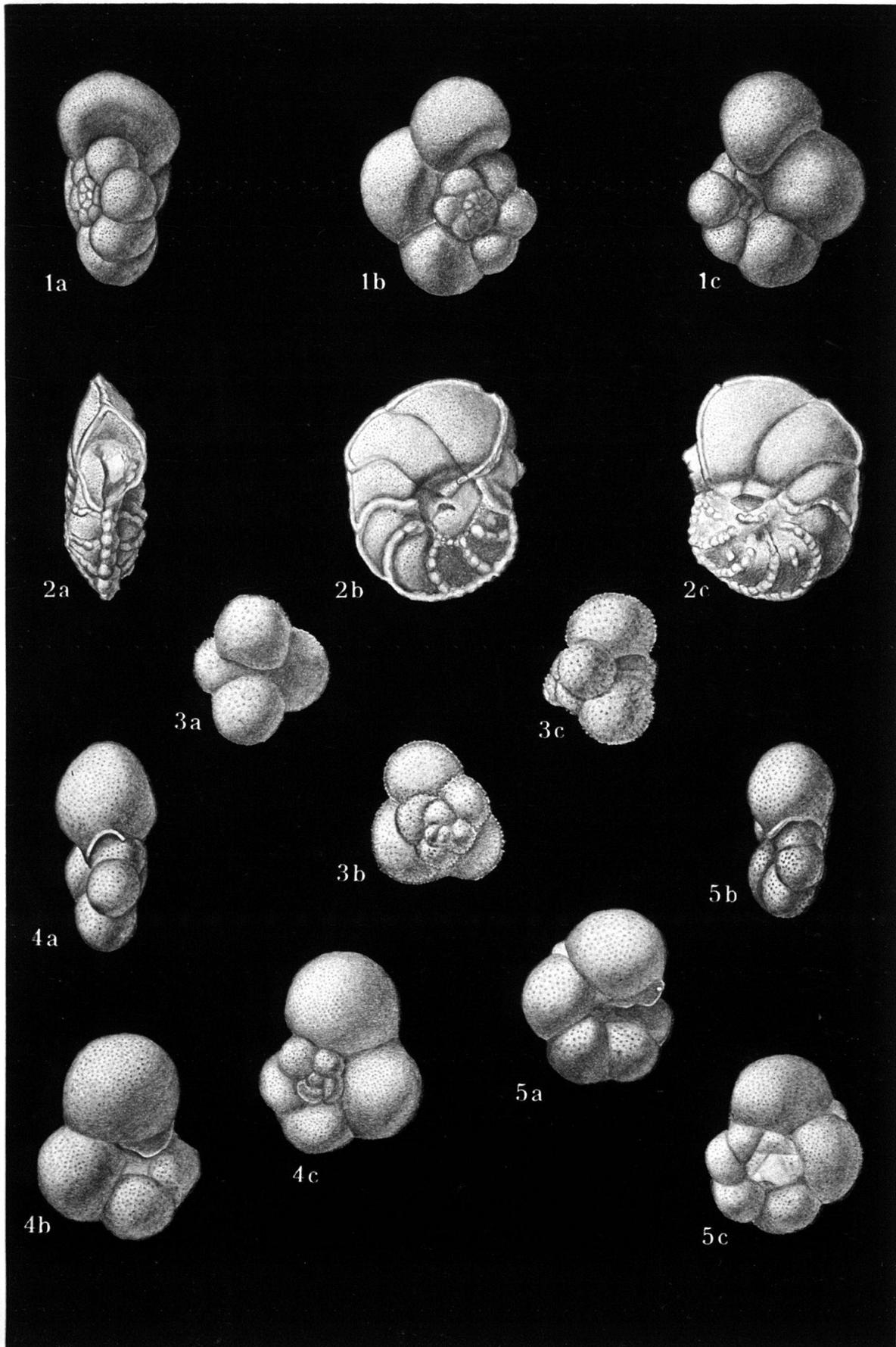
## Plate XVIII

- Fig. 1. *Rugoglobigerina rugosa rugosa* (PLUMMER)  
Sisson station 156, Maastrichtian  
92 ×
- Fig. 2. *Rugoglobigerina macrocephala macrocephala* BRÖNNIMANN  
Sisson station 156, Maastrichtian  
92 ×
- Fig. 3. *Ticinella roberti* (GANDOLFI)  
Sisson station 148, Cenomanian  
92 ×



