

**V International Symposium**

# **Cephalopods- Present and Past**

**Vienna  
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**Excursion C  
Lower Cretaceous Ammonites of the Vienna Woods**

Cephalopods-Present and Past  
Excursion C: Lower Cretaceous Ammonites of the Vienna Woods  
by  
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Text-fig. 1. Sketch map of the excursion area S of Kaltenleutgeben

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## **Programme**

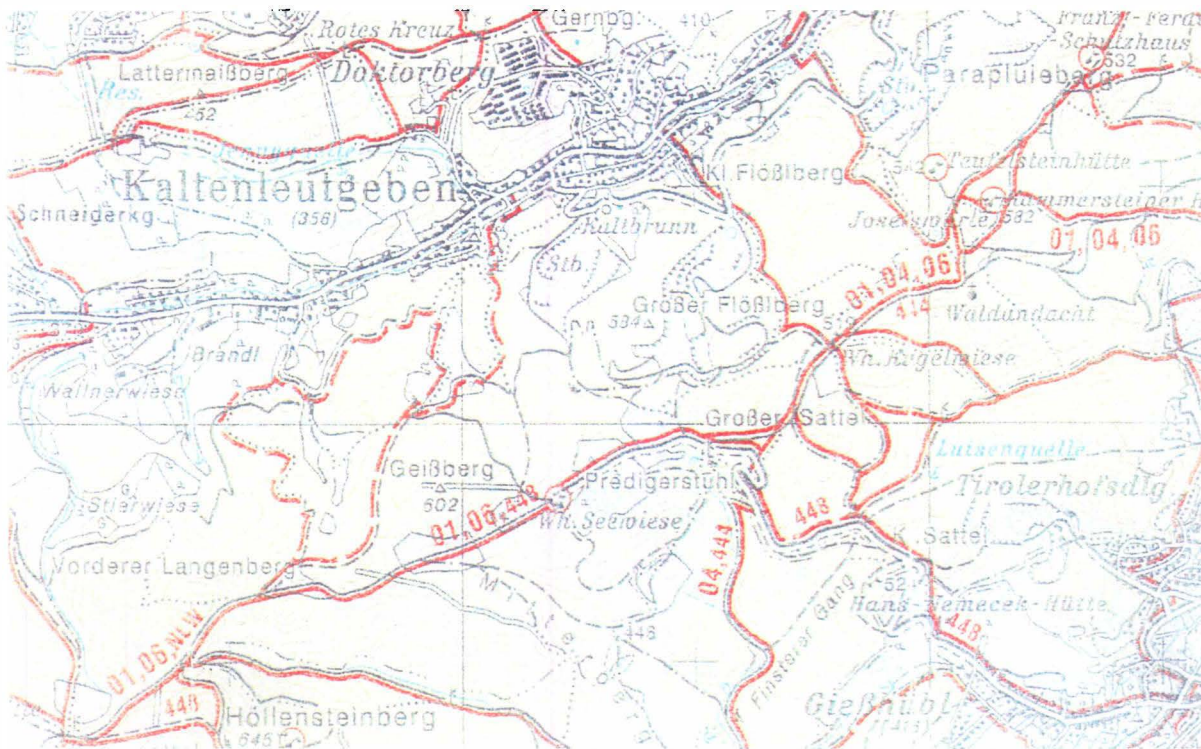
**14.30:** Departure from the Geozentrum and short trip by bus to Kaltenleutgeben.

**Stop 1:** Abandoned quarry historic site „Flösselberg“ at Kaltenleutgeben near Vienna (Fig. 1) .

### **Closing dinner** in Gumpoldskirchen

**22.00:** Return to Vienna

If participants need to return to Vienna before the official end of the evening to catch flights or trains, please inform the organisers and special arrangements will be made.



