

GEOLOGICAL SURVEY

PROTEROZOIC

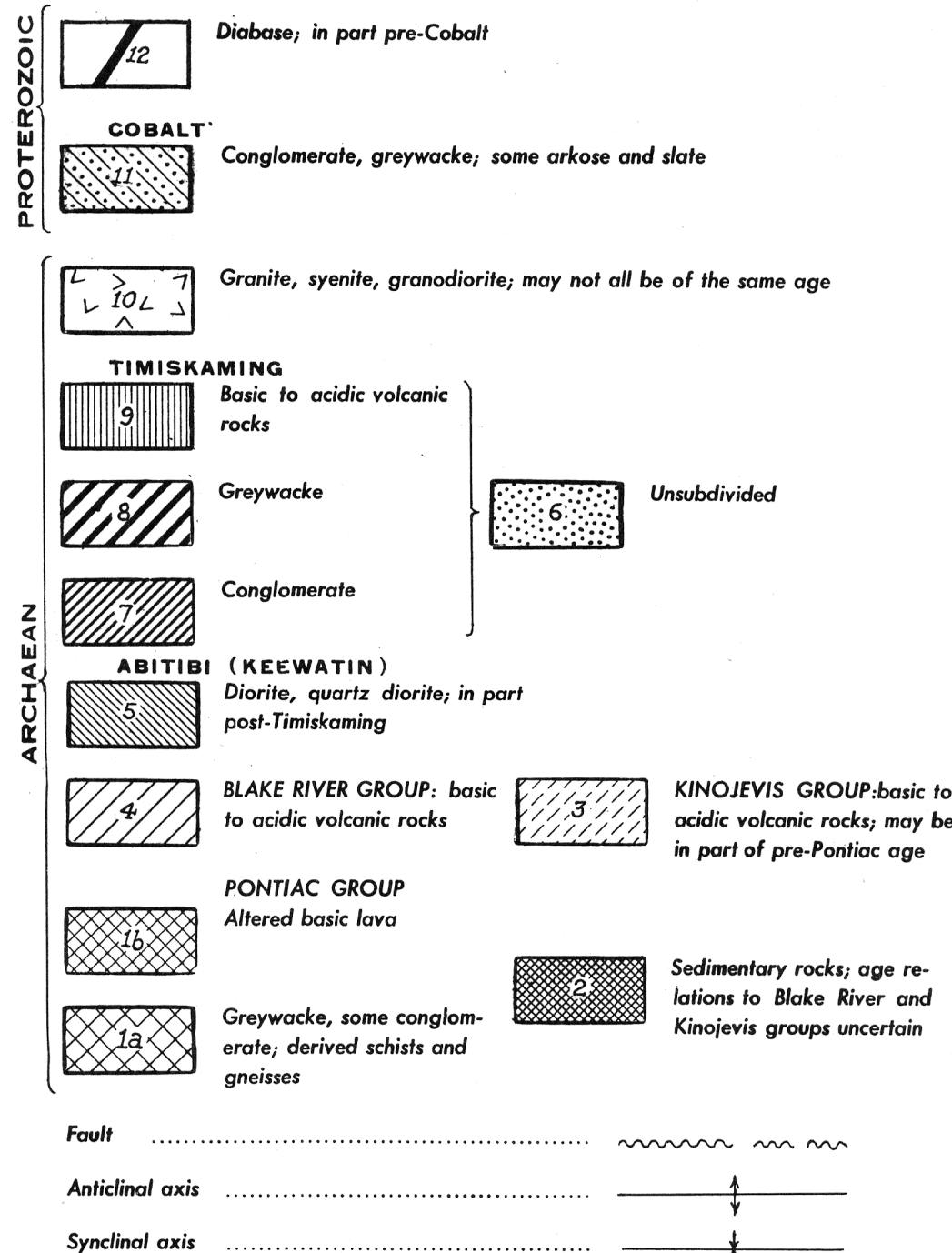
ARCHAEO

ABITIBI (KEEWATIN)

Anticlinal axis

Synclinal axis

LEGEND



Geology compiled by J. W. Ambrose from maps published by the Geological Survey, Canada; the Ontario Department of Mines, and the Quebec Department of Mines.

