

Upper Cambrian trilobite faunas and biostratigraphy at Kakeled on Kinnekulle, Västergötland, Sweden

TERFELT, F

Upper Cambrian strata are well exposed in an old quarry at Kakeled on southwestern Kinnekulle, south-central Sweden. The exposures consist of finely laminated alum shale with lenses and beds of dark grey limestone (stinkstone or orsten), and a few thin layers of sandstone. A 6.20 m thick section in the central part of the quarry has been measured and sampled in order to establish the succession of trilobite species. This section extends from the lower-middle part of the *Agnostus* pisiformis Zone into the *Peltura scarabaeoides* Zone (Fig. 1). A 150 cm thick stinkstone bed (the "Great Stinkstone Bed") occurs in the *Olenus* / *Homagnostus obesus* Zone and in the upper part of the *A. pisiformis* Zone. It comprises a lower part measuring 30 cm and an upper part measuring 120 cm. These are separated by a thin (10 cm) bed of alum shale. Above the "Great Stinkstone Bed" nine additional stinkstone beds, with thicknesses varying from 10 to 55 cm, are present.

Fossils are usually preserved only in the stinkstones, but in the *A. pisiformis* Zone trilobites can be found in both the shales and the stinkstones. The *A. pisiformis* Zone is dominated almost entirely by the zonal index, which occurs in abundance. *A. pisiformis* occurs throughout the *A. pisiformis* Zone and ranges up into the *Olenus gibbosus* Subzone. Nearly all specimens of *A. pisiformis* are disarticulated. The orientation of cephalae and pygidia of *A. pisiformis* were measured on four shale surfaces and one stinkstone bedding plane. The majority of the shields were deposited with the convex side up and showed a preserved orientation, suggesting that their positions were affected by currents. This is in accordance with a previous study on the orientation of cephalae and pygidia in the Kakeled quarry (Eklöf *et al.* 1999). The orientation of the shields generally indicates a current direction roughly towards the present north.

Above the *A. pisiformis* Zone the section comprises the *Olenus* / *Homagnostus obesus* Zone (30 cm), the upper part of the *Parabolina spinulosa* Zone (5 cm), the *Peltura minor* Zone (105 cm), and the *Peltura scarabaeoides* Zone (260 cm). The *Leptoplastus* and *Protopeltura praecursor* Zones are missing. The *Olenus* / *H. obesus* Zone is represented only by the *O. gibbosus* and *O. wahlenbergi* Subzones, whereas the *O. truncatus*, *O. attenuatus*, *O. dentatus*, and *O. scanicus* Subzones are missing.

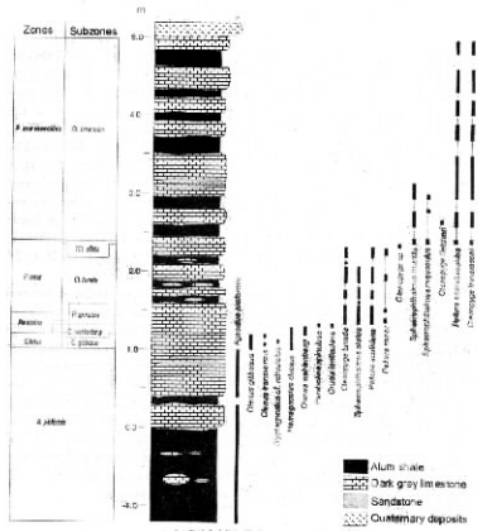


Fig. 1. Lithologic succession, biostratigraphic zonation, and ranges of trilobite and leechhood taxa in the Upper Cambrian at Kåfjord, Kinnelvik, Västergötland.

References

Eklöf, J., Rydel, J., Fröjmark, J., Johanson, M., Seilacher, A., 1999. Orientation of agnostid shields in the alum shale (Upper Cambrian): Implications for the depositional environment. *GFF* 121, 301-306