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**Geological Reconnaissance
of the Sør-Rondane Mountains
(Queen Maud Land)**

By Prof. E. E. PICCIOTTO

081
P 581
n°19

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IN the course of the summer field parties of the Expedition Antarctique Belge 1957-58, I carried out a geological reconnaissance in the Sør-Rondane ranges, unexplored up to then.

This massif extends over approximately 250 km. east and west (from 23° E. to 28° E.) and has a depth of about 100 km. The foot-hills of the chain lie about 150 km. inland from the coast, at approximately 72° S. latitude. The summits are elevated between 1,200 and 3,500 m. above sea-level and the snow-line lies between 1,000 and 3,000 m.

The present topographical features have resulted from glacial erosion followed by a long stage of post-glacial erosion due mainly to mechanical weathering. The highest peaks investigated show evidence of heavy glaciation.

The region investigated is formed entirely of crystalline rocks, there being no trace of non-metamorphosed sedimentary rocks, nor of epizonal metamorphism.

The nunataks to the north of the chain are formed of intrusive igneous rocks (coarse-grained red granite at Roemnesfjell, diorites at Nordtoppen and Småhausane).

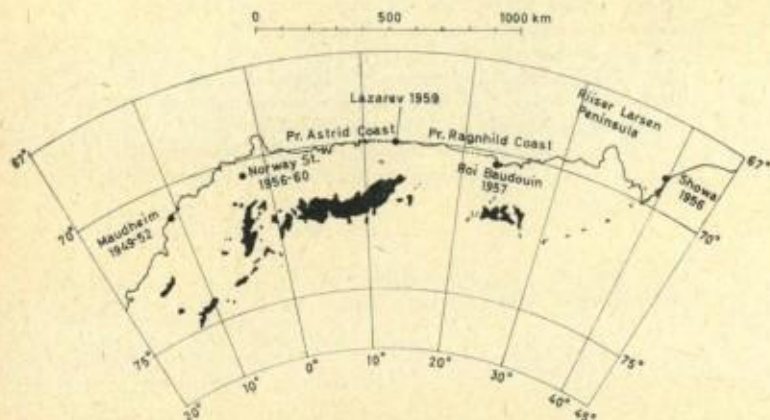


Fig. 1. Queen Maud Land



The mountain chain itself is formed of migmatites and highly varied, though mainly biotitic and amphibolic, gneiss. In one occurrence (at Aust-kampane) the gneiss is interspersed with layers of pure crystalline limestone associated with banks of calcium silicate gneiss. Homogeneous massifs of dioritic gneiss are also found. The general direction of the gneiss is east-west; the dip is very variable.

The gneissic complex, at certain points, is transected by a disordered network of pegmatitic and granitic dykes. The intensity and widespread occurrence of this phenomenon are striking characteristics of the region.

The phenomena of anatexis and of migmatization are widespread. This gneissic complex obviously forms part of the eastern Antarctic Pre-cambrian complex. The igneous intrusives to the north of the chain are clearly later than the gneiss but of unknown age.

There is no evidence of mineralization either in the gneiss or in the igneous intrusives.

The following successive stages in the geological history of this region are identifiable: (1) the deposition of a vast and varied sedimentary complex, including limestone deposits, under geosynclinal conditions; (2) the folding and metamorphism of the sedimentary complex in a deep zone (upper catagene), accompanied by dioritic intrusions; (3) the intrusion of granitic and dioritic rocks into the gneiss; (4) the formation of granitic and pegmatic dykes cutting through the intrusive bodies.

The radioactivity dating of the samples at present being carried out will furnish more precise information as to the chronology of these stages.

I wish to thank Dr. Jacques Giot, who led the sled journey into the Sør-Rondane, and Drs. Paul and Jean Michot, who are carrying out the petrographical study of the samples collected.

The geographical names refer to the map of the Sør-Rondane Mountains, published by the Norsk Polarinstitut, in 1957.

E. E. PICCIOTTO

Laboratoire de Physique Nucléaire,
Université Libre de Bruxelles.