information. The results obtained show the utility of *Aequipecten* as a palaeoenvironmental indicator.

Silurian nautiloids from the Carnic Alps

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The Carnic Alps form a mountain chain along the Austrian-Italian border west of the village of Villach in the province of Carinthia. In this region, a dominantly carbonate sequence ranging from the Upper Ordovician to the Lower Carboniferous is exposed. The fossiliferous Lower Palaeozoic sequences exhibit four marine facies representing platform to basinal environments. The Wolayer and Plocken facies of the central Carnic Alps have long been famous for their rich occurrence of cephalopods and the Silurian '*Orthoceras*' limestone facies at the Cellon and Rauchkofel sections are being studied in detail with regard to their biostratigraphic potential.

A detailed study of the taphonomic features and palaeoecology of the Lower Silurian nautiloid fauna from these two sections in the Carnic Alps is discussed with regard to minor changes in sea-level within the sequence and possible environmental settings for the nautiloids based on their hydrostatic limits.

Origin and radiation of the Trimerellida (Brachiopoda, Craniiformea)

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Trimerellides are some of the most distinctive elements in mid to late Ordovician and early Silurian warm water brachiopod faunas from low palaeolatitudes. They were long known mostly from the Silurian, but with recent discoveries of diverse trimerellide faunas from the mid and late Ordovician of Australia, South China, and Kazakhstan it is now evident that these enigmatic, often very large brachiopods evolved rapidly and diversified mostly during the Caradoc and early Ashgill. In general, trimerellides apparently tended to form low diversity, high density communities in shallow, low energy marine environments, although some Silurian associations formed high-energy banks. The Kazakhstanian terranes have yielded the earliest known trimerellides, where they occur just below the the first appearance of graptolites suggesting a late Llandeilo or early Caradoc age (*Nemagraptus gracilis* Biozone). This assemblage includes *Ussunia*, which appears to retain many craniopside-like characters. The Order Craniopsida is the most probable ancestral group.

The most diverse Ordovician trimerellide faunas known are from Kazakhstan, South China and Australia, whereas in other regions they are represented usually only by one, rarely two genera. The observed pattern of geographical distribution of Ordovician trimerellides can be explained as the result of two major migrations from the Kazakhstanian terranes: 1) during the early Caradoc, to South China, Gondwana (Australia) and Laurentia (North America); 2) during the late Caradoc, to Baltica and Angaria. The Ordovician trimerellide fauna from South China is unique in that it contains taxa with excavated and vaulted visceral platforms (e.g. *Trimerella*); this pattern of shell morphology is otherwise unknown in Ordovician trimerellides, but became widespread in the Silurian. Nearly all local trimerellide lineages outside of South China and, maybe, Australia became extinct just before the Hirnantian, and there is no record of trimerellides in the Hirnantian and Rhuddanian brachiopod