

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: <Author’s last name>, <Initials> <year of publication>. <Content title>; Ontario Geological Survey, <Content publication series and number>, <total number of pages>p.

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 Content	MNDM Publication Services	Local: (705) 670-5691 Toll Free: 1-888-415-9845, ext. 5691 (inside Canada, United States)	Pubsales@ndm.gov.on.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.gov.on.ca
Crown Copyright	Queen’s Printer	Local: (416) 326-2678 Toll Free: 1-800-668-9938 (inside Canada, United States)	Copyright@gov.on.ca

LES CONDITIONS CI-DESSOUS RÉGISSENT L'UTILISATION DU PRÉSENT DOCUMENT.

Votre utilisation de ce document de la Commission géologique de l'Ontario (le « contenu ») est régie par les conditions décrites sur cette page (« conditions d'utilisation »). En téléchargeant ce contenu, vous (l'« utilisateur ») signifiez que vous avez accepté d'être lié par les présentes conditions d'utilisation.

Contenu : Ce contenu est offert en l'état comme service public par le *ministère du Développement du Nord et des Mines* (MDNM) de la province de l'Ontario. Les recommandations et les opinions exprimées dans le contenu sont celles de l'auteur ou des auteurs et ne doivent pas être interprétées comme des énoncés officiels de politique gouvernementale. Vous êtes entièrement responsable de l'utilisation que vous en faites. Le contenu ne constitue pas une source fiable de conseils juridiques et ne peut en aucun cas faire autorité dans votre situation particulière. Les utilisateurs sont tenus de vérifier l'exactitude et l'applicabilité de tout contenu avant de l'utiliser. Le MDNM n'offre aucune garantie expresse ou implicite relativement à la mise à jour, à l'exactitude, à l'intégralité ou à la fiabilité du contenu. Le MDNM ne peut être tenu responsable de tout dommage, quelle qu'en soit la cause, résultant directement ou indirectement de l'utilisation du contenu. Le MDNM n'assume aucune responsabilité légale de quelque nature que ce soit en ce qui a trait au contenu.

Liens vers d'autres sites Web : Ce contenu peut comporter des liens vers des sites Web qui ne sont pas exploités par le MDNM. Certains de ces sites pourraient ne pas être offerts en français. Le MDNM se dégage de toute responsabilité quant à la sûreté, à l'exactitude ou à la disponibilité des sites Web ainsi reliés ou à l'information qu'ils contiennent. La responsabilité des sites Web ainsi reliés, de leur exploitation et de leur contenu incombe à la personne ou à l'entité pour lesquelles ils ont été créés ou sont entretenus (le « propriétaire »). Votre utilisation de ces sites Web ainsi que votre droit d'utiliser ou de reproduire leur contenu sont assujettis aux conditions d'utilisation propres à chacun de ces sites. Tout commentaire ou toute question concernant l'un de ces sites doivent être adressés au propriétaire du site.

Droits d'auteur : Le contenu est protégé par les lois canadiennes et internationales sur la propriété intellectuelle. Sauf indication contraire, les droits d'auteurs appartiennent à l'Imprimeur de la Reine pour l'Ontario.

Nous recommandons de faire paraître ainsi toute référence au contenu : nom de famille de l'auteur, initiales, année de publication, titre du document, Commission géologique de l'Ontario, série et numéro de publication, nombre de pages.

Utilisation et reproduction du contenu : Le contenu ne peut être utilisé et reproduit qu'en conformité avec les lois sur la propriété intellectuelle applicables. L'utilisation de courts extraits du contenu à des fins *non commerciales* est autorisée, à condition de faire une mention de source appropriée reconnaissant les droits d'auteurs de la Couronne. Toute reproduction importante du contenu ou toute utilisation, en tout ou en partie, du contenu à des fins *commerciales* est interdite sans l'autorisation écrite préalable du MDNM. Une reproduction jugée importante comprend la reproduction de toute illustration ou figure comme les graphiques, les diagrammes, les cartes, etc. L'utilisation commerciale comprend la distribution du contenu à des fins commerciales, la reproduction de copies multiples du contenu à des fins commerciales ou non, l'utilisation du contenu dans des publications commerciales et la création de produits à valeur ajoutée à l'aide du contenu.

Renseignements :

POUR PLUS DE RENSEIGNEMENTS SUR	VEUILLEZ VOUS ADRESSER À :	PAR TÉLÉPHONE :	PAR COURRIEL :
la reproduction du contenu	Services de publication du MDNM	Local : (705) 670-5691 Numéro sans frais : 1 888 415-9845, poste 5691 (au Canada et aux États-Unis)	Pubsales@ndm.gov.on.ca
l'achat des publications du MDNM	Vente de publications du MDNM	Local : (705) 670-5691 Numéro sans frais : 1 888 415-9845, poste 5691 (au Canada et aux États-Unis)	Pubsales@ndm.gov.on.ca
les droits d'auteurs de la Couronne	Imprimeur de la Reine	Local : 416 326-2678 Numéro sans frais : 1 800 668-9938 (au Canada et aux États-Unis)	Copyright@gov.on.ca

