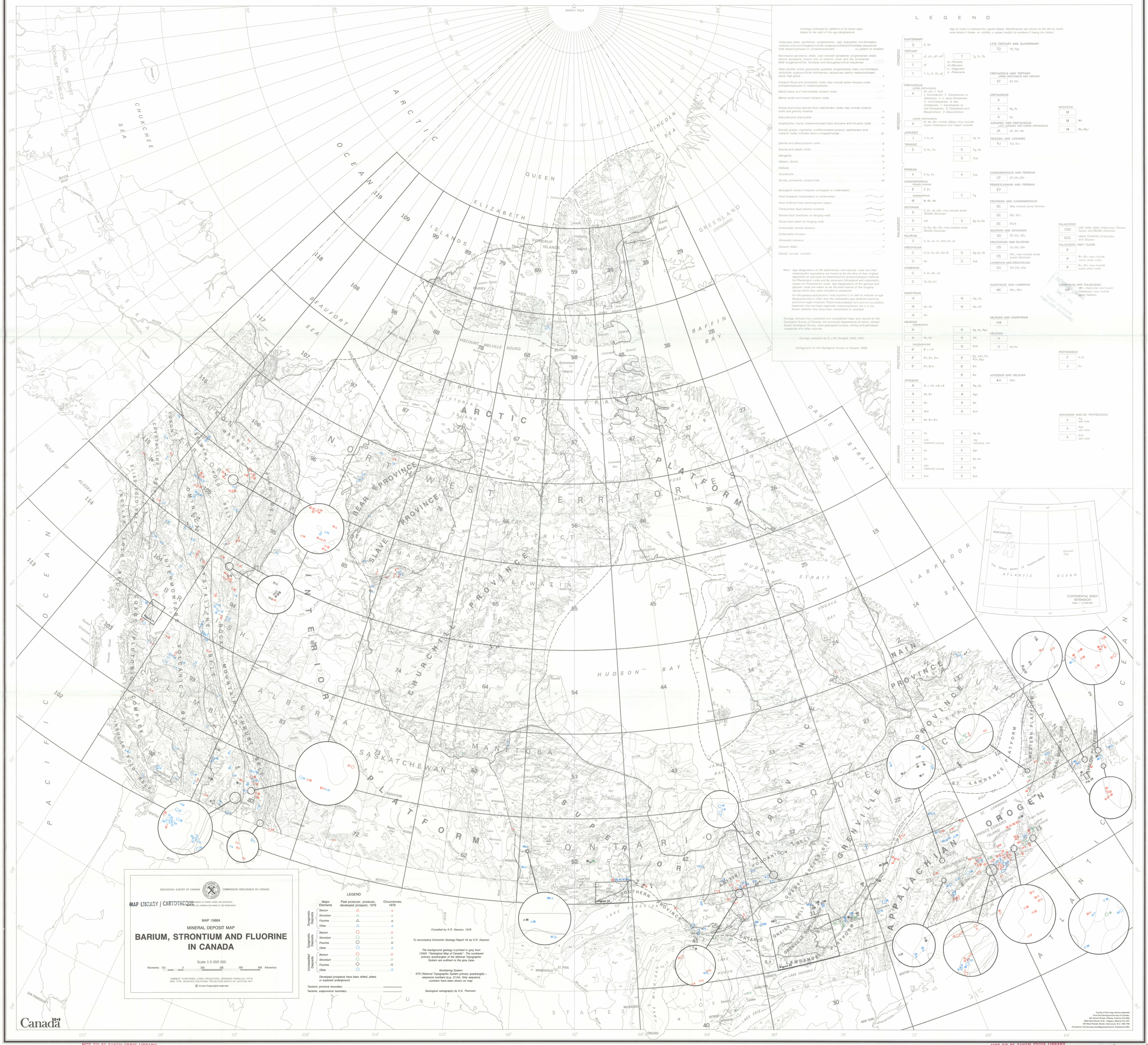

L E G E N D

Lithology indicated by patterns or by lower case letters to the right of the age designations

