



Planktonic foraminifers Messinian biostratigraphy

Modern and ancient oceans, SaltGiant Short Course 1
Salamanca November 25th – 29th 2019

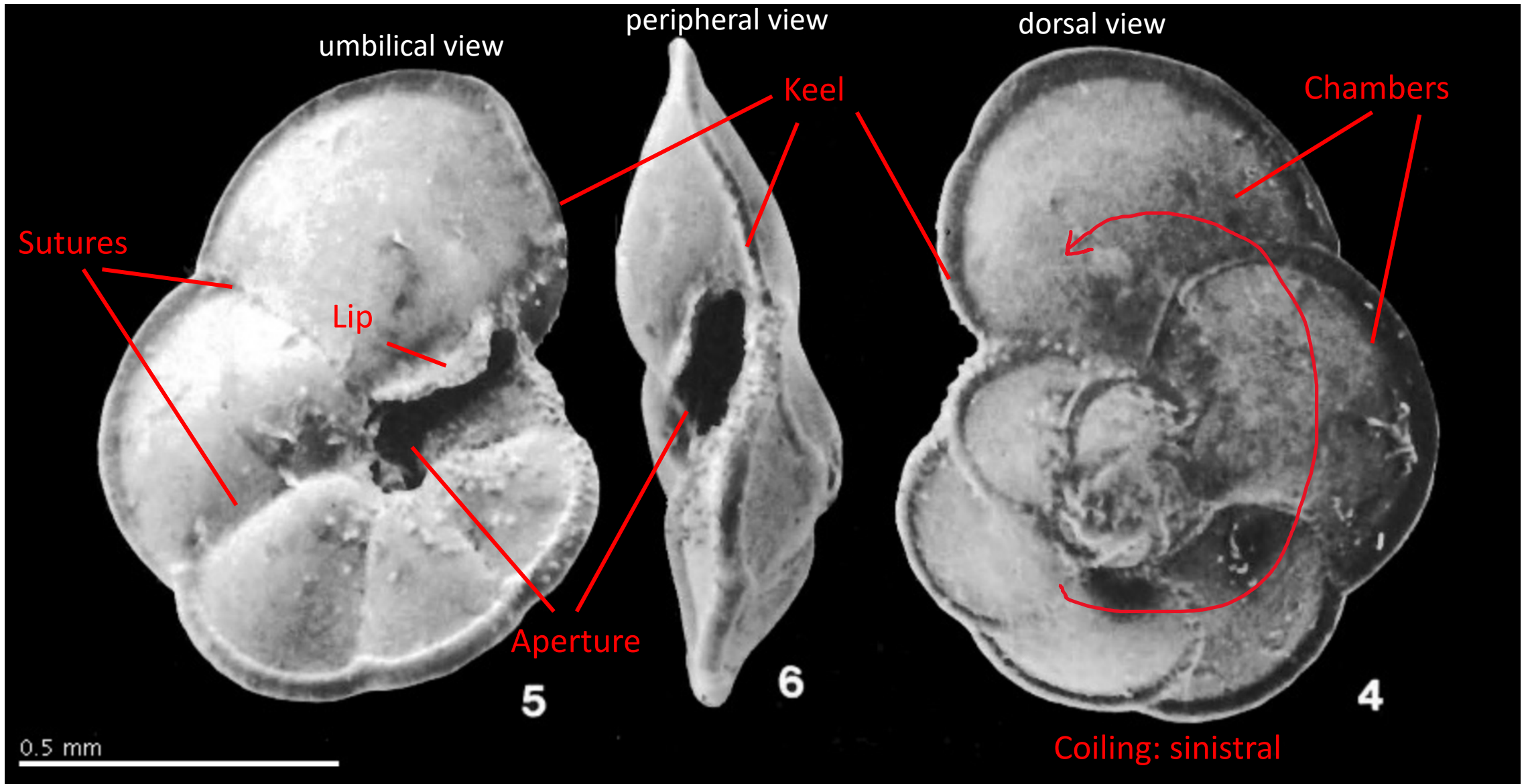
Francesca Bulian

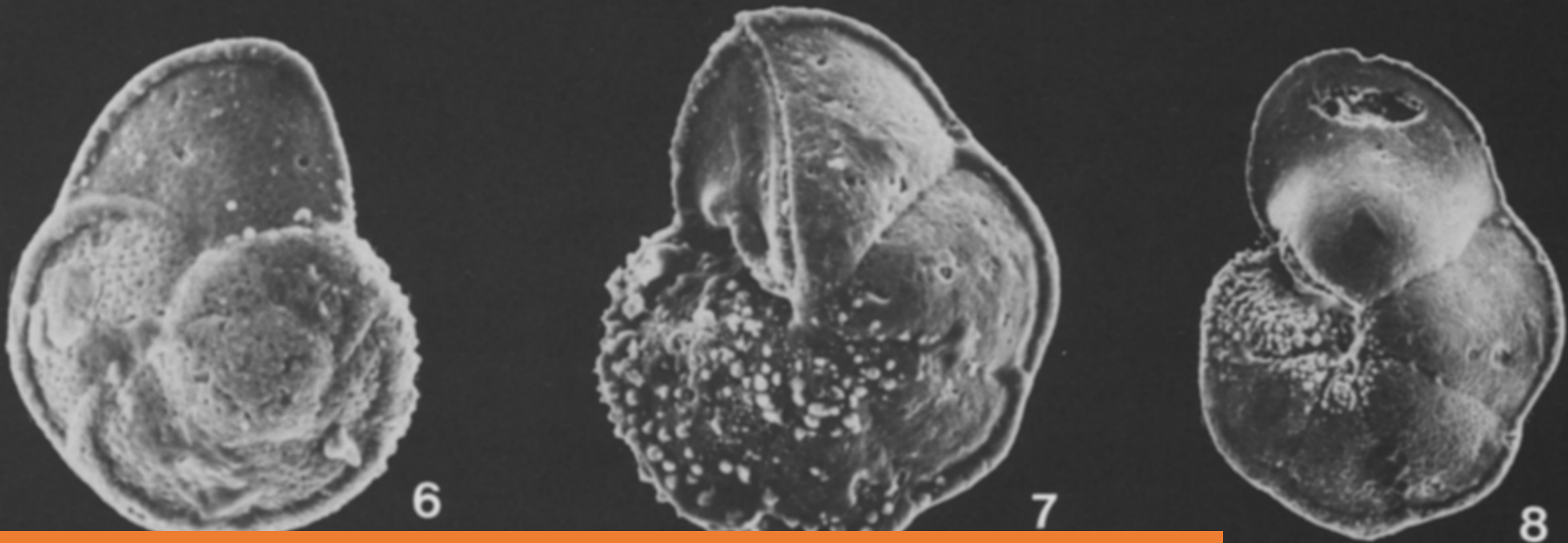


VNIVERSIDAD
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CAMPUS OF INTERNATIONAL EXCELLENCE

Foraminifera test





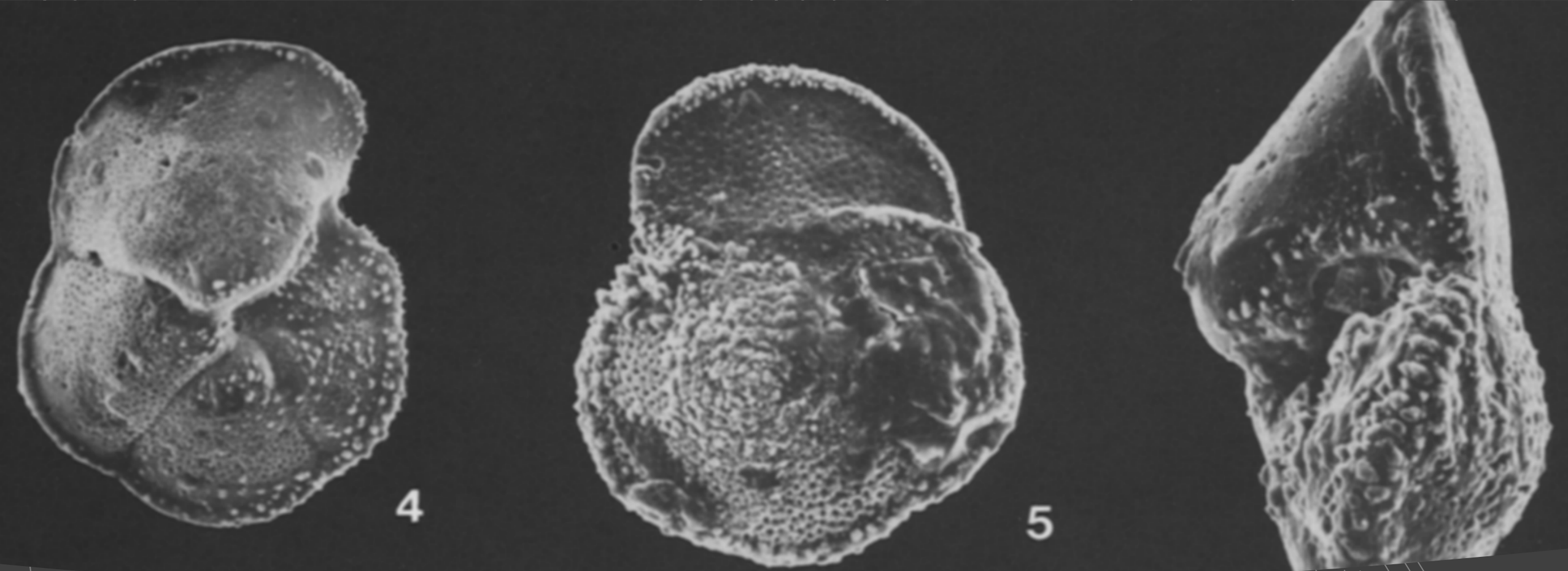
Globorotalia menardii DX

