EXPLANATORY NOTES

PURPOSE AND SCOPE OF MAP

The purpose of this map is to show the distribution of silver in Canada. Types of occurrences containing silver are denoted by various symbols on an uncoloured geological map of Canada in order that comparisons with geological features can be made.

Silver is shown in relative abundance in the various types of silver occurrences by using black symbols for these and blue symbols for those of less importance. Black symbols indicate significant occurrences usually with good silver values, large deposits containing 1 ounce silver per ton or more, and mines that produced a sizeable amount of ore at or above this cut-off assay. The symbols represent a range of values indicating the relative importance of the occurrences. Medium values are considered to be between 1 and 10 ounces silver per ton, medium values 5 to 15 ounces silver per ton, and high values greater than 15 ounces silver per ton. A symbol with a low value in many cases indicates that silver is a by-product metal, e.g. the Pb-Zn-Ag ores of the Sullivan mine (Ⓢ), whereas a symbol with a high value generally indicates that silver is a first rank metal, e.g. the Ag-Pb-Zn ores of the Keno Hill area (✱).

CLASSIFICATION

On the map the following classification of silver deposits has been adopted:

SHALE DEPOSITS: The silver minerals occur as disseminations in layers or beds of shale. Most deposits of this type are mined for copper, and silver is won as a by-product in some cases. The only deposit of this type mined for silver alone is the Silver Islet deposit in Michigan. No good examples of this type are known in Canada.

SANDSTONE TYPE: The silver minerals occur as disseminations in terrestrial sandstones, arkoses, and conglomerates. In other deposits the silver minerals occur in veins or lenses cutting these rocks. These types of deposits are frequently referred to as 'red bed' deposits. The silver is generally won as a by-product. In the Coppermine area, N.W.T., copper is the principal economic metal, but some are mined for their lead or uranium. Silver is generally won as a by-product. A few deposits contain silver as the only economic element.

SKARN: The silver occurs in veins, lodes, and stockworks containing essentially gold with silver, and/or arsenides. The gangue is generally quartz.

POLYMETALLIC TYPE: These deposits occur in all varieties of rocks. Four sub-types can be recognized.

1. Lead-zinc veins, lodes, and stockworks containing essentially gold with more or less of galena, sphalerite, tetrahedrite, etc. The gangue is generally quartz.
2. Lead-zinc-copper-silver veins, lodes, and lenses containing essentially galena, sphalerite, tetrahedrite, chalcopyrite, argentite, etc. The gangue is either quartz or carbonate minerals.
3. Copper-lead-zinc deposits containing either pyrite, pyrrhotite, pentlandite, and chalcopyrite (Sudbury type) or assemblages of pyrite, pyrrhotite, galena, sphalerite, and chalcopyrite (Flin Flon type). Silver is generally won as a by-product metal.
4. Ni-Co arsenide (Cobalt) type. The principal silver mineral is native silver. Associated elements in some deposits are bismuth and uranium. The gangue is usually calcite, dolomite, and quartz.

On the map sub-types 1, 2, and 3 are grouped together for simplicity.

DISTRIBUTION AND SOURCES OF SILVER

Mexico leads the world in silver production with an output of 43.0 million ounces in 1963. The United States and Canada are the next largest producers followed by Canada. Most of the 317 million ounces produced in Canada in 1963 came from Ontario, British Columbia, Yukon, and Quebec. The record lode silver mine in Canada was the Keno Hill area, 1960 when 942 million ounces were produced from the following sources: 2 per cent from gold ores, 77 per cent from base-metal ores, and 21 per cent from silver ores.

The following areas are the most important silver-producing areas: the base-metal ores of the Sullivan mine (17), the silver-rich lead-zinc ores of the Keno Hill area (5), the Sturgeon (56) and Ainsworth areas (86), and the Premier gold mine (31). Deposits in the Cordillera, mined primarily for silver, include those in the Beaverdell area (60), the Tulsequah and Dolly Varden deposits (32) and the Silver Standard (35) and Henderson deposits (40). The Rocher Deboule deposit (4) and deposits in the Hazelton area (30) are examples of silver-bearing deposit in the Cordilleran region containing the complex cobalt-nickel arsenide minerals and uraninite.

Massive sulphide deposits containing principally copper, copper-nickel, and copper-lead-zinc ores yield large amounts of silver as a by-product and are one of the most important sources of silver. Examples of this type of deposit are found at Flin Flon (110), Manitouwadge (123), Matagami Lake (138), Noranda (140), and numerous other areas. The huge Texas Gulf Kidd Creek deposit (132) near Timmins, Ontario will eventually be the world's largest single source of silver with an annual output of approximately 10 million ounces. The Ni-Co arsenide native silver type of deposit is of frequent occurrence in the Cobalt area (85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101) the most important silver-bearing districts of the world and after 60 years of production still supply about 17 per cent of Canada's silver output. The Silver Islet mine (119) produced much silver before the turn of the century, and the metal was recovered, until recently, from the Eldorado (104) pitchblende deposits.

