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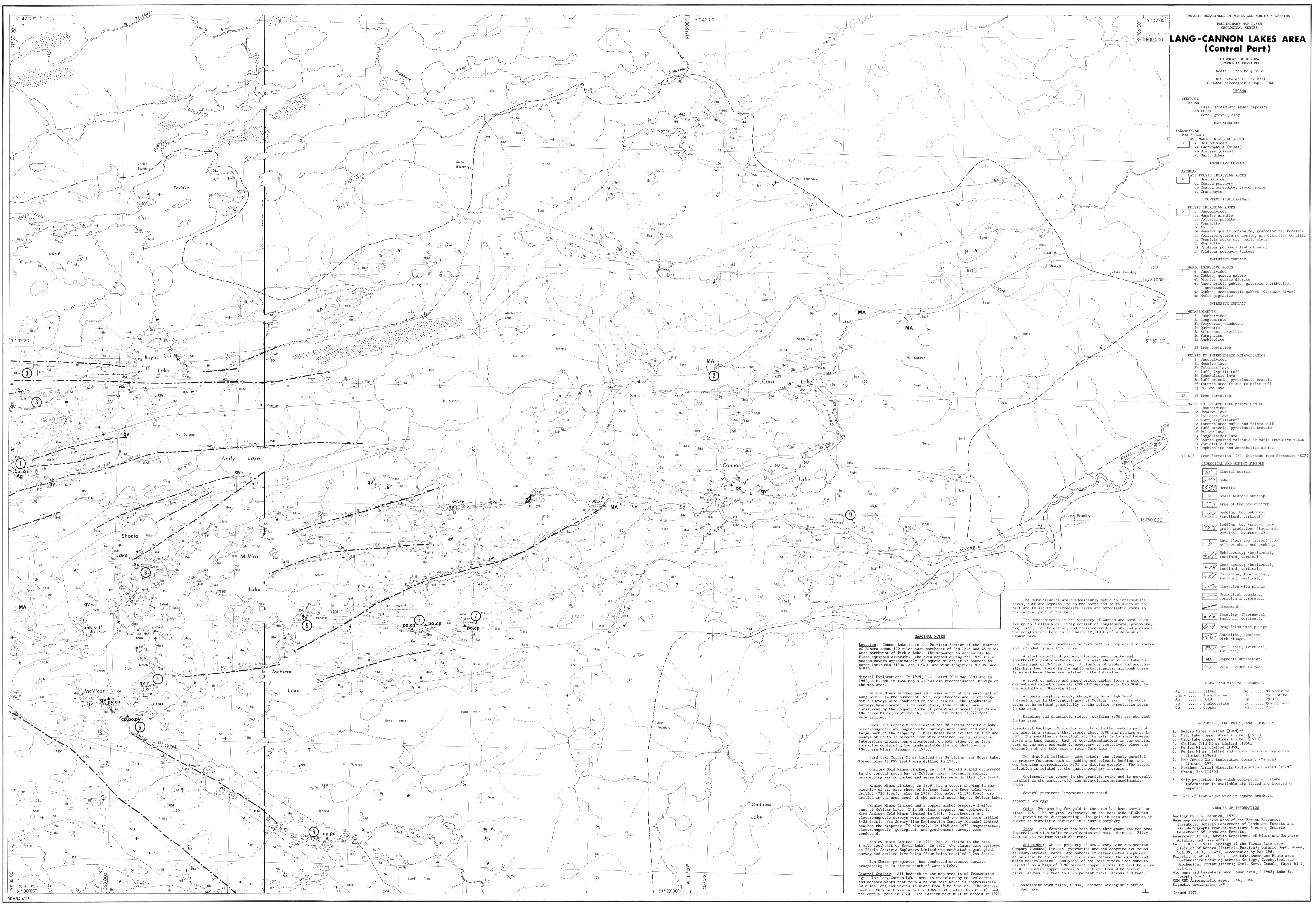
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ONTARIO DEPARTMENT OF MINES AND NORTHERN AFFAIRS  
 PRELIMINARY MAP F. 665  
 GEOLOGICAL SERIES  
**LANG-CANNON LAKES AREA  
 (Central Part)**  
 DISTRICT OF KENORA  
 (PATRICIA PORTION)  
 Scale 1 inch to 3/4 mile  
 NTS Reference: 52 D/11  
 OMI-GSC Aeromagnetic Map: 9060

