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CONTRIBUTIONS ON THE GEOLOGY OF GRANITOID AND HOST ROCKS, MEGUMA TERRANE, NOVA SCOTIA

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FOREWORD

Daniel J. Kontak and Sandra M. Barr

During the late 1970s and early 1980s there was a resurgence in exploration for lithophile-element mineralization in granitoid rocks, and the granites of the Meguma Terrane of Nova Scotia were a focus of attention. Partly as a result of this concentrated effort, detailed studies by university and government personnel were undertaken to examine the evolution of the granitic rocks of the Meguma Terrane in order to assess their petrogenesis and economic potential. Implicit in the understanding of the genesis of granitoid rocks in general are their field relationships (both with respect to country rock and co-magmatic units), mineralogy, and whole rock and mineral chemistry. This special issue of Maritime Sediments and Atlantic Geology presents the results of some of the current investigations underway by a variety of geologists, both government and university, on a wide range of topics including surficial geology and airborne gamma ray spectrometry surveys, metamorphic petrology of country rocks, regional mapping, analysis of structural fabrics in granites, and whole-rock and mineral chemistry.

The results of the various studies indicate the importance of integrating all aspects of geology before a full appreciation of the geological evolution of an area may be realized. This is well illustrated by the integration by O'Reilly, Corey, and Ford of airborne gamma ray spectrometry surveys, regional mapping, and petrographic and geochemical studies for three different granitoid suites and by the study by Hill of granites in the Canso area. Raeside, Hill, and Eddy clearly demonstrate the inter-relationship between granites and metamorphism in the same area. Results of surficial mapping studies conducted by Graves and Finck reveal the importance of an aspect of geology frequently neglected by bedrock geologists and emphasize its relevance to regional mapping. Horne, Corey, Ham, and MacDonald present the first detailed structural analysis of planar and linear fabrics in the South Mountain Batholith and relate the results to ambient stresses active in the crust during the intrusion of the batholith. Mapping and follow-up petrological studies of MacDonald and Horne for a portion of the eastern South Mountain Batholith indicate that discrete intrusive units comprise the batholith and, therefore, its composite nature is thoroughly documented for the first time. Another significant contribution is the presentation by Corey on the first documented occurrence of sillimanite in the South Mountain Batholith. Study of white mica in the batholith by Ham and Kontak sheds new light on the primary versus secondary mica question, and Kontak, Strong, and Kerrick present new chemical and oxygen isotope data towards an understanding of petrogenesis of the South Mountain Batholith. Rogers and Barr provide similar interpretations for the Shelburne and Barrington Passage plutons to the south, suggesting that they may not differ as significantly from the South Mountain Batholith as generally inferred. Thus, if the results of these studies can be used as a measuring stick it would appear that there remains many interesting and important aspects to be studied before we can fully appreciate the complex evolution of even part of the Meguma Zone.

Each paper in this volume was reviewed by two independent reviewers. The editors sincerely thank these individuals for their time and effort which led to improvements in the papers and enhanced the quality of this issue.