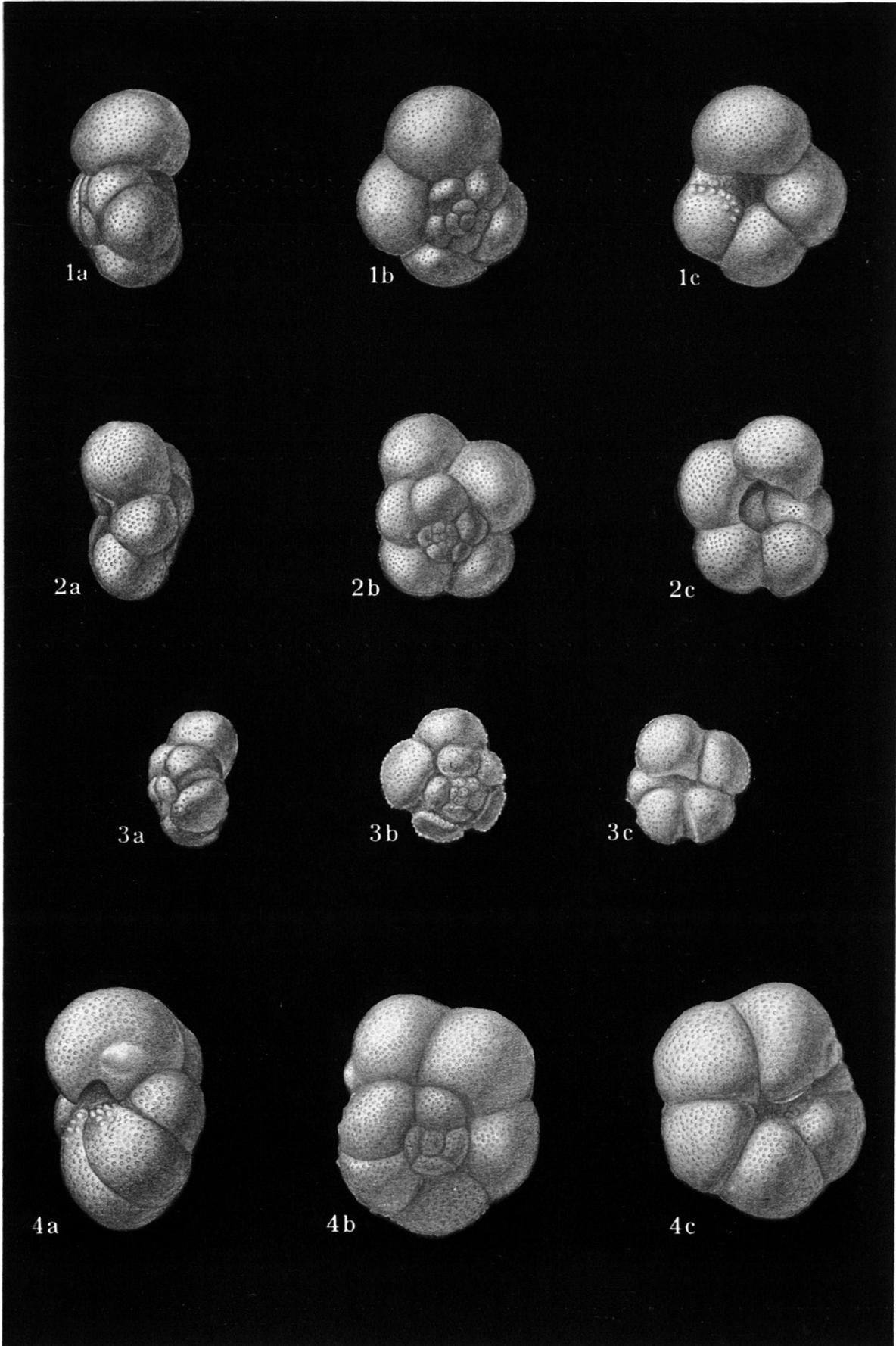
## Plate XIX

- Fig. 1. *Hedbergella trocoidea* (GANDOLFI)  
Sisson station 148, Cenomanian  
96 ×
- Fig. 2. *Planomalina buxtorfi* (GANDOLFI)  
Sisson station 148, Cenomanian  
60 ×
- Fig. 3. *Globigerina daubjergensis* BRÖNNIMANN  
BR station 1221, Danian  
96 ×
- Fig. 4. *Globorotalia compressa* PLUMMER  
BR station 1221, Danian  
96 ×
- Fig. 5. *Globorotalia pseudobulloides* PLUMMER  
BR station 1221, Danian  
96 ×



