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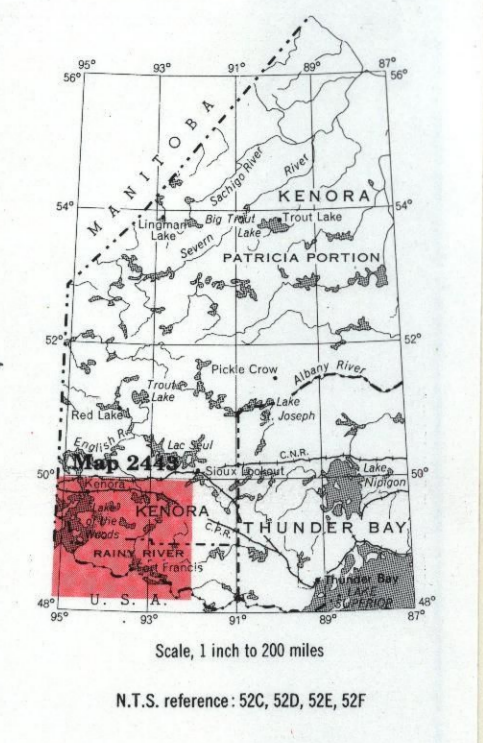
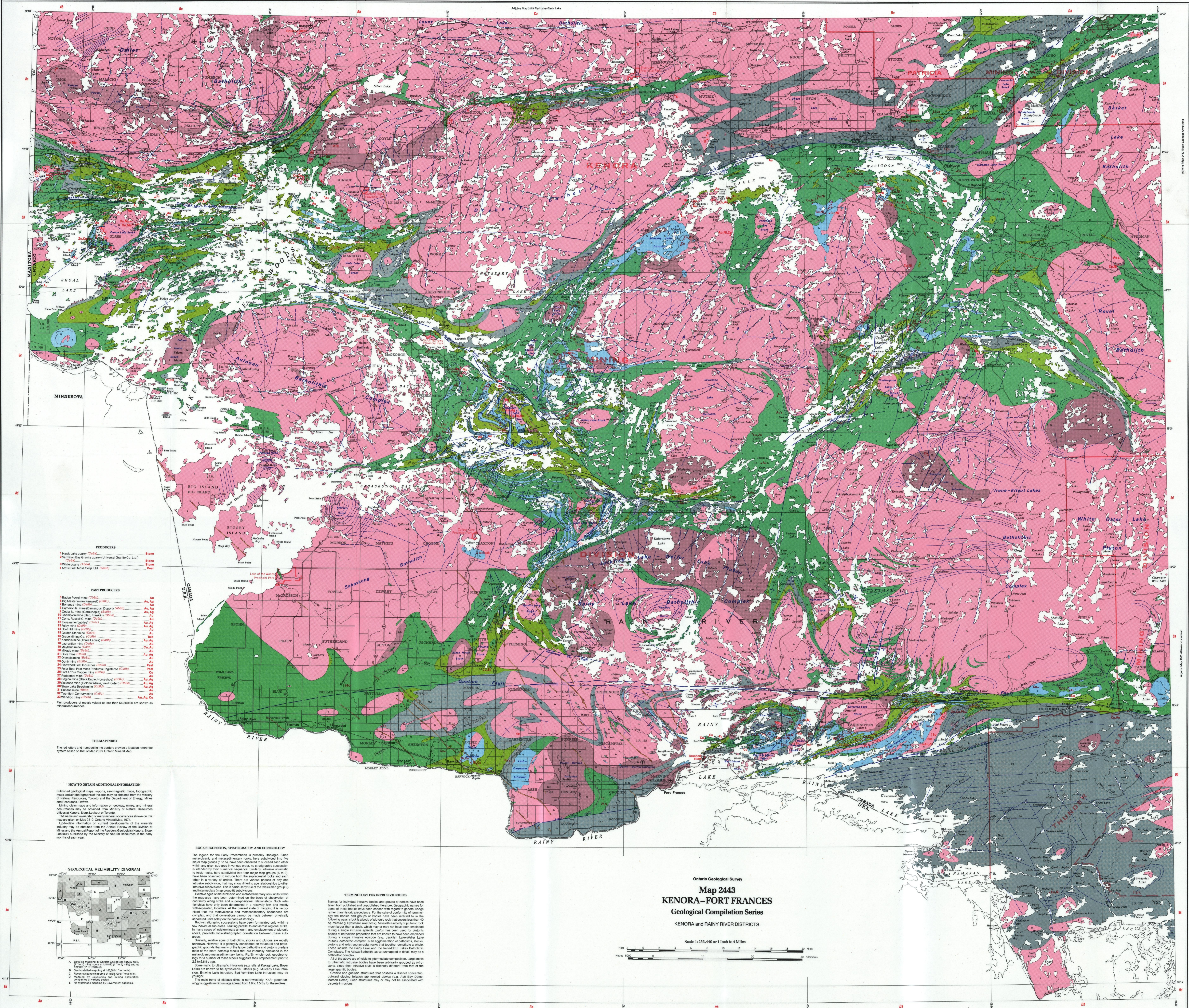
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LEGEND
PHANEROZOIC
QUATERNARY
PLEISTOCENE AND RECENT
Sand, gravel, clay