Sierro, 1985

- Test large, low trochospiral, compressed, prominent keel;
- 5 to 6 wedge-shaped chambers, increasing regularly in size as added;
- sutures on spiral side strongly curved, raised; on umbilical side radial to slightly curved, depressed;
- surface smooth, densely perforate with circular pores;
- umbilicus wide, shallow, aperture interiomarginal, umbilical-extraumbilical, a low arch bordered by a thick lip. [Kennett & Srinivasan 1983]



Globorotalia menardii SX

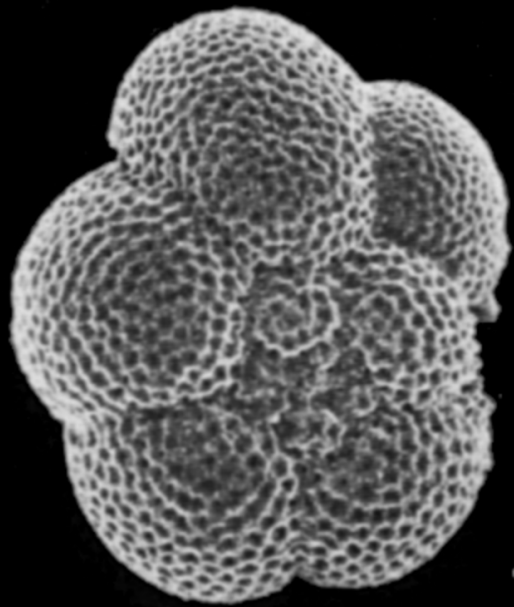


Globorotalia miotumida

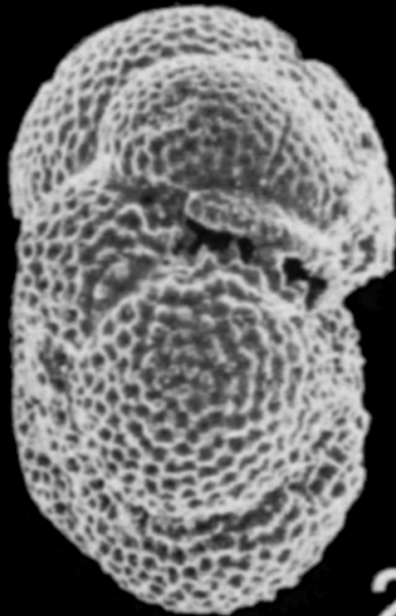
Sierro, 1985

- Test a low trochospire, the umbilical side slightly more convex.
- Well-developed keel.
- Wall calcareous, finely perforate, smooth.
- Sutures on the spiral side thickened, strongly recurved; umbilical sutures slightly curved, depressed.

