

### **The geochemistry and origin of the Bourne Complex, northwestern Ellesmere Island, Canada**

**Andrew S. Henry**

*Department of Geology, Dalhousie University, Halifax, Nova Scotia B3H 3J5, Canada*

The Bourne Complex, a reconnaissance unit of unknown thickness, contact relations, and age, underlies Kleybolte Peninsula on the northwestern coast of Ellesmere Island. Situated on the rim of the Sverdrup Basin, the basic volcanic and intrusive rocks of the complex contain important information regarding pre-Sverdrup Basin magmatism. Three petrographically distinct

sets of rocks have been identified. Mobilization of major elements has occurred as a result of hydrothermal alteration or low grade metamorphism. Analysis of immobile trace elements indicates that the Bourne Complex rocks have calc-alkaline affinities and were deposited in a volcanic arc setting.