- LEGEND**
- CENOZOIC**  
 RECENT  
 Lake, stream and swamp deposits  
 PLEISTOCENE  
 Sand, gravel, clay  
 UNCONFORMITY
- PRECAMBRIAN**  
 PROTEROZOIC  
 ATE MAFIC INTRUSIVE ROCKS  
 7 Unsubdivided  
 7a Amphibolite (dikes)  
 7b Diabase (dikes)  
 7c Mafic dikes  
 INTRUSIVE CONTACT
- ARCHEAN**  
 LATE FELSIC INTRUSIVE ROCKS  
 5 Unsubdivided  
 6a Quartz porphyry  
 6b Quartz monzonite, trondhjemite  
 6c Granophyre  
 CONTACT INDETERMINATE
- FELSIC INTRUSIVE ROCKS**  
 3 Unsubdivided  
 3a Massive granite  
 3b Foliated granite  
 3c Pegmatite  
 3d Aplite  
 3e Massive quartz monzonite, granodiorite, tonalite  
 3f Foliated quartz monzonite, granodiorite, tonalite  
 3g Granitic rocks with mafic clots  
 3h Migmatite  
 3i Feldspar porphyry (subvolcanic)  
 3j Feldspar porphyry (dikes)  
 INTRUSIVE CONTACT
- MAFIC INTRUSIVE ROCKS**  
 4 Unsubdivided  
 4a Gabbro, quartz gabbro  
 4b Diorite, quartz diorite  
 4c Anorthositic gabbro, gabbroic anorthosite, anorthosite  
 4d Gabbro, anorthositic gabbro (Otooswin River)  
 4e Mafic pegmatite  
 INTRUSIVE CONTACT
- METASEDIMENTS**  
 1 Unsubdivided  
 2 Conglomerate  
 3 Greywacke, sandstone  
 4 Quartzite  
 5 Siltstone, argillite  
 6 Paragneiss  
 7 Amphibolite  
 IF Iron formation  
 FELSIC TO INTERMEDIATE METAVOLCANICS  
 2 Unsubdivided  
 2a Massive lava  
 2b Interbedded mafic and felsic tuff  
 2c Tuff, lapilli-tuff  
 2d Subvolcanic lava  
 2e Tuff-breccia, pyroclastic breccia  
 2f Intercalated felsic to mafic tuff  
 2g Pillow lava  
 IF Iron formation  
 MAFIC TO INTERMEDIATE METAVOLCANICS  
 1 Unsubdivided  
 1a Massive lava  
 1b Foliated lava  
 1c Tuff, lapilli-tuff  
 1d Intercalated mafic and felsic tuff  
 1e Tuff-breccia, pyroclastic breccia  
 1f Pillow lava  
 1g Anagyaloidal lava  
 1h Coarse-grained volcanic or mafic intrusive rock  
 1i Variscitic lava  
 1j Amphibolite and amphibolite schist  
 IF, SIF Iron formation (IF), Sulphide iron formation (SIF)

- GEOLOGICAL AND MINING SYMBOLS**
- Glacial striae.
  - Esker.
  - Drumlin.
  - Small bedrock outcrop.
  - Area of bedrock outcrop.
  - Bedding, top unknown; (inclined, vertical).
  - Bedding, top (arrow) from grain orientation; (inclined, vertical, overturned).
  - Lava flow; top (arrow) from pillow shape and packing.
  - Schistosity; (horizontal, inclined, vertical).
  - Gneissosity; (horizontal, inclined, vertical).
  - Foliation; (horizontal, inclined, vertical).
  - Lineation with plunge.
  - Geological boundary, position interrupted.
  - Lineament.
  - Joining; (horizontal, inclined, vertical).
  - Drag folds with plunge.
  - Anticline, syncline, with plunge.
  - Drill hole; (vertical, inclined).
  - MA Magnetic attraction.
  - Wg. Width in feet.

