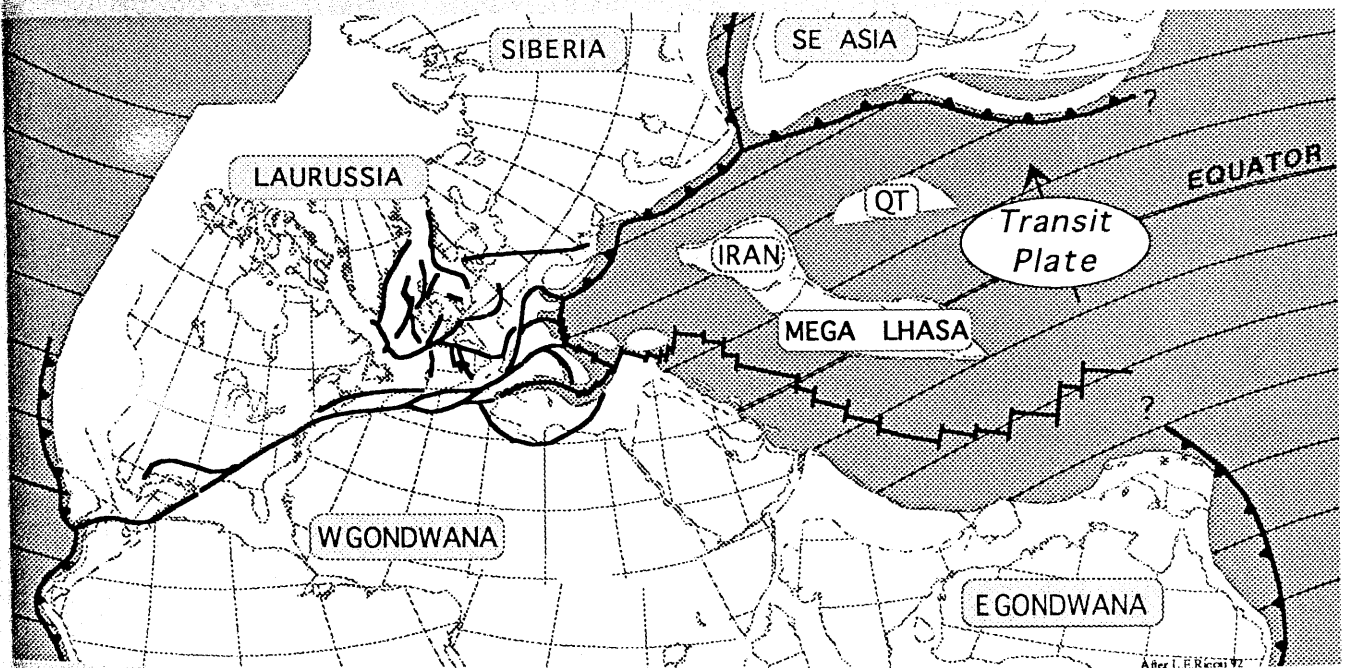


RECENT DEVELOPMENTS ON TRIASSIC STRATIGRAPHY

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J.Guex and A.Baud (eds)



NEW AMMONOIDS FROM THE TAYLORI ZONE (MIDDLE ANISIAN, MIDDLE TRIASSIC) FROM NORTHWESTERN NEVADA (USA)

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Abstract

The biostratigraphic distribution of the Taylori Zone ammonoids is updated and four new species are described. A new subzone is introduced in the uppermost part of the Taylori Zone.

Introduction

Recognition of a distinct ammonoid fauna intercalated between the early middle Anisian Hyatti Zone and the late middle Anisian Shoshonensis Zone (see Silberling and Nichols 1982, Bucher 1992a & b) led to the introduction of the Taylori Zone by Bucher (1988). The present note is an update of the Taylori Zone as originally defined, with illustrations of all subzonal indexes.

