

## Introduction

The following opinion is based on more than 29'000 fossils out of the Renggeri Marl, which had been found at 16 different places (subdivided into more than 50 sites) together with friends over more than 20 years. Additionally other findings of different authors out of literature had been included for comparison reasons (e.g. HAAS: Mount Hermon / Syria, ARKELL: Woodham Brik Pit /GB, DE LORIOLO/CH 1898 and 1900, JEANNET/CH Herznach 1951). Unfortunately the accompanying fauna had been included only very late into statistical analysis, because only been mentioned exceptional in literature. Conclusions for this fossil type are therefore less representative. As a faunal spectrum above a certain number of findings only changes very insignificantly (see the comments on this fossil group) these informations never the less may give quite some good hints.

Some professionals may criticize, that some of the collected fossils have not been taken 'in situ' but just picked up from the floor. Without the exact knowledge of the place a conclusion might be biased. Most of the fossils have been digged or are out of fresh accessible places or out of very small ones. Where it was not possible to specify more detailed, the findings have been registered separately from others and the horizon given only as "Renggeri Marl" (which is still quite accurate as the total Renggeri Marl is only a bit more than one Ammonite Zone). In case this for certain persons is not secure enough, I highly recommend to read literature mentioned in the annex, especially from Quenstedt, Arkell or Haas. As critical (for me these authors with their information are one of the best about Renggeri Marl). And for me therefore it is absolutely not disappointing not to have found any main discrepancy. Only the group of *Creniceras* / *Coryceras*, *Gregoryceras* or *Mirosphinctes* might be complemented to a certain distinct. For me very difficult to interpret are findings of type *Longaeviceras* (not only found by myself) which are very rare in the early Oxfordian, but according to general opinion they already should have been extinct.

The doubtless determination of ammonite shells in general is very difficult or not possible (?), what would be very unpractical, because for many of the criterions used for determination a lot of intermediates do exist (see e.g. SCHINDEWOLF: *Properisphinctids*, QUENSTEDT: trinominal nomenclature, MAIRE: variants, ARKELL: *Cardioceratids*) and on top of it there are many different opinions about the importance of these criterions.

Even time differences are sometimes arguments for giving different names (see ARKELL 1958, page 163 rf SCHINDEWOLF 1966/3, p.524). Exact definition of boundaries for ammonite zones / sub-zones is therefore problematic as well. (Whether definition of an ammonite horizon or sub-horizon makes sense will be discussed later).

The starting point of the Renggeri Marl as well as the borderline of Callovian / Oxfordian defined by *Quenstedtoceras paucicostatum* for me is difficult to understand, as despite of the lot of material found, this species (?) could not be found or could not be determined as such with enough security. As well the definition of the bukoski-subzone I have problems with because of the many intermediates of the involved types

The definitions of the Renggeri Marl for me personally seems to be easier by definition of the existence of *Creniceras renggeri*. In that respect *Creniceras renggeri* should not be seen as the micro-conch of *Taramelliceras richei*. Only the group of *Glochiceras* / *Coryceras* or *Bukowskites* might cause some uncertainty. Additionally the appearance or disappearance of certain species or groups as well as the non-existence of types might be taken into consideration as well.

In this respect the statement of Prof.L.Hottinger of Basel university might be seen when saying

**"Given names are not correct, but the geochronology."**

It took me quite some time to realize that this should not to be understood as a joke.

It was not the idea of this work to describe species or to define newly, which has already been done (too) often in the past (see literature index in annex). In case there are distinct differences to pictures in the literature it will be mentioned on the plate in appendix (like variant A or B = var.A or B etc or species A = sp.A etc if determination not for sure).

Shown fossils where it is mentioned "collection RMPG" are from ""Reunion pro Musée Paléontologique Glovelier" where exceptional perfect findings will be shown (specially ammonites, sea urchins and sea lilies) from Swiss Jura Mountains.

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Shown findings with no additional explanation have been the collection of the author, which completely was given to the Museum of Natural History at Basel/ CH, Augustinergasse 2

Many thanks go to:

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- Dr.Hostettler, Bernhard and Regina: For me already the classics in the Renggeri Marl with unbeatable know how, especially on Swiss classical standard locations. He willingly was browsing his enormous collection for very rare species not yet found by me to take pictures (see plate 25 or 21.2)
- Poh Guat Cheng: The expression "knowledge sharing", a key experience to me. Only who knows (out of own experience) how difficult it is for an amateur to get a certain palaeontological know how, may have an idea, why just this expression was the crucial push to finalize this paper in spite of photographical and other problems.