PRECAMBRIAN
MIDDLE TO LATE PRECAMBRIAN
MAFIC INTRUSIVE ROCKS

EARLY PRECAMBRIAN
FELSIC AND INTERMEDIATE INTRUSIVE ROCKS

METAKOMPOSURE MAFIC AND ULTRAMAFIC INTRUSIVE ROCKS

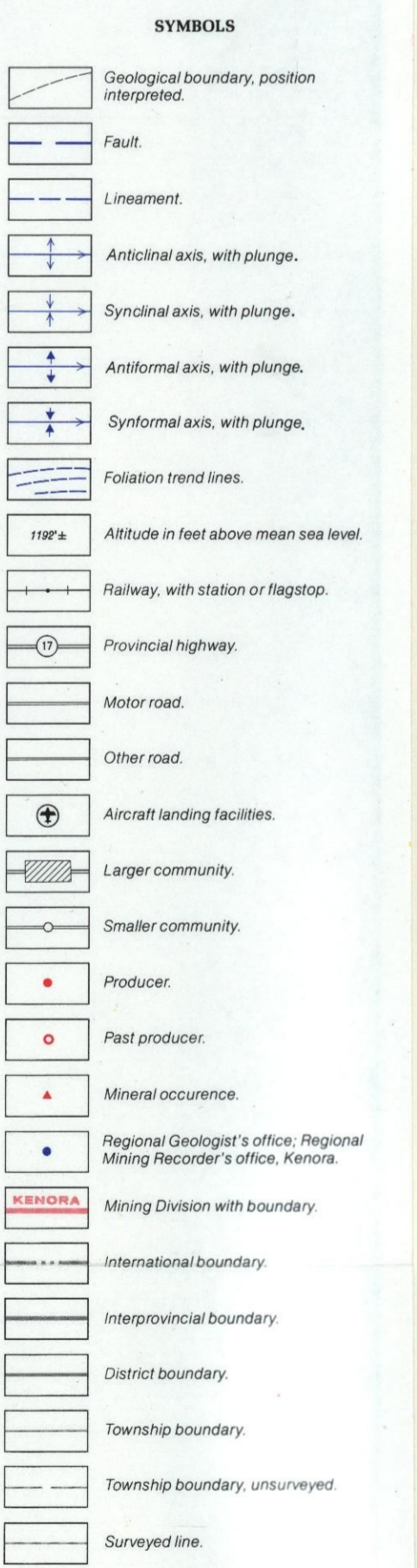
METASEDIMENTS
CHEMICAL METASEDIMENTS

CLASTIC METASEDIMENTS
ALCALINE METASEDIMENTS

METAVOLCANICS
FELSIC TO INTERMEDIATE METAVOLCANICS

MAFIC METAVOLCANICS

Notes are subdivided lithologically under their respective map units...
The letter 'G' preceding a rock unit number for example 'G1' indicates information from geophysical data in an area covered or uncoloured area.



METAL AND MINERAL REFERENCE

| | | | |
|----|-----------|----|------------|
| Ag | Silver | Mo | Molybdenum |
| As | Arsenic | Ni | Nickel |
| Au | Gold | Pb | Lead |
| B | Bismuth | Sb | Antimony |
| C | Coal | Si | Silica |
| Ca | Calcium | Tl | Thallium |
| Co | Cobalt | U | Uranium |
| Cu | Copper | V | Vanadium |
| Fe | Iron | W | Wolframium |
| Fl | Fluorine | Zn | Zinc |
| Li | Lithium | | |
| Mn | Manganese | | |

MAP COMPILATION SOURCES
Compilation by C.E. Blackburn, 1972-76.
Mineral occurrence compilation by R.C. Black, 1972-76.
Geology from published and unpublished maps of the Ontario Geological Survey, Ontario Geological Survey of Canada, unpublished maps of mineral occurrence at McMaster University, University of Manitoba, and University of Toronto.