Biostratigraphic distribution of the Taylori Zone ammonoids

Index species: *Nevadisculites taylori* Bucher (1988, Pl. 6, Figs. 3-7).

Type locality: Favret Canyon, Augusta Mountains.

Occurrence: northern Humboldt Range, southern Tobin Range, Augusta Mountains, New Pass Range, Nevada.

The biostratigraphic distribution of the ammonoids of the Taylori Zone is shown on Text-Figure 1. At present time, five subzones have been recognized. All of them are in close stratigraphic succession in Favret Canyon (Bucher 1988, Pl. 7).

Ismidites cf. *I. marmarensis* Arthaber, *Intornites nevadanus* (Hyatt and Smith), *Nevadisculites smithi* Bucher, *Ussurites* cf. *U. arthaberi* (Welter) and *Sageceras* cf. *S. walteri* Mojsisovics are long ranging forms which are common to the Hyatti, Taylori, and Shoshonensis Zones.

Megaphyllites wildhorsensis Bucher ranges from the Hadleyi Subzone (Hyatti Zone) up to the Taylori Zone. *Acrochordiceras erucosum* Arthaber, *Eogymnotoceras tuberculatum* Bucher, *Gymnotoceras praecursor* Bucher, and *Constrigymnites robertsi* Bucher range from the Taylori Zone up to the Shoshonensis Zone.

Platycuccoceras favretense Bucher exactly ranges throughout the entire Taylori Zone, without any perceptible morphological change (see Pl. 1, Fig. 14-18).

Nicholsi Subzone

Index species: *Pseudodanubites nicholsi* Bucher; see Pl. 1, Figs. 21-26.

Type locality: Loc. HB 246, Favret Canyon, Augusta Mountains.

Occurrence: Loc. HB 28, 29, 30, 47, 68, northern Humboldt Range (Fossil Hill Member, Prida Formation). Loc. HB 99, 100, 102, 179, 215, 219, Favret Canyon, Augusta Mountains (Fossil Hill Member, Favret Formation).

Ptychites, *Eogymnotoceras* and *Acrochordiceras* of the *carolinae*-group have their oldest occurrence in the Nicholsi Subzone. *Eogymnotoceras janvieri* n. sp., *Nicholsites parisi* n. sp. and the index species are known only from this subzone.

Spivaki Subzone

Index species: *Anagymnotoceras spivaki* (McLearn); see Pl. 2, Figs. 19-21.

Type locality: Loc. HB 226, Favret Canyon, Augusta Mountains.

Occurrence: USGS Mesozoic loc. M2822, loc. HB 1, northern Humboldt Range (Fossil Hill Member, Prida Formation). Loc. HB 101, Favret Canyon; loc. HB 197, Muller Canyon, Augusta Mountains (Fossil Hill Member, Favret Formation).

Anagymnotoceras spivaki is the only distinctive form that permits distinction of this subzone. *Nevadisculites taylori* has its earliest occurrence in the Spivaki Subzone.

Escheri Subzone

Index species: *Augustaceras escheri* Bucher; see Pl. 1, Figs. 19-20.

Type locality: Loc. HB 175, Favret Canyon, Augusta Mountains.

Occurrence: Loc. HB 224, Bloody Canyon; loc. HB 36, Congress Canyon, northern Humboldt Range (Fossil Hill Member, Prida Formation). Loc. HB 156, McCoy Mine; loc. HB 218, South Canyon, New Pass Range. Loc. HB 105, 163, 164, 165, 173, 176, 185, 189, 200, 216, 227, Favret Canyon; loc. HB 197, Muller Canyon, Augusta Mountains. Loc. HB 217, southern Tobin Range (Fossil Hill Member, Favret Formation).

Within the Taylori Zone, the Escheri Subzone is the most frequently encountered fauna. It permits recognition of the Taylori Zone in the southern Tobin Range, the northern Humboldt Range and the New Pass Range, where it is found in sequence with the Hyatti and Shoshonensis Zones.