Text-fig. 2. Detailed map of the area around Kaltenleutgeben; Scale: 1:25000

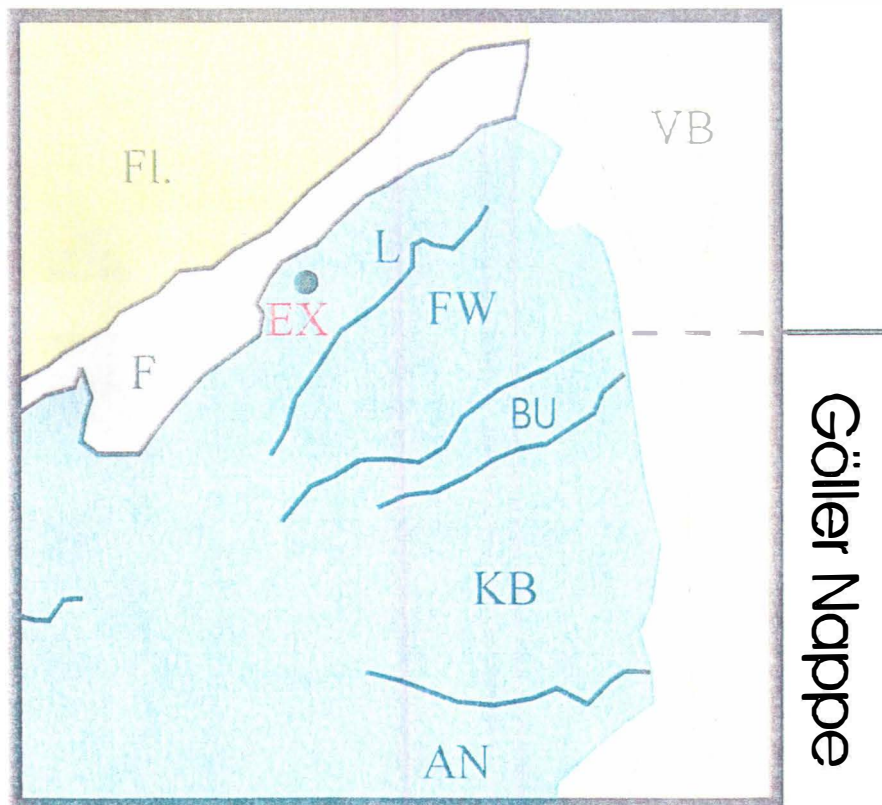
### **Geographical location and tectonic position of the excursion site**

The excursion site is an abandoned quarry at the Flösselberg near Kaltenleutgeben (Text-fig. 1, 2). It is situated in the Lunz Nappe, one of the northern tectonic units of the Northern Calcareous Alps (NCA). The general tectonic style is that of steep synclines and anticlines (e.g. Höllenstein anticline, Flössel syncline). The Flössel syncline is formed of Late Triassic dolomite, followed by a reduced Jurassic sequence. The core of the Flössel syncline consists of the Early Cretaceous Schrambach Formation, which occurs throughout the Northern Calcareous Alps. The Schrambach Fm. (U.-Valanginian - Barremian) is sedimented in troughs under relatively deep water conditions.

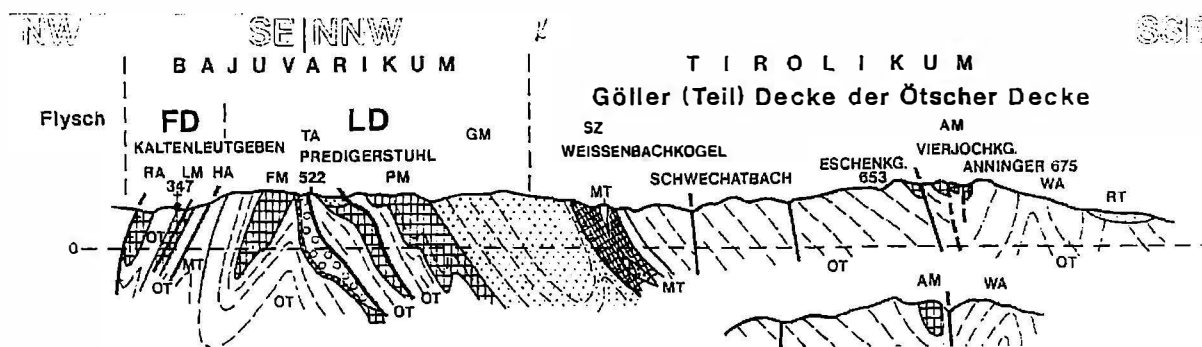




**Text-fig. 3.** The Upper Austroalpine Northern Calcareous Alps extend from the Austria western border to the city area of Vienna. The square indicates the area of Text-fig. 4.



