

Kosmoceratids

The Kosmoceratids of the latest Callovian are quite rare in the search area (plate 23.2) and are restricted, at least in the Swiss/French Jura mountain) to three species. As they can not be mixed up with any other genus in Callovian / Oxfordian border line, they are a very good indicator for the end of the Middle Jurassic (Callovian).

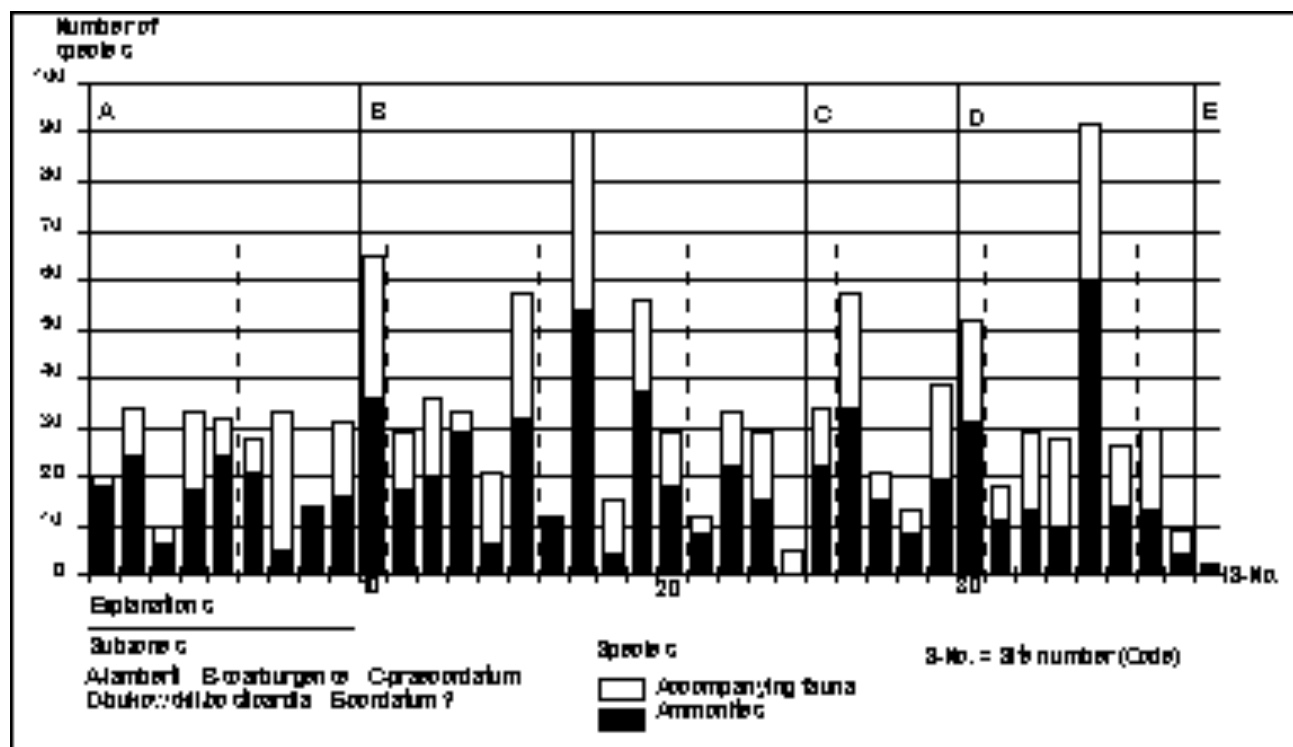
Others

Besides the ammonites mentioned so far, the remaining genus are rather exceptions. Depending on chron or subchron there are:

Chron	Subchron	Genus
Lamberti	Lamberti	<i>Horioceras</i> / <i>Distichoceras</i> , <i>Pachyceras</i> , <i>Longaeviceras</i>
Mariae	Scarburgense	<i>Lissoceras</i> , <i>Longaeviceras</i>
	Praecordatum	<i>Lissoceras</i> , <i>Trimarginites</i>
Cordatum	Bukowskii	?
	Costicardia	<i>Lissoceras</i> , <i>Trimarginites</i> , <i>Sphaeroceras</i> , <i>Rasenia</i>
	Cordatum	<i>Aspidoceras</i>