Ammonoids known only from the Escheri Subzone are *Eogymnotoceras thompsoni* Bucher, *Epigymnites* cf. *E. jollyanus* Diener, *Augustaceras staffordi* Bucher and the index species.

The uppermost part of the Escheri Subzone (locality HB 163) reveals minor changes in faunal composition as indicated in Figure 1. Depressed end-member variants of *Acrochordiceras* have a bituberculate immature stage similar to *A. erucosum* (Arthaber 1896, p. 88, Pl. 7, Fig. 9). They typically have their oldest occurrence in the Escheri Subzone and range further up into the entire Shoshonensis Zone.

Praeбалatonensis Subzone

Index species: *Platycuccoceras praeбалatonensis* Bucher; see Pl. 2, Figs. 17-18.

Type locality: HB 170, Favret Canyon, Augusta Mountains.

Occurrence: Loc. 162, 228, Favret Canyon; loc. HB 221, 232, Muller Canyon, Augusta Mountains. Loc. HB 148, southern Tobin Range (Fossil Hill Member, Favret Formation).

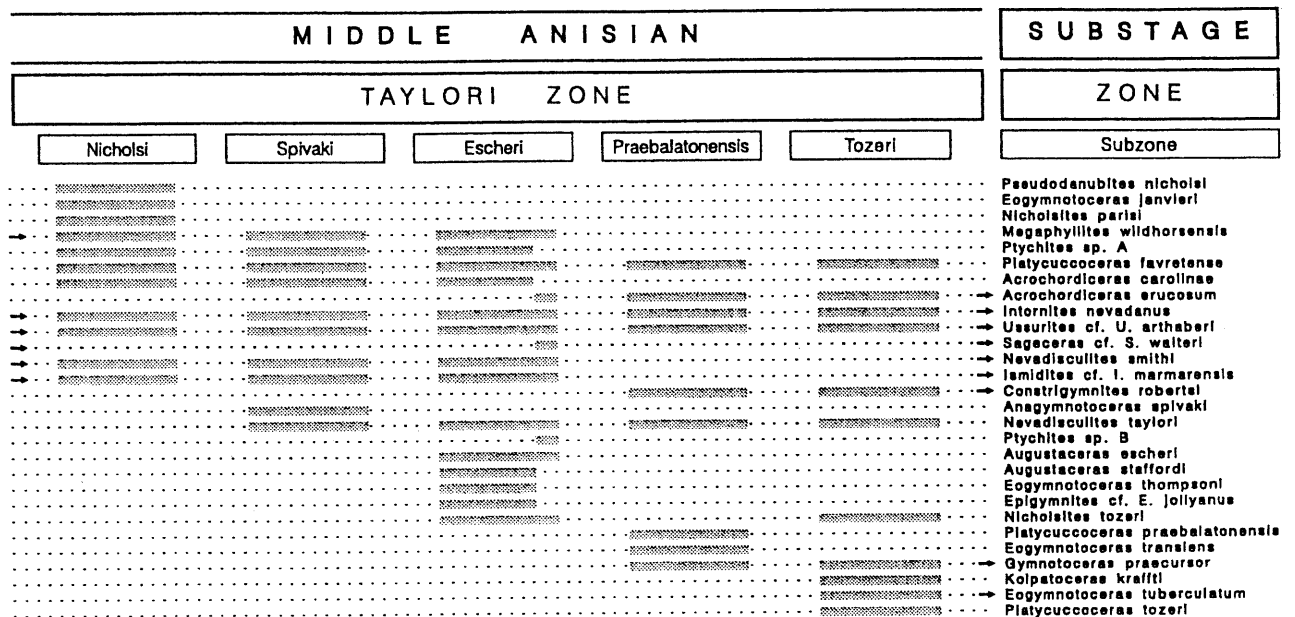
Eogymnotoceras transiens Bucher and the index species occur exclusively in the Praeбалatonensis Subzone. *Gymnotoceras* has its earliest occurrence in this subzone.

