THESE TERMS GOVERN YOUR USE OF THIS DOCUMENT

Your use of this Ontario Geological Survey document (the "Content") is governed by the terms set out on this page ("Terms of Use"). By downloading this Content, you (the "User") have accepted, and have agreed to be bound by, the Terms of Use.

Content: This Content is offered by the Province of Ontario's *Ministry of Northern Development and Mines* (MNDM) as a public service, on an "as-is" basis. Recommendations and statements of opinion expressed in the Content are those of the author or authors and are not to be construed as statement of government policy. You are solely responsible for your use of the Content. You should not rely on the Content for legal advice nor as authoritative in your particular circumstances. Users should verify the accuracy and applicability of any Content before acting on it. MNDM does not guarantee, or make any warranty express or implied, that the Content is current, accurate, complete or reliable. MNDM is not responsible for any damage however caused, which results, directly or indirectly, from your use of the Content. MNDM assumes no legal liability or responsibility for the Content whatsoever.

Links to Other Web Sites: This Content may contain links, to Web sites that are not operated by MNDM. Linked Web sites may not be available in French. MNDM neither endorses nor assumes any responsibility for the safety, accuracy or availability of linked Web sites or the information contained on them. The linked Web sites, their operation and content are the responsibility of the person or entity for which they were created or maintained (the "Owner"). Both your use of a linked Web site, and your right to use or reproduce information or materials from a linked Web site, are subject to the terms of use governing that particular Web site. Any comments or inquiries regarding a linked Web site must be directed to its Owner.

Copyright: Canadian and international intellectual property laws protect the Content. Unless otherwise indicated, copyright is held by the Queen's Printer for Ontario.

It is recommended that reference to the Content be made in the following form:

Blackburn, C.E., Young, J.B., Searcy, T.O. and Donohue, K. 1994. Precambrian Geology of the Separation Lake greenstone belt, west part; Ontario Geological Survey, Open File Map 241, scale 1:20 000.

Use and Reproduction of Content: The Content may be used and reproduced only in accordance with applicable intellectual property laws. *Non-commercial* use of unsubstantial excerpts of the Content is permitted provided that appropriate credit is given and Crown copyright is acknowledged. Any substantial reproduction of the Content or any *commercial* use of all or part of the Content is prohibited without the prior written permission of MNDM. Substantial reproduction includes the reproduction of any illustration or figure, such as, but not limited to graphs, charts and maps. Commercial use includes commercial distribution of the Content, the reproduction of multiple copies of the Content for any purpose whether or not commercial, use of the Content in commercial publications, and the creation of value-added products using the Content.

Contact:

FOR FURTHER INFORMATION ON	PLEASE CONTACT:	BY TELEPHONE:	BY E-MAIL:
The Reproduction of the EIP or Content	MNDM Publication Services	Local: (705) 670-5691 Toll Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales.ndm@ontario.ca
The Purchase of MNDM Publications	MNDM Publication Sales	Local: (705) 670-5691 Toll Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales.ndm@ontario.ca
Crown Copyright	Queen's Printer	Local: (416) 326-2678 Toll Free: 1-800-668-9938 (inside Canada, United States)	Copyright@gov.on.ca

94 45′ 94 40′ 94 35′ 94 30′

50 20′

50 15′

Umfreville Lake

Paterson Lake

Selwyn Lake

Tourist Lake

Trout Lake

Separation Lake

English River

Fiord

Bay

PATERSON LAKE ANTELOPE

BOUNDARY

MAPPING

Lower Kettle Rapids

Middle Kettle Rapids

Upper Kettle Rapids

Separation Rapids

ROAD

RIVER

CREEK

Ministry of Northern Development and Mines
Ontario

Mines and Minerals Division
Ontario Geological Survey

Open File Map 241

PRECAMBRIAN GEOLOGY

SEPARATION LAKE GREENSTONE BELT, WEST PART

Scale 1:20 000

500 m 0 0.5 1 km

©Queen's Printer for Ontario, 1994.

This map is published with the permission of the Director, Ontario Geological Survey.

LEGEND

PHANEROZOIC

CENOZOIC

QUATERNARY

PLEISTOCENE AND RECENT

Till, clay, sand and gravel

UNCONFORMITY

PRECAMBRIAN

ARCHEAN[a]

7 **Granitoid Rocks**[b]
- 7a Grey biotite granite, foliated
- 7b Pink biotite granite, massive to weakly foliated
- 7c Pegmatitic
- 7d Aplitic
- 7e Megacrystic/porphyritic
- 7f Feldspar-quartz-biotite+hornblende gneiss[d]
- 7g Granite with biotite-quartz+garnet clots

INTRUSIVE CONTACT

6 **High Grade Metasedimentary Rocks**[b,c]
- 6a Feldspar-quartz-biotite+garnet schist
- 6b Quartz-feldspar+garnet+biotite gneiss[e]
- 6c Feldspar-quartz-biotite+garnet schist with relic bedding
- 6d Polymictic conglomerate
- 6e Quartz-rich sandstone[f]
- 6f Garnet-pyroxene-plagioclase-quartz layers
- 6g Mafic plagioclase-pyroxene-hornblende layers
- 6h Gneissic

5 **Mafic Intrusive Rocks**[b,g]
- 5a Aphyric gabbro
- 5b Plagioclase-phyric gabbro
- 5c Hornblende-phyric gabbro