Silver is a by-product metal that is generally won as a by-product from massive sulphide deposits containing essentially lead, zinc, and copper. These include deposits such as the Brunswick (161), Heath Steele (162), and Buchans (170). The Walton deposit (167) in Nova Scotia is primarily a barite deposit with an associated lead-zinc-copper-silver sulphide lens.

Many base-metal deposits, including the Gaspé copper deposits, those in the Sudbury area (111), and those in the Abitibi area (112), and in the Great Slave Lake area (Contact Lake), and others in the Cordilleran region have produced large amounts of silver, but their ore averages less than one ounce silver per ton, and hence they are not plotted on the map. The same applies to numerous gold mines in the Appalachians, the Shield, and the Cordilleran region.

SOURCES OF INFORMATION

The map is based largely on information obtained from publications of the Geological Survey of Canada and the various provincial departments of mines to mid 1964. The files of the Geological Survey of Canada and the Mineral Resources Division, Department of Energy, Mines and Resources were an additional source of information.

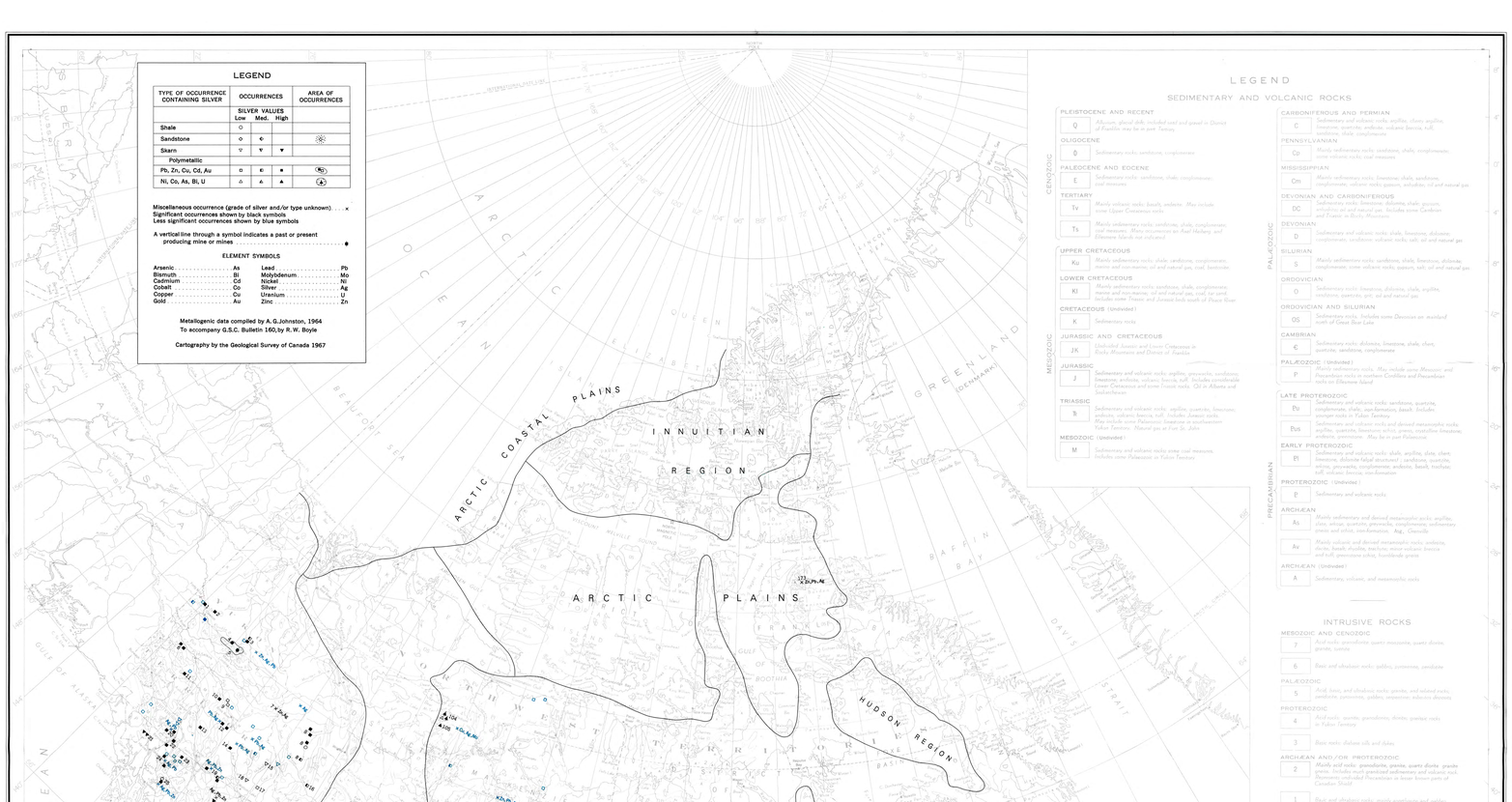
LOCALITIES AND REFERENCES

One symbol on the map may represent either a single occurrence or a number of occurrences in a compact group. The locality number on the map is plotted adjacent to the symbol it designates, but where it represents a number of symbols the locality number is plotted in the general area of that group of symbols. Locality numbers refer to black symbols unless the number is underlined, in which case it refers to a blue symbol. In order to indicate the importance of many of the base localities the number of occurrences known to have yielded 1 ounce silver per ton or more, and/or the names of the more important mines that produced at this rate are enclosed in brackets in the locality list at the side of map. Reference numbers in the locality list relate to the list of selected references. Only the most important references are listed. Many localities are described in the reports listed containing many occurrences. The Geological Survey of Canada cannot supply publications other than its own, nor can it supply unpublished information.