Tozeri Subzone

Index species: *Platycuccoceras tozeri* n. sp.; see Pl. 1, Figs. 1-13.

Type locality: HB 229, Favret Canyon, Augusta Mountains.

Occurrence: Loc. HB 98, Favret Canyon; loc. HB 234, Muller Canyon, Augusta Mountains (Fossil Hill Member, Favret Formation). The type locality is placed stratigraphically 3 meters above loc. HB 228 which belongs to the Praeбалatonensis Subzone, and about 14 m below the earliest occurrence of ammonoids indicative of the Shoshonensis Zone.



Text-Fig.1: Biostratigraphic distribution of the Taylori Zone ammonoids.



Text-Fig.2: Suture line of *Platycuccoceras tozeri* n. sp. at H=15 mm. Paratype USNM 452807 (specimen not figured). Locality HB 229, Tozeri Subzone, Taylori Zone; Favret Canyon, Augusta Mountains.



Text-Fig.3: Suture line of *Eogymnotoceras janvieri* n. sp. at D=42 mm. Paratype USNM 452817.

The index species and *Koipatoceras krafftii* n. sp. are known only from this subzone. *Eogymnotoceras tuberculatum* has its oldest occurrence in this subzone (see Pl. 2, Figs. 1-4).

Systematic Descriptions

The systematic descriptions follow the classification by Tozer (1981). Repository of figured specimens is abbreviated USNM (National Museum of Natural History, Washington D.C.). D: diameter. H: whorl height. W: whorl width. U: umbilical diameter.

Order *Ceratitida* Hyatt 1884

Superfamily *Dinaritaceae* Mojsisovics 1882

Family *Dinaritidae* Mojsisovics 1882

Subfamily *Khvalinitinae* Shevyrev 1968

Genus *Koipatoceras* Silberling and Nichols 1982

Type species: *Koipatoceras discoideus* Silberling and Nichols 1982, p. 18, Pl. 4, Figs. 3-10 (Hyatti Zone).

Koipatoceras krafftii n. sp

Plate 1, Figures 27-29

Description: Shell moderately evolute, with compressed, high, rectangular whorl section. Venter narrowly rounded on innermost whorls, slowly decreasing in height until it becomes truncate on mature body chamber. Somewhat clavate, alternating marginal tubercles and lateral rounded nodes appear simultaneously at a diameter of about 7-8 mm. With further increase in shell size, weak falcoid folds develop on flanks. The progressively fading lateral node are placed at the inflexion point, just below mid-line of flanks. Marginal tuberculation enhanced at mature stage, whereas lateral tuberculation does not persist. Adult size estimated to about 4-5 cm in diameter.

Suture line not known.

Discussion: Distinguished from *Koipatoceras discoideus* Silberling and Nichols by having a lateral row of nodes and a truncated venter at later stage only.

Etymology: Species named in honor of A. von Krafft.

Figured specimens: Holotype USNM 452824

Occurrence: Loc. HB 234 (3), Muller Canyon, Augusta Mountains. Tozeri Subzone, Taylori Zone.

Family *Balatonitidae* Spath 1951

Genus *Platycuccoceras* Bucher 1988

Type species: *Platycuccoceras favretense* Bucher 1988, p. 729, Pl. 1, Figs. 16-20.

Platycuccoceras tozeri n. sp.

Plate 1, Figures 1-13; Text-Fig. 2

Description: Large sized, densely tuberculated *Platycuccoceras*. Umbilical, lateral, and marginal tuberculations extend to the entire phragmocone, with the exception of the innermost whorls. On venter, chevron-shaped ribs persist during all ontogenetic stages of the phragmocone. Although intraspecific variability is appreciable, lateral tuberculation generally becomes spinose on end of phragmocone and beginning of body chamber. Transition to mature body chamber enhanced by

concomitant approximation and decreasing strength of ornamentation. Umbilical tuberculation then fades out but thick, slightly prorsiradiate ribs persist on the subtabulate venter.