DX



1



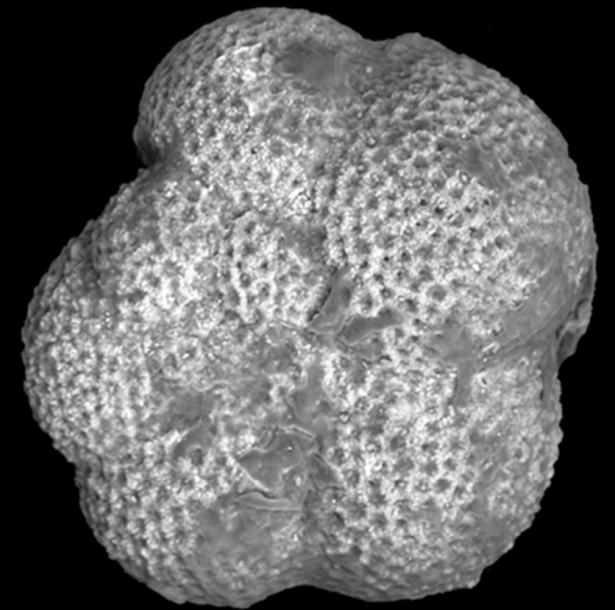
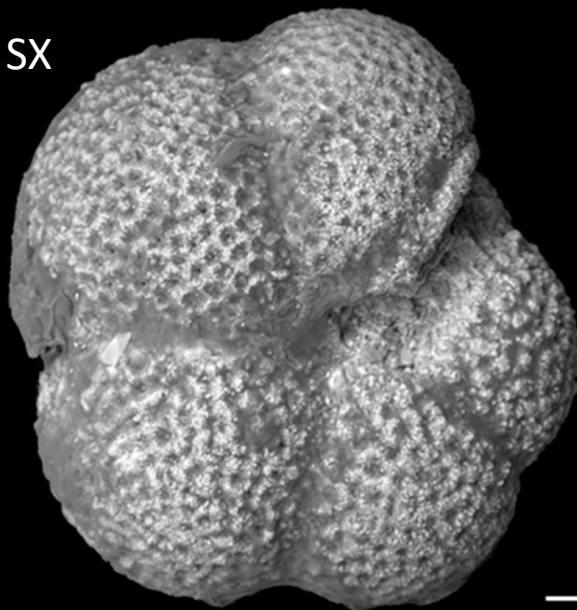
2



3

- Test low trochospiral
- chambers inflated, subspherical to ovate.
- sutures on spiral and umbilical sides radial, depressed;
- rather low arch with distinct rim or in the form of apertural plate covering much of the umbilicus.

SX

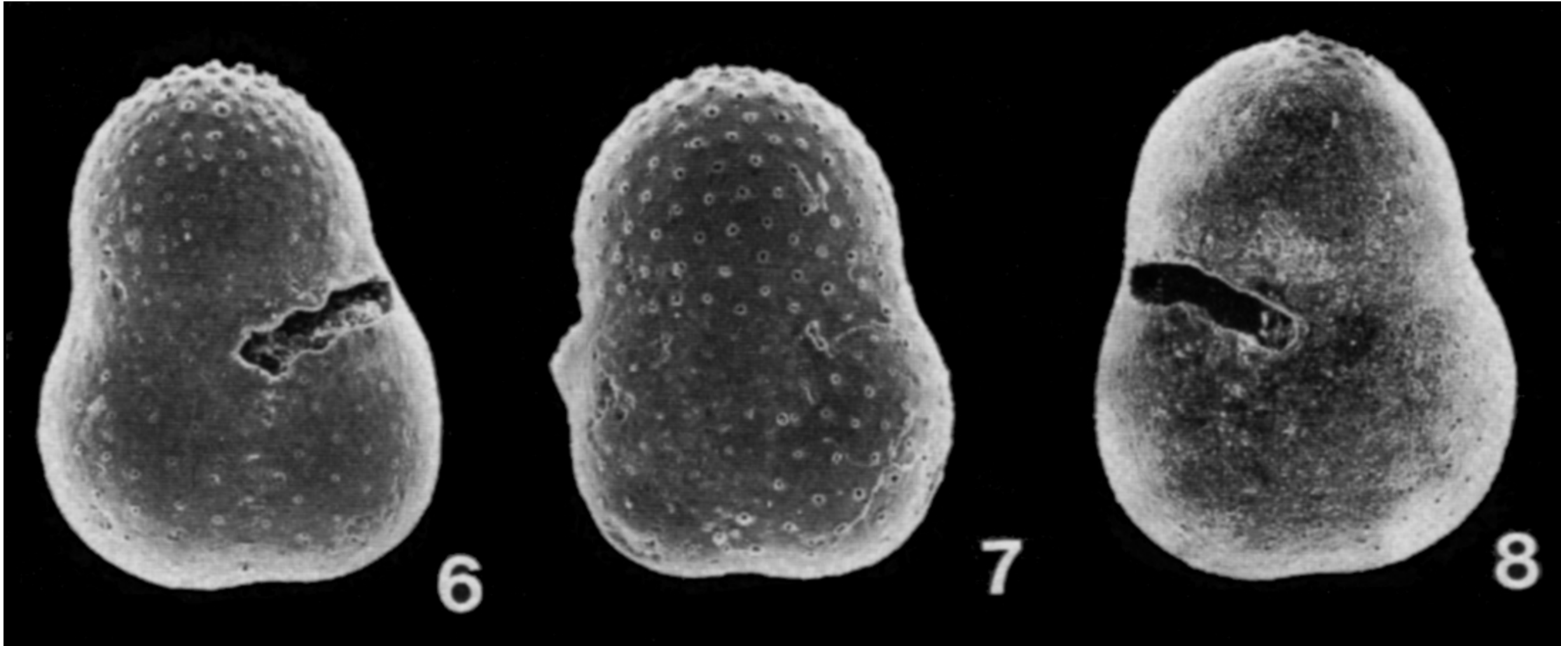


100 μ m

Holotype USNM 625707

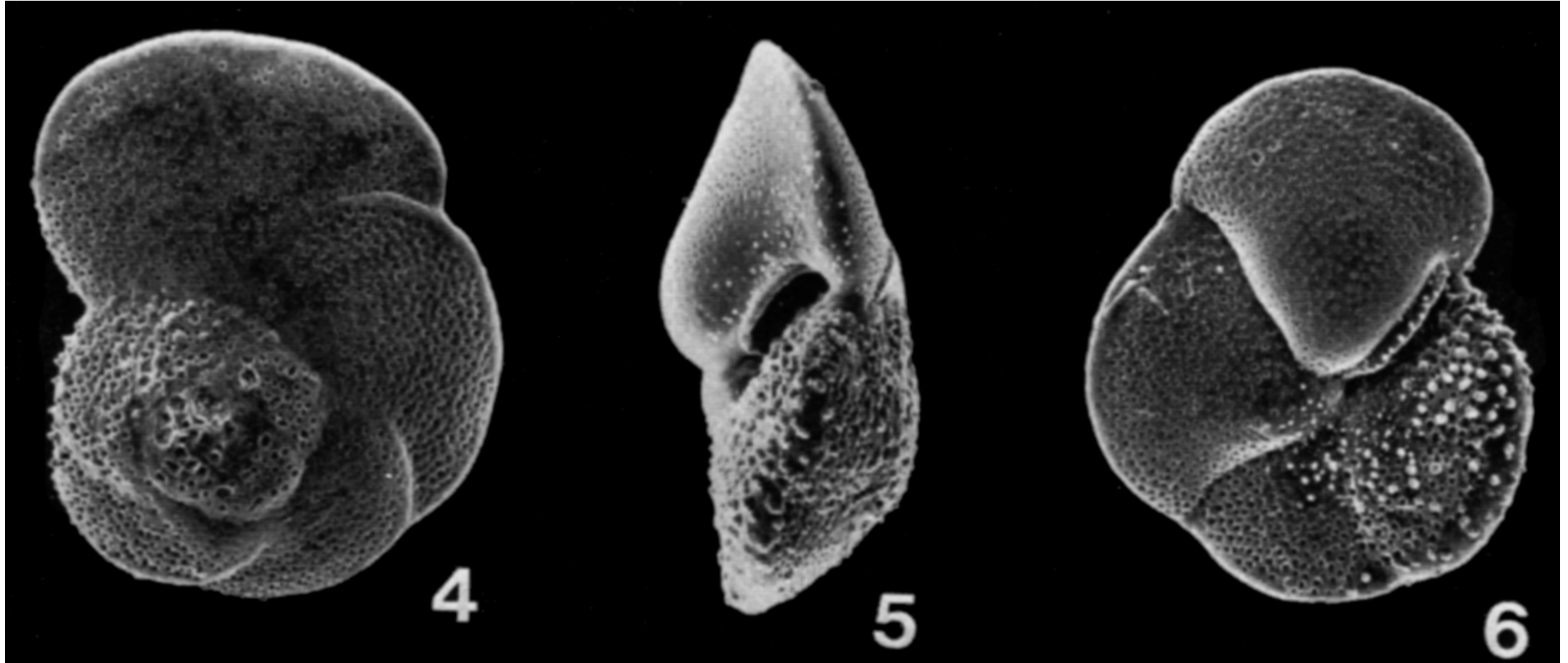
Neogloboquadrina
acostaensis

Sphaeroidinellopsis