LOCALITIES

Locality numbers underlined indicate areas (but not individual mines) where silver was produced at a rate of 1 ounce or more silver per ton or more in 1964.

1. Fifteen Mile River, Refs. 7,20, pp. 23-25.
2. Spotted Fawn Gulch, Little Twelve Mile River, Refs. 7,12, pp. 15-17.
3. Upper Beaver River, Refs. 6, pp. 9-11; 7.
   McQuesten region (63 occurrences). Refs. 3, pp. 232-239; 7,8,9, pp. 4-6; 10,11,20, pp. 19-20.
4. Peso Silver Mines Ltd., Haggart and Secret Creeks area. Refs. 4, pp. 15, 16; 20, pp. 20-22.
5. Keno Hill — Galena Hill area (50 occurrences). Refs. 2, pp. 51-77; 4, pp. 7-15; 20, pp. 7-16 (United Keno Hill Mines Ltd.)
6. Trombley Creek and Casino Creek, Dip Creek area. Refs. 3, p. 233; 4, pp. 22-24; 13, pp. 11-13; 14, 20, pp. 24, 35.
7. Tom group, MacMillan Pass. Refs. 3, p. 234; 20, pp. 47, 48; 27, p. 65.
8. Redstone River area. Refs. 5, pp. 30-40; 18, 21, pp. 34-37.
9. Vangorda area. Refs. 3, p. 234; 4, pp. 31, 32; 17, 20, pp. 36, 37.
10. Little Salmon Lake. Refs. 3, p. 234; 15, p. 9; 16, 20, pp. 39-40.
11. Nansen Creek. Refs. 4, pp. 26-28; 20, pp. 30-34.
12. Ketza River and McConnell River, Pelly Mountains. Refs. 3, p. 234; 4, pp. 40-42; 24, pp. 39, 40; 20, pp. 42, 43.
13. Boswell River. Ref. 25, pp. 23, 24.
14. Tintina Silver Mines Ltd., Ingo River, Pelly Mountains. Refs. 3, p. 234; 21, pp. 26-29.
15. Nonpareil Joint Venture, Tyers River. Ref. 20, pp. 45, 46.
16. Prairie Chicken Creek. Refs. 16, p. 12; 19, p. 26.
17. McMillan property, near Quartz Lake. Ref. 27, p. 66.
18. Frances River Syndicate, near Tom Lake. Refs. 4, p. 44; 21, p. 33.
19. Wolf Lake — Rancheria River area. Refs. 3, pp. 233, 234; 4, pp. 47, 48; 21, p. 32; 22, pp. 23, p. 17, 18, 33, 1949 pp. 69-71; Can. Mining J. Dec./65, p. 12.
20. Wheaton district (6 occurrences). Refs. 3, p. 232; 26, pp. 123, 174, 126, 127, 135, 136.
21. Rainy Hollow and Three Guardsmen areas (6 occurrences). Ref. 26, pp. 40-60.
22. Windy Arm district (8 occurrences). Refs. 26, pp. 127-131; 33, 1939, p. 130.
23. Atlin-Ruffner, Fourth of July Creek, Atlin area. Ref. 196, pp. 71, 72.
24. Whitehorse Mountain and Hotoe Creek, Atlin area. Refs. 33, 1933, pp. 81-82; 182, pp. 92-96, 105, 106.
25. Taku River area (7 occurrences). Refs. 1, pp. 112-121; 2, pp. 7-16; 29, pp. 58-63; 70-72; 185, pp. 180-187; Northern Miner, Aug. 13/64 p. 2 (Tulsequah Chief, Big Bull).
26. McDame area. Ref. 30, pp. 106, 114-116, 119-122.
27. Johnson River, Iskut River area. Ref. 54, pp. 77, 78.
28. Cumberland group, Sulphurets Creek. Ref. 33, 1935B, pp. 11, 12.
29. Swannell River, Ingenika River area. (2 occurrences). Ref. 46, pp. 204-211.
30. Jupiter group, Lay Creek. Ref. 46, pp. 218-221.
31. Portland Canal district (66 occurrences). Refs. 1, pp. 121-124; 31, pp. 104-110. (Premier ✱); Indian ✱, Premier Border ✱, Dunwell ✱, Portland Canal Mining Co. (Lucky Swede), Prosperity ✱, Porter-Idaho ✱.)
32. Kitsault River — Alice Arm — Illiance River region (35 occurrences). Refs. 31, pp. 52-67; 33, 1941, pp. 92-94 (Torbrit (Toric), Dolly Varden, North Star, Esperanza).
33. Ray group, Pinchi Fault zone. Ref. 47, p. 172.
34. Manson River — Germansen River area (5 occurrences). Ref. 47, pp. 173, 178-181.
35. Hazelton area (26 occurrences). Refs. 2, pp. 20-27; 33, 1950, pp. 83-100; 41, pp. 24-99, 45. (Silver Standard ✱, Silver Cup ✱, Rocher Deboule ◆).