Suture line conforms to that of the genus.

Discussion: In many aspects, *P. tozeri* appears as a transition form between the stratigraphically underlying *P. praebalatonensis* Bucher 1988 (Praebalatonensis Subzone, Taylori Zone) and the overlying *Balatonites shoshonensis* Hyatt and Smith (Rieberi Subzone, Shoshonensis Zone). Absence of ventral tuberculation justifies generic assignment to *Platycuccoceras*.

Etymology: Species named for E.T. Tozer, Geological Survey of Canada, Vancouver.

Figured specimens: Holotype USNM 452804, paratypes USNM 452801 to 452803, 452805 and 452806.

Occurrence: Loc. HB 229 (56), Favret Canyon, Augusta Mountains. Tozeri Subzone, Taylori Zone, middle Anisian.

Family *Ceratitidae* Mojsisovics 1879

Subfamily *Beyrichitinae* Spath 1934

Genus *Nicholsites* Bucher 1992

Type species: *Nicholsites newpassensis* Bucher, 1992b, Pl. 4, Figs. 12-23 (Hyatti Zone).

Nicholsites parisi n. sp.

Plate 2, Figures 22-23

Description: The complete, full grown holotype shows a compressed whorl section, with a narrowly rounded venter, at least on phragmocone. Although flattened by compaction, the venter apparently changes into a broader and lower outline on the body chamber. Thick, blunt, and sinuous distant ribs on phragmocone fade on mature chamber. Umbilical bullae weak or absent. Mature body chamber slightly egressive, of about a half of a whorl in length. Mature aperture preserved on holotype.

Suture line to poorly preserved to be drawn, but agreeing in plan with that of the genus (see Bucher 1992b).

Discussion: Differs from the older *N. newpassensis* Bucher 1992 (Hadleyi Subzone, Hyatti Zone) by its blunt and distant ribbing, also in having a more compressed whorl section. Distinguished from the younger *N. tozeri* (Bucher) 1988 (Escheri up to Tozeri Subzones, Taylori Zone) in being more widely umbilicated, and in having a simple, distant ribbing.

Etymology: Species named for John and Mike Paris, Paris Ranch, Tobin Range.

Figured specimen: Holotype USNM 452818.

Occurrence: Loc. HB 219 (1), Favret Canyon, Augusta Mountains. Nicholisi Subzone, Taylori Zone.

Genus *Eogymnotoceras* Bucher 1988

Type species: *Eogymnotoceras thompsoni* Bucher

Eogymnotoceras janvieri n. sp.

Plate 26, Figs. 17-18; Plate 30, Figs. 5-18; Text-Fig. 3

1988 *Anagymnotoceras* sp. A.- Bucher 1988, p. 735, Pl. 4, Fig. 17-18.

Description: Phragmocone relatively compressed, evolute, with a subrectangular whorl section. Umbilical tuberculation consists of low, radially elongated to higher, oblique bullae from which stem two sinuous ribs. Conspicuous crescentic marginal tuberculation present on the adoral rib of

branched pairs. On ventral shoulder, both branched and single intercalated ribs are projected. Venter arched, and crossed by projected fading ribs and growth lines. Carination either weak or absent. With further increase in diameter, whorl height considerably increases, bullae become extremely radially elongated with their maximal elevation at mid-flanks. Marginal crescentic tubercles also disappear at this stage. At D=47 mm (holotype), H=48%, W=31%, U=23%.

Suture line subammonitic, with a deeply indented first lateral lobe.

Discussion: This is a somewhat intermediate form between *Anagymnotoceras variabilis* Bucher (1992b) and *Eogymnotoceras thompsoni* Bucher (1988). The style of ribbing is identical with that of *E. thompsoni*, but *E. janvieri* differs from the latter in having a weaker carination and by earlier acquisition of the high whorled, compressed shape. *E. janvieri* differs from *Anagymnotoceras variabilis* Bucher by its more projected and sinuous ribbing, frequent crescentic marginal tubercles and oblique umbilical bullae.