PRODUCERS

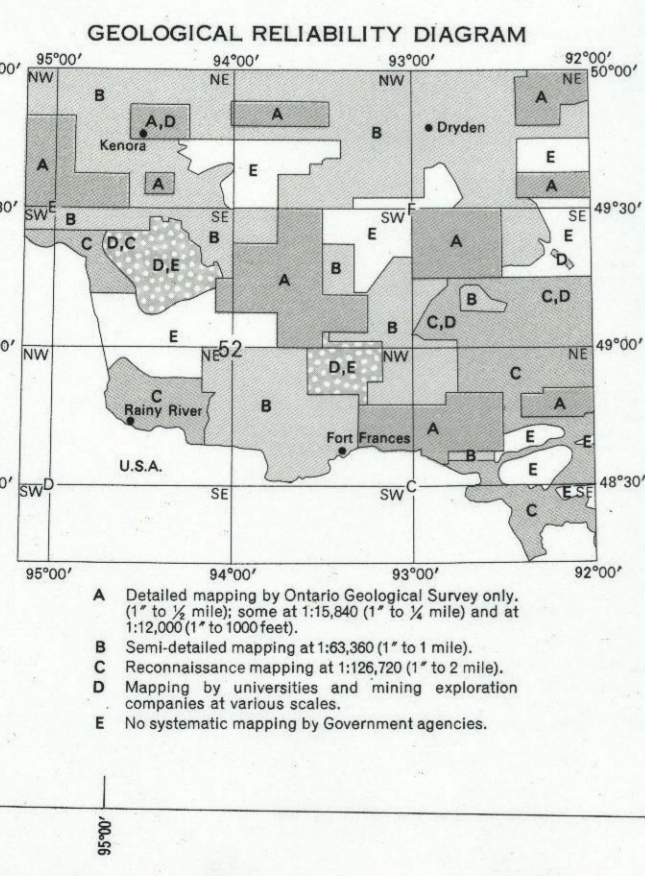
| | |
|--|-------|
| 1 Hawk Lake quarry (Cable) | Stone |
| 2 Vernon Bay Granite quarry (Universal Granite Co. Ltd.) | Stone |
| 3 Lake Umbagog quarry (Cable) | Stone |
| 4 Arctic Peat Moss Corp. Ltd. (Cable) | Peat |

PAST PRODUCERS

| | |
|---|--------|
| 5 Borden Paved mine (Cable) | Au |
| 6 Big Nickel mine (Kearney) | Cu, Ni |
| 7 Borden mine (Cable) | Au, Ag |
| 8 Cameron mine (Cameron, Dupont (AUSA)) | Au, Ag |
| 9 Lake Umbagog mine (Cable) | Au, Ag |
| 10 Cameron mine (Cable) | Au, Ag |
| 11 Cameron mine (Cable) | Au, Ag |
| 12 Borden mine (Cable) | Au, Ag |
| 13 Borden mine (Cable) | Au, Ag |
| 14 Gold Hill mine (Cable) | Au |
| 15 Gold Hill mine (Cable) | Au |
| 16 Gold Hill mine (Cable) | Au |
| 17 Gold Hill mine (Cable) | Au |
| 18 Gold Hill mine (Cable) | Au |
| 19 Gold Hill mine (Cable) | Au |
| 20 Gold Hill mine (Cable) | Au |
| 21 Gold Hill mine (Cable) | Au |
| 22 Gold Hill mine (Cable) | Au |
| 23 Gold Hill mine (Cable) | Au |
| 24 Gold Hill mine (Cable) | Au |
| 25 Gold Hill mine (Cable) | Au |
| 26 Gold Hill mine (Cable) | Au |
| 27 Gold Hill mine (Cable) | Au |
| 28 Gold Hill mine (Cable) | Au |
| 29 Gold Hill mine (Cable) | Au |
| 30 Gold Hill mine (Cable) | Au |
| 31 Gold Hill mine (Cable) | Au |
| 32 Gold Hill mine (Cable) | Au |
| 33 Gold Hill mine (Cable) | Au |
| 34 Gold Hill mine (Cable) | Au |
| 35 Gold Hill mine (Cable) | Au |
| 36 Gold Hill mine (Cable) | Au |
| 37 Gold Hill mine (Cable) | Au |
| 38 Gold Hill mine (Cable) | Au |
| 39 Gold Hill mine (Cable) | Au |
| 40 Gold Hill mine (Cable) | Au |
| 41 Gold Hill mine (Cable) | Au |
| 42 Gold Hill mine (Cable) | Au |
| 43 Gold Hill mine (Cable) | Au |
| 44 Gold Hill mine (Cable) | Au |
| 45 Gold Hill mine (Cable) | Au |
| 46 Gold Hill mine (Cable) | Au |
| 47 Gold Hill mine (Cable) | Au |
| 48 Gold Hill mine (Cable) | Au |
| 49 Gold Hill mine (Cable) | Au |
| 50 Gold Hill mine (Cable) | Au |