INTRUSIVE CONTACT

4 **Medium Grade Clastic Metasedimentary Rocks**[b]
- 4a Sandstone (arenite/wacke)
- 4b Feldspathic
- 4c Quartzose
- 4d Polymictic conglomerate
- 4e Argillite
- 4f Quartz-feldspar-biotite

3 **Medium Grade Chemical Metasedimentary Rocks**
- 3a Chert
- 3b Chert-magnetite ironstone

2 **Felsic Metavolcanic Rocks**[b]
- 2a Tuff
- 2b Lapilli-tuff, monolithic
- 2c Tuff-breccia, monolithic
- 2d Quartz crystals
- 2e Feldspar crystals
- 2f Quartz-feldspar+biotite schist

1 **Mafic Metavolcanic Rocks**[b]
- 1 Unsubdivided amphibolite
- 1a Massive amphibolitic flows
- 1b Pillowed amphibolitic flows
- 1c Plagioclase phenocrysts
- 1d Flow breccia and/or pillow breccia
- 1e Flow layering
- 1f Hyaloclastite
- 1g Amygdules
- 1h Banded amphibolite[h]
- 1j Tuff-breccia
- 1k Tuff
- 1m Biotite-quartz-feldspar schist

[a] *Subdivision of major rock units does not indicate age relationships.*

[b] *(gt) indicates presence of metamorphic garnet.*

[c] *Migmatitic association between granitic and high grade metasedimentary rocks indicated by bracketed enclosing subordinate phase, and percentage where known; eg. (7b/6a 10) indicates 10% schist component.*

[d] *May be hybrid granitoids, or metavolcanic enclaves, commonly as xenoliths and schlieren.*

[e] *May include felsic metavolcanic rocks.*

[f] *May include silicified metasedimentary rocks.*

[g] *May include coarse phases of flows, and dikes.*

[h] *Tectonic banding, superimposed on pillowed, flow-brecciated and massive metavolcanic rock[a]*

ABBREVIATIONS

asp	arsenopyrite	py	pyrite
Au	gold	sp	sphalerite
be	beryl	U	uranium
cp	chalcopyrite	Zn	zinc
Cu	copper	(gt)	garnet
gf	graphite	(sil)	silicification
gn	galena	(gf)	graphite
IF	iron formation	(s)	sulphidisation
po	pyrrhotite		

PROPERTIES AND EXPLORATION[a]

1. Alcock, C. 1947-1948
2. Bellweather Resources Ltd. 1987-1988
3. Canadian Nickel Company Ltd. 1963
4. Can Fer Mines Ltd. 1968-1970
5. Champion Bear Resources Ltd. 1989-1992[b]
6. Centurion Mines Ltd. 1959
7. Davidson, P. 1968-1970
8. Hale, R. 1977-1978
9. Hawes, H. 1947
10. Juma Mining and Exploration Ltd. 1957
11. Kamo Energy and Resources Ltd. 1990[c]
12. Leavoage, S. 1979-1980
13. Noranda Exploration Co. Ltd. 1975-1976
14. Noranda Exploration Co. Ltd. 1983[c]
15. Noront Resources Inc. 1987
16. Perkins, G. 1978
17. Shabu Gold Mines Ltd. 1987
18. Sparton Resources Inc. 1985
19. Thorburn, M. 1988
20. Tibbo, H.G. 1984
21. Tombill Gold Mines Ltd.-Glen Echo Mines Ltd. 1957
22. Tudale Exploration Ltd. 1970
23. Zebruck, G. and Kuehnbaum, R. 1990

[a] *Years during which work was done is indicated. Areas of work indicated by numbers on map face, except for large areas of airborne surveys.*

[b] *Includes airborne surveys not shown on map.*

[c] *Airborne surveys only.*

SYMBOLS

- Area of bedrock outcrop
- Small bedrock outcrop
- Geological boundary, observed
- Geological boundary, interpreted
- Fault
- Trench
- Bedding, top unknown (inclined)
- Bedding, top indicated by arrow (overturned)
- Lava flow, top in direction of arrow
- Minor fold with plunge (S and Z symmetry)
- Minor fold with plunge (W and U symmetry)
- Anticline, syncline with plunge direction
- Lineation with plunge
- Foliation (dip unknown, inclined, vertical)
- Overprinted foliation (dip unknown, inclined)
- Joint (inclined)
- Diamond drill hole, with company number

CREDITS

This unedited Open File Map is presented for viewing in order to provide early access to recent geoscience mapping. This map is draft quality only and does not conform to the Ministry of Northern Development and Mines cartographic standards. This is a digitally-constructed geological map. The appearance of subsequent versions of this map will improve following cartographic adjustment and enhancement. It will be available for viewing and sale at Mines and Minerals Publication sales, Willet Green Miller Centre, Sudbury; at the Mines and Minerals Information Centre, Toronto; and at the Resident Geologist's office in Kenora.

Issued 1994.

Information from this publication may be quoted if credit is given. It is recommended that reference to this map be made in the following form:

Blackburn, C.E., Young, J.B., Searcy, T.O. and Donohue, K. 1994. Precambrian Geology of the Separation Lake greenstone belt, west part; Ontario Geological Survey, Open File Map 241, scale 1:20 000.