

## TITLE: Predator diversity in the Ordovician Fezouata Biota

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### Context

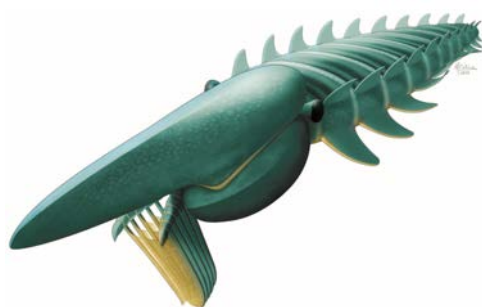
During this project, the student will describe the diversity of predators from the early Ordovician Fezouata Biota of Morocco (Van Roy *et al.* 2010; 2015). The earliest animal communities of the Cambrian and Ordovician were dominated by a group of apex predators known as Radiodonta, informally called “anomalocaridids”, based on the first described Cambrian predator *Anomalocaris canadensis*. These swimming arthropods are some of the largest of the early animals, and they are characterised by their bizarre anatomy and predatory lifestyle. Recent research has revealed that the diversity of both anatomy and modes of life was much bigger than previously thought, and that this group survived into at least the Ordovician geological period. The Fezouata Biota has yielded initial reports of at least five different species of anomalocaridid, but only one has been described in detail, the gigantic filter-feeder *Aegirocassis* (Van Roy, Daley & Briggs 2015). This project will describe the diversity of Radiodonta found in the large collection of Fezouata Biota fossils housed at UNIL.

### Objectives and Methods

This project will use classic and newly-developed paleontological techniques to thoroughly describe the anatomy of anomalocaridid fossils from the Fezouata Biota of Morocco, using the large collection housed in the Geopolis building at UNIL. Approximately 30 fossils will be photographed and drawn, and this material will also be subjected to new analytical approaches, such as Bandpass Emission Imaging, Synchrotron major-to-trace elemental mapping, and Scanning Electron Microscopy. These techniques will extract as much information as possible from the fossils, and anatomy could be further explored using quantitative morphometric analyses, or placed in a phylogenetic context, depending on the interest of the Masters student. The objective is to identify and describe all known species found in the collection, forming the basis for a taxonomic publication.

### Literature

Van Roy, P., *et al.* 2010. Ordovician faunas of Burgess Shale type. *Nature*, 465, 215-218.
   
 Van Roy, P., Daley, A.C., & Briggs, D.E.G. 2015. Anomalocaridid trunk limb morphology revealed by a giant filter-feeder with paried flaps. *Nature*, 522, 77-80.
   
 Van Roy, P., Briggs, D.E.G., & Gaines, R.R. 2015. The Fezouata fossils of Morocco: an extraordinary record of marine life in the Early Ordovician. *Journal of the Geological Society*, 172, 541-549.



### WEB sites

<https://wp.unil.ch/paleo>

### Choice of orientation : (supprimer les orientations qui ne conviendraient pas)

1) Sedimentary, Environmental and Reservoir Geology