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A PILLOWED SILL FROM THE ATANIKERDLUK AREA, NÛGSSUAQ

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The geology of the Atanikerdluk area, along the south coast of Nûgssuaq, has been described in considerable detail by Koch (1955; 1959) and Koch & K. R. Pedersen (1960).

In a sequence of Lower Tertiary black carbonaceous shales – the Aussivik Member of the Upper Atanikerdluk Formation (Koch, 1959) – there are a number of horizontal basaltic layers. Because of the apparent lack of contact metamorphism it was with some hesitation that Koch (1955, pp. 34–35) originally regarded the layers as sills. Later these layers were regarded, although with hesitation, as a sequence of lavas, representing the first subaerial lavas to flow into the Atanikerdluk area (Koch, 1959; Koch & K. R. Pedersen, 1960).

Because of their importance for the volcanic stratigraphy of the region a brief visit was paid to the basaltic layers in the Atanikerdluk area.

The lower basalt layer is a basaltic composite sill. The upper and lower contacts against black shale can be seen.

The upper basalt layer is also a sill. It was investigated on the steep slope west-south-west of point 976 5 km north of Atanikerdluk. A very schematic sketch shows the upper contact (fig. 10).

An irregular zone, several metres thick, with a number of very irregular tongues grading upwards into pillows and pillow 'sausages' is present. The tongues clearly intrude black carbonaceous shales. These are affected by hydrothermal metamorphism, specially in the depressions between upward protruding tongues, where a brecciation can also be seen. The basalts are altered in the contact zones and fresh glass is not preserved at the pillow margins.

The occurrence clearly resembles other pillowed sills (e. g. Yagi, 1969) and the definite conclusion can now be drawn that the Aussivik Member basalts from Atanikerdluk are not lavas, but sills intruded later than the deposition of the Aussivik Member shales but while these were still rich in water and only partly consolidated.

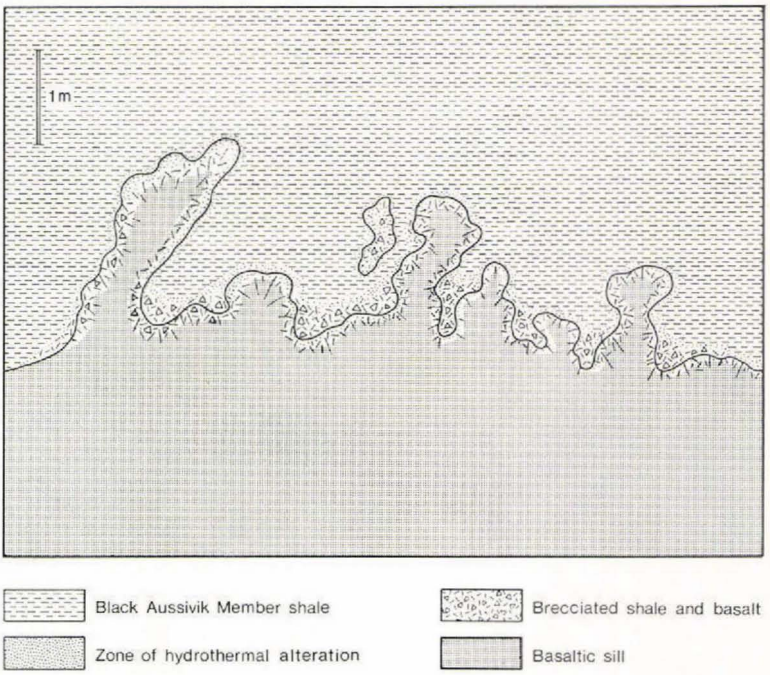

Fig. 10. Schematic sketch of the upper contact of the upper sill against black shales from the Aussivik member. Pillows and sausage tongues intrude hydrous sediments and cause local hydrothermal metamorphism.

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