

Paper Number: 3850

**Microdiamonds in the Scandinavian Caledonides related to Ordovician continent-arc and Siluro-Devonian continent-continent collision**

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The Caledonide Orogen in Scandinavia, formed by Scandian collision of the continents Baltica and Laurentia in the Silurian and early Devonian, is remarkable for its evidence of very long-distance transport of allochthons. The latter were derived from the Baltoscandian platform and foreland basins (Lower Allochthon), the outer Baltoscandian margin and continent-ocean transition zone (Middle Allochthon), Iapetus Ocean-derived terranes, including ophiolites, island-arc magmatic suites and associated volcano-sedimentary successions (Upper Allochthon), and Laurentian outer continental margin complexes (Uppermost Allochthon) comparable to the Hager Berg thrust-sheets and overlying successions of the northeast Greenland Caledonides.

UHP metamorphism in the Scandinavian Caledonides, identified on the basis of characteristic mineralogies in eclogites and garnet peridotites and the presence of microdiamonds in host-rock paragneisses, has been recognized at three levels: in northernmost parts of the Uppermost Allochthon, in the upper parts of the Middle Allochthon, and in the hinterland of the orogen in the deepest structural levels (Lower and Middle allochthons). The occurrence in the Uppermost Allochthon [1,2] is the most enigmatic, its relationship to other parts of this uppermost complex remains obscure and its age (mid Ordovician) is similar to that in the underlying Middle Allochthon. The latter, occurring in the Seve Nappe Complex [3,4,5,6] is part of a HP allochthon that has been recognized over a distance of c. 500 km along the mountain-belt, and may well correlate with similar units in southern Norway. The lowermost UHP level occurs in the Western Gneiss Region of southwestern Norway [7,8], where the Baltoscandian margin underthrust Laurentia during the final stages of Scandian collisional orogeny.

The recent discovery of microdiamonds in the paragneisses of the Seve Nappe Complex has influenced our understanding of the erratic, infrequent preservation of UHP mineralogies in subduction-related complexes, in general. Mapping of the central Scandes provides compelling evidence that the UHP Seve Nappe Complex was generated by Ordovician subduction related to continent-arc collision; travelled a distance of at least 400 km onto the Baltoscandian platform from its original location along the Iapetus Ocean margin [9] during which it was retrograded in amphibolite and then partly in greenschist facies. Microdiamonds have, so far, only been identified as inclusions in the cores of garnets [5,6]; their distribution in this host-mineral suggests that they may be more frequent and wide-spread.

All these occurrences of UHP metamorphism in the Scandinavian Caledonides indicate that substantial segments of continental crust, including carbon-bearing sedimentary rocks, are lost into the mantle during the closure of oceans and collision of continents [10]. Recycling of crustal material through the mantle into ocean lithosphere and preservation in ophiolites is to be expected.

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