

## NAIN-NUTAK AREA: A NEW 1:500,000-SCALE COLOUR COMPILATION

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### ABSTRACT

*A 1:500,000-scale full-colour map of the Nain-Nutak region has recently been published by the Geological Survey Branch. The map incorporates the results of 48 years work in the region by E.P. Wheeler II, augmented with data collected, since 1970, by various government and university research groups. It displays the various stratigraphic subdivisions of the gneissic and plutonic rocks, and is the first in a series of similar maps to be published during the next few years.*

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### BACKGROUND

The Nain-Nutak area had been the geological focus of E.P. Wheeler II from 1926 until his death in 1974. This incredible record, of 48 years of research, was directed mainly toward the anorthositic rocks that are spectacularly exposed along the coast and on the adjacent plateau between Nain and Okak Bay. Dr. Wheeler's legacy to later workers in the area includes a series of 1:63,360-scale maps covering nearly all the known extent of the batholithic polyphase igneous terrane now known as the Nain Plutonic Suite. Copies of these maps are filed at the Department of Geology and Geography, University of Massachusetts, Amherst, Massachusetts, and at the Geological Survey Branch, Department of Mines and Energy, St. John's. These hand-drawn manuscript maps were compiled at 1:200,000 scale by A. Harris at the Department of Mines and Energy in 1980, and released as a two-colour series in 1984.

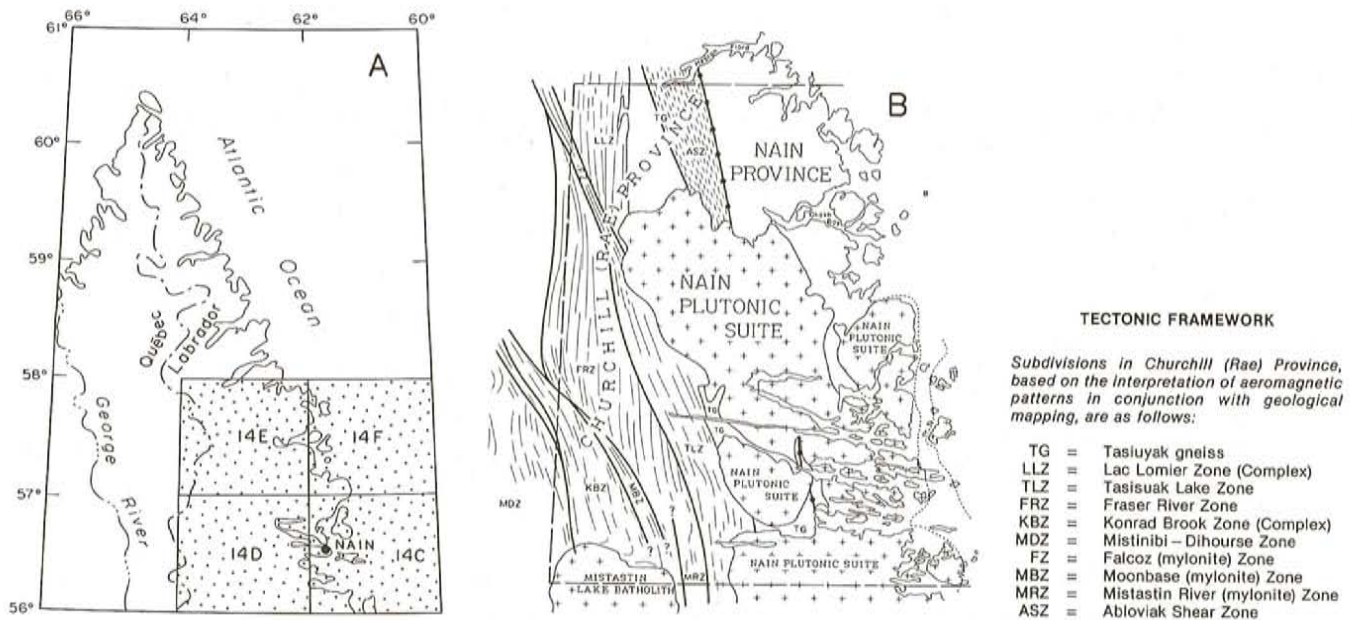
Between 1971 and 1981, detailed studies in the Nain area (under the umbrella of the Nain Anorthosite Project led by Dr. S.A. Morse of the University of Massachusetts) built further upon the foundation laid by E.P. Wheeler. As a consequence, modifications to Wheeler's pioneering work became necessary. The more detailed studies on selected parts of the Nain Plutonic Suite resulted in an informal and formal stratigraphic nomenclature appearing in the geological literature.

Between 1985 and 1989, regional 1:100,000-scale transects from the coast to the Labrador-Quebec border were carried out in the Voisey Bay area by the Newfoundland Department of Mines and Energy (B. Ryan) and in the Nutak (Okak Bay) area by the Geological Survey of Canada (GSC) (I. Ermanovics). These surveys expanded upon the 1:250,000-scale reconnaissance mapping of F.C. Taylor (GSC) conducted in the early 1970's, and they led to the definition of an informal nomenclature for regional subdivisions of the Archean and Proterozoic gneisses. These surveys also led to the recognition of several structurally and stratigraphically distinct zones within gneisses of the Nain-Nutak region.

### PURPOSES OF NEW MAP

The Newfoundland Department of Mines and Energy has now released a preliminary 1:500,000-scale colour map (see Figure 1), which incorporates all work carried out in the Nain-Nutak area up to 1989. The map serves several purposes:

1. It is a testimony and dedication to the pioneering efforts of the late E.P. Wheeler II, whose leg-work provided the basis for all subsequent surveys. The distribution of rock units within the Nain Plutonic Suite are largely those shown on Wheeler's manuscript maps, with modifications to reflect the changes brought about by subsequent work.
2. It brings together the results of years of work by a group of geologists who have focussed on individual aspects of the area. In this regard, it summarizes the results of Canadian and American investigators in a manner that allows the latest interpretations of regional relationships to be shown.
3. It shows for the first time the major subdivisions of the gneissic and plutonic terranes, and incorporates the stratigraphic nomenclature commonly employed in references to the area. This permits the user to immediately see a specific unit referred to in the literature in relation to others around it.
4. It is the first published map to show the regionally recognizable four-component igneous assemblage that constitutes the Nain Plutonic Suite, a world-famous example of an anorogenic magmatic terrane. The regional distribution of the anorthositic, troctolitic, ferrodioritic and granitic rocks is shown, as determined from E.P. Wheeler's maps and subsequent studies. Modifications are probably still necessary here, since some of Wheeler's 'buff-weathering anorthosite' has been mapped by subsequent workers as ferrodiorite. However, the



**Figure 1.** a) Dotted area shows the four 1:250,000 NTS sheets covered by the Nain-Nutak map. b) Map outlining the major tectonostratigraphic units portrayed on the Nain-Nutak compilation, with the divisions within the Churchill Province shown.

map still allows the distribution of the plutonic rocks to be seen, and allows generalized comments regarding areal abundance of each rock type.

5. The map is meant to provide a basis and focus for continuing work in the region because much of the information portrayed on it has been previously available only to a small and widely dispersed group of individuals, actively involved with ongoing work in the area. Some of the contacts between the map units are based on aeromagnetic data and on the extrapolation of known contacts and relationships. The validity of these interpretations have to await further work.

6. It represents the first in a planned series of 1:500,000-scale map sheets to be published prior to the production of the next geological map of Labrador. Such maps will provide a synthesis of all government, industry and university geological mapping in Labrador at the time of their publication.

### ACKNOWLEDGMENTS

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