

PRELIMINARY REPORT ON THE STRATIGRAPHY  
OF THE PRECAMBRIAN AND EOCAMBRIAN SEDIMENTS  
IN THE JØRGEN BRØNLUND FJORD - MIDSOMMERSØ  
AREA, SOUTHERN PEARY LAND

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As a member of the 5th Danish Peary Land expedition led by Eigil Knuth, the author carried out geological field work in an area bounded by Jørgen Brønlund Fjord ( $82^{\circ} 10' N$ ,  $30-32^{\circ} W$ ), Midsommersø ( $82^{\circ} 15'$ ,  $33-36^{\circ} W$ ) and Inuiterk Sø ( $82^{\circ}$ ,  $35^{\circ} W$ ). The same area was visited in 1966 (Jepsen, 1966) with the main object to study the intrusive rocks. In the summer of 1968 the purpose was partly to study the stratigraphy of the sediments and partly to get a better understanding of the nature of the intrusive rocks. In this note it is mainly the first problem, viz. the stratigraphy of the sediments, that will be discussed.

The oldest sediments are Precambrian sandstones. They are overlain by Eocambrian (?) quartzitic sandstones, sandstones, dolomites and shales. These again are overlain by Palaeozoic dolomites and limestones (Troelsen, 1949). In accordance with Troelsen (1956) and Berthelsen and Noe-Nygaard (1965) the boundary between Precambrian and Eocambrian is placed at the lower boundary of the tillite. The stratigraphical column is shown in fig. 2.

The unfolded sediments dip very gently ( $2-3^{\circ}$ ) towards NE, but it is difficult to measure the exact dip as the area is blockfaulted along ENE-WSW-striking faults.

The Precambrian sediments are composed of light yellow and dark reddish-brown, coarse-grained conglomeratic sandstone with a few interstratified centimetre-thick beds of siltstone. Cross-bedding, ripple-marks and mud-cracks are often found. The lower boundary is unknown, but in the extreme south-western part of the area at Inuiterk Sø, where the deepest part of the section is exposed, the Precambrian strata including the intrusions have an exposed thickness of 420 m. The upper boundary of the sandstones is an undulating erosion surface with differences in altitude up to 100 m.