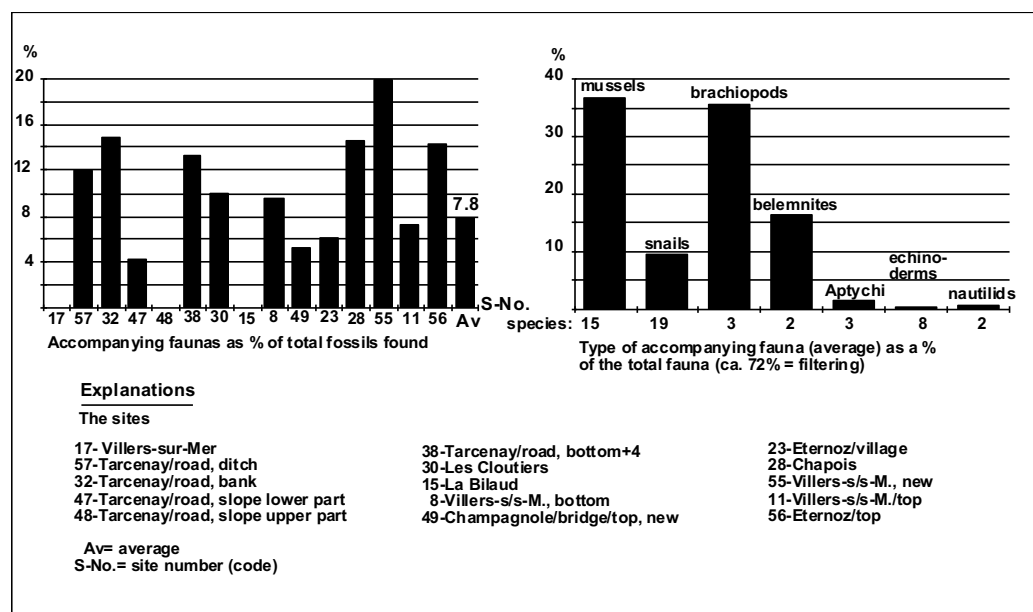
As the investigated sites / locations only exceptional wise include the late *Lamberti* subchron, the statement might not proof correct, that *Horioceras*/*Distichoceras* and *Pachyceras* only can be found exceptionalwise. But as it looks like these genus already had disappeared in the late *Lamberti* subchron. The genus *Aspidoceras* (not *Euaspidoceras*) seems to appear not earlier than *Cordatum* subchron.

The accompanying fauna

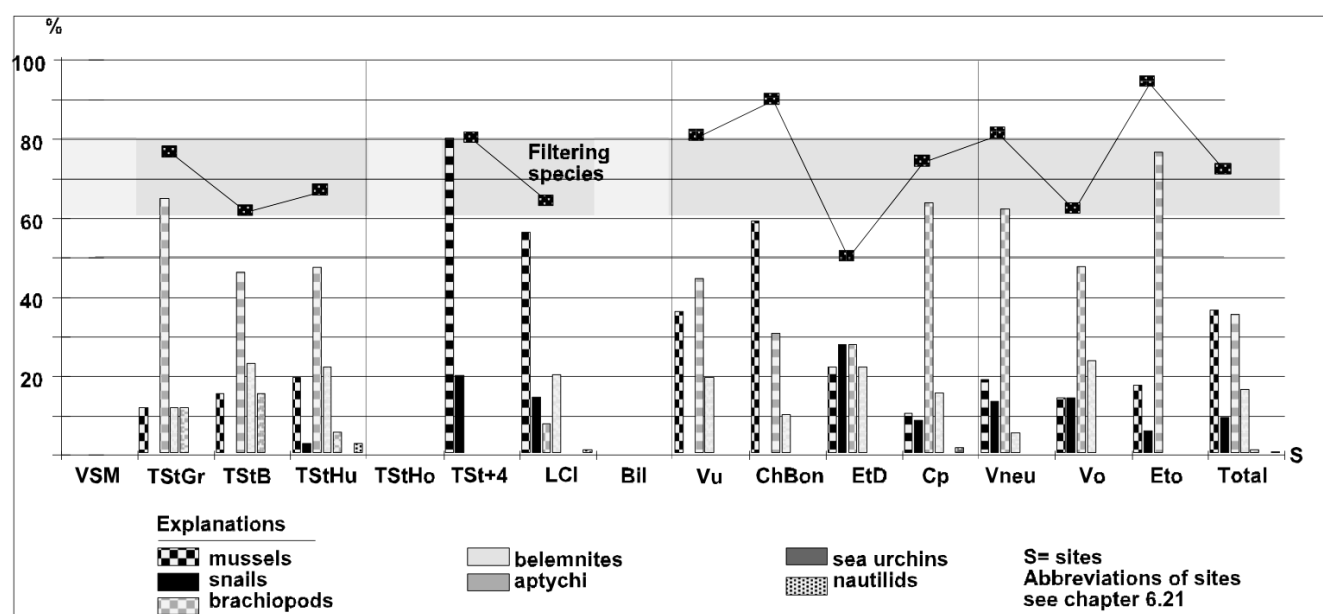


Share of accompanying fauna within Renggeri Marl

The above shown figure shows the share of species of the accompanying fauna and ammonites accordingly. Possibly the graphic would show a slightly different picture if each location would show the same number of found fossils (see Fig. 2.52).



The accompanying fauna and their share



Accompanying fauna (=100%) by number of found fossils

According to the small amount of accompanying fauna (average a bit below 10%) of the total findings one could call it a pure ammonite fauna. Therefore, the diversity of species of the accompanying fauna is very surprising as it stands for approximately 45% of the total species. Quantitywise the filtering organism (mussels, brachiopods) are of main importance, by number of species the rest of the accompanying fauna is more important.