- trochospiral test
- globular chambers
- heavy, smooth, shiny cortex

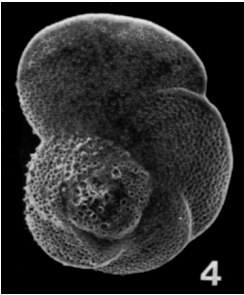
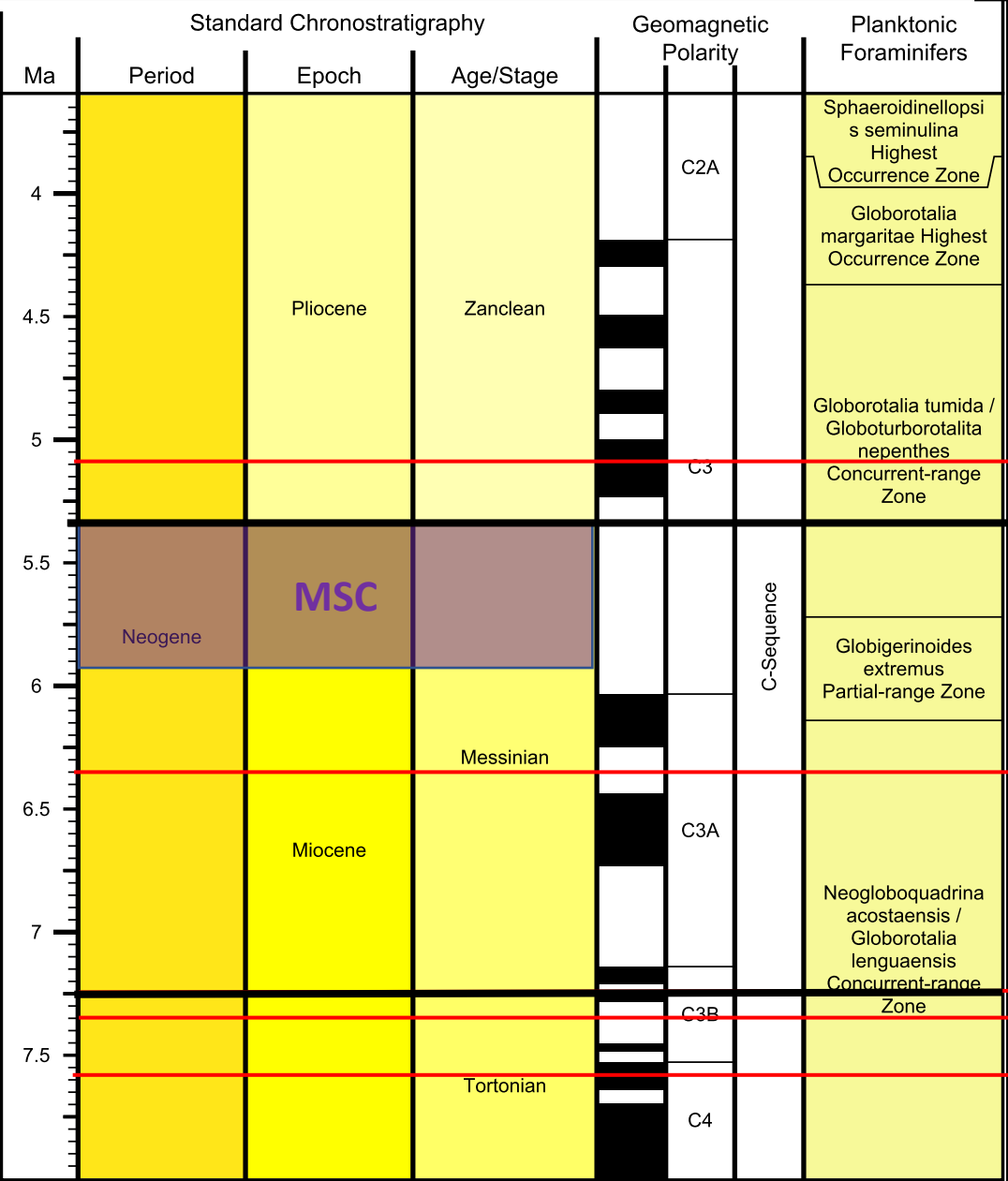
Globorotalia margaritae