Carbonate, shale, sandstone, conglomerate, coal, evaporites, iron-formation: cratonic cover and miogeosynclinal, exogeosynclinal and foredeep sequences; little metamorphosed or unmetamorphosed	no pattern or modifier
Non-marine sandstone, shale, coal; red-bed sandstone, conglomerate shale; marine sandstone; shown only on cratonic cover and the continental shelf, exogeosynclinal, foredeep and epieugeosynclinal sequences	
Slate, phyllite, schist, greywacke, quartzite, conglomerate, chert, iron-formation, carbonate; eugeosynclinal sedimentary sequences; mainly metamorphosed, partly high grade	s
Volcanic flows and pyroclastic rocks; may include some intrusive rocks; unmetamorphosed or metamorphosed	v
Mainly basic and intermediate volcanic rocks	
Mainly acidic and mixed volcanic rocks	
Gneiss and schist derived from sedimentary rocks; may include volcanic rocks and granitic material	m
Granulite and charnockite	nb
Amphibolite; mainly metamorphosed basic extrusive and intrusive rocks	m
Granitic gneiss, migmatite; undifferentiated plutonic, sedimentary and volcanic rocks; includes some unmapped areas	gn
Granite and allied plutonic rocks	g
Syenite and alkalic rocks	y
Manganite	yh
Gabbro, diorite	b
Diabase	d
Anorthosite	a
Dunite, pyroxenite, serpentinite	ub
Geological contact (mapped, unmapped or underwater)	
Fault (mapped, extrapolated or underwater)	
Fault (inferred from aeromagnetic maps)	
Transcurrent fault (dextral, sinistral)	
Normal fault (hachures on hanging wall)	
Thrust fault (teeth on hanging wall)	
Underwater sample location	+
Carbonatite intrusion	×
Ultramafic intrusion	+
Gypsum diapir	×v
Glacier, ice-cap, ice-field	

Note: Age designations of the sedimentary and volcanic rocks and their metamorphic equivalents are meant to be the time of their original deposition or extrusion as determined by paleontological methods for Phanerozoic rocks and by structural, lithological and radiometric means for Precambrian rocks. Age designations of the igneous and plutonic rocks are meant to be the time interval of the orogeny during which they were intruded or emplaced.

For the igneous and plutonic rocks a prime (') is used to indicate an age designation that is older than the radiometric age obtained mainly by potassium-argon methods. These rocks probably form part of a crystalline basement that has been regionally metamorphosed, but it is not known whether they have been remobilized or remelted.

Geology: derived from published and unpublished maps and reports of the Geological Survey of Canada, the provincial departments of mines, United States Geological Survey, state geological surveys, mining and petroleum companies and other sources.

Geology compiled by R.J.W. Douglas, 1966, 1967

Cartography by the Geological Survey of Canada, 1968

Age of rocks is indicated by capital letters. Modifications are shown to the left by lower case letters (l- lower, m- middle, u- upper) and/or by numbers (1 being the oldest)