**Text-fig. 4.** Sketch map of the NE spur of the Northern Calcareous Alps. Fl- Flysch nappes; F- Frankenfels Nappe (NCA), L- Lunz Nappe; FW- Föhrenberg - Wassergspreng system, BU- Basal unit of the Göller Nappe, AN- Anninger system, KB- Kalenderberg system; Ex- Excursion site. BU, AN, KB are parts of the Göller Nappe (see text-fig. 5)



Text-fig. 5. (PLÖCHINGER 1991)

FD= Frankenfels Nappe, LD= Lunz Nappe, FM= Flössel Syncline

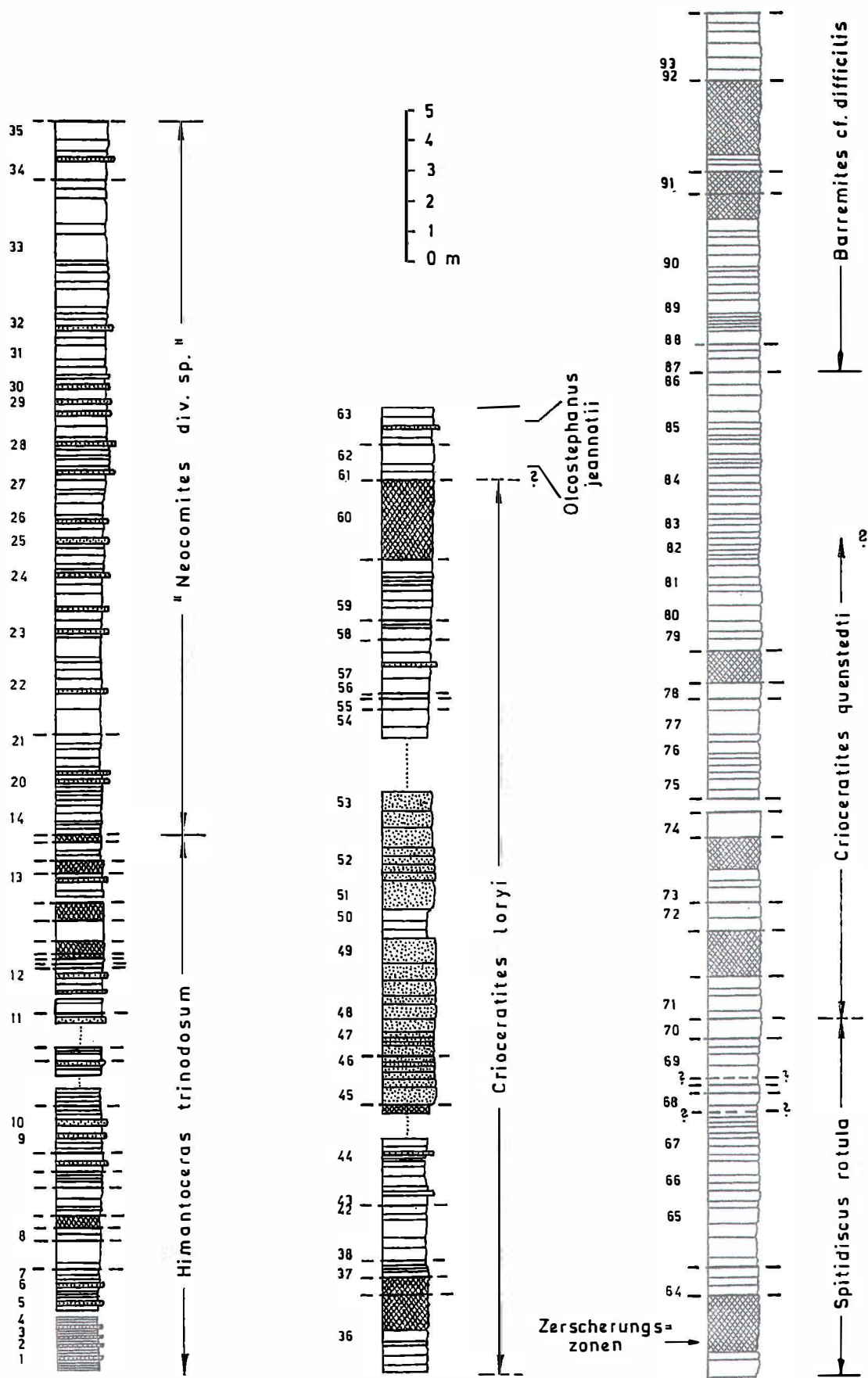
### Excursion site Flösselberg quarry

#### a) Sedimentation

The Early Cretaceous Schrambach Formation is a sequence of deepwater limestones and marls marked by rhythmically intercalated turbiditic sandstones. Dark marls and greyspotted limestones are highly bioturbated biomicritic mudstones to wackestones. Occurrence of chrome spinel supports the correlation with the turbiditic intercalations in the Schrambach Formation of the Reichraming Nappe (Upper Austria), a western equivalent of the Lunz Nappe.

The Schrambach Formation has been exploited extensively for many years for cement production (TOULA 1886). Therefore the name "Zementmergel" which has now been abandoned was used in the older literature (SPITZ 1910) for the Schrambach Fm. Another outdated name is "*Cryptoceras* Mergel". According to SCHWINGHAMMER (1975) the ammonite *Ammonites Cryptoceras d'Orbigny* does not occur in the section of the Flösselberg.

The basal part of the sequence differs by its higher content of sandy intercalations and has now (Geol. Map 1 : 50.000, sheet 58 Baden) according to the occurrences in the western parts of the NCA, been separated as the Rossfeld Fm. SCHWINGHAMMER (1975) used to combine both parts of the sequence as "Neokome Serie". He attempted to measure the whole sequence (Text-fig. 6). The attempt at bed by bed collecting was never finished and a good deal of his information has been lost.

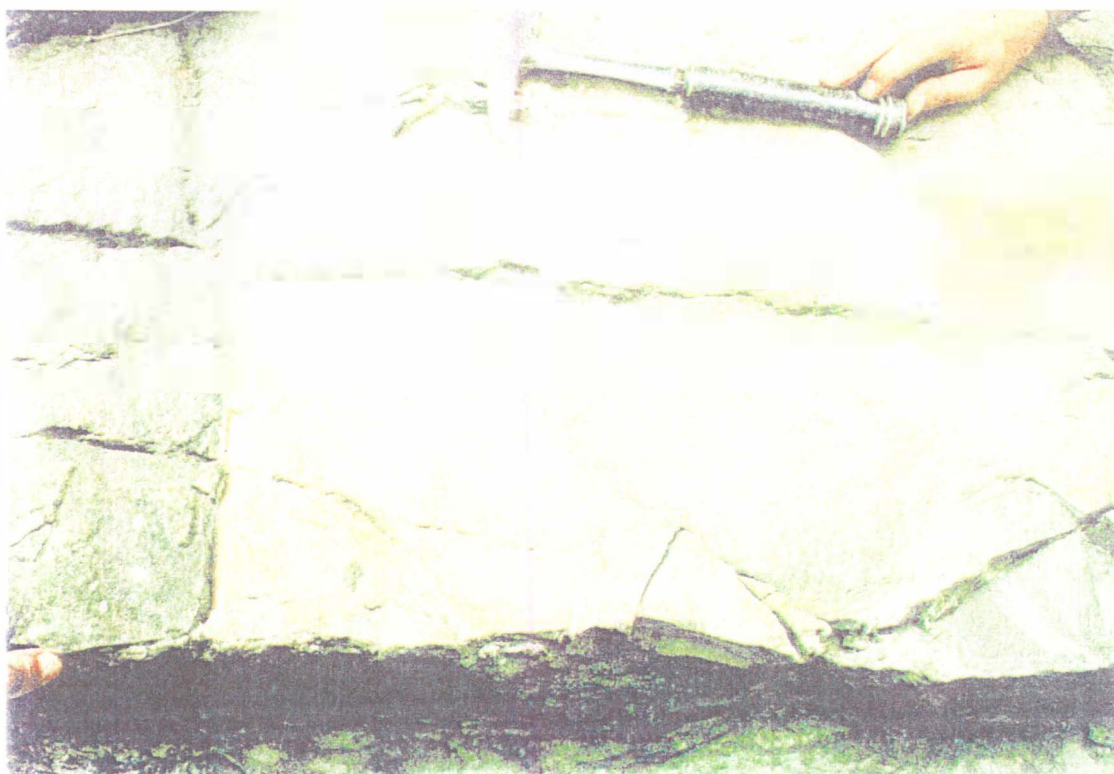


Text-fig. 6 (after SCHWINGHAMMER 1975)





**Text-fig. 7. Lowermost part of the sequence with sandy intercalations**



**Text-fig. 8. Zoophycos on the top of a sandstone layer**





**Text-fig. 9. Hauterivian part of the sequence**

## b) The Ammonite fauna

The faunal list is compiled from data from SCHWINGHAMMER (1975), IMMEL (1987), VASICEK et al. (1994) and the author's recent collections.