ONTARIO
DEPARTMENT OF MINES

PRELIMINARY REPORT

on

THE GEOLOGY ALONG THE MISSISSAGI ROAD

by

W.D. Harding

INTRODUCTION

A geological reconnaissance survey of that part of the Mississagi Road that extends from Township 1F, District of Algoma, to Chapleau, District of Sudbury, a distance of approximately 103 miles, was undertaken by the writer for the Ontario Department of Mines in the summer of 1949. The survey also included examinations of several sections situated close to and accessible from the Mississagi Road, as follows: Lafoe Creek, Conacher Lake, Seymour Lake, Mashagama Lake, Rocky Island Lake, Rouelle Lake, Seven Mile Lake, Peshu Lake, Seabrook Lake, Mountain Ash Lake, part of Aubinadong River in Township 6E, Flame Lake, Burntwood Lake, Honey Lake, part of the Aubinadong River in Township 8E, Five Mile Lake, Nemegos Lake, Tony Lake, Pineal Lake, and Wenebegon Lake.

History

The Mississagi Road began its development as a bush trail built to facilitate early logging operations on the north shore of Lake Huron. After a long history involving several periods of construction, the road was recently linked up with Chapleau on the Canadian Pacific Railway. The first motor vehicles were driven from Thessalon through to Chapleau in the winter during the early part of 1949.

Access

Most of the above-mentioned examined sections may be reached by side road or trail from the Mississagi Road. Wenebegon Lake is accessible from the Mississagi Road by canoe by means of Dead Man's Creek. The creek follows a rather tortuous route involving several portages, and the journey requires about five hours. An alternative route to Wenebegon Lake is by means of a bush road from Sultan on the C.P.R. The road strikes southwest from Sultan and meets the Wenebegon River south of Wenebegon Lake. The remainder of the journey may be made by canoe up the river. The distance by road from Sultan to the Wenebegon River is approximately 32 miles. In 1949 most of the road could easily be traversed by motor car.

Former Geological Work and Prospecting Activities

The area through which the Mississagi Road passes consists largely of granite rocks. Probably for this reason few geological surveys have been carried out within the area. In 1894

Robert Bell completed a canoe traverse along the Mississagi River from its headwaters to Lake Huron. In 1902, L.C. Graton examined the rocks exposed along the Mississagi and Wenebagon rivers and at Round (Rouelle) and Seven Mile lakes. No striking mineralization was reported by either of these explorers.

From time to time many sections of the area have been penetrated by those engaged in the search for mineral, seemingly without important results. Following the discoveries of uranium in 1948 and 1949 in the area situated north of Sault Ste. Marie, the Mississagi Road section assumed importance as prospecting field for radioactive minerals.

With the opening of the Mississagi Road through to Chapleau an area of considerable dimensions, many sections of which had never been exhaustively examined, was made easily accessible. In 1949 prospectors equipped with Geiger counters traversed the Mississagi Road and examined the numerous tributary roads and logging trails. In the late summer of that year prospectors for Preston East Dome Mines, Limited, staked several claims on a discovery of radioactive mineral situated near Aubrey Falls on the Mississagi River in Townships 4E and 4D, District of Algoma. Following the staking by Preston East Dome Mines, Limited, several other groups of claims were located in the same section. Claims were also staked on the southwest shore of Seabrook Lake in rocks that were locally radioactive. In 1949 other claims were located on a sulphide showing exposed on the Mississagi Road in the southwestern part of Township 10D.

In 1948 a devastating forest fire swept through the Mississagi Forest Reserve destroying much valuable timber. The trees and vegetation on the high ground at many places were completely burned off. Excellent outcrops were thus exposed.

GEOLOGY

The rocks of the area are all of Precambrian age. They include the following types: Keewatin and Timiskaming, Algoman, Huronian, and Keweenawan.

Keewatin and Timiskaming

The oldest rocks consist of lavas and sediments of Keewatin and Timiskaming type. Only a few small scattered bands were identified in the area. Lavas and sediments constitute a narrow belt, which strikes almost east-west through Tony Lake in de Gaulle Township, District of Sudbury. Another narrow band consisting largely of greywackes is exposed in the southwestern part of Township 10D, District of Sudbury. The greywackes in this section are steeply folded. They strike northeast and are visible in outcrops which are situated a few feet from the Mississagi Road. Narrow bands of dark-coloured hornblende-bearing rock exposed on the Mississagi Road south of Black Creek in Township 3E, District of Algoma, and similar dark-coloured rocks exposed in the same township about 3 miles to the east, appear to be remnants of the Keewatin and Timiskaming. All the above-mentioned rocks occur as inclusions in the granite and granite gneiss.

Algoman

More than 90 per cent of the surveyed area is covered with granitic rocks believed to be Algoman in age. Most of these

rocks are granite gneisses. They contain scattered sections of massive granite, which range in colour from grey to brick-red, and in texture from fine to coarse.

