DEPOSIT TYPE / TONNES (Pb + Zn)	Volcanic-associated exhalative	Sediment-hosted exhalative	Mississippi Valley-type (MVT)	Sandstone-lead	Contact metasomatic	Vein/replacement
<10 000	◇	△	□	▽	○	○
10 000 - 99 999	◇	△	□	▽	○	○
100 000 - 999 999	◇	△	□	▽	⬡	○
1 000 000 - 9 999 999	◇	△	□	▽	⬡	○
≥ 10 000 000	◇	△	□	▽	⬡	○

METAL RATIO
Wt %
Zn/(Zn+Pb)

< 0.25 ◇ 0.25 - 0.49 ◈ 0.50 - 0.749 ◆ ≥ 0.75 ◆

L E G E N D

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

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)

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 sequence; 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 v

Mainly acidic and mixed volcanic rocks v

Gneiss and schist derived from sedimentary rocks; may include volcanic rocks and granitic material . . . . . n

Granulite and charnockite . . . . . nh

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

Mangerite . . . . . 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 . . . . . .

Volcano, volcanic centre . . . . . .

Carbonatite intrusion . . . . . ×

Ultramafic intrusion . . . . . *

Gypsum diapir . . . . . ×

Bathymetric contours (depth in metres) . . . . . .

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 origin of deposition or extrusion as determined by palaeontological 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

CENOZOIC

QUATERNARY — Q, Qv

TERTIARY — T; uE, uTv, pIT, mIT; T — Tg, Ty, Tb; ol - Oligocene; p - Palaeocene

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 Maestrichtian, 9 - Maestrichtian

LOWER CRETACEOUS — K; lK, lKs, lKv; mainly Albian; may include Upper Cretaceous and Upper Jurassic

CRETACEOUS — K; Kg, Ky; K; Kb

JURASSIC AND CRETACEOUS — LATE JURASSIC AND LOWER CRETACEOUS — JK; JK, JKs, JKv

JURASSIC — J; J, Js, Jv; J — Jg, Jb

TRIASSIC AND JURASSIC — TrJ; TrJs, TrJv

TRIASSIC — Tr; Tr, Trs, Trv; Tr — Trg, Trb; Tr — Trub

MESOZOIC — M; M; Mn; M; Mg, Mgn; Gabbro dyke

PALAEOZOIC

PERMIAN — P; P, Ps, Pv; P — Pub

CARBONIFEROUS — PENNSYLVANIAN — P; P, Pv; C — Cg

CARBONIFEROUS AND PERMIAN — CP; CP, CPs, CPv

PENNSYLVANIAN AND PERMIAN — PP

MISSISSIPPIAN — M; M, Ms, Mv

DEVONIAN — D; D, Dv, uD, uDv; may include some Middle Devonian; D; Dg, Dy, Db

DEVONIAN AND CARBONIFEROUS — DC; May include some Permian

DC; DCs, DCv

DC; DCub

SILURIAN AND DEVONIAN — SD; SD, SDs, SDv

SILURIAN — S; S, Ss, Sv, lS, lmS, mS, uS

ORDOVICIAN AND SILURIAN — OS; OS, OSs, OSv

ORDOVICIAN — O; O, Os, Ov, uO, mO, lO; O; Og, Oy, Ob

OS; OSs; may include some Lower Devonian

CAMBRIAN AND ORDOVICIAN — €O; €O, €Os, €Ov

O; Oub

CAMBRIAN — C; C, lC, mC, uC

C; Cs, lCv, Cn

HADRYNIAN AND CAMBRIAN — HC; HCs, HCn

PALAEOZOIC — OSD; OSDs, OSDn; Ordovician, Silurian, Lower and Middle Devonian

€OS; Upper Cambrian, Ordovician, and Silurian

PALAEOZOIC AND? OLDER — P

PROTEROZOIC

HADRYNIAN — H; H; Hg, Hy; H; Hs, Hd; H; Hn; Gabbro dyke

HADRYNIAN AND PALAEOZOIC — HP; HPs; Hadrynian and Lower Palaeozoic; may include some Helikian

HELIKIAN AND HADRYNIAN — HH

HELIKIAN — NEOHELIKIAN — N; N; Ng, Ny, Ngn; N; Nb; N; Nub

HELIKIAN — H; H; Hs, Hv; Gabbro dyke

PALEOHELIKIAN — P; P; P'r, r > P'; P; P'g, P'v, P'm; P; P'b; P; P'a

PROTEROZOIC — P; P, Pv; P; Pn; P; Pn, IPn; may include some older rocks

APHEBIAN AND HELIKIAN — AH; AHn

ARCHAEAN

APHEBIAN — A; A, r > a A, mA, uA; A; Ag, Ay; A; As, Av; A; Agn; A; An; A; Aa; A; Anh; A; Ab, Ad, Am; A; Aub; Gabbro dyke

ARCHAEAN AND/OR PROTEROZOIC — A; Ag, see note; A; Agn, see note; A; Anh, see note

A; As; A; Ag, Ay; A; zAs, relatively young; A; rAg, relatively old; A; Av; A; Agn; A; An; A; Aa; A; zAn, relatively young; A; Ab, Am; A; Aa; A; Anh; A; Aub

GEOLOGICAL SURVEY OF CANADA — COMMISSION GÉOLOGIQUE DU CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES
MINISTÈRE DE L'ÉNERGIE, DES MINES ET DES RESSOURCES

MAP 1651A

LEAD-ZINC DEPOSITS 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°

The background geology is printed in grey from Map 1250A, "Geological Map of Canada"

CONTINENTAL SHELF EXTENSION
Scale 1 : 15 000 000

Canada

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MAP 1651A
LEAD-ZINC DEPOSITS IN CANADA