DESCRIPTIVE NOTES

As early as 1924 it was suggested<sup>1</sup> that two east-trending gold-bearing zones extend across northeastern Ontario and into Quebec. The southern, or Kirkland Lake-Larder Lake-Rouyn-Malartic zone, follows the course of a great "break" or fault zone known as the Larder Lake-Bouzan Lake-Cadillac fault<sup>2</sup>. The number and the distribution of mines along this fault zone, with deposits either actually in the major faults or in structures known or believed to be subsidiary to them, supports the hypothesis that the loci of mineralization were controlled by this structure, or, to use Thomson's phrase, that the ore deposits lie within "the sphere of influence" of the major fault zone.

The northern, Porcupine to Beattie, gold-bearing zone, which crosses Garrison, Harker, Holloway, Marriott, Hébecourt, Duparquet, and Destor townships in the region under consideration, is not as well known. Evidence that it lies along a great fault or fault zone, similar in extent at least to the Larder Lake-Bouzan Lake-Cadillac break, is gradually accumulating. A wide, strongly sheared zone, the Destor fault, trends west-northwest across Destor township. A similar sheared zone, striking west, was intersected in diamond drill holes northwest of Hébecourt Lake. Farther west on strike, across the north parts of Holloway and Harker townships along the valley of Mattawassaga River, the rocks are greatly sheared and the course of the shear is marked in places by carbonate zones similar to those found along the southern break. It is, therefore, possible to postulate a major, west-trending shear zone from Destor to Garrison townships. The eastern extension of the Destor fault is described by Norman<sup>3</sup>. The western extension, under the drift-covered plains in and west of Garrison township, can only be assumed, but it may be continuous with some fault or fault zone in the Porcupine district. This postulated fault zone is shown on the map as the Porcupine-Destor fault.

A reasonable chance exists that a belt of older sedimentary rocks follows the course of the Porcupine-Destor fault zone for much of its length, as outcrops of greywacke, conglomerate, and slate are known along the strike in western Duparquet and in the northern parts of Holloway and Garrison townships.

Gold deposits within the sphere of influence of that part of the Porcupine-Destor fault shown on this map include, in Duparquet township, the Beattie mine, its newly developed subsidiary the Bonchester, as well as the Duquesne, Dumico, and several others. In Holloway township several gold prospects are known, including the Cochenour, Meridian, and Abitibi mines. In Harker township, in addition to the old Harker mine, there are gold prospects on several claims in its central and northern parts. Some gold prospects were found near the southern side of the granite body in Garrison township, and gold prospects are known in the northern parts of both Thackeray and Elliott townships. Just west of this area, the Ross mine in Hslop township and the Croesus in Munro township would likewise lie near the course of the projected major fault.

The Archean sedimentary rocks in the southern part of the area are overlapped by the Proterozoic, Cobalt series. To the east of the Cobalt, in Quebec, they are comprised of the Pontiac group and the unconformably overlying Timiskaming series. West of the Cobalt, in Ontario, they are considered to be entirely of Timiskaming age, no correlatives of the Pontiac group having been recognized.

Some of the diorite and quartz diorite that intrudes Abitibi lavas is considered by Thomson<sup>4</sup> as possibly pre-Timiskaming in age. In adjacent parts of Quebec, the absence of intrusive diorite or quartz diorite in areas underlain by sedimentary rocks is striking. Robinson<sup>5</sup> records, in the Flavian Lake area, two ages of these rocks, one pre- and the other post-Flavian Lake granite. It is possible that the older diorite and quartz diorite is pre-Timiskaming in age, and that some of the more acidic phases supplied the so-called Laurentian "granite" pebbles of pre-Timiskaming conglomerates.