The cephalopod fauna at the excursion site covers exclusively forms of the Mediterranean province, which are typical for the Calcareous Alps. The preservation of the ammonites without a calcareous shell indicates that the sediments were deposited below the aragonite compensation depth.

RICHARZ (1905, 1908) described ammonites from the Valanginian and the Hauterivian of this locality. SCHWINGHAMMER (1975) compiled a list of 37 ammonite species. However, this number may be much too high. Also bad preservation and the poor status of the SCHWINGHAMMER collection do not enable clear allocation of the collection material. Thus, IMMEL (1987) mentioned a comparatively small list of 12 ammonite species.

*Partschiceras winkleri* (D'ORBIGNY)

*Partschiceras infundibulum* (D'ORBIGNY)

*Oosterella* ex gr. *Gaudryi* (NICKLES)

*Oosterella kittli* (RICHARZ)

*Haploceras* sp.

*Olcostephanus* (*Olcostephanus*) *astierianus* (D'ORBIGNY)

*Olcostephanus* (*Olcostephanus*) *sayni* (KILIAN)

*Olcostephanus* (*Jeannoticeras*) *jeannoti* (D'ORBIGNY)

*Olcostephanus* sp.

*Spitidiscus* cf. *meneghinii* (ZIGNOIN & RODIGHIERO)

*Neocomites* (*Teschenites*) *neocomiensiformis* (HOHENEGGER)

*Neocomites* (*Teschenites*) sp.

*Phylloceras* (*Hypophylloceras*) sp.

*Phylloceras* sp.

*Himantoceras trinodosum* (THIEULOY)

*Himantoceras* sp.

*Crioceratites (Crioceratites) cf. quenstedti* (OOSTER)  
*Crioceratites (Crioceratites) majoricensis* (NOLAN)  
*Crioceratites (Pseudothurmania) mortilleti* (PICTET & LORIOLO)  
*Bochianites neocomiensis* (D'ORBIGNY)  
*Bochianites oosteri* (SARASIN & SCHÖNDLMAYR)

*Lamellaptychus seranonis seranonis* (COQUAND)

Trace Fossils:

*Zoophycos*  
*Chondrites*  
etc.

Micro Fossils

(after VASICEK et al., 1994)

*Cadosina semiradiata olzae* (NOWAK)  
*Cadosina semiradiata semiradiata* (WANNER)  
*Cadosina semiradiata cieszynica* (NOWAK)  
*Cadosina fusca fusca* (WANNER)  
*Cadosinopsis nowaki* (BORZA)  
*Amphorellina* sp.  
*Didemnoides moreti* (DURAND et DELGA)  
*Colomisphaera vogleri* (BORZA)  
*Carpistomiosphaera valanginiana* (BORZA)  
*Stomiosphaera echinata* (NOWAK)  
*Stomiosphaera wanneri* (BORZA)  
*Tintinnopsella carpathica* (MURGEANU et FILIPESCU)  
*Nannoconus* sp.

### c) Stratigraphy

*Himantoceras trinodosum* refers to the Upper Valanginian, -*trinodosum* zone, *Olcosteophanus (O.) astierianus* and *Olcosteophanus (O.) sayni* are mainly Upper Valanginian forms.

*Spitidiscus meneghinii* and *Olcosteophanus (J.) jeannoti* are mentioned as examples of representatives of the Hauterivian. The latter is the index fossil of the higher Lower Hauterivian, -*jeannoti* zone.

SCHWINGHAMMER (1975) and IMMEL (1987) still considered the Lower Cretaceous of the Flössel syncline to range from the Upper Valanginian to the Lower Barremian. This conclusion required *Crioceratites (P.) mortilleti* to be a representative of the Lower Barremian. More recently HOEDEMAEKER, COMPANYY et al. (1993), regarded *Crioceratites (P.) mortilleti* as occurring as a form of the Upper Hauterivian (see VASICEK et al. 1994). The fossil list presented above, yields a stratigraphic framework of the excursion site from the Upper Valanginian up to the Upper Hauterivian (Text-fig.10).

Ammonites limited to the Barremian are missing, although some of the species mentioned by SCHWINGHAMMER (1975) occur also in the Barremian (VASICEK et al., 1994).