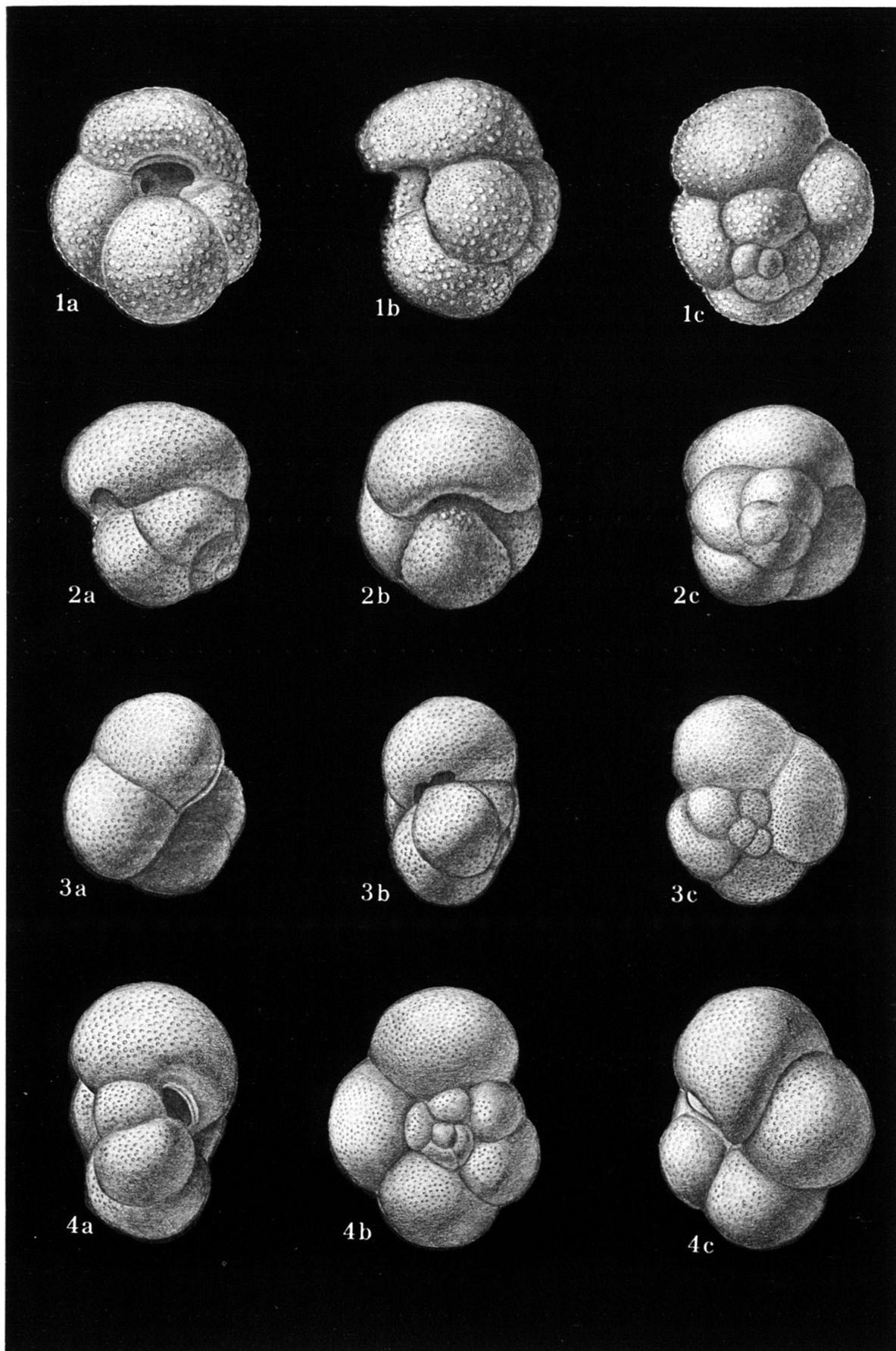
## Plate XX

- Fig. 1. *Globigerina ciproensis angustiumblicata* BOLLI  
BR station 383, Oligocene  
97 ×
- Fig. 2. *Globigerina ciproensis ciproensis* BOLLI  
BR station 383, Oligocene  
97 ×
- Fig. 3. *Globigerina ciproensis angulisuturalis* BOLLI  
BR station 376, Oligocene  
97 ×
- Fig. 4. *Globorotalia mayeri* CUSHMAN and ELLISOR  
BR station 959, Miocene  
97 ×



