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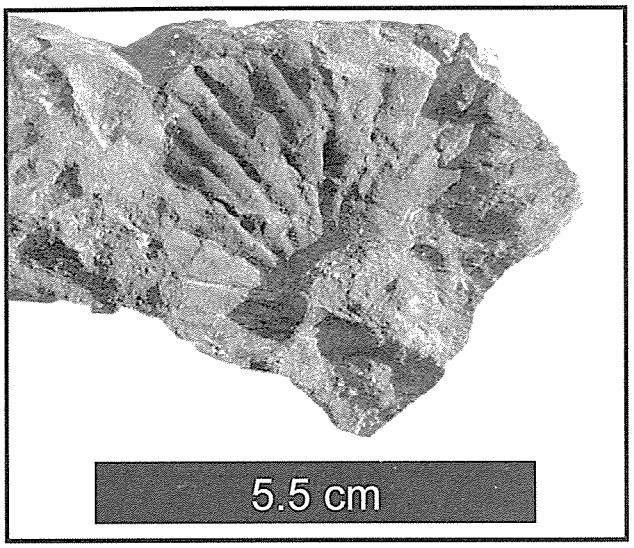

Abb. 1: *Phyllopachyceras* sp. aff. *infundibulum* from the Rossfeld Formation of Mount Hochreith (Weitenau, central Northern Calcareous Alps, Salzburg).

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Stable isotope analysis of Palaeo-Lake ostracods (Lake Pannon/Central Europe & Lake Pebas/ Western Amazonia; Middle-Late Miocene)

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Analysis of the stable isotopes (i.e. $\delta^{18}O$, $\delta^{13}C$), applied to bulk sediment samples or isolated fossils has become a standard procedure in palaeoclimatological and palaeoenvironmental studies. Oxygen isotopes can provide information about water temperature, precipitation/ evaporation ratio and about the chemical composition of the ambient water. Several parameters like salinity or even disequilibrium/vital effects might influence the recorded $\delta^{18}O$ values significantly. In lakes $\delta^{13}C$-records depend on factors like temperature and water chemistry but also on photosynthesis of aquatic plants and hence on seasonal productivity. Atmospheric and lake water fluxes might further affect $\delta^{13}C$-values (LENG & MARSHALL 2004).

The analysis of stable isotope composition of ostracod valves has several advantages, for instance compared to molluscs: 1. they can be easily separated from the sediment; 2. their low-Mg-calcite valves are commonly well-preserved; 3. they occur in a wide range of salinity (hyperhaline to freshwater); 4. ostracods take up calcium carbonate and some trace elements directly from the ambient water (TURPEN & ANGELL 1971) and thus reflect environmental characteristics in which they grew well; 5. they molt several times before reaching the adult stage. Formation of a new valve takes place within a short period of time (less than 24 hours) and therefore reflects a very discrete palaeoenvironmental condition. However, a critical point is the basics of sample treatment in order to avoid analytical „noise". Based on an in-depth review of the relevant literature as well as on own test series, we developed a „standard"-procedure for isotopic analysis of fossil ostracods.

Within the frame of an Austrian-Brazilian cooperation project the analysis of stable isotopes contribute palaeo-

environmental data to two long-lived Palaeo-Lakes: Lake Pannon and Lake Pebas. Due to the focus of the project on the evolutionary patterns of the genus *Cyprideis*, special emphasis is laid on high-resolution isotopic data records. These data are urgently needed to render even subtle palaeoenvironmental changes, which could influence the morphology of this ostracod taxon. *Cyprideis* was selected because the biology of its extant species is rather well-established and it exhibits a high grade of adaptability. Moreover, *Cyprideis* species are already used for Lake Pannon's and Lake Pebas' biostratigraphy. First results are presented for the Austrian sections at Mataschen (Styrian Basin; Early Pannonian) and Hennersdorf (Vienna Basin; Middle Pannonian).

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Mineral chemistry and petrology of monazite and xenotime in a prograde metamorphic sequence in the Kinzigite Formation of the Ivrea Zone, northern Italy

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The Ivrea Zone (IVZ) is interpreted as one of the most spectacular cross sections through an attenuated continental lower crust [1]. The regional lithology has been subdivided into three major units: (1) supracrustal rocks of the Kinzigite Formation; (2) mantle peridotites and (3) an underplated igneous mafic complex. The assembly of the rocks in their relative stacking order close to what can be seen today dates from Carbo-Permian time [2]. The amphibolite facies rocks of the Kinzigite Formation consist of metapelites and metapsammites and subordinate metacarbonates and metabasites [2]. Metapelites and metapsammites, also known as kinzigites, form a uniform 3-4 km wide tract. They are interpreted as an upper Palaeozoic accretionary complex. The lowest grade rocks, in upper amphibolite facies, appear along the southeastern margin of the IVZ. The metamorphic grade increases towards the NW to granulite facies.

Along a ca. 8 km long profile of metapelitic rocks that range from amphibolite to lower granulite facies 15 sample have been collected approximately every 500 m. SEM and EMP work has been performed in order to obtain major element + REE + Y + Th + U composition of the phosphates and the paragenetic rock forming minerals. We intend to test the applicability of xenotime-monazite thermometry in combination with U-Pb in-situ dating using petrologic forward modeling techniques (such as Theriak-Domino). Paragenesis of kinzigites is represented by quartz + white mica + biotite + Kfspar + Na-plagioclase ± cordierite ± fibrolite ± garnet. Accessory minerals are ilmenite, apatite, graphite, zircon, monazite and xenotime. Neither monazite nor xenotime was observed in amphibolites.

Monazites are most commonly found as inclusions in biotite and/or fibrolite. They appear as inclusions in quartz and plagioclase, showing straight grain-boundaries, and also in the triple points of these phases. They vary in size from 10 µm to 200 µm. This is interpreted as represeting an equilibrium texture. On the contrary monazite is quite often also found together with decomposing apatite. Monazites are then typically xenomorph, often being decomposed. Monazites often show chemical zoning, mostly entirely irregular and patchy. Relative abundance of the main monazite components, La, Ce and Nd, show no variations at all throughout the entire sequence but clearly dominates LREE composition of the bulk rock chemistry. According to the element - mapping, the chemical zonation is mostly caused by U and Th, whereas Y remains invariant in all zoned grains. Xenotime is mostly observed together with zircon or as an inclusion within biotite and/or fibrolite. In the only garnet bearing sample, xenotime appears as an inclusion within garnet. Crystals are very small, typically <30 µm, but several larger 100-150 µm specimens were also observed. Many of these minerals show chemical zoning, which appears to be more regular compared to monazite. Element - mapping shows that Yb and Er are the most responsible for chemical zoning, whereas Y is evenly distributed in the zoned xenotimes.

In the case of the Val Strona Kinzigites Y and Ce cannot be used as a geothermometer as they show no variation in concentration among samples. Dy and Gd show slight zoning in monazites and could be used to calculate temperature of the equilibrium paragenesis.

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Jurassic to Early Cretaceous sediments of the Transdanubian Range, Hungary - a unique tectonic unit within the Alpine-Carpathian system and its palaeogeographic provenance

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According to the extrusion or escape model the Pelso tectonic unit should be palaeogeographically situated before Palaeogene and Early Neogene tectonic processes between