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NEW MAPPING ON SVARTENHUK PENINSULA

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Svartenhuk, although petrographically the best known of the West Greenland basalt areas, was until now the least satisfactorily mapped. The accounts of Rosenkrantz et al. (1942) and Noe-Nygaard (1942) were written before either accurate topographical maps or aerial photographs of the area were available and thus the accompanying geological maps are of a very generalised nature. Therefore, in order that the area could be satisfactorily represented on the Survey 1:500 000 sheets, it was necessary to remap it on new photogrammetric topographical maps, making full use of aerial photographs. This was our first task.

The second objective was to enable one of us (D. B. C.) to collect basalts for comparison with the Tertiary lavas on the east coast of Baffin Island, rocks which he has been studying for the last two years. At a time of increasing interest in continental drift in the North Atlantic and Canadian-Danish collaboration in the study of the Wegener Fault between NW Greenland and Ellesmere Island, a comparison of the Cretaceous-Tertiary geology on either side of Baffin Bay is obviously of much importance.

The greatest thickness of Tertiary lavas in West Greenland is developed on Svartenhuk peninsula. Noe-Nygaard (1942) estimated these lavas to be about 10 km thick but recognised that block-faulting might have caused repetition of parts of the sequence. Although block-faulting has affected Svartenhuk, we were unable to avoid the conclusion that the lava pile is at least 8 km thick in the southern part of the peninsula. Here, where the lavas are thickest, they dip SW at angles not usually exceeding 26° ; the dip diminishes northwards and in the north-east the flows are horizontal.

The sequence begins with ca. 400 m of sub-aqueous basalt breccia generally of picritic composition. The picritic breccias are overlain by an uninterrupted sequence of zeolite-rich picrite flows which attains a thickness of at least 3.5 km in southern Svartenhuk but in the north is reduced to 400 m.

Picrite extrusion in the north was followed by a pause during which up to 75 m of arkosic sandstone with thin coal horizons was deposited. No such break in volcanism could be detected in the south where the picrite flows gradually lose olivine and in a transition zone are interbanded with sets of non-porphyrific or plagioclase-porphyrific flows.

The higher basalts show considerable vertical and lateral variation, and for convenience are collectively referred to as the "upper basalt formation". Thick, rather massive, often columnar-jointed flows of very fine-grained, frequently plagioclase-porphyrific basalt comprise the greater part of the formation; interspersed with these are sets of thin zeolitic olivine basalt flows and rare picrites. The proportion of olivine basalt lessens towards the north-west where plagioclase-porphyrific flows predominate. In one locality in SW Svartenhuk trachyte occurs within the upper basalt formation

The only important break in basalt extrusion is that at the top of the picrites in the northern part of the area. Otherwise tuffs and other sedimentary rocks are extremely rare within the lava pile. Reddening at the upper surface of flows is not marked in the picrites but the thicker upper basalts often have brick-red lateritic tops.

In SE Svartenhuk the rocks immediately underlying the basalt breccia are marine shales with ammonites of Upper Turonian - Lower Campanian age (Birkelund, 1965, and personal comm.); although the breccia - shale junction was never seen, outcrops of these rocks have been found separated vertically by less than 20 m. In northern Svartenhuk the pre-Cretaceous land surface rises and only the upper basalts overlap the Precambrian. The pre-

Cretaceous relief was considerable, and in some hollows in the old land surface fluviatile sediments accumulated. In other hollows there must have been lakes, since the lowest extrusives filling these are breccias and locally pillow lavas.

Dykes are very numerous in the breccia and picrite formations and may be of picrite, olivine basalt or plagioclase-porphyrific basalt. In the upper basalt formation they are rare, with the notable exception of the SW coast of the peninsula where a NW-trending swarm of dykes dipping NE at angles as low as 60° cut the SW-dipping flows. Large sheets and sills of dolerite occur at or near the border between the Cretaceous-Tertiary rocks and the underlying Precambrian but otherwise are not common.

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FIELD MAPPING IN THE EGEDESMINDE-CHRISTIANSHÅB AREA (SHEETS 68 V.1 AND 68 V.2)

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As part of the programme to produce geological maps at scale 1:500 000 of West Greenland, a photogeological interpretation of the areas covered by the sheets 68 V.1 Egedesminde and 68 V.2 Christianshåb was made in the summer of 1965. It was hoped that an interpretation of the aerial photos, with the help