THE MAP INDEX

HOW TO OBTAIN ADDITIONAL INFORMATION



ROCK SUCCESSION, STRATIGRAPHY AND CHRONOLOGY

The legend for the Early Precambrian is primarily lithologic. Since metamorphic and metasedimentary rocks have been subdivided into two major map groups (1 to 5), they have been ordered to succeed each other within a given sub-area in a relative sequence. Geologic time is indicated by their numerical sequence. Generally, intrusive ultramafic to mafic rocks, these subdivided into four major map groups (6 to 9), have been ordered to succeed each other in a relative sequence. These are various phases of any one intrusive sub-area, but may represent age relationships of different intrusive sub-areas. This is particularly true of the felsic (map group 9) and intermediate (map group 8) intrusives.

Relative ages of metamorphic and metasedimentary rock units within the map area have been determined on the basis of observation of continuity along strike and superpositional relationships. Such relationships have only been determined on a relative basis, and mostly well-exposed, localities. At the present state of mapping it is recognized that the metamorphic and metasedimentary sequences are complex, and that correlations cannot be made between geographically separated units on the basis of lithology.

Metamorphic and metasedimentary rocks are separated into two major sub-areas. Faulting parallel to and across regional strike, in many cases of intermediate amount, and emplacement of plutonic rocks, prevents rock-stratigraphic correlation between these sub-areas.

Similarly, relative ages of batholiths, stocks and plutons are mostly unknown. However, a general correlation of structural and petrographic grounds that many of the larger batholiths and plutons predate most of the more extensive stocks that are internally zoned in the metamorphic-metasedimentary units. In the whole-rock (map group 9) and ultramafic (map group 8) intrusives, the relative ages of these rocks are also uncertain.

Some mafic to ultramafic intrusives (e.g. sites at Kakabeka Lake, Boyer Lake) are known to be syenitic. Others (e.g. Malabar Lake Intrusion, Enten Lake Intrusion, Bad Vernon Lake Intrusion) may be syenitic.

The main trend of staurolite dikes is northwesterly. K/Ar geochronology suggests minimum age spread from 1.8 to 1.5 by these dikes.

TERMINOLOGY FOR INTRUSIVE BODIES

Names for individual intrusive bodies and groups of bodies have been chosen with regard to their geological and structural relationships. Geographical names for some of these bodies have been chosen with regard to general usage rather than historical precedence. For the sake of consistency of terminology, the bodies and groups of bodies have been referred to in the following way: stock is a body of plutonic rock that covers less than 50 sq. miles (13 sq. kilometers); batholith is a body of plutonic rock much larger than a stock, which may or may not have been emplaced during a single intrusive episode (e.g. Jordan Lake-Batholith); complex is a group of batholiths, stocks and related plutons that are shown to have been emplaced during a single intrusive episode (e.g. Jordan Lake-Batholith-Pluton); batholith complex is an aggregation of batholiths, stocks and related plutons that are shown to have been emplaced during a single intrusive episode (e.g. Jordan Lake-Batholith-Pluton); batholith complex is an aggregation of batholiths, stocks and related plutons that are shown to have been emplaced during a single intrusive episode (e.g. Jordan Lake-Batholith-Pluton); batholith complex is an aggregation of batholiths, stocks and related plutons that are shown to have been emplaced during a single intrusive episode (e.g. Jordan Lake-Batholith-Pluton).

Ontario Geological Survey
Map 2443
KENORA-FORT FRANCES
Geological Compilation Series
KENORA and RAINY RIVER DISTRICTS

