Geophysical Research Abstracts,
Vol. 10, EGU2008-A-01708, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-01708
EGU General Assembly 2008

The "unknown" hinterland of the North Atlantic Caledonides - a key for understanding the orogen

D. G. Gee (1) and P-G Andreasson (2)

(1) Dep. of Earth Sciences, Uppsala University, Uppsala, Sweden, (david.gee@geo.uu.se), (2) Dept. of Geology, Lund University, Lund, Sweden (Per-Gunnar.Andreasson@geol.lu.se)

Substantial parts of the hinterland of the Caledonides in the North Atlantic region lie submerged below the continental shelves of the Barents Sea, the Greenland and Norwegian margins and, further south, around the British Isles, covered by Late Paleozoic and younger successions. Knowledge of this "unknown" part of the Caledonides is not only fundamental for understanding Paleozoic orogeny; it is also essential for all pre-Caledonian reconstructions of the Proterozoic tectonic evolution.

Probably the best source of information on these inaccessible hinterland regions is to be found in the higher Caledonian alloñhthons of the Scandes, East Greenland and Svalbard and in the Timanide hinterland terrenes of northwestern Russia. Palinspastic reconstructions of the Scandian nappes that were derived from the Neoproterozoic terrains along the outer margin of Baltica, such as the Seve and Särv nappes and their correlatives in the Kalak Nappes of northern Norway, provide evidence of source areas dominated by Mesoproterozoic and early Neoproterozoic complexes. Further north, on the Barents Shelf, on Svalbard, eastern Greenland and in the Timanides, there is similar evidence of Proterozoic basement source areas that were younger and unrelated to the Paleoproterozoic and Archean complexes of continental Laurentia and Baltica.

To explain this evidence, one can indulge in a variety of complicated Neoproterozoic and Paleozoic plate reconstructions, with or without rotating the continents, even introducing sutures at previously undetected levels in the tectonostratigraphy. However, a simpler alternative is to accept that the Grevillian-Sveconorwegian Orogen (or a

branch thereof) continues northwards through the Caledonian hinterland into the high Arctic (P-G. Andreasson 1994, Tectonophysics). This alternative would also imply that the collapsed axial zone of a late Mesoproterozoic- Early Neoproterozoic orogen controlled the opening of the Iapetus Ocean.