Period		Age		Mediterranean ammonite zonation <small>compiled after GEYSSANT &amp; ENAY, 1991; HOEDEMAEKER et al., 1993; BLANC, 1995; BULOT, 1996; ZAKHAROV et al., 1998</small>		REMANE, 1963-71; LE HÉGARAT & REMANE, 1966		BLAU & GRÜN,										
		from GRADSTEIN & OGG, 1998																
Cretaceous	Hauterivian	Late	128	5	«P. angulicostata»			Tintinnopsella	buloti									
					balearis													
					ligatus													
					sayni													
					nodosoplicatum													
		Early	130		loryi													
					radlatus													
			132		132±1.9					callidiscus								
					trinodcosum													
					verrucosum													
	Valanginian	Late	134	5	inostranzewi			Calpionelites	gr. hungarica									
					stephanophorus													
					pertransiens													
		Early	136		137±2.2						E				major			
Berriasian	Late	138	7.2	Fauriella boissieri	D		Calpionellopsis	dadayi										
				alpillensis					3	murgeanul								
				picteti					2							filipescui		
				paramimoncum					1								oblonga	
																		simplex
	Middle	140									C				cadischiana			
				dalmasi														
				privasensis														
				subalpina														
			Itonella	elliptica														

Text-fig.10. The stratigraphical range of the Schrambach Formation (in grey) in the Flössel syncline after GRÜN & BLAU (1997; with alterations)

## References

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## **Plate 1**

- Fig. 1: *Lytoceras subfimbriatum* D'ORBIGNY (x 1)  
Fig. 2: *Protetragonites quadrisulcatus* D'ORBIGNY (x 1,5)  
Fig. 3: *Neocomites (N.) neocomiensis* D'ORBIGNY (x 1)  
Fig. 4: *Haploceras grasianum* D'ORBIGNY (x 1)  
Fig. 5: *Neocomites (T.) neocomiensiformis* HOHENEGGER (x 1)  
Fig. 6: *Spitidiscus* cf. *meneghinii* ZIGNOIN & RODIGHIERO (x 0,75)  
Fig. 7: *Phyllopachyceras infundibulum* D'ORBIGNY (x 0,5), from Sparbach, Lower Austria  
Fig. 8: *Olcostephanus (O.)* sp. (x 1)  
Fig. 9: *Olcostephanus (J.) jeannoti* D'ORBIGNY (x 1)