36. Whisky Creek, Cadwallader area. Ref. 39, p. 52.
37. Granby Peninsula, near Anyox. Refs. 31, p. 93; 32, p. 186; 33, 1933, pp. 45, 46 and 1938 B, pp. 4-7. (Granby Point).
38. Kitsumgallum Lake area. (8 occurrences). Refs. 38; 39; 40.
39. Terrace area (25 occurrences). Refs. 38; 39; 40.
40. Hudson Bay Mountains, Smithers area (23 occurrences). Refs. 41, pp. 90-131; 42. (Henderson (Duthie)).
41. Driftwood area (11 occurrences). Refs. 36, pp. 101-110; 43, pp. 19-31; 44 (Cronin Babine).
42. Topley area. Refs. 36, pp. 146-155; 44.
43. Groundhog Coalmine and Mineral Hill. Refs. 33, 1951, pp. 113-117; 36, pp. 115-117; 44.
44. Hunter Mountain and Howson Basin. Refs. 36, pp. 118-120; 42.
45. Bob Creek — Buck River — Morice Mountain area. Refs. 36, pp. 121-125; 44.
46. Babine Lake, south (2 occurrences). Ref. 41, pp. 174-178.
47. Averil Creek, Fraser River. Refs. 33, 1935C, pp. 31, 32; 46, p. 106; 50.
48. Mount Sweeney and Swing Peak (2 occurrences). Ref. 35, pp. 64-66. (Emerald Glacier).
49. Whitesail Lake area (7 occurrences). Refs. 33, 1926, p. 150; 35, pp. 84-96, 99.
50. Lily mine, Iveda Point. Refs. 32, p. 200; 33, 1913, p. 100; 34, pp. 76, 77.
51. Scam group, Copper Creek. Ref. 33, 1940, pp. 17-19.
52. Spanish Lake area. Ref. 33, 1947, pp. 123-126.
53. Tallapoosa Lake. Refs. 33, 1935F, pp. 29-35; 49, pp. 70-72.
54. H.P.H. property, Nahwitti Lake. Ref. 33, 1936F, pp. 47-52.
55. Quatsino area. Refs. 32, p. 218; 33, 1963, p. 167 and 1965, p. 76; 52, pp. 122-125 (Yreka).
56. Dorothia Morton mine, Phillips Arm. Refs. 32, p. 194; 51, pp. 11-14.
57. Muchalat Arm, Nootka Sound (3 occurrences). Refs. 33, 1946, pp. 179-182; 184, pp. 18-20.
58. Dominoer, Mount Washington. Refs. 33, 1963, pp. 103-105; Can. Mining J. Dec/64, p. 9.
59. Western Mines Ltd., Buttle Lake. Refs. 33, 1963, pp. 105-109; 53, pp. 66-71.
60. Twin "J" mine, Mount Sicker. Ref. 1, pp. 88-93.
61. Texada Island. Refs. 32, pp. 193, 203, 205; 33, 1944, pp. 162-174; 51, p. 15 (Marble Bay, Cornell, Little Billie).
62. Tanquille Creek, Birkenhead River area. Refs. 33, 1937F, pp. 15-18; 55, pp. 76-99.
63. Duffey Lake. Ref. 33, 1935F, pp. 9-12.
64. Bridge River — Cadwallader Creek area (8 occurrences). Refs. 33, 1954, pp. 104-106; 56, pp. 67, 68; 57, pp. 18, 19, 22, 25, 28.
65. Diamond S group, Criss Creek. Ref. 62, pp. 79, 80.
66. Queen Bess, Blackwood, North Thompson River. Refs. 32, p. 200; 33, 1901, pp. 135-139; 58, pp. 140-143.
67. North Barriere River area. Refs. 33, 1937C, pp. 187-191 and 1936D, pp. 36-38 and 1950 pp. 111, 112.
68. Adams Lake area. (7 occurrences). Refs. 32, p. 200; 33, 1940D, pp. 32-36, 39-43 and 1949, pp. 132-137 and 1953, pp. 102, 103; 59, pp. 103, 104; 60; Western Miner, Dec/64, p. 20. (Homestake (Skwaam Bay)).
69. Revelstoke area (12 occurrences). Refs. 33, 1926E, pp. 19-21 and 1918, p. 157 and 1922, pp. 153, 154 and 1929D, pp. 50-52; 61, pp. 190-191, 92, 198.
70. Monarch and Kicking Horse mine, Field area. Refs. 1, pp. 231-237; 2, pp. 143-152; 37, pp. 215-222, 225-229.
71. Vermont and McMurdo Creeks, Spillimacheen River area. Refs. 33, 1936E, pp. 31-34, 86.
72. Landeau area. Refs. 33, 1918, pp. 182-186 and 1935E, pp. 21-24 and 1956 pp. 99-105; 86, 89. (True Fissure, Nettie L., Silver Cup, Spider).