Earlier mention of *E. janvieri* from locality HB 179 (= *Anagymnotoceras* sp. A, Bucher 1988, p. 735, pl. 7) was erroneously assigned to the Spivaki Subzone. It now appears that locality HB 179 comes from the same horizon than that of the Nicholisi Subzone type locality.

Etymology: Species named for Ph. Janvier, Institut de Paléontologie, Museum national d'Histoire naturelle, Paris.

Figured specimens: Holotype USNM 452813, paratypes USNM 452812, USNM 452814 to 452817, plesiotype USNM 427261.

Occurrence: Loc. HB 179 (1), 246 (12), Favret Canyon. Nicholisi Subzone, Taylori Zone.

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PLATE 1

(All figures natural size unless otherwise indicated)

Fig. 1-13 *Platycuccoceras tozeri* n. sp. Tozeri Subzone, Taylari Zone. Loc. HB 229, Favret Canyon, Augusta Mountains.

1-2: paratype, USNM 452801.

3-4: paratype, USNM 452802.

5-7: paratype, USNM 453803.

8-9: holotype, USNM 452804.

10-11: paratype, USNM 452805.

12-13: paratype, USNM 452806.

Fig. 14-18 *Platycuccoceras favretense* Bucher. Tozeri Subzone, Taylari Zone. Loc. HB 229, Favret Canyon, Augusta Mountains.

14-16: plesiotype, USNM 452808.

17-18: plesiotype, USNM 452809.

Fig. 19-20 *Augustaceras staffordi* Bucher. Escheri Subzone, Taylari Zone. Plesiotype, USNM 452822. Single float specimen from spur between Coyote and Bloody canyons, northern Humboldt Range (loc. 72S-294, collected by N.J. Silberling).

Fig. 21-26 *Pseudodanubites nicholsi* Bucher. Nicholsi Subzone, Taylari Zone.

21-22: plesiotype, USNM 452819, loc. HB 246, Favret Canyon, Augusta Mountains

23-24: plesiotype, USNM 452820, loc. HB 219, Favret Canyon, Augusta Mountains

25-26: plesiotype, USNM 452821, loc. HB 246, Favret Canyon, Augusta Mountains

Fig. 27-29 *Koipatoceras krafftii* n. sp. Tozeri Subzone, Taylari Zone. Holotype (x2), USNM 452824 Loc. HB 234, Muller Canyon, Augusta Mountains.

PLATE 2

(All figures natural size)

Fig. 1-4 *Eogymnotoceras tuberculatum* Bucher. Tozeri Subzone, Taylari Zone. Loc. HB 234, Muller Canyon, Augusta Mountains.

1-2: plesiotype, USNM 452810.

3-4: plesiotype, USNM 452811.

Fig. 5-16 *Eogymnotoceras janvieri* n. sp. Nicholsi Subzone, Taylari Zone. Loc. HB 246, Favret Canyon, Augusta Mountains.

5-6: paratype, USNM 452812.

7-9: holotype, USNM 452813.

10-11: paratype, USNM 452814.

12-13: paratype, USNM 452815.

14-16: paratype, USNM 452816.

Fig. 17-18 *Platycuccoceras praebalatonensis* Bucher. Praebalatonensis Subzone, Taylori Zone. Holotype USNM 427243. Loc. HB 170, Favret Canyon, Augusta Mountains.

Fig. 19-21 *Anagymnotoceras spivaki* (McLearn). Plesiotype USNM 452823. Spivaki Subzone, Taylori Zone. Loc. HB 226, Favret Canyon, Augusta Mountains.

Fig. 22-23 *Nicholsites parisi* n. sp. Nicholisi Subzone, Taylori Zone. Holotype, USNM 452818. Loc. HB 219, Favret Canyon, Augusta Mountains.