- Test low trochospiral compressed and elongate: umbilical side much less convex;
- Wall calcareous, finely perforate, surface smooth to very finely pitted.
- Usually 5 chambers of the last whorl increase fairly rapidly in size.

Planktic foraminiferal events	Age (Ma)	References
Sinistral to dextral coiling change of the <i>N. acostaensis</i> group	6.35	Sierro et al. 1993, 2001; Hilgen & Krijgsman, 1999; Lourens et al., 2004
Replacement <i>G. menardii</i> group by <i>G. miotumida</i> group	7.25	Sierro, 1985; Sierro et al., 1993
First common occurrence of <i>G. menardii</i> 5	7.35	Sierro, 1985; Sierro et al., 1993; Hilgen et al., 2000; Lourens et al., 2004
Last common occurrence of <i>G. menardii</i> 4	7.51	Sierro, 1985; Sierro et al., 1993; Hilgen et al., 2000; Lourens et al., 2004

MAIN BIOEVENTS

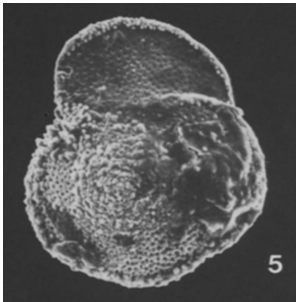


FCO **5.08 Ma** *G. margaritae*

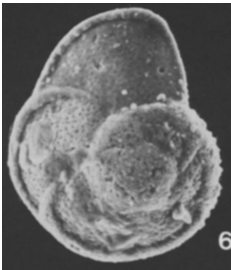
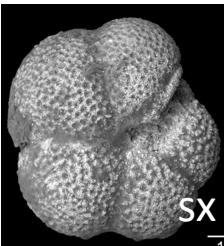


Bottom acme **5.3 Ma**
Sphaeroidinellopsis

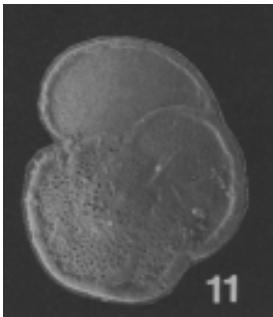
SX to DX coiling change **6.35 Ma**
N. acostaensis



FCO **7.25 Ma**
G. miotumida



LO **7.25 Ma** *G. menardii* DX
FCO **7.36 Ma** *G. menardii* DX



LO **7.51 Ma** *G. menardii* SX