73. Frances Creek (4 occurrences). Refs. 33, 1915, pp. 98-100 and 1922, pp. 183, 184; 88.
74. Toby Creek — Invermere area (29 occurrences). Refs. 33, 1949, pp. 196-199 and 1959, pp. 74-89; 87, 88. (Paradise, Mineral King).
75. Silver Key group, Doctor Creek. Refs. 33, 1936E, p. 11; 82.
76. Duncan Lake area (2 occurrences). Refs. 33, 1918, p. 182 and 1925, pp. 235, 236; 86, pp. 50, 51, 103-126; 187.
77. Portland Canal district (66 occurrences). Refs. 1, pp. 121-124; 31, pp. 104-110. (Premier ✱); Indian ✱, Premier Border ✱, Dunwell ✱, Portland Canal Mining Co. (Lucky Swede), Prosperity ✱, Porter-Idaho ✱.)
78. Vernon area (10 occurrences). Ref. 61.
79. Consolidated Nicola Goldfields, Stump Lake. Refs. 1, pp. 183-186; 62, pp. 45-58.
80. Deakum Mountain (3 occurrences). Ref. 62, pp. 59-60.
81. Silver Queen group, Stein River. Refs. 33, 1951, p. 23; Northern Miner, Nov. 29/62, p.99.
82. Renfrew group, Siwash Creek. Ref. 63, pp. 108, 109.
83. Lightning Peak (7 occurrences). Refs. 71, pp. 79-115; 72.
84. Slocan region. Refs. 1, pp. 200-205; 2, pp. 88-95; 75, 85. (A large number of the more than 200 properties that shipped ore from the region produced important amounts of silver).
85. Ainsworth-Riondel area. Refs. 1, pp. 216-218; 2, pp. 95-104; 33, 1961, pp. 144-147 and 1962, pp. 156-169; 76, pp. 55, 56, 77-82; 83, 84. (Bluebell ✱, Florence ✱, Spokane-Triskell ✱, Maestria ✱, Rainier ✱, Twin Lead and Zinc (Highlander, etc.) ✱, Highland ✱, No. 14 ✱, Krao ✱, Silver Hoard ✱).
86. Rose Pass — Creaker Creek area (2 occurrences). Refs. 32, p. 213; 76, pp. 73-75. (Silver Hill).
87. Kootenay Lake. Refs. 1, pp. 219-230; 76, pp. 55, 61; 81; 185, pp. 142-174. (Sullivan, Stemwinder, North Star).
88. Wild Horse River — Bull River area (14 occurrences). Refs. 2, pp. 153-158; 33, 1925, p. 228 and 1961, pp. 185-190; 76, pp. 90, 91. (Estella, Kootenay King).
89. Sanca Creek — La France Creek area. Refs. 32, p. 202; 33, 1926, pp. 283-286 and 1956, p. 87; 76, pp. 66, 91, 76, 78.
90. Nelson-Salmo River region. Refs. 2, pp. 104-110, 124-132; 33, 1937E, pp. 8-27; 75, 76, pp. 62-66; 77. (Eureka ✱, Silver King ✱, California ✱, Perrier ✱, Protection (Goodenough) ✱, Ymir ✱, Willcock (Ymir Willcox) ✱, Blackrock ✱, Dundee ✱, Yankee Girl ✱, Wesko ✱, Ymir Yankee Girl ✱, Second Relief (Second Chance) ✱, Dodmine ✱, Comstock ✱, Keystone ✱, Arlington ✱, HB ✱, Nugget ✱, Skyome ✱, Spokane ✱).
91. Union mine, Franklin camp. Refs. 72, 73, pp. 10, 11.
92. Carmi mine, Carmi camp. Refs. 65, pp. 30-34; 67, 70.
93. Wallace Mountain, Beaverdell area (16 occurrences). Refs. 2, pp. 136-141; 65, pp. 29-34; 67, 69; 69, 70. (Highland-Bell, Salu and Rabbi Ray, Wallingford).
94. Iota, Islay B., Stemwinder Mountain. Refs. 32, p. 201; 33, 1947, pp. 146, 147.
95. Summit camp (9 occurrences). Refs. 33, 1962, pp. 119-134; 180, pp. 100-107.
96. Eureka-Victoria mines, Silver Peak. Ref. 179, pp. 152-160.
97. Eagle River area (10 occurrences). Refs. 33, 1939F, pp. 3-29; 51, pp. 23-25; 64, pp. 73, 74.
98. Nora Silver mine, Richter Mountain. Refs. 33, 1940, pp. 56-60; 65, p. 26; 67, 70.
99. Fairview camp (7 occurrences). Refs. 65, pp. 15-21; 66; 67; 70; 73, pp. 17, 18. (Morning Star (Fairview)).
100. Greenwood-Phoenix-Grand Forks region. Refs. 2, pp. 132-136; 72, 73, pp. 11-14; 74, pp. 594-604.
