

CONTENTS

Introduction	1
1. Placer uranium, gold	9
1.1 Paleoplacer uranium, gold	10
1.1.1 Uraniferous and auriferous pyritic quartz pebble conglomerates and quartzites	
1.1.2 Auriferous hematitic conglomerates and sandstones	
1.2 Placer gold, platinum	23
2. Stratiform phosphate	33
3. Stratiform iron	41
3.1 Lake Superior-type iron-formation	54
3.2 Algoma-type iron-formation	66
3.3 Ironstone	73
4. Residually enriched deposits	81
4.1 Enriched iron-formation	82
4.2 Supergene base metals and precious metals	92
4.2a Supergene zones developed over massive sulphide deposits	
4.2b Oxidation zones developed in the upper parts of vein, shear/fault-related, and replacement deposits	
4.2c Supergene oxide and sulphide zones formed over porphyry Cu-Mo-(Au, Ag) deposits	
4.3 Residual carbonatite-associated deposits	108
5. Evaporites	121
6. Exhalative base metal sulphides	129
6.1 Sedimentary exhalative sulphides (Sedex)	130
6.2 Sedimentary nickel sulphides	152
6.3 Volcanic-associated massive sulphide base metals	158
6.4 Volcanic-associated massive sulphide gold	183
7. Unconformity-associated uranium	197
8. Stratabound clastic-hosted uranium, lead, copper	211
8.1 Sandstone uranium	212
8.2 Sandstone lead	220
8.3 Sediment-hosted stratiform copper	223
8.3a Kupferschiefer-type	
8.3b Redbed-type	
9. Volcanic redbed copper	241
10. Mississippi Valley-type lead-zinc	253
11. Ultramafic-hosted asbestos	263
12. Volcanic-associated uranium	269
13. Vein uranium	277
13.1 Veins in shear zones	278
13.2 Granitoid-associated veins	283
14. Arsenide vein silver, uranium	287
14.1 Arsenide silver-cobalt veins	288
14.2 Arsenide vein uranium-silver	296

COLOR PLATES	307
15. Lode gold	323
15.1 Epithermal gold	329
15.1a Quartz-(kaolinite)-alunite deposits	
15.1b Adularia-sericite deposits	
15.2 Quartz carbonate vein gold	350
15.3 Iron-formation-hosted stratabound gold	367
15.4 Disseminated and replacement gold	383
16. Clastic metasediment-hosted vein silver-lead-zinc	393
17. Vein copper	399
18. Vein-stockwork tin, tungsten	409
19. Porphyry copper, gold, molybdenum, tungsten, tin, silver	421
20. Skarn deposits	447
20.1 Skarn zinc-lead-silver	448
20.2 Skarn copper	460
20.2a Copper skarns not associated with porphyry copper deposits	
20.2b Copper skarns associated with porphyry copper deposits	
20.3 Skarn gold	476
20.4 Skarn iron	489
20.4a Contact metasomatic	
20.4b Stratiform in metamorphic terrane	
20.5 Skarn tungsten	495
21. Granitic pegmatites	503
22. Kiruna/Olympic Dam-type iron, copper, uranium, gold, silver	513
23. Peralkaline rock-associated rare metals	523
24. Carbonatite-associated deposits	541
25. Primary diamond deposits	559
25.1 Kimberlite-hosted diamond	560
25.2 Lamproite-hosted diamond	568
26. Mafic intrusion-hosted titanium-iron	573
26.1 Anorthosite-hosted titanium-iron	577
26.2 Gabbro-anorthosite-hosted iron-titanium	578
27. Magmatic nickel-copper-platinum group elements	583
27.1 Nickel-copper sulphide	584
27.1a Astrobleme-associated nickel-copper	
27.1b Rift- and continental flood basalt-associated nickel-copper	
27.1c Komatiite-hosted nickel	
27.1d Other tholeiitic intrusion-hosted nickel-copper	
27.2 Magmatic platinum group elements	601
28. Mafic/ultramafic-hosted chromite	615
28.1 Stratiform chromite	617
28.2 Podiform (ophiolitic) chromite	621
Index	625
Appendix – Index to mineral deposits shown on Figure 2 (<i>in pocket</i>)	635