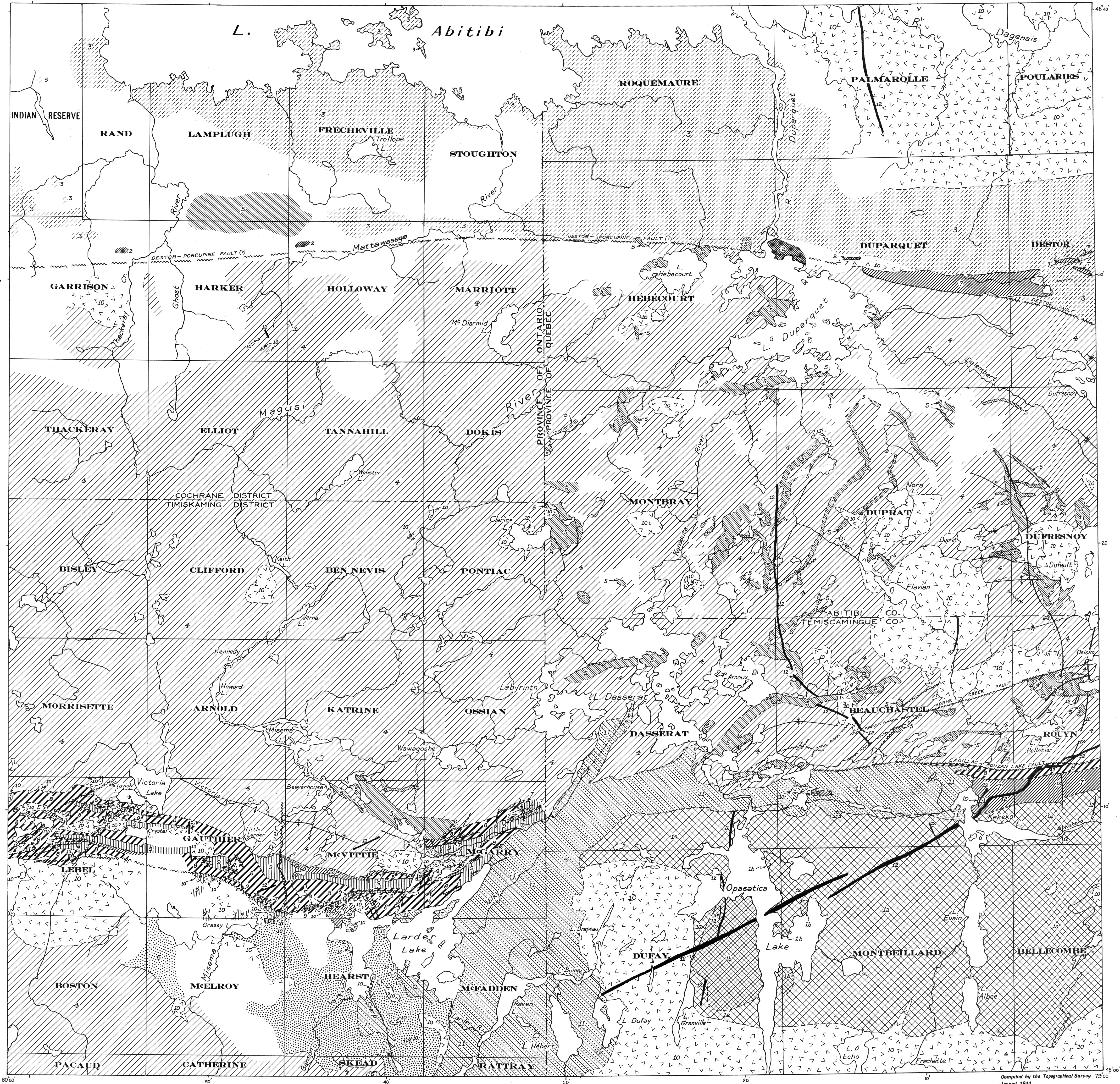
<sup>1</sup> Knight, C. W.: Lightning River Gold Area; Ont. Dept. Mines, vol. XXXI, pt. 111, p. 44 (1924).

<sup>2</sup> Thomson, J. E., and Griffin, A. T.: Geology of Gauthier Township, East Kirkland Lake Area; Ont. Dept. Mines, vol. L, pt. V, fig. 2 (1941).

<sup>3</sup> Norman, G. W. H.: Rouyn-Malartic-Destor Region; Geol. Surv., Canada, Paper 44-27 (1944).

<sup>4</sup> Thomson, J. E.: Geology of McGarry and McVittie Townships, Larder Lake Area; Ont. Dept. Mines, vol. L, pt. V, fig. 1 (1941).

<sup>5</sup> Robinson, W. G.: Flavian Lake Area; Que. Dept. Mines, Geol. Rept. 13 (1943).



PRELIMINARY MAP 44-29

DUPARQUET-LARDER LAKE-ROUYN REGION  
ONTARIO AND QUEBEC

Scale: 1 inch to 2 miles

Compiled by the Topographical Survey 79'00"  
Issued 1944