(B.C.✱, Providence ✱, Skylark ✱, King Solomon ✱, Jewell ✱, Amandy ✱, No. 7 ✱, City of Paris ✱, Golden Eagle ✱, Hummingbird ✱).
101. Paulson area (5 occurrences). Refs. 33, 1953, pp. 111-112; 72, 73, pp. 9, 10. (Berlin and Monashee).
102. Rossland camp. Refs. 1, pp. 189-196; 75. (Iron Mask, War Eagle, I.XL, Cliff and Cons. St. Elmo).
103. Moyie (9 occurrences). Refs. 32, pp. 186, 205, 211, 214; 78, 79. (St. Eugene, Aurora, Society Girl).
104. Port Radium area, Great Bear Lake (6 occurrences). Refs. 1, pp. 259-268; 2, pp. 177-189; 93, pp. 60, 86, 87, 140-148, 179-184, 279, 94, pp. 55-90; 95, pp. 190, 196-98; 96, pp. 35-38; 97. (Eldorado, Contact Lake, Echo Bay).
105. Camsell River Silver Mines Ltd. Refs. 93, pp. 91-93; 97.
106. Indian Mountain Lake. Ref. Northern Miner, May 14/64, p. 24.
107. François River riacolite deposit. Ref. 98, pp. 60, 61.
108. Lodhalla area (4 occurrences). Refs. 95, pp. 132-173; 99, pp. 30, 31; 100; 101, pp. 92-94, 123.
109. Hanson Lake. Ref. 101, p. 121.
110. Flin Flon area (4 occurrences). Refs. 1, pp. 296-301; 2, pp. 259-262; 101, pp. 102, 103; 100, 103, pp. 29-31. (Flin Flon, Mandy, School Lake).
111. Dominion claims, Gurney Gold mine, Copper Lake. Ref. 181, pp. 49, 50; 183, pp. 5-7, 25.
112. Snow Lake area. Ref. 103, pp. 85-89. (Chisel Lake).
113. Echimamish River. Refs. 104, pp. 15, 16, 27, 28, 32-34; 105.
114. Favourable Lake. Refs. 1, pp. 365-368; 106, pp. 68-78, 83, 107, pp. 79-92; Northern Miner, Jan. 21/65, p. 1, and Feb. 4/65, p. 20, (Barrens River).
115. Hunonian mine, Moss township. Ref. 210, pp. 109-127.
Thunder Bay Silver region (36 occurrences). Ref. 113.
116. Silver Mountain mine.
117. Rabbit Mountain area (Porcupine, Badger, Beaver, Rabbit Mountain).
118. Port Arthur area (Shuniah, Thunder Bay, Silver Harbour, Sk, Beck).
119. Silver Islet mine.
120. Mapi Plat River. Ref. 114, p. 267.
121. Onaman Lake area (3 occurrences). Refs. 109, pp. 90-92; 96, 99; 110, pp. 82, 84, 85; 111, p. 24.
122. Township 80 (3 occurrences). Refs. 111, pp. 43, 44, 51, 61; 115, p. 5.
123. Manitouwadge area (4 occurrences). Refs. 111, pp. 49, 50, 55, 56, 59, 61; 116. (Geco, Willroy).
124. Norak Lake, Twp. 28, R. 26. Refs. 118, pp. 25, 26; 122.
125. Michipicoten Island. Ref. 117, pp. 506, 507, 703, 704, 737.
126. Jarvis and Dunlop Townships. Ref. 111, p. 78. (Jardun).
127. Kerr claim, Otter township. Ref. 120, p. 196.
128. Pivnir Township. Ref. 181.
129. Errington and Vermilion mines, Sudbury Basin. Ref. 111, pp. 85, 86.
130. Turner township. Ref. 111, p. 86.
131. White Reserve mine, Maple Mountain area. Refs. 127, p. 17; 135, p. 106.
132. Gowganda — Shining Tree area (numerous occurrences). Refs. 2, pp. 388-390; 108; 130, pp. 185-194; 127, pp. 15-17; 133, 135, 136; 137, pp. 1-78; 138, pp. 67-99; 139, p. 49; 140. (Silcon Metals of Ontario Ltd. (Miller Lake — O'Brien), McIntyre Porcupine Mines Ltd. (Castle-Trethewey), Morrison, Welsh, Mann, Reeve-Dobbie).
133. Texas Gulf Sulphur Co., Kidd township. Ref. 141.
134. Area Mines Ltd., Roquemaure township, Abitibi Lake. Ref. Northern Miner, Sept. 31/61, pp. 4, 5.
135. Normetal mine. Refs. 1, pp. 693-697; 146.
136. Normetal-Quebec lake area. Refs. 147, pp. 147-757; 148, pp. 389-396; 192. (Mattagami Lake Mines Ltd., Orchan Mines Ltd.).