- METAL AND MINERAL REFERENCE**
- |     |       |              |    |       |              |
|-----|-------|--------------|----|-------|--------------|
| Ag  | ..... | Silver       | py | ..... | Pyrrhotite   |
| ank | ..... | Ashrite vein | po | ..... | Polythionite |
| Au  | ..... | Gold         | py | ..... | Pyrite       |
| cp  | ..... | Chalcopyrite | qv | ..... | Quartz vein  |
| Cu  | ..... | Copper       | Zn | ..... | Zinc         |
- PROPERTIES, PROSPECTS AND DEPOSITS\***
1. Belore Mines Limited [1969]\*\*
  2. Card Lake Copper Mines Limited [1969]
  3. Card Lake Copper Mines Limited [1970]
  4. Chellev Gold Mines Limited [1970]
  5. Kenlev Mines Limited [1959]
  6. Kenlev Mines Limited and Fickie Patricia Explorers Limited [1962]
  7. New Jersey Zinc Exploration Company (Canada) Limited [1970]
  8. Northern Aerial Minerals Exploration Limited [1959]
  9. Oman, Ben [1970]
- \* Only properties for which geological or related information is available are listed and located on map-face.  
 \*\* Date of last major work in square brackets.
- SOURCES OF INFORMATION**
- Geology by E.G. Fensholt, 1970.  
 Base map derived from maps of the Forest Resources Inventory, Ontario Department of Lands and Forests and air photographs from Silviculture Section, Ontario Department of Lands and Forests.  
 Assessment files, Ontario Department of Mines and Northern Affairs, Red Lake office.  
 Laird, H.C., 1921: Geology of the Shonta Lake area, District of Kenora (Patricia Portion); Ontario Dept. Mines, Vol. 39, pt. 3, p. 1-21, accompanied by Map 396.  
 Duffell, S. E. et al., 1963: Red Lake-Landsdowne House area, northwestern Ontario; Bedrock Geology, Geophysical and Geochemical Investigations; Geol. Surv. Canada, Paper 45-5, p. 1-15.  
 GSC maps: Red Lake-Landsdowne House area, 2-1963; Lake St. Joseph, 51-1960.  
 OMI-GSC Aeromagnetic maps, 8940, 9060.  
 Magnetic declination 3°E.  
 Issued 1971.

**MARGINAL NOTES**

**Location:** Cannon Lake is in the Patricia Portion of the District of Kenora about 120 miles east-northeast of Red Lake and 45 miles west-northwest of Pickle Lake. The map-area is accessible by float-equipped aircraft. The area mapped during the 1970 field season covers approximately 180 square miles; it is bounded by north latitudes 51°30' and 51°40' and west longitudes 91°08' and 91°50'.

**Mineral Exploration:** In 1929, H.C. Laird (OMN Map 396) and in 1960, R.F. Enslie (GSC Map 51-1960) did reconnaissance surveys of the map-area.

Belore Mines Limited has 20 claims north of the east half of Lang Lake. In the summer of 1969, magnetometer and electromagnetic surveys were conducted on their claims. The geophysical surveys have located 15 EM conductors, five of which are considered by the company to be of potential economic importance (Northern Miner, September 4, 1969). Five holes (1,977 feet) were drilled.

Card Lake Copper Mines Limited has 98 claims near Card Lake. Electromagnetic and magnetometer surveys were conducted over a large part of the property. Three holes were drilled in 1969 and assays of up to 35 percent iron were obtained over good widths. Interesting geology was encountered, on both sides of an iron formation containing low grade polythionite and chalcopyrite (Northern Miner, January 8, 1970).

Card Lake Copper Mines Limited has 34 claims near Boyes Lake. Three holes (2,099 feet) were drilled in 1970.

Chellev Gold Mines Limited, in 1950, worked a gold occurrence in the central south bay of McVicar Lake. Extensive surface prospecting was conducted and seven holes were drilled (787 feet).

Kenlev Mines Limited, in 1959, had a copper showing in the vicinity of the east shore of McVicar Lake and four holes were drilled (726 feet). Also in 1959, five holes (1,175 feet) were drilled in the area south of the central south bay of McVicar Lake.