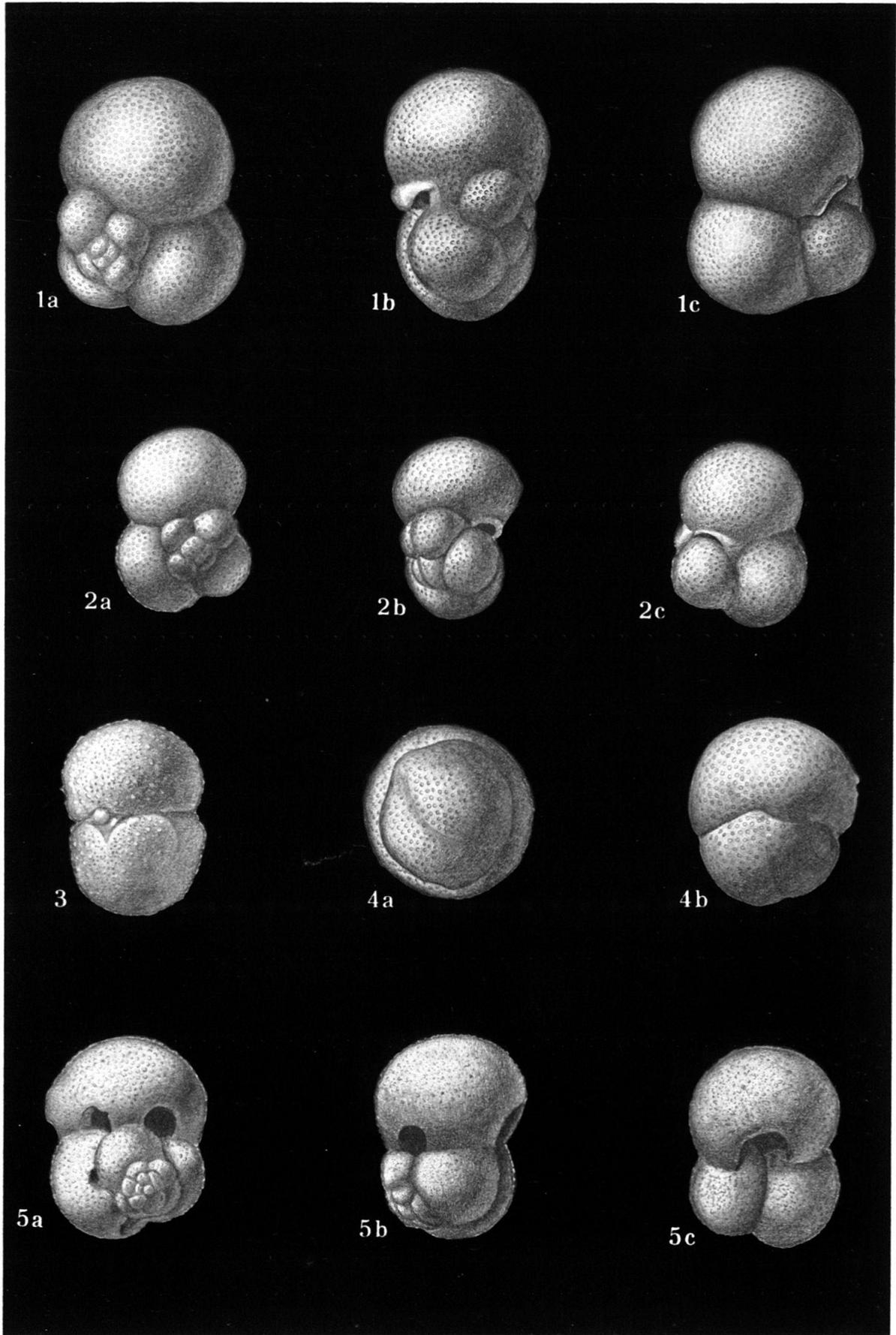
## Plate XXI

- Fig. 1. *Globigerina ampliapertura* BOLLI  
BR station 366, Oligocene  
93 ×
- Fig. 2. *Globigerina euapertura* JENKINS  
BR station 383, Oligocene  
93 ×
- Fig. 3. *Globorotalia opima nana* BOLLI  
BR station 383, Oligocene  
93 ×
- Fig. 4. *Globorotalia opima opima* BOLLI  
BR station 376, Oligocene  
93 ×



