DDESCRIPTION FOR THE GENERAL PUBLIC

Origin and early development of conodonts and chaetognaths

In the deposits of uppermost Precambrian and Cambrian many fossils appeared, representing ancestors of the different systematic groups. It is commonly believed that it was caused by rapid development of life what is named “Cambrian explosion”. However the mass appearance of differentiated fossils could be caused not only by the rapid development of life but also by good conditions for their fossilisation. Many of the fossils are composed of calcium phosphate. Favorable conditions for their fossilization could be related to the great deposition of phosphorites in that time. The physicochemical conditions of those times have been probably favorable also for fossilization of the skeletons composed of organic substances, especially chitin.

To the most common microfossils composed of calcium phosphate during Paleozoic and Triassic belong conodonts. They are usually represented by the differently shaped, isolated elements of their multi element apparatuses. Animals possessing them are poorly known and their origin, as well as phylogenetic position, is still under discussion. The conodont elements are strongly diversified and were very common in the marine rocks of the whole Paleozoic and Triassic. Because of that they are very useful for geological investigation.

Among the Cambrian and Ordovician conodonts occur often very similar to them, and usually mixed with them, grasping spines of chaetognaths. Chaetognaths are a separate phylum of small, predatory marine animals, presently massively living and constituting one of the two main components of zooplankton. The spines and constructed of them grasping apparatuses are composed of chitin but under favorable diagenetic conditions, that prevailed in the lower Paleozoic, they underwent often phosphatisation.
Many years ago I was lucky to state that among the Cambrian and Ordovician conodonts sometimes occur also, very similar to some of them phosphatised grasping spines of chaetognaths. However, because of the similarity they are still confused with the conodonts.

The main aim of the project is better recognition of the origin and early diversification of conodots and chaetognaths. Moreover, structural investigations of their representatives should help with their easier identification. The phylogenetical position of the conodonts is unknown and that of the chaetognaths unclear. The planned investigation should help to gain more information in this respect. It is also possible that both the groups originated from the same ancestors.
The studies will be based on the collections already possessed and newly gathered by the author, as well as on the comparisons with the collections gathered by other specialists. For structural and chemical studies of the specimens modern equipment will be used.

Author of the project already possess some collections of fossils needed for these investigations but intends to collect supplementary materials, as well as see the collections gathered in museums and held by other researchers. The results should be useful to both general cognitive and practical use in geology.