Kenlev Mines Limited had a copper-nickel property 2 miles east of McVicar Lake. This 58 claim property was optioned to Kerr-Addison Gold Mines Limited in 1961. Magnetometer and electromagnetic surveys were conducted and two holes were drilled (635 feet). New Jersey Zinc Exploration Company (Canada) Limited now has the property (70 claims). In 1969 and 1970, magnetometer, electromagnetic, geological, and geochemical surveys are conducted.

Kenlev Mines Limited, in 1961, had 21 claims in the area 1 mile southeast of Sema Lake. In 1962, the claims were optioned to Fickie Patricia Explorers Limited who conducted a geological survey and drilled five holes (four holes totaled 2,264 feet).

Ben Oman, prospector, has conducted extensive surface prospecting on 14 claims south of Cannon Lake.

**General Geology:** All bedrock in the map-area is of Precambrian age. The Lang-Cannon Lakes area is underlain by metacalcic and metasediments that form a narrow belt which is approximately 30 miles long and varies in width from 1 to 7 miles. The western part of this belt was mapped in 1969 (OMN Prelim. Map F.581), and the central part in 1970. The eastern part will be mapped in 1971.

The metavolcanics are predominantly mafic to intermediate lavas, tuff and amphibolite on the north and south sides of the belt and felsic to intermediate lavas and pyroclastic rocks in the central part of the belt.

The metasediments in the vicinity of Cannon and Card Lakes are up to 3 miles wide. They consist of conglomerate, greywacke, argillite, iron formation, iron-ore derived schists, gneisses. The conglomerate band is 35 chains (2,310 feet) wide west of Cannon Lake.

The metavolcanic-metasedimentary belt is completely surrounded and intruded by granitic rocks.

A stock of gabbro and anorthositic gabbro extends from the east shore of Sor Lake to 3 miles east of McVicar Lake. Inclusions of gabbro and anorthosite have been found in the mafic metavolcanics, although there is no evidence these are related to the intrusion.

A quartz porphyry stock, thought to be a high level intrusion, is in the central area of McVicar Lake. This stock seems to be related genetically to the felsic pyroclastic rocks in the area.

Drumlins and drumlinoid ridges, striking S70N, are abundant in the area.

Two distinct foliations were noted: one closely parallel to primary features such as bedding and volcanic banding, and one trending approximately N35E and dipping steeply. The latter foliation is related to the quartz porphyry intrusion.

Gneissosity is common in the granitic rocks and is generally parallel to the contact with the metavolcanic-metasedimentary rocks.

Several prominent lineaments were noted.

**Structural Geology:** The major structure in the western part of the area is a syncline that trends about N70E and plunges 40E to 60E. The syncline is isoclinal and its axis is located between Boyes and Lang Lakes. Lack of top determinations in the central part of the area has made it necessary to tentatively place the extension of the fold axis through Card Lake.

Two distinct foliations were noted: one closely parallel to primary features such as bedding and volcanic banding, and one trending approximately N35E and dipping steeply. The latter foliation is related to the quartz porphyry intrusion.

Gneissosity is common in the granitic rocks and is generally parallel to the contact with the metavolcanic-metasedimentary rocks.

Several prominent lineaments were noted.

**Economic Geology:**

**Gold:** Prospecting for gold in the area has been carried on since 1928. The original discovery, on the east side of Shonta Lake proved to be disappointing. The gold in this area occurs in quartz in marlitic cavities in a quartz porphyry.

**Iron:** Iron formation has been found throughout the map-area intercalated with mafic metavolcanics and metasediments. Fifty feet is the maximum thickness observed.

**Sulphides:** On the property of New Jersey Zinc Exploration Company (Canada) Limited, pyrrhotite and chalcopyrite are found as rusty streaks, bands, and patches of disseminated sulphides at or close to the contact breccia zone between the dioritic and mafic metavolcanics. Analyses of the best mineralized sulphides varied from a high of 0.96 percent copper across 3.2 feet to a low of 0.13 percent copper across 5.0 feet and from 0.08 percent nickel across 3.2 feet to 0.26 percent nickel across 5.0 feet.

1. Assessment work files, ODMA, Resident Geologist's office, Red Lake.