

GEOLOGY OF THE AMMASSALIK REGION, SOUTH-EAST GREENLAND.

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Greenland Geological Survey (GGU) brings out excellent publications at regular intervals, like Reports, Bulletins, Open File Series (unedited reports) and geological maps. The present report summarises the results of field mapping in 1986 and subsequent laboratory studies in the Ammassalik region. The geological team which mapped this terrain included British scientists B. Chadwick and C.R.L. Friend who have been actively associated with south Indian geology, and other eminent members like P. R. Dawes, J. C. Escher, R. P. Hall, F. Kalsbeek, F. F. D. Nielsen, A. P. Nutman, N. J. Soper and V. N. Vasudev from India.

The Ammassalik region represents a Mid-Proterozoic (1.8 – 1.9 Ga) mobile belt bounding the high-grade Archaean Block of Greenland, which forms part of the North Atlantic craton encompassing the Nain Province of Canada and the Scourian of northwest Scotland. Its continuity beneath the Inland ice cap for correlation with the Nagssugtoqidian mobile belt of West Greenland has become uncertain in the light of new information presented in this report.

Introduction and re-appraisal of the Ammassalik mobile belt by B. Chadwick and others provide the vital framework for understanding the details published in the subsequent papers. This reappraisal has brought out emerging ideas on the nature of contact of the mobile belt with the surrounding cratons, nature of deformation including shear zone development in terms of Precambrian tectonics, identification of the supracrustal package (Siportoq association) and emplacement of dykes and intrusive complexes. A significant finding by B. Chadwick and V. N. Vasudev is that the layer cake arrangement of sheets of Archaean orthogneisses and Proterozoic shelf facies supracrustal rocks (paragneiss and marble forming basement-cover sandwiches have resulted from the tectonic interleaving on early thrusts as a result of ensialic crustal shortening. Magmatic injection of concordant sheets of orthogneisses was also important as an intersheeting process. This was followed by pervasive deformation involving thrusting marked by ductile shear zones, nappe development and superimposition of large domes on nappe pile as buoyancy phenomena. Such a pattern of tectonic evolution provides an interesting model for future studies in the Eastern Ghat and Southern (Pandyan) mobile belts of India.

The other interesting papers in the volume are on the supracrustal association (R. P. Hall and Others), dioritic Ammassalik Intrusive Complex (C. R. L. Friend and A. P. Nutman ; B. T. Hansen and F. Kalsbeek), new age determinations (F. Kalsbeek and P. N. Taylor), craton-mobile belt relations (P. R. Dawes and Others ; J. C. Escher and Others), discovery of sapphirine (C. K. Brooks), reconnaissance P-T studies (A. P. Nutman and C. R. L. Friend), younger intrusions (C. K. Brooks and Others) and basic dykes (R. P. Hall and others).

The high standard of the papers in the field report, excellent editing by F. Kalsbeek and speedy publication of results by the GGU deserve to be emulated. Scientists working in high-grade terrains will find this and the other publications by GGU on the Precambrian of Greenland a very rewarding material for constant reference.