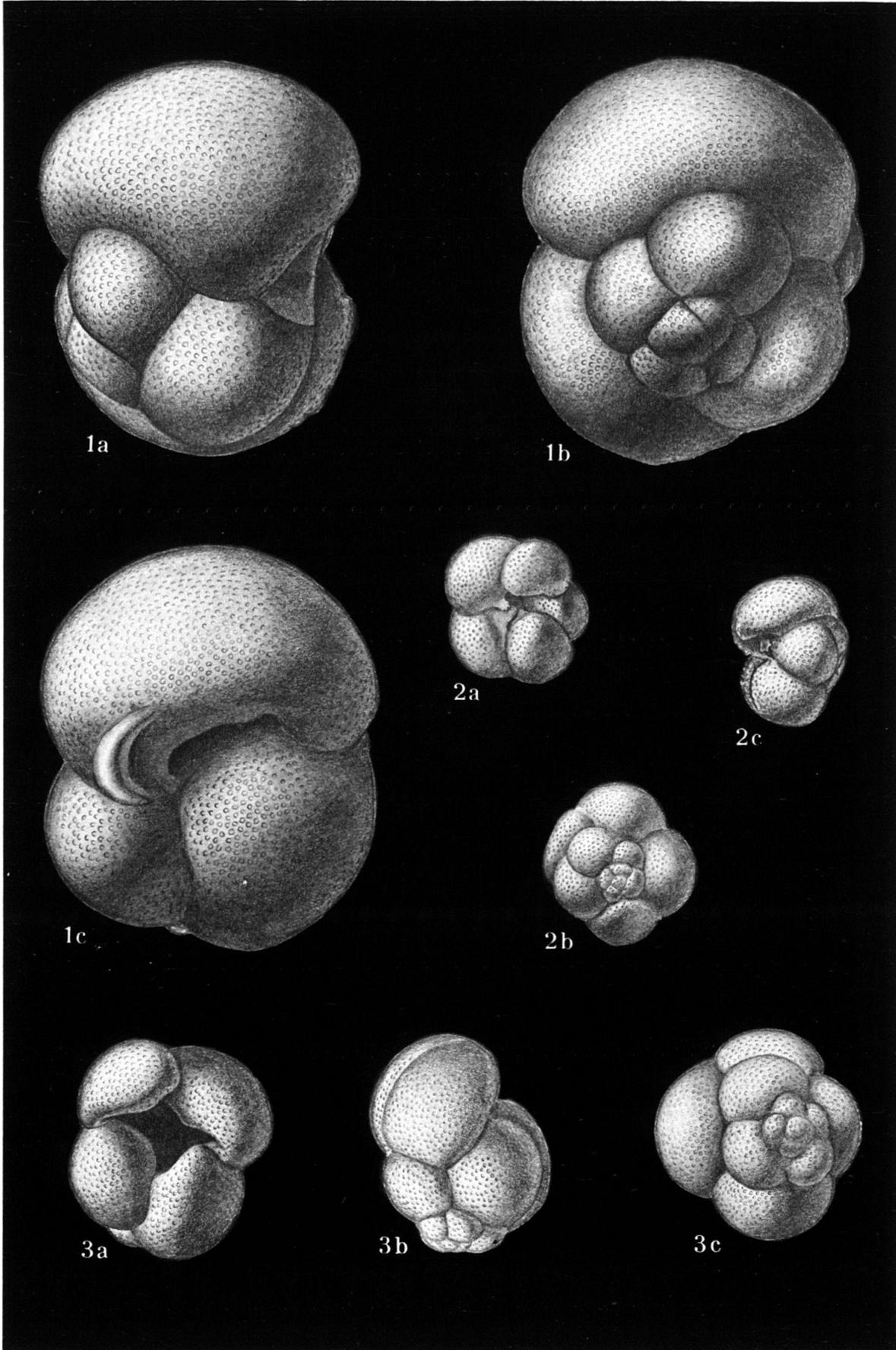
## Plate XXII

- Fig. 1. *Globigerina triloculinoides* PLUMMER  
BR station 1221, Danian  
98 ×
- Fig. 2. *Globigerina cf. triloculinoides* PLUMMER  
BR station 1221, Danian  
98 ×
- Fig. 3. *Porticulasphaera transitoria* BLOW  
BR station 933, Miocene  
62 ×
- Fig. 4. *Globigerinoides bisphericus* TODD  
BR station 933, Miocene  
62 ×
- Fig. 5. *Globigerinoides subquadratus* BRÖNNIMANN  
BR station 933, Miocene  
62 ×