Surprisingly the share of filtering species (mussels and brachiopods) is practically constant at 60-80% from the Lamberti to Costicardia subchron. In my opinion this means that:

- the water at these times did not contain too much sediments and
- the water cannot have been too deep, as snails (at least to-day) mostly live on algae, which itself need light for photosynthesis.

Remarks on accompanying fauna:

Nautilids	In general very rare, at Liesberg relatively more frequent than at other sites / locations (plate 5.1/12, 9.1/12).
Brachiopods	Relatively frequent, <i>Aulacothyris impressa</i> (plate 32.2/2) is only found exceptionally. In late Lamberti subchron a brachiopod is building a layer / bank (see plate 28.2)
Sea lilies	<i>Balanocrinus pentagonalis</i> (plate 31.2/9) could be found from Lamberti subchrone up to the youngest parts of the Renggeri marl. <i>Millericrinus echinatus</i> (plate 32.1/12) , besides some exception, can only be found at the very youngest parts of the search area.
Starfish	Broken pieces of <i>Thylasteria</i> sp. ? (plate 31.2/1, 38.1) are really exceptional findings but are to be found in total Renggeri marl.
Sea-urchins	Totally preserved pieces are exceptionally rare in Switzerland (I have found only one <i>Polydiadema superbum</i> (plate 37.1) at Liesberg), and just a bit more frequent in the French part of the Jura mountains. Besides this one can find spine fragments and small plates, surprisingly mainly at late Lamberti subchron (plate 37.2).
Crustaceae	Broken pieces, especially from the claws (plate 31.2 bez. 36.1/2+3) , can be found throughout the total Renggeri marl. The frequency seems to be higher in the lower part of the Renggeri marl. A completely preserved crab only could be found once by myself (plate 35.1). The second species shown in the appendix (plate 35.2/1) was found by B.Hostettler (collection RMPG).
Corals	With the exception of two (?) very rare species of solitary corals (plate 38.2) this fauna does not exist in the Renggeri marl. This may be the result of the not solid subsoil as well as not enough light (because of turbid or too deep water). Possibly these tiny corals are just not easy to find because of their small size.
Vermiforms	Relatively rare, mostly they stick to <i>Balanocrinus pentagonalis</i> or <i>Belemnite rostri</i> (plate 34.1), two times on ammonite shells.
Mussels	Are the most common accompanying fauna besides snails and brachiopods, but relatively few species only (e.g. plate 29.2)
Snails	By species the most common accompanying fauna, mostly Turbo- and Cerithium types. Other species are rarer (e.g. plate 29.1).
Wood	Could be found in total Renggeri marl. Most pieces are about 1 cm thick and about 4 cm wide (plate 36.1). Length could be up to 40 cm. These fossils contain pyrite and therefore are very sensitive to oxygen. Pyrite is changed into iron sulfate by oxygen thus damaging the fossil
Sharks (teeth)	Extremely rare. Two different species were found (plate 36.2).
Belemnites	Not really common. In general can be found as rostrum (without phragmokone) or as phragmokone only (plate 33.1).

Aptychae	In general very rare in Renggeri marl, a bit more frequent in Lamberti subchron (plate 33.2).
Bryozoes	Rare, possibly just not seen because of the very small size. Mostly grown on brachiopods or mussel shells (plate 39.1).
Fruits/Seeds ?	Extremely rare (plate 39.2/3+6).
Reptiles	Vertebrae or teeth are extremely rare (plate 35.2/3 bez. 31.2/7+8 ?).

Comparing with beaches of today

Living SNAILS – Size and no. of whorls

p.	S.family	Genus	Species	Size mm	Whorls No.	Protoc. whorls
46 47	Cerithiacea	Turritella	crocea duplicata terebra leucostoma gonostoma	90 150 125 115 115	>20 18 25 20 16	
62 63	Strombacea	Tibia Tibia	fiscus powisi	20 50	18 10	
126 128 129	Tonnacea	Cassis Cassis Cassis Cassis	cornuta tessellata nana madagascar.	350 260 60 350	7 7 5 10	
138 139 140 141		Tonna Tonna Tonna Tonna Tonna	variegata tesselata cepa luteostoma sulcosa galea	160 80 130 200 120 200	7 7 7 7 7 7	
142 143		Malea Malea	ringens pomum	100-240 75	7 7	
194	Buccinacea	Buccinum Siphonalis Peniom Hemifusus	undatum signum adustus ternatana	160 60 125 200	7 6 6 7	
234 235	Volutacea	Vexillum Vexillum Vexillum Vexillum Vexillum Vexillum	sanguisugum melangea stainforthi exaspreatum plicarium vulpecula	42 50 50 25 50 25	6 8 8 7 8 7	
		Pusia	microzonias	25	6	
246		Cymbiolena	magnifica	300		3.5
		Aulicina Aulicina	deshayesi sophiae	100 75		3.5 2.5

Pic 109 Living Snails – Size / no. of whorls

Source: Guide to Seashells of the World – A.P.H. Oliver (Philip's)

Remarks: