ONTARIO
DEPARTMENT OF MINES

P.R. 1948-12

PRELIMINARY REPORT

ON THE

GEOLOGY OF DARLING TOWNSHIP AND PART OF LAVANT TOWNSHIP

LANARK COUNTY

by

P. A. Peach

INTRODUCTION

During the 1948 field season, Darling township and part of Lavant township, Lanark county, was geologically mapped on a scale of half a mile to the inch by the writer and his assistants. Particular attention was paid to the numerous small iron deposits in the area. The resulting map is reproduced in simplified form and reduced scale to accompany this report.

Access

The area lies about 10 miles northwest of the village of Lanark and about 20 miles from the town of Perth on No. 7 highway. It is crossed by the Lanark-Calabogie gravel-surfaced road and in the west by the Kingston to Renfrew line of the Canadian Pacific Railway. Lavant station and Flower Station serve the area and there is a small spur line to the community of Clyde Forks. The concession-line roads are in fair condition and afford easy access to most of the area. The southeastern border is cleared for farming; the rest of the area covered by hardwood bush.

General Geology

The consolidated rocks underlying the entire area are of Precambrian age. No attempt has been made to relate them to rocks in other areas or to classify them according to recognized Precambrian series in Eastern Canada. They are, therefore, divided into two groups: (1) those of sedimentary origin, and (2) those of igneous origin. The latter are confined to intrusives, because no positive evidence was found to suggest that any of the rocks were extrusive in nature.

Table of formations

CENOZOIC

Pleistocene:
Sand, gravel, boulders.

PRECAMBRIAN

Sediments:
Crystalline limestone, including dolomite.
Biotite schist, hornblende schist, chlorite schist.
Sericite schist, talc schist.
Biotite gneiss, hornblende-biotite gneiss.

Intrusives:
Granite, granite gneiss, syenite, granite pegmatite.
Diorite, amphibolite or hornblende rock.

Sediments

In the two townships by far the greater area is underlain by sediments. These consist of crystalline limestone, schists, and gneisses of partial sedimentary origin, the schistose members being the most extensive. Belts of crystalline limestone to the northwest and to the south are separated by a large area of schists, which has the appearance of being folded in between the two belts of limestone. The limestone in general is a coarsely crystalline variety having a striped appearance, alternate bands being light-grey and white in colour. Locally, particularly in the vicinity of quartz veins, it becomes very fine grained and of a somewhat pinkish colour. To the north and east of White lake, in places the limestone has become the host to small veins carrying hematite, and on lot 9, concession VIII of Darling, a pegmatite dike has developed in the limestone a small deposit of graphite.

The belt of schists in the central and western parts of the area are fairly uniform in nature; they dip at high angles and have a regional strike that varies from northeast-southwest to east-west. They are, for the most part, biotite schists or hornblende-biotite schists and are of a brownish-grey colour. In the vicinity of the intrusives, however, they have been altered and present a baked appearance, tending to lose their definite schistosity and becoming denser and apparently finer-grained. They also tend to become greenish in hue, particularly near the contact with the diorite-amphibolite type of intrusive, making the actual definition of the contact somewhat obscure.

In places the schists show a rusty appearance, which is probably due to the weathering of pyrite. The Radenhurst-Caldwell mine on lot 22, concessions III and IV of Lavant township, lies in such an area, as well as pyrite being present in the ore. In lot 7, concession V of Darling township, another of these pyritiferous areas showed strong magnetic attraction over an area of about two acres.

In lots 1 to 19, concessions X, XI and XII of Darling township, and in lots 16 to 18, concessions III, IV, and V of Lavant township, the schists have come under the influence of granitizing solutions, turning from brown or grey schists to pink biotite or hornblende gneisses. The change is somewhat gradual, there being a transition zone. In the case of the Darling exposures the granitization is marked by the appearance of many anastomosing pegmatite dikes which range in width from a few inches up to 50 feet and are composed almost exclusively of quatz and alkaline feldspar.

Intrusives

The intrusives of the Darling-Lavant area are confined to small, irregular, discordant dike-like masses of granite and to somewhat larger bodies of dioritic composition. The granite in these dikes is a pink biotite or biotite-hornblende type. It varies considerably in composition from place to place, particularly in the amount of dark minerals and in the colour of the feldspar. To the north of White lake along the boundary of Bagot township, there is a large body of red granite gneiss, the lineation in which seems to follow the strike of the sediments on the other side of the lake. This seems to be part of a granite mass of batholithic extent lying in Bagot township. The dioritic or hornblende rocks appear in a number of small areas cutting the sediments in Darling township, as a large area generally surrounding the granite dike-like bodies on the border of Darling and Lavant townships, and in a similar area immediately to the south of White lake. The rock consists essentially of hornblende and plagioclase with minor amounts of quartz. It is extremely variable in texture, the hornblende crystals ranging in length from a sixteenth of an inch to 2 inches within a distance of a few feet. Furthermore, in the places where it surrounds the granite bodies, it appears to grade into the latter, the contact between the two being only arbitrarily fixed. All phases intermediate between granite and diorite can be seen.

Folding and Faulting

The schists and limestone have been considerably folded, many drag folds appearing in the former, particularly in the vicinity of the Darling-Lavant boundary. Owing to the complexity of the structure and the absence of markers, it was impossible to obtain positive evidence of faulting.

Economic Geology

Graphite

In lot 9, concession VIII of Darling township, a small deposit of graphite appears to be associated with a pegmatite dike cutting across the crystalline limestone. It outcrops for a distance of about 30 feet. A small prospect pit has been dug on it.

Marble

At Marble Bluff on the Lanark-Calabogie road a small exposure of serpentinized limestone has been worked for ornamental stone, the marble being of a fine green and white mottled appearance.

Iron

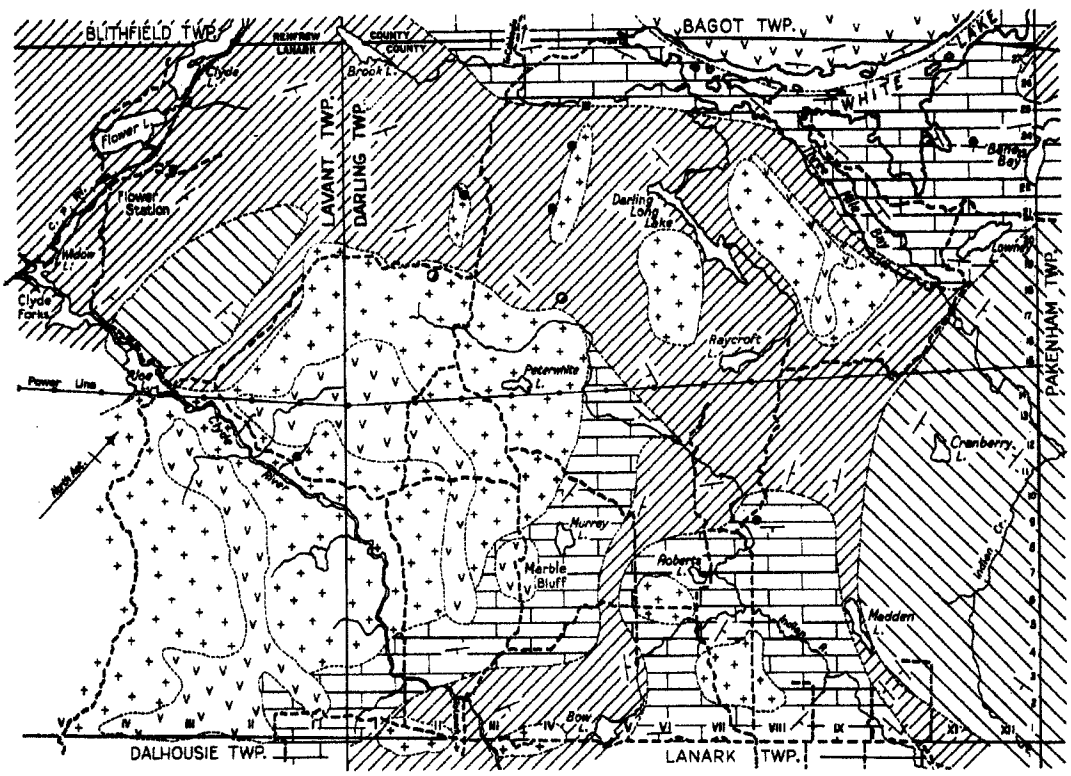
Iron occurs in the area both as hematite and as magnetite. The former is present in a deposit at the northeast end of White lake on lot 23, concession XI of Darling township. Here a vein-like body of massive blue hematite from 6 to 8 feet in width is exposed at intervals for a distance of about 12 chains along the strike. A number of prospect pits have been put down on the deposit.

Hematite also outcrops on a peninsula in the lake on lot 23, concession X, where it is disseminated through fine-grained limestone adjoining a quartz vein.

The deposits of magnetite are more numerous than those of hematite and seem to be associated with the dioritic type of intrusive, appearing generally at the contact of the intrusive with the schists. This is particularly so in lots 21 and 23, concession IV of Darling township, where there are small prospect pits on local concentrations in a belt of disseminated magnetite extending from lot 18 to lot 24 along the diorite-schist contact. The Yuille mine of lot 25, concession V, appears to be at the northwesterly extension of this zone. The showing in lot 19, concession II, and lot 21, concession III, are also of the above type. In lot 11, concession I, of Lavant township, a small prospect pit has been put down on a concentration of magnetite inside the diorite intrusive. The rock is rusty-weathered over an area of about two acres and shows strong magnetic effects.

The Radenhurst-Caldwell mine on lot 22, concessions III and IV of Lavant township, lies in a band of pyritiferous magnetite in the schists. No evidence of intrusives was seen in the neighbourhood.

December, 1948.



Ontario Department of Mines 1948

LEGEND

SEDIMENTS

- Crystalline limestone, including dolomite.
- Biotite schist, hornblende schist, Chlorite schist, sericite schist, talc schist.
- Biotite gneiss, hornblende biotite schist.

INTRUSIVES

- Granite, granite gneiss, syenite.
- Diorite, amphibolite or hornblende rock.

Geology by P.A.Peach.

SYMBOLS

- Strike and dip of bedding or schistosity.
- Geological boundary.
- Mineral showing, with prospect pits.
- Mineral showing.
- Mine shaft.
- Road.

PRELIMINARY MAP of DARLING TOWNSHIP and part of LAVANT TOWNSHIP, LANARK COUNTY.

Scale: 1 inch to 2 miles.