### Plate XXIII

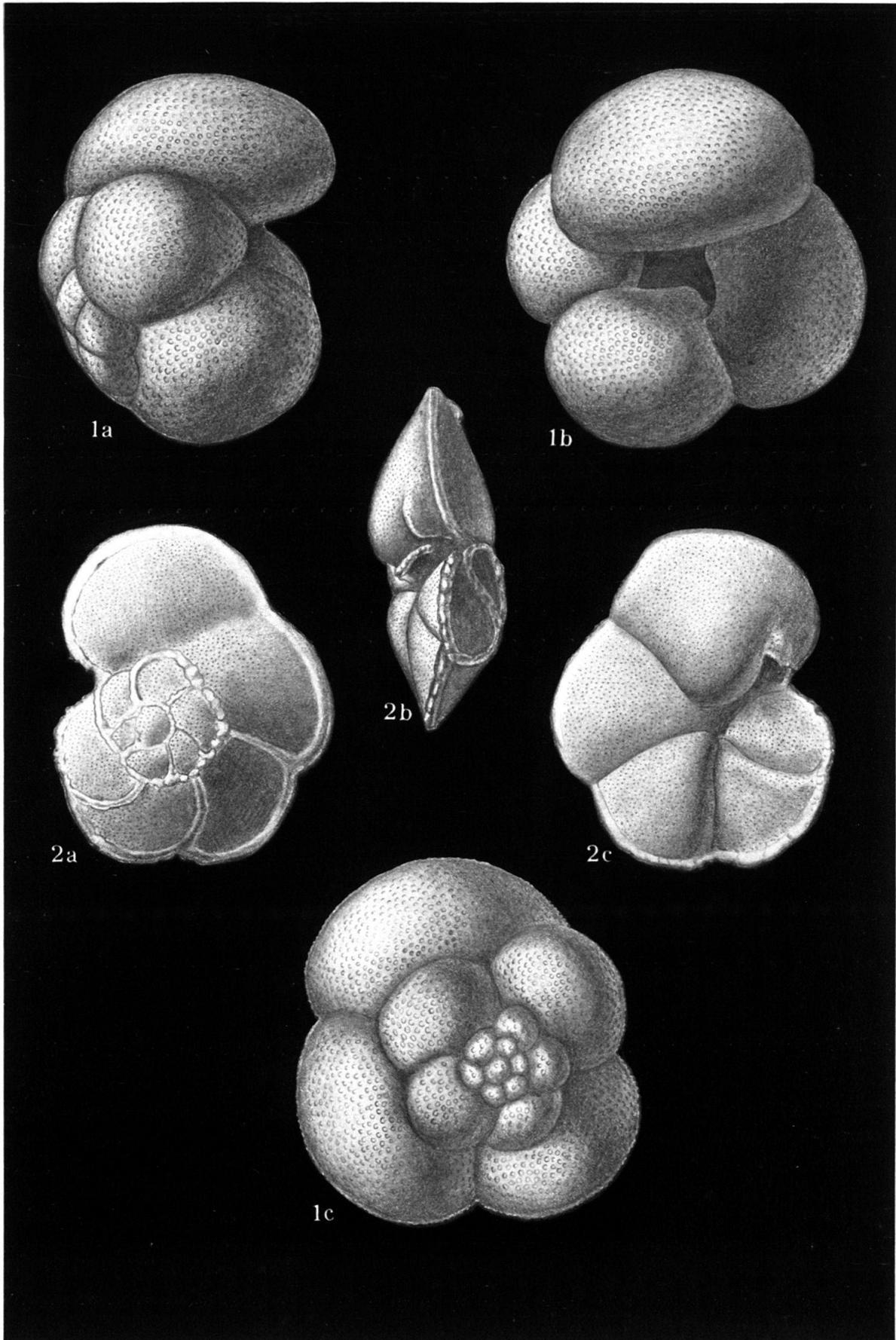
- Fig. 1. *Globigerina rohri* BOLLI  
Finca Adelina, Oligocene  
99×
- Fig. 2. *Globoquadrina altispira globosa* BOLLI  
Finca Adelina, Oligocene  
43×
- Fig. 3. *Globoquadrina altispira altispira* (CUSHMAN and JARVIS)  
Finca Adelina, Oligocene  
43×