## **Plate 2**

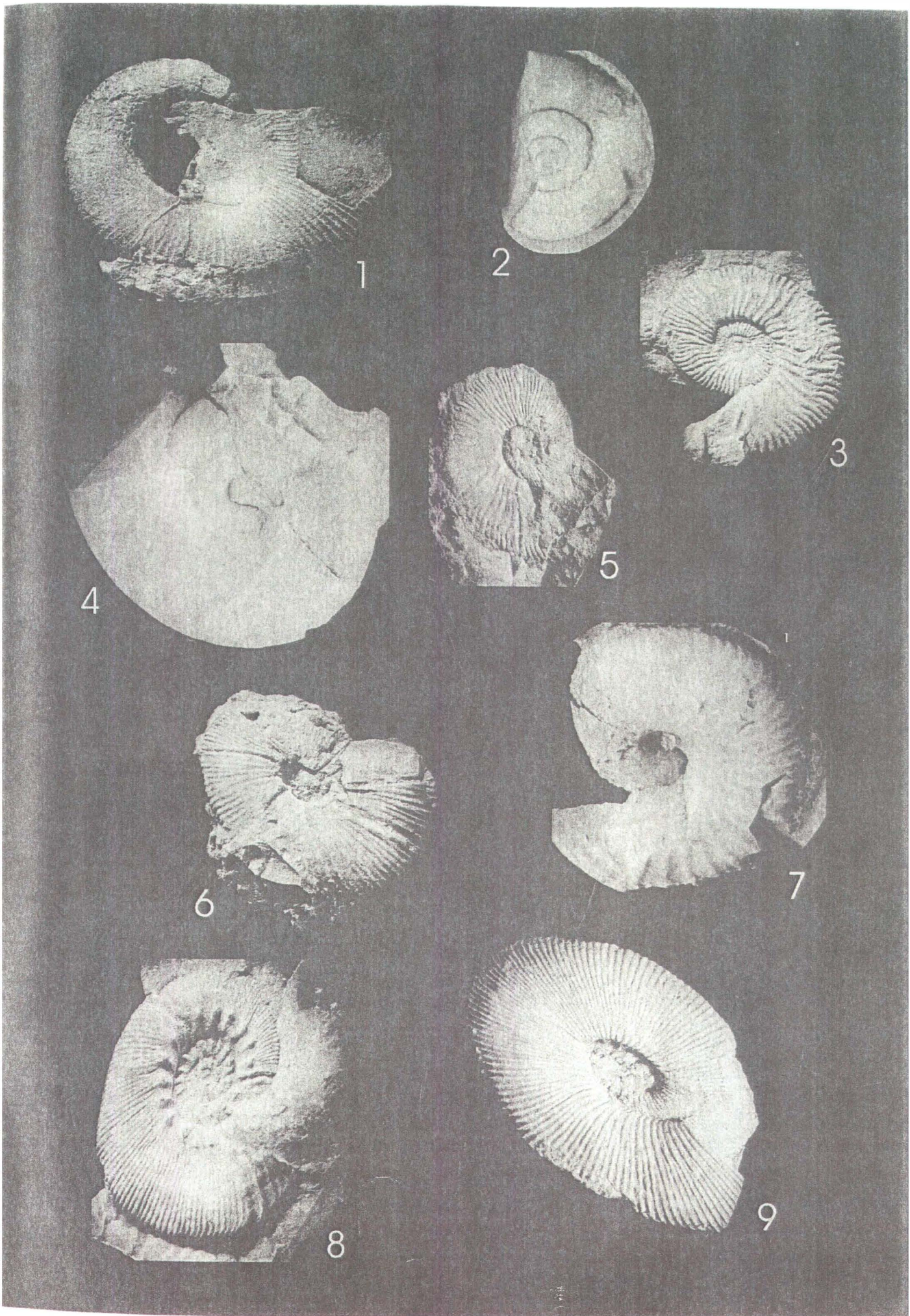
- Fig. 1: *Himantoceras trinodosum* THIEULOY (x 1,5)  
Fig. 2: *Crioceratites (C.) majoricensis* NOLAN (x 1)  
Fig. 3: *Crioceratites (C.)* sp. (x 1)  
Fig. 4: *Ptychoceras* cf. *puzosianum* D'ORBIGNY (x 1), from Sparbach, Lower Austria  
Fig. 5: *Hamulina* sp. (x 1), from Sparbach, Lower Austria  
Fig. 6: *Bochianites oosteri* SARASIN & SCHÖNDLMAYR (x 1)

All specimens were collected at the Flösselberg quarry except Pl. 1, Fig. 7 and Pl. 2, Figs. 4 and 5

All specimens were coated with ammonium chloride before photographing

All specimens are stored in the collection of the Natural History Museum of Vienna (Burgring 7, A-1014 Vienna)









1



2



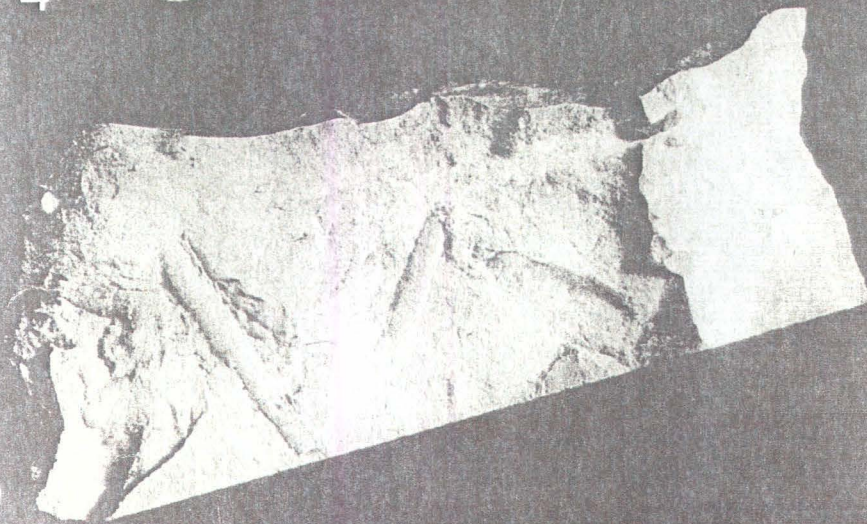
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