Era	Period	Symbol	Age
CENOZOIC	QUATERNARY	Q	Q, Qv
	TERTIARY	T	uT, uTv, pIT, mIT
		T	oT
		T	T, Tv, IT, ITv, pT
		T	Tg, Ty, Tb (pl- Pliocene; mi- Miocene; o- Oligocene; p- Paleocene)
			LATE TERTIARY AND QUATERNARY: TQ, TQv
			CRETACEOUS AND TERTIARY (UPPER CRETACEOUS AND TERTIARY): KT, KTv
MESOZOIC	CRETACEOUS (UPPER CRETACEOUS)	K	uK, uKv; 1- 9 uK (1- Cenomanian, 2- Cenomanian to Santonian, 3- 4- early Campanian, 5- mid-Campanian, 6- late Campanian, 7- Cenomanian to late Campanian, 8- Campanian and Maastrichtian, 9- Maastrichtian)
			CRETACEOUS: K
		K	K, Kg, Ky
		K	Kb
	LOWER CRETACEOUS	K	lK, lKv; mainly Albian; may include Upper Cretaceous and Upper Jurassic
			JURASSIC AND CRETACEOUS (LATE JURASSIC AND LOWER CRETACEOUS): JK, JKv, JKv
	JURASSIC	J	J, Jv, Jv
		J	Jg, Jb
	TRIASSIC	Ꞧ	Ꞧ, Ꞧv, Ꞧv
		Ꞧ	Ꞧg, Ꞧb
		Ꞧ	Ꞧub
			TRIASSIC AND JURASSIC: ꞦJ, ꞦJv, ꞦJv
			MESOZOIC: M; M; Mn; M; Mg; Mgn
PALAEOZOIC	PERMIAN	P	P, Pv, Pv
		P	Pub
	CARBONIFEROUS (PENNSYLVANIAN)	P	P, Pv
			CARBONIFEROUS AND PERMIAN: CP, CPv, CPv
			PENNSYLVANIAN AND PERMIAN: ꟼP
	MISSISSIPPIAN	M	M, Mv, Mv
		C	Cg
			DEVONIAN AND CARBONIFEROUS: DC (*May include some Permian*); DC; DCu, DCu; DC; DCub
	DEVONIAN	D	D, Dv, uD, uDv; *may include some Middle Devonian*
		D	mD
		D	Dg, Dy, Db
		D	lD, lDv, lDv, lDn; *may include some Middle Devonian*
			SILURIAN AND DEVONIAN: SD; SDu, SDv
	SILURIAN	S	S, Sa, Sv, lS, lmS, lmS, uS
			ORDOVICIAN AND SILURIAN: OS; oS, OSv; OS; OSu; *may include some Lower Devonian*
	ORDOVICIAN	O	O, Ov, uO, uO, mO, lO
		O	Og, Oy, Ob
		O	On
		O	Oub
			CAMBRIAN AND ORDOVICIAN: CO; CO, COu, COv
	CAMBRIAN	C	C, lC, mC, uC
		C	Cs, lCu, Cn
			PALAEOZOIC: OSD; OSDu, OSDn; *Ordovician, Silurian, Lower and Middle Devonian*
			COS; *Upper Cambrian, Ordovician, and Silurian*
PROTEROZOIC	HADRYNIAN	H	H
		H	Hg, Hy
		H	Hs, Hv
		H	Hb, Hd
		H	Hn
			HADRYNIAN AND CAMBRIAN: HC; HCu, HCn
			HADRYNIAN AND PALAEOZOIC: HP; *Hadrynian and Lower Palaeozoic; may include some Helikian*
			HELIKIAN AND HADRYNIAN: HH
	HELIKIAN (NEOHELIKIAN)	N	N
		N	Ng, Ny, Ngn
		N	Ns, Nv
		N	Nb
		N	Nob
			HELIKIAN: H
		H	Hs, Hv
	PALEOHELIKIAN	P	P i, i > P
		P	P'g, ≥P'y, P'y, P'yh, P'gn
		P	P's, P'v, P'm
		P	P'b
		P	P'n, P'nh
		P	P'a
			PROTEROZOIC: P, P'v; P, Pn
			APHEBIAN AND HELIKIAN: AH; AHn
	APHEBIAN	A	A, i- ≥A, mA, uA
		A	Ag, Ay
		A	Agn
		A	As, Av
		A	As
		A	Asb
		A	An
		A	Anh
		A	Ab, Ad, Am
ARCHAEAN		A	As
		A	Ag, Ay
		A	≥As relatively young
		A	iAg relatively old
		A	Av
		A	Agn
		A	An
		A	Ab, Am
		A	≥An relatively young
		A	As
		A	Asb
		A	Anh
			ARCHAEAN AND/OR PROTEROZOIC: A; Ag, see note; A; Agn see note; A; Anh see note

LEGEND

	Major Elements	Past producer, developed prospect, 1979	Occurrences, 1979
Syngenetic Deposits	Barium	△	△
	Strontium	△	△
	Fluorine	△	△
	Other	△	△
Epigenetic Deposits	Barium	○	○
	Strontium	○	○
	Fluorine	○	○
	Other	○	○
Unclassified Deposits	Barium	◇	◇
	Strontium	◇	◇
	Fluorine	◇	◇
	Other	◇	◇

Developed prospects have been drilled, pitted, or explored underground.

Tectonic province boundary

Tectonic subprovince boundary

Compiled by K.R. Dawson, 1978

To accompany Economic Geology Report 34 by K.R. Dawson

The background geology is printed in grey from 1:250A "Geological Map of Canada". The numbered primary quadrangles of the National Topographic System are outlined on the grey base

Numbering System:
NTS (National Topographic System primary quadrangle)—sequence numbers (e.g. 31-54). Only sequence numbers have been shown on map

Geological cartography by H.A. Thomson

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

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MAP 1588A

MINERAL DEPOSIT MAP

BARIUM, STRONTIUM AND FLUORINE IN CANADA

Scale 1:5 000 000

Kilometres 100 0 100 200 300 400 Kilometres

LAMBERT CONFORMAL CONIC PROJECTION, STANDARD PARALLELS 49°N AND 77°N; MODIFIED POLYCONIC PROJECTION NORTH OF LATITUDE 80°

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1588A

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