**Plate XXIV**

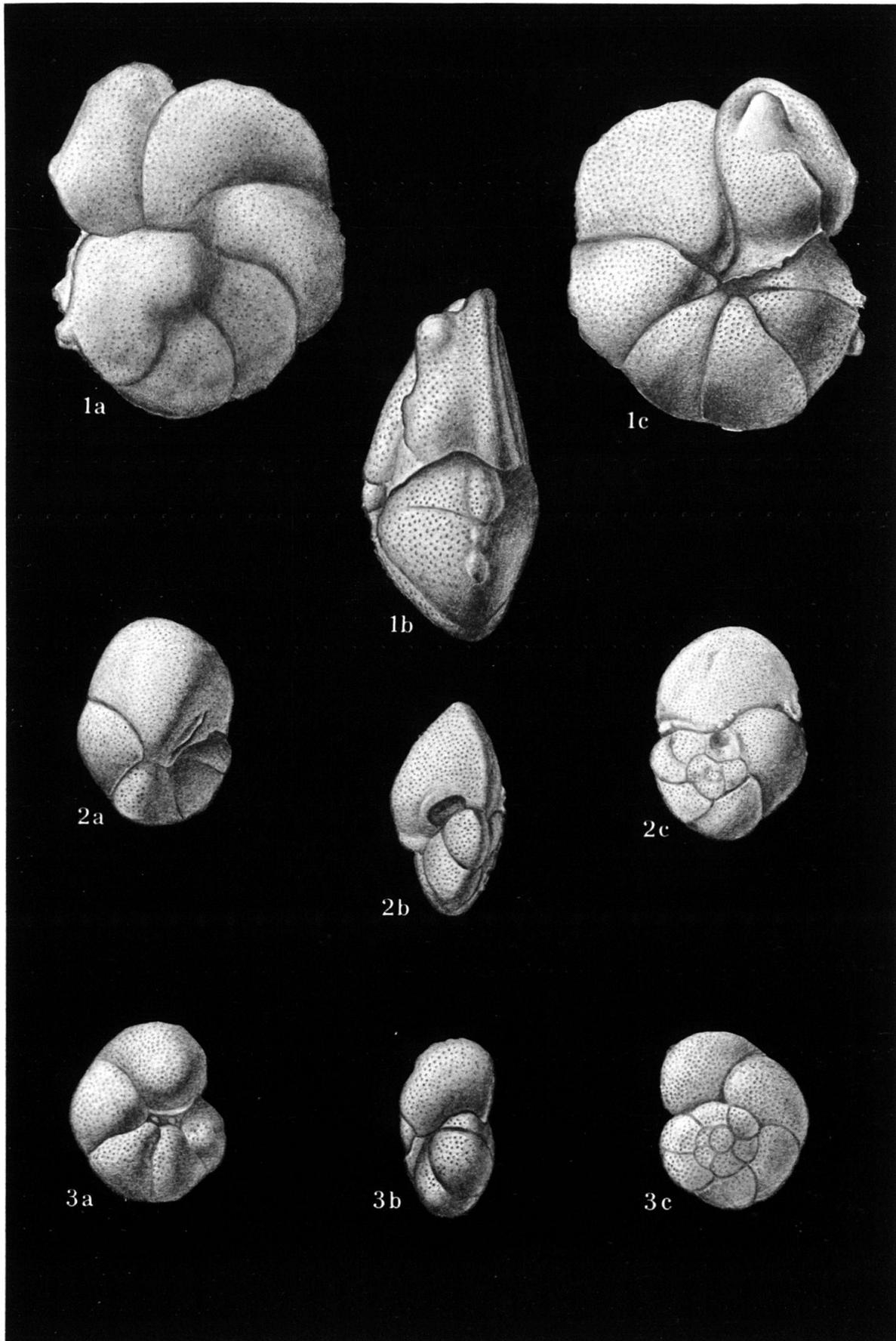
Fig. 1. *Globoquadrina venezuelana* (HEDBERG)  
Finca Adelina, Oligocene  
92 ×

Fig. 2. *Globorotalia praemenardii* CUSHMAN and STAINFORTH  
BR station 923, Miocene  
92 ×



**Plate XXV**

- Fig. 1.** *Globorotalia fohsi lobata* BERMÚDEZ  
BR station 908, Miocene  
97×
- Fig. 2.** *Globorotalia fohsi fohsi* CUSHMAN and ELLISOR  
BR station 924, Miocene  
97×
- Fig. 3.** *Globorotalia fohsi barisanensis* LEROY  
BR station 925, Miocene  
97×



**Plate XXVI**

- Fig. 1.** *Globorotalia obesa* BOLLI  
BR station 922, Miocene  
97 ×
- Fig. 2.** *Globoquadrina altispira altispira* (CUSHMAN and JARVIS)  
Finca Adelina, Oligocene  
97 ×
- Fig. 3.** *Globigerina foliata* BOLLI  
BR station 922, Miocene  
97 ×

