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# Bedrock Geology of Ontario

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## Bedrock Geology of Ontario

Ontario Geological Survey
*Ministry of Northern Development and Mines*
*1991; Maps 2541 to 2545 inclusive*

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In celebration of 100 years of service to the mineral industry, the Ontario Geological Survey is releasing a series of theme maps and a two-part special volume describing the geology of Ontario. The first fruit of this project is a set of 1:1,000,000 scale bedrock geology maps, released in conjunction with the GAC-MAC annual meeting in May 1991.

This handsome collection of four theme maps and an accompanying sheet containing a legend and explanatory notes illustrates major advances in both geological knowledge and cartographic technology. Unlike their rather drab 1970 predecessors, these colourful maps vividly illustrate the distribution of some 60 different lithological components of Ontario geology, compared with 29 on the previous versions. One need only examine the revised geology of the Elzevir terrane of the Grenville Province or of the northwestern part of Superior Province to fully appreciate the wealth of detail that the maps accommodate.

Apart from the large number of subdivisions, the maps contain many innovative features:

1) New geochronological data have been taken into account in the subdivision of Ontario's Precambrian rocks. Those greenstone belts in Superior Province that contain rocks older than 2800 Ma are clearly distinguished from younger ones, but this, of course, does not come without encumbrances. An unfortunate byproduct is a legend containing the unwieldy international chronostratigraphic nomenclature (Neo-Archean, MesoProterozoic, *etc.*) This reviewer only recently mastered the spelling of Helikian!

2) The subdivision of the Archean granitoid and gneissic rocks, traditionally portrayed as vast seas of pink on previous maps, is far more complete than ever attempted in the past. The new versions clearly distinguish granitoid rocks on the basis of composition, texture and relative age, giving the user a feeling of a richer geological architecture for both Superior and Grenville provinces.

3) The Phanerozoic units, like their Precambrian counterparts, have also fared well by closer subdivision and portrayal as Groups and Formations.

4) A novel feature of the map series is the contribution, by geologists of adjacent provinces and states, of strips of border geology to alleviate many of the "boundary faults" that annoy those of us who like to join maps from different sources.

5) With apologies to paleomagnetic specialists and probably some petrologists, a truly pleasing aspect of the maps, particularly evident on the East Central sheet, is the subdued portrayal of diabase dyke swarms by comparison with other lithologies.

This reviewer has used the maps periodically for a period of more than two months, and few obvious errors have been detected, with the exception of a case of incorrect colour designation for a granitoid body, perhaps subliminally, in the Manitoba "strip". As is common with folded maps, the creases are beginning to wear with use. The most serious, perhaps parochial, complaint that this reviewer can muster is that no mineral deposit information appears on the maps, nor is advertised to appear as part of the theme map series.

The Bedrock Geology of Ontario theme maps are the products of a mammoth team effort led by Phil Thurston. This group at the OGS is to be heartily congratulated for wrestling with an ever-expanding geological data base and subduing it into a concise set of informative maps. At $15 for a set (plus federal and provincial taxes, of course), they are truly a bargain, as well as a fitting celebration of 100 years of mapping by many geologists.

## Principles of Geology, Being An Attempt to Explain the Former Changes of the Earth's Surface, By References to Causes Now In Operation, Vol. III

By Charles Lyell
*Facsimile reprint of the first edition of 1833, with a new bibliography compiled by Martin J.S. Rudwick*
*University of Chicago Press, Chicago*
*xxxi + 398 + 160 p., 1991*
*US $17.95 (paper), US $39.95 (cloth)*

Reviewed by William A.S. Sarjeant
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In an earlier review (*Geoscience Canada*, v. 19, p. 33), I reported the republication of the first of the three volumes of Lyell's classic and influential work, noting that Rudwick's introduction was not merely to the first, but to all three volumes. The important feature of this third volume is Rudwick's bibliography of Lyell's sources. This is, as he writes:

> ... designed to make Lyell's sources more accessible, in order to aid further research on the *Principles* and its scientific and social context. It should also serve to give the reader a bird's-eye view of the kinds of sources on which Lyell relied for his empirical evidence, or which he chose to cite in support of his theoretical arguments. For this reason, the titles of books, articles, and periodicals are here given in fairly full form.
> (p. 113 of Appendix 1 pagination)

The format of the bibliography is carefully explained and the presentation of the entries is meticulous. This will be a valuable source to all future Lyellian scholars — and thus, to all historians of geology, since Lyell is such a pivotal figure in the development of our discipline.