The age of the Tavsens Iskappe Group, central North Greenland

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The Tavsens Iskappe Group was proposed by Peel (1979) for a sequence of strata occurring between the Brønlund Fjord Group and the sub-Wandel Valley Formation unconformity around Hans Tavsens Iskappe in south-western Peary Land, central North Greenland. Ineson & Peel (1980) recognised seven formations within the group with an estimated maximum preserved thickness of about 700 m. To the west of Hans Tavsens Iskappe, the group is mainly represented by three formations, informally referred to as T1, T2 and T3 in ascending order, although a fourth formation (T4) occurs to the south. A largely parallel sequence occurs on the eastern side of Hans Tavsens Iskappe, but difficulties in precise correlation require a different nomenclature (formations T5, T6, T7). Faunas are best known from the western side of the ice cap and it is consequently formations T1, T2 and T3 which establish the known age range of the group.

Formation T1, a cliff-forming unit of dolomite breccias and darker thin-bedded dolomites and limestones, attains a thickness of about 175 m at its type locality, but thins markedly to the south. Rich faunas of agnostids occurring in thin-bedded recessive limestone near the middle of the formation indicate a Middle Cambrian age. R. A. Robison (written communication, 1981) suggests a correlation with the *Hypagnostus parvifrons* and *Ptychagnostus punctuosus* Zones of Sweden.

Formation T2 is a dark, recessive unit of limestones, dolomites and shales which reaches a thickness of 155 m at its type locality, but thins and disappears to the south. Formation T2 is richly fossiliferous, and Palmer & Peel (1979) placed the Middle Cambrian - Late Cambrian boundary at just above the base of the formation. Subsequent examination of faunas by R. A. Robison (written communication, 1981) has confirmed this earlier observation, noting the existence of the *Lejopyge laevigata* Zone (upper agnostid zone of the Middle Cambrian) succeeded by the basal zone of the Late Cambrian, namely *Agnostus pisiformis*. Of particular interest is the identification by Robison of *Cedaria* together with representatives of both agnostid zones. *Cedaria* gives its name to the basal zone of the Dresbachian stage, generally regarded as the basal stage of the Late Cambrian in North America. In identifying both North American and European zonal indices in formation T2, Robison has emphasised the discordance between the Middle Cambrian - Late Cambrian boundary in the respective zonal schemes.

Formation T3 is at least 400 m thick and consist of thick-bedded, cross-bedded, carbonate grainstones, dolomitic sandstones and quartzites, with widespread breccia sheets. Fossils are rare, but the occurence of *Proplina* and onychochilacean gastropods near the middle of the formation supports a general Late Cambrian age. Rare conodonts from near the top of the formation led Ineson & Peel (1980) to suggest a latest Cambrian or possibly earliest Ordovician age. J. E. Miller (written communication, 1982) has identified *Teridontus nakamurai, Hirsutodontus hirsutus* and *Cordylodus proavus* from GGU sample 271440, indicating the *Cordylodus proavus* Zone narrowly spans the Cambrian-Ordovician boundary.

The Tavsens Iskappe Group thus has a known age range from Middle Cambrian to latest Cambrian or earliest Ordovician. The lack of fossils makes it uncertain as to how much of the Late Cambrian is preserved. Early Dresbachian and possible latest Trempealeauan faunas are separated by more than 400 m of strata which have only yielded the few molluscs noted above. Definitive records of Franconian and Trempealeauan faunas are currently lacking, although both stages are represented in western North Greenland (Peel & Christie, 1982; Peel, in press).

References

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