Huronian

Huronian rocks were identified in two localities. A belt of Huronian sediments about two miles long and half a mile wide is exposed at the southwestern part of Seabrook Lake in Township 5E, District of Algoma. The sediments include conglomerates containing pebbles of red granite, bands of highly metamorphosed greywackes, and crystalline limestone.

Another small belt of Huronian rock consisting almost entirely of conglomerate with very thin beds of arkose and quartzite is exposed on the Lafoe Creek Road. The sediments comprise a belt about a mile long and a quarter of a mile wide. The belt is situated about 2 miles east of the Mississagi Road in Township 1F, District of Algoma.

Keweenawan

A massive, brick-red, medium to coarse textured granite composed largely of feldspar and quartz is exposed along the shores of Seabrook Lake in Township 5E, District of Algoma. This granite is fresh in character and differs in appearance from the Algoman granite gneiss, which predominates within the examined area. Similar red granite is exposed at many places in the section that extends from Seabrook Lake to Rocky Island Lake, and along the Mississagi Road from Township 1F to Township 6D, District of Algoma. The structural relationships between this red granite and gneiss are obscure. On account of its fresh appearance, however, the writer presumes that the red massive granite is younger than the Algoman. It may be Keweenawan in age.

The youngest rocks are diabase dikes. Hundreds of these dikes are scattered through the area. The diabase cuts all the rocks previously mentioned, including the later massive red granite.

The rocks of the area are summarized in the following classification:

- Keweenawan : Diabase dikes. Massive red granite.
- Huronian : Conglomerate, greywacke, crystalline limestone.
- Algoman : Granite gneiss, granite.
- Timiskaming :
- and : Greywacke, quartzite, basic lavas.
- Keewatin :

A POTENTIAL SOURCE OF RADIOACTIVE MINERALS

The uranium-bearing minerals recently discovered near the east shore of Lake Superior occur in small veins situated close to contacts between granite and diabase dikes.

As hundreds of diabase dikes have been observed in the area, the extent of granite-d diabase contacts as yet unexamined offers great possibilities to the prospector in search of uranium-

bearing minerals. Recent examinations suggest that the radioactivity in most cases is confined largely to those sections where diabase dikes cut the massive red Keweenawan granite.

SULPHIDE MINERALIZATION

No sulphide mineralization of spectacular character was found during the survey. Pyrite and a little chalcopyrite occur as disseminations within the gneiss at widely scattered locations. The same minerals occur along the walls of many diabase dikes and in small quartz veins close to the diabase. Pyrite is disseminated within some of the bands of sediment that are exposed at Tony Lake in de Gaulle Township and in minor amounts in small bands of grey-wacke exposed on islands and on the mainland at Wenebegon Lake. Pyrite, pyrrhotite, and zinc blende were identified in sediments exposed in the southwestern part of Township 10D.

DESCRIPTION OF PROPERTIES

A number of mining claims have been staked in the examined area. In some instances prospectors have possibly staked ground reserved as a park or for hydro electric power purposes. Some staking has been carried out in sections where the Ontario Hydro Electric Power Commission had previously made an application for a reservation for power purposes. A number of applications for recording such claims have not been accepted by the Mining Recorder and are being held in abeyance until the matter is adjudicated. Any mention of claims made in this report or indicated on the accompanying map is for the purpose of facilitating descriptions only and is without prejudice to the final disposition regarding ownership.

Preston East Dome

In August, 1949, M. Johnson and F. Horne, prospectors for Preston East Dome Gold Mines, discovered radioactive minerals near Aubrey Falls on the Mississagi River. Thirty-five claims were staked in two groups along the boundary between Townships 4D and 4E, District of Algoma. The radioactive minerals occur in rusty-weathering gossan material enclosed in small quartz veins, which cut a red granite close to a diabase dike. A sample was tested at the Provincial Assay Office, and uranium was found to be present.

Additional Staking at Aubrey Falls

Following the discovery of radioactive minerals by Preston East Dome at Aubrey Falls several groups of claims were staked. By November, 1949, more than 100 claims had been located in that section. Most of the claims are situated on the north shore of the Mississagi River in Townships 4D and 4E, District of Algoma.

Herman F. Nagel

The Herman Nagel group consists of 18 claims situated on the southwest shore of Seabrook Lake in Township 5E, District of Algoma. Altered Huronian sediments and red granite are exposed in this section. High Geiger counter readings were obtained from a band of crystalline limestone exposed on the west shore of Seabrook Lake on claim S.S.M. 20,240. No minerals resembling pitchblende were identified.

Tony Lake

In 1948, three claims were staked on a pyrite-bearing band of Keewatin greywacke exposed on the west shore of Tony Lake, de Gaulle Township, District of Sudbury.

K. Kram - J. Glowacki

The Kram-Glowacki group consists of 13 claims situated in the southwestern part of Township 10D, District of Sudbury. The Mississagi Road strikes northward through this group. A band of highly folded Keewatin greywacke strikes northeast across the road. The greywackes are cut by quartz veins, which carry pyrite, pyrrhotite, and zinc blende. Work done so far consists of stripping and trenching.

March, 1950
Reprinted 1967