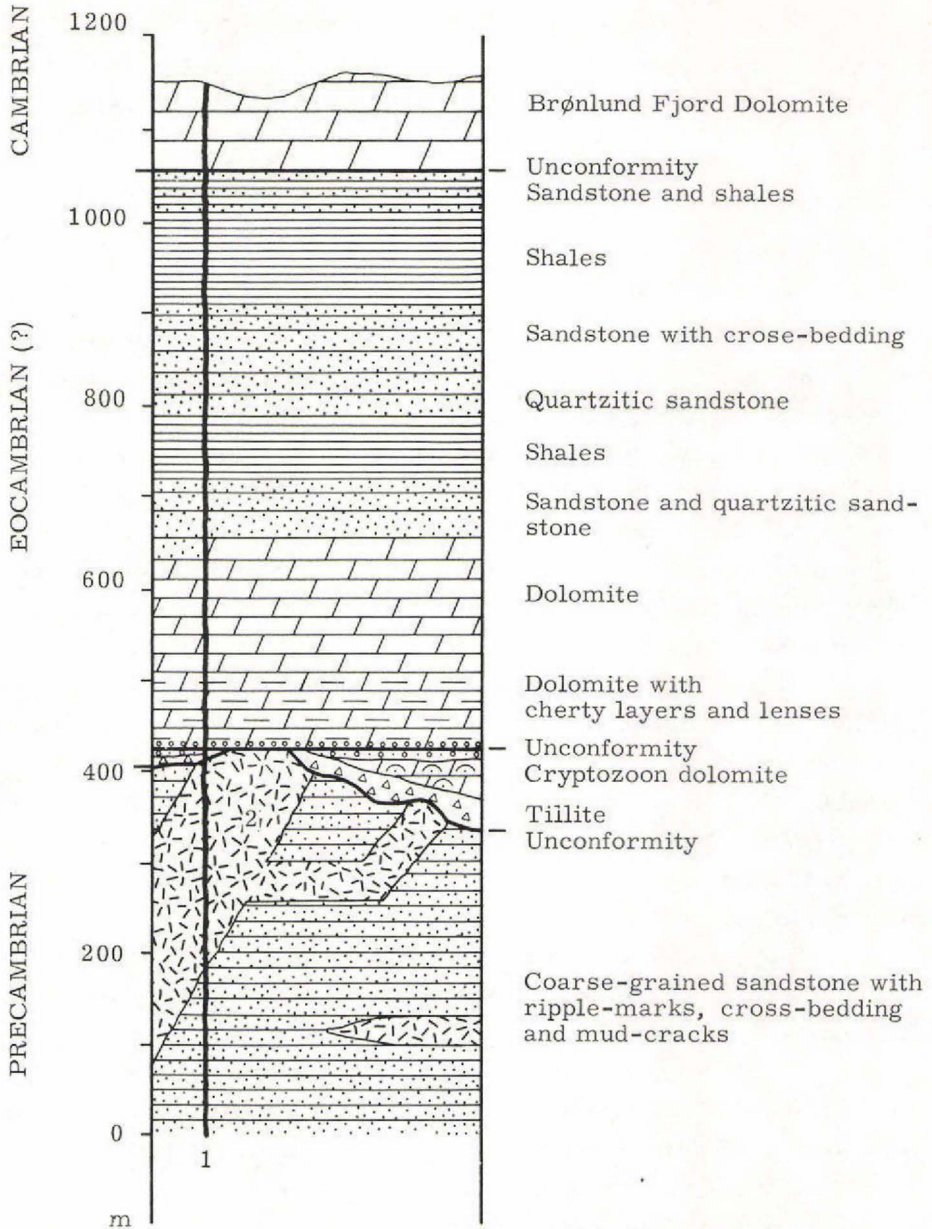


Fig. 2. Schematic stratigraphical column partly after Troelsen (1949, 1956) and Berthelsen and Noe-Nygaard (1965).

Intrusive rocks: 1. dyke group; 2. discordant sill and flow breccia groups.

The Eocambrian sediments rest unconformably on this erosion surface. They start with a dark reddish-brown tillite with glacial striated blocks of sandstone, dolomite, granite and gneiss. The tillite is followed by a light grey dolomite with cryptozoon structures described by Troelsen (1949). Finally this dolomite is overlain by coarse-grained sandstone with conglomerate beds.

The greatest measured thickness of the tillite, the cryptozoon dolomite and the conglomeratic sandstone is 100 m. These layers are followed by a dolomite sequence of 230 m thickness, which in the lowermost 90 m contains lenses and layers of black chert. The cherty dolomite starts with a basal conglomerate with well rounded pebbles of sandstone which indicates that the dolomite sequence rests on an erosion surface. This erosion surface is very even and where the upper boundary of the Precambrian rocks is found high in the section, the cherty dolomite comes in contact with the Precambrian rocks, and in such places the tillite, the cryptozoon dolomite and the conglomeratic sandstone are missing.

Overlying the dolomite follows a 400 m thick clastic sequence, composed of quartzitic sandstones, sandstones and shales. It is built up of two sedimentary cycles, each beginning with coarse-grained sandstone.

Unconformably over this clastic sequence follow Palaeozoic dolomites and limestones, beginning with the Lower Cambrian Brønlund Fjord Dolomite (Troelsen, 1949, 1956).

During the first field season (Jepsen, 1966) the author succeeded in dividing the intrusive rocks into three groups: discordant sills, flow breccia and dykes, of which the dyke group is the youngest and younger than the Lower Cambrian sediments. At one locality it was observed that a sill belonging to the discordant sills cut through a reddish-brown conglomeratic sandstone. At other localities a sandstone of the same character as of that mentioned above forms the lowermost part of the tillite. It was concluded then that the discordant sills (and the contemporaneous flow breccia) were younger than the tillite (Jepsen, 1966).

However, during the field work in 1968, it was observed that the tillite lies unconformably over the discordant sills and flow breccia, and therefore these must be of pre-tillitic (Precambrian) age. The early assumption of Lauge Koch that there was an unconformity over the lower sandstones with the associated intrusions (Koch, 1929), is hereby definitely proved.

## References

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NEW MAPPING AND SPECIAL RESEARCH ON  
NÛGSSUAQ AND DISKO

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In order to supplement the results of previous expeditions to the Cretaceous-Tertiary areas of West Greenland the Survey, with financial support from the Carlsberg Foundation, sent a group to northern Disko, Hareø, and western Nûgssuaq which was the main area for the group's activities. The expedition was supported by the 26 ton motor cutter "J. F. Johnstrup", and two jeeps for transport in the open valleys.

The new mapping concerned mainly an area in Nûgssuaq between  $52^{\circ} 30'$  and  $52^{\circ} 40' W$ . This mapping was necessary because the eastern boundary of the 1 : 100 000 sheet "Agatdal" was moved eastwards to