PLATE 1

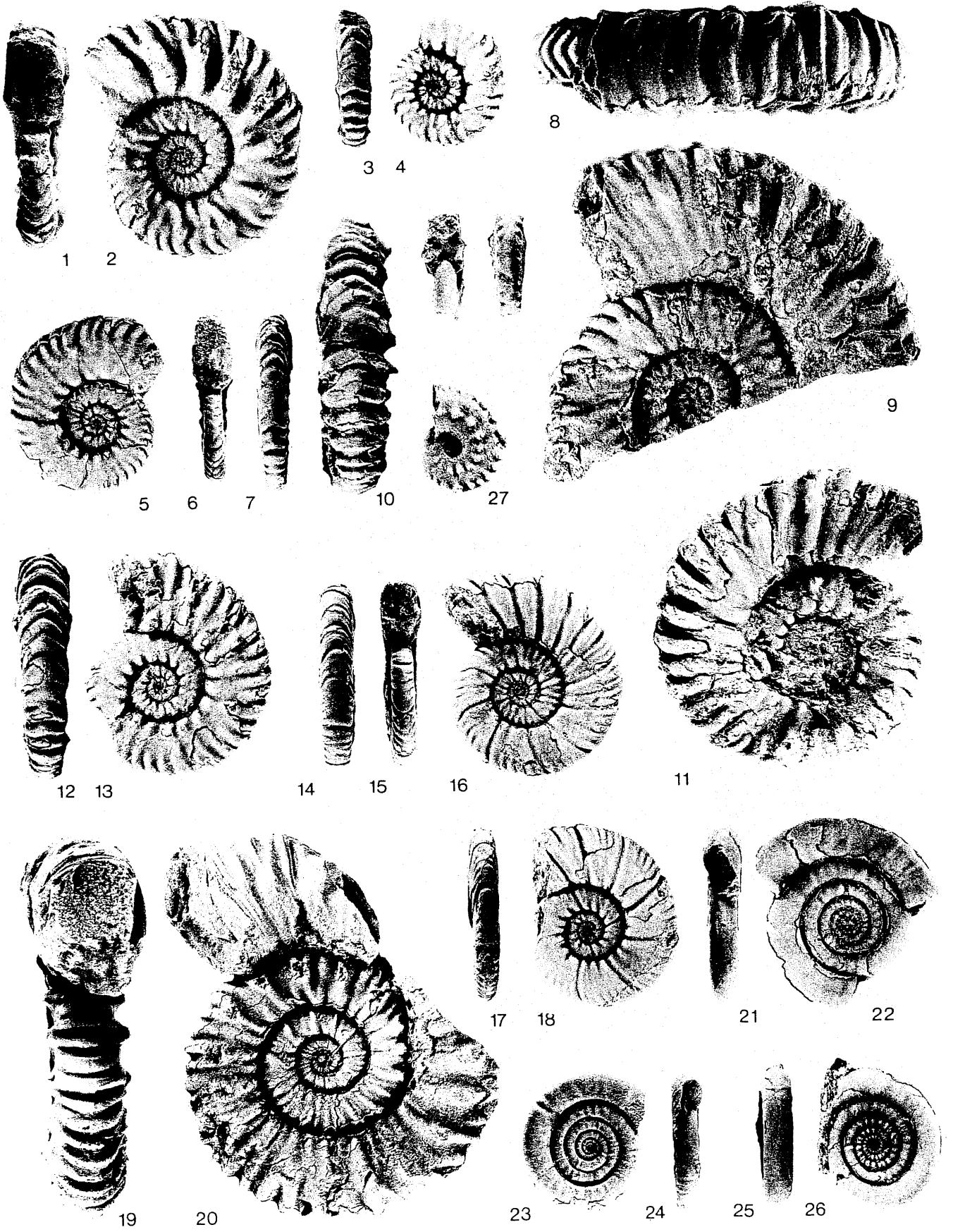


PLATE 2