137. Richmond Gulf and Little Whale River. Ref. 119, p. 131.
138. Phythonne #1 and La Pinh #1 deposits, New Quebec. Ref. 191.
139. Lesueur township. Refs. 149, pp. 17-21; 150. (Conagas).
140. New Formaque Mines Ltd., Dalquier township. Ref. 145, pp. 27, 28.
141. Opemiska and Radiore-Cartwright townships (5 occurrences). Refs. 140, pp. 3, 4, 17; 193, p. 10; 194, pp. 18, 19 map.
142. Lake Dufault, Lake Dufresne and Vauze mine, Noranda area. Refs. 142, pp. 14, 15; 143, 144, pp. 409-412.
143. St. Pierre property, Morrisette township. Ref. 111, p. 32.
144. Auld and Cane townships, and the Eb Lake area (numerous occurrences). Refs. 108; 130, pp. 155-163; 127, p. 16; 133, pp. 47-51; 134, 135, pp. 107-109; Northern Miner, Dec. 19/63, p. 6.
145. Cobalt area. Refs. 2, pp. 377-388; 120, 126; 127; 128, pp. 101-103; 129; 130; 131; 132; 136. (More than 50 mines produced silver in the area).
146. Casey Cobalt mine, Casey and Harris townships. Refs. 120, pp. 140-148; 127, p. 16.
147. Bourlamaque township (2 occurrences). Ref. 142, p. 7. (Golden Manitou mine).
148. Fabre township. Refs. 134, pp. 41a-43; 135, p. 154.
149. South Lorrain township (numerous occurrences). Refs. 120, pp. 134-144; 126, pp. 189-236; 127, pp. 13-15. (Keeley, Frontier, Nipissing, Wettaufer).
150. Strathy township. Ref. 121, pp. 26, 27, 35, 36, 41.
151. Rabbit Lake and McDonald Lake. Refs. 120, pp. 129, 130; 123, pp. 31-34.
152. Katherine mine, Lake township. Ref. 119, pp. 157, 158.
153. Barrie township. Ref. 152, p. 67.
154. New Calumet Mines Ltd., Calumet Island. Refs. 142, p. 18; 151.
155. Tétreault mine, Montauban township. Ref. 142, p. 25.
156. Aspot township (5 occurrences). Refs. 1, pp. 901-906; 2, pp. 466-469; 142, p. 2; 153, pp. 206, 207, 225-234, 265, 266; 154, pp. 123, 124, 127, 130. (Mountain Hill, Suffield).
157. Rouyn-Noranda area (8 occurrences). Refs. 155, pp. 81, 82; 156, pp. 15, 16.
158. Marsoui River area (6 occurrences). Ref. 142, p. 6; 155, pp. 11-13, 32. (Candego).
159. Restigouche Mining Corp., Third Portage Lake. Ref. Northern Miner, Nov. 15/65, p. 13.
160. Tétagouche — Millstream — Nigadoo area (6 occurrences). Refs. 157, pp. 18-20; 158, 159, pp. 36, 38; 160, pp. 9, 10; 177, pp. 78-83; 178, pp. 84-88; 196, p. 101; Northern Miner, Aug. 20/64, p. 1. (Heath Steele, Brunswick No. 12).
161. Brunswick No. 6. Refs. 2, pp. 465-482; 157; 158; 160; 181; 182, pp. 89-96; 177, pp. 78-83; 178, pp. 84-88; Can. Mining J., Nov/65, p. 10. (Brunswick No. 6, Brunswick No. 12).
162. Heath Steele Mines Ltd. Refs. 160, pp. 13, 14; 182, pp. 89-96; 183, pp. 339-356.
163. Musquash Harbour (2 occurrences). Refs. 119, pp. 65, 66; 194, pp. 93, 94.
164. New Hutton area. Ref. 160. (generally less than 1 oz. Ag per ton).
165. Dorchester copper deposit. Refs. 166; 167. (generally less than 1 oz. Ag per ton).
166. Tatamagouche area. Refs. 169; 169, pp. 309-324. (generally less than 1 oz. Ag per ton).
167. Magnet Cove Barium Corp'n., Walton. Ref. 170.
168. Mindamar mine, Stirling. Refs. 2, pp. 495-502; 171, pp. 81-87.
169. Strickland. Refs. 172, pp. 84, 85; 173, pp. 41-46.
170. American Smelting and Refining Co., Buchans. Refs. 174, pp. 77-80; 175, pp. 288-296.
171. Silverdale (Bear Cove). Ref. 172, p. 78.
172. Bloomfield, Goose Bay. Ref. 176, p. 136.
173. Strathcona Sound. Ref. 190, p. 23.



LEGEND

TYPE OF OCCURRENCE CONTAINING SILVER	OCCURRENCES — SILVER VALUES Low	Med.	High	AREA OF OCCURRENCES
Shale	○			
Sandstone	◇	◈		
Skarn	▽	▼	▼	
Polymetallic				
Pb, Zn, Cu, Cd, Au	△	◭	▲	
Ni, Co, As, Bi, U	⏢	⏢	▲	

Miscellaneous occurrence (grade of silver and/or type unknown) . . . . ×
Significant occurrences shown by black symbols
Less significant occurrences shown by blue symbols

A vertical line through a symbol indicates a past or present producing mine or mines . . . . . ◆

ELEMENT SYMBOLS

Arsenic	As	Lead	Pb
Bismuth	Bi	Molybdenum	Mo
Cadmium	Cd	Nickel	Ni
Cobalt	Co	Silver	Ag
Copper	Cu	Uranium	U
Gold	Au	Zinc	Zn

Metallogenic data compiled by A.G.Johnston, 1964
To accompany G.S.C. Bulletin 160, by R.W. Boyle

Cartography by the Geological Survey of Canada 1967

GEOLOGICAL SURVEY OF CANADA
DEPARTMENT OF ENERGY, MINES AND RESOURCES

MAP 1233A

METALLOGENIC MAP

SILVER IN CANADA

SCALE: 1 INCH TO 120 MILES = 1/7,603,200

100 0 100 200 300 400 MILES
100 0 100 200 300 400 500 KILOMETRES

LEGEND

SEDIMENTARY AND VOLCANIC ROCKS

CENOZOIC
- PLEISTOCENE AND PERMIAN — Q — Alluvium, glacial drift, undrafted sand and gravel; till, boulder clay or boulder gravel.
- OLIGOCENE — O — Sedimentary rocks; sandstone, clay, conglomerate.
- PALEOCENE AND EOCENE — E — Sedimentary rocks; sandstone, shale, conglomerate.
- TERTIARY — Tv — Mainly volcanic rocks; andesite, basalt, rhyolite, pyroclastics.
  Tv — Mainly sedimentary rocks; sandstone, shale, conglomerate, and coal measures. Many occurrences of Red Hallberg and Tertiary gravels.

MESOZOIC
- UPPER CRETACEOUS — Ku — Mainly sedimentary rocks; sandstone, shale, conglomerate.
- LOWER CRETACEOUS — Kl — Mainly sedimentary rocks; sandstone, shale, conglomerate. Includes some Triassic and Jurassic rocks of undifferentiated age.
- CRETACEOUS — K — Sedimentary rocks
- JURASSIC AND CRETACEOUS — JK — Undivided Jurassic and Lower Cretaceous in Rocky Mountains and District of Mackenzie
- JURASSIC — J — Sedimentary and volcanic rocks; shale, conglomerate, sandstone, andesite, volcanic breccia, tuff. Includes undifferentiated Triassic rocks in Rocky Mountains and Mackenzie Mountains.
- TRIASSIC — Tr — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, andesite, basalt, tuff, volcanic breccia. Includes undifferentiated Jurassic rocks in Rocky Mountains and Mackenzie Mountains. Also in part Paleozoic.

PALAEOZOIC
- EARLY PROTEROZOIC (Undivided) — P — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, chert, iron formation, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite. Includes some Paleozoic rocks in Mackenzie Mountains.
- PROTEROZOIC (Undivided) — Pu — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite. Includes some Paleozoic rocks in Mackenzie Mountains.
- ARCHEAN — A — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.
- ARCHEAN AND PROTEROZOIC — Au — Mainly old rocks; granodiorite, gneiss, quartz diorite, granite, migmatite. Also undifferentiated sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.

PRECAMBRIAN
- CARBONIFEROUS AND PERMIAN — C — Sedimentary rocks; limestone, dolomite, gypsum, anhydrite, sandstone, shale, conglomerate.
- PENNSYLVANIAN — Cp — Mainly sedimentary rocks; sandstone, shale, conglomerate, limestone, coal measures.
- MISSISSIPPIAN — Cm — Mainly sedimentary rocks; limestone, dolomite, shale, sandstone.
- DEVONIAN AND CARBONIFEROUS — DC — Sedimentary rocks; limestone, dolomite, shale, gypsum, anhydrite, sandstone, conglomerate, salt and potash.
- DEVONIAN — D — Sedimentary rocks; limestone, dolomite, shale, sandstone, conglomerate.
- SILURIAN — S — Sedimentary rocks; limestone, dolomite, shale, sandstone, conglomerate.
- ORDOVICIAN — O — Sedimentary rocks; limestone, dolomite, shale, sandstone, conglomerate.
- ODOVICIAN AND SILURIAN — OS — Undivided Ordovician and Silurian sedimentary rocks.
- CAMBRIAN — C — Sedimentary rocks; limestone, dolomite, shale, sandstone, conglomerate.
- PALAEOZOIC (Undivided) — P — Sedimentary rocks; limestone, dolomite, shale, sandstone, conglomerate. Includes some Devonian and Mississippian rocks.
- LATE PROTEROZOIC — Pu — Sedimentary and volcanic rocks; sandstone, quartzite, conglomerate, shale, iron formation, basalt, andesite, rhyolite, tuff.
- EARLY PROTEROZOIC (Undivided) — P — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite. Includes some Paleozoic rocks in Mackenzie Mountains.
- PROTEROZOIC (Undivided) — Pu — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.
- ARCHEAN — A — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.
- ARCHEAN AND PROTEROZOIC — Au — Mainly old rocks; granodiorite, gneiss, quartz diorite, granite, migmatite. Also undifferentiated sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.

MESOZOIC (Undivided) — M — Sedimentary and volcanic rocks; shale, sandstone, conglomerate, limestone, dolomite, volcanic breccia, tuff, andesite, basalt, rhyolite.

INTRUSIVE ROCKS

- Granite, syenite, quartz monzonite, granodiorite, quartz diorite, diorite, gabbro, anorthosite, peridotite, pyroxenite, serpentinite, kimberlite, carbonatite, alkalic rocks.

Published 1967, the Centennial of Canadian Confederation

Printed by the Surveys and Mapping Branch
Copies of this map may be obtained from the Director, Geological Survey of Canada, Ottawa

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