

Index

Note: Page numbers in **bold** type refer to tables; those in *italic* refer to illustrations.

- Abies amabilis* 155
- A. balsamea* 109, 155
- A. lasiocarpa* 155
- Abitibi Greenstone Belt 31, 72, 167
 - gold concentrations 207
 - gold deposits 201-224
 - ice flow 202
 - location 201
- ablation till 252, 325
- abrasion, clasts 7
- Abukuma-type alteration 76
- Adams Lake 301, 304, 307, 327, 328, 331
- Adams Plateau 325, 327, 331
- aillikite 87, 90
- alder, *see* *Alnus crispa*
- alnoites 90
- Alnus crispa* 155
- alteration zones
 - element concentrations 171
 - indicator minerals 70
 - uranium mineralization 226
- amoeboid dispersal trains 9, 272, 283, 330
- amphibole 79
- analytical methods 36-37
- anomaly evaluation 58-63
- anorthosite, boulders 241
- anthophyllite 75
- Antigonish Highlands 244
- antimony
 - association with gold 139
 - in dispersal trains 291-293
 - in till 293, 313
- apatite 85
- Appalachia, lake sediments 131
- Appalachian Ice Complex 240-241, 249, 260, 269
 - and Laurentide Ice Sheet 4, 5
- Appalachian Orogen 237
- Aquarius deposit 71
- argentite 303
- Arkhangelsk 96
- Arrow Lake 55
- arsenic
 - association with gold 139
 - in lake sediments 140, 141, 142
 - in soils 327, 332
 - in till 308, 311, 313
- arsenides 74
- arsenopyrite 217, 303
- ashing 161
- aspen, *see* *Populus tremuloides*
- Athabasca Basin
 - Landsat image 226
 - location 225
 - uranium deposits 225-235
- Athabasca Group 225
- Atlantic Uplands 254
- Attawapiskat River 87
- augers 27
- Avalon Peninsula 269, 270, 277
- Avalon Zone 241, 247, 255
- B-horizon 23, 46, 61, 112, 334
- Babine belt 47, 54, 63, 145
- background concentrations 61
- backhoe digging 29, 30, 219
- Baffin Island 85
- Baie des Chaleurs 241
- Baie Verte 277, 280-283
- Bakos deposit 128
- Baldy Batholith 303
- balsam fir, *see* *Abies balsamea*
- barite 75, 303, 317
- barium, in till 314
- bark, biogeochemistry 156
- bark ash 152
- Barriere 329
- basal till 47, 48
 - characteristics 49
 - copper concentrations 52
 - dispersal 51-54
 - gold in 61, 62
 - massive sulphides 301
- basal transport 7-9
- base metals
 - drilling for 31, 33
 - Labrador 267
 - lake sediments 128
- Batchelor Lake 87
- Batty Complex 88
- Bay of Exploits 277
- Bay of Fundy 243, 244
- beach deposits, kimberlite sampling 96
- Beaver River Till 251, 252, 253, 254
 - clast geology 259
 - dispersal 246
 - dispersal parameters 260
 - overprinting 255
 - renewal distance 258
- bed roughness, and dispersal trains 6
- bedrock, sculpted 54
- bedrock contacts, predicted 260, 261
- bedrock geology 61
- bedrock mapping 21
- bedrock signature 184, 197
- bedrock slopes, and ice flow 6
- bedrock sources 46
 - West Lawrencetown 242
- bedrock surface 22
- Bell deposit 47, 63
 - copper concentrations 60

- Bell Island mine 267
 beryllium, Strange Lake 274
 Betts Cove 267
 biogeochemical exploration 151–164
 biogeochemical surveys 109, 114, 151–164
 analytical methods 161–162
 contamination 159
 rules **159**
 sampling methods 155–156
 tissue washing **160**
 biogeochemical and till data 162
 black spruce, *see Picea mariana* 155
 'blue' ground 89
 Bonaparte Plateau 325, 329
 boreal forest 155
 borrow pits 27
 Botwood Group 277
 boulder geochemistry 225–235
 boulder pavements 251
 boulder sampling 227–228
 illite content 227
 boulder tracing 57
 boulder transport, glacial flow lines 8
 box and whisker plots 170, 171, 184, 191, 192
 Bralorne Takla 288
 branches, element distribution **157**
 Brett River Synform 174
 Brigus deposit 267
 British Columbia Cordillera 47
 Brook Till 241
 Brown Lake Formation 275
 Bruce River Group 274, 275
 Buchans 267, 277
 Buffalo Hills 88
 Burgeo 277
 Burin Peninsula 277

 C-horizon 23, 25, 38, 61
 Cache Creek Group 131
 Cache Creek Terrane 288
 Cadillac, gold deposit 201
 Cadillac-Larder Lake fault 168
 calcite, replacement mineral 89
 Caledonia Phase 241, 251, 254, 260
 Canada, Surficial Materials Map 2, 3, 4
 Canadian Cordillera 21, 45–68
 deposits 145
 drift prospecting 323
 geochemical surveys 130, 297
 map 46
 till cover 54
 Canadian Prairie
 chrome-pyrope 106
 regional surveys 107
 Canadian Shield
 drainage 129
 glaciation 21
 Candle Lake 85, 107
 Cape Breton Channel 243
 Cape Breton trough 243
 Cape Chidley 270
 Capoose Batholith, gold 53
 Capoose Lake, base metals 131, 145
 carbonate-rich till 10

 Cariboo Mountains 288, 290, 325
 Casa Berardi 71
 case study methods 58, 327–333
 cassiterite 74, 77
 Central Mineral Belt, Labrador 274–276
 Central Volcanic Belt, Newfoundland 272
 CH property 54, 55
 chalcopyrite 74, 75, 77, 78, 219, 288, 308
 Chaleur trough 243
 Chapleau Moraine 168
 Chedabucto Bay 243
 chemical weathering, forested areas 23
 Chignecto Phase 243–244, 254, 256
 Chilcotin Group 61
 Chilcotin Plateau 295
 chlorite 226, 229
 chrome-diopside 90
 distribution 78
 Kirkland Lake 104
 chrome-pyrope
 Canadian Prairies 106
 Lac de Gras 105
 chromite 73, 77, 78
 high Cr-Mg 94
 Newfoundland 267
 Thetford 295
 zinc-bearing 79
 chromium, in till 315
 chromium anomalies 13
 Newfoundland 278
 Chuchi Lake 290, 291, 295
 Churchill Province 85
 Chutanli Lake 131, 145
 Cigar Lake 225, 231
 cinnabar 287, 288, 291, 294, 295
 clast analysis 57
 clast fabric analysis 270–271, **280**, 281–282
 clast uptake, Beaver River Till 252
 clasts, basal tills 48
 clay content, composite boulders 229
 clinopyroxenite 79
 Clisbako Lake, gold 133, 137
 Cluff Lake 225
 CM property 329
 Coast Mountains 47, 288, 325
 Cobequid Highlands 241, 251, 252, 256
 Cochrane Till 203
 cohesive flows 51
 colluvial fans 325
 colluviated till 51, 63
 comminution 7, 12, 257
 composite boulder samples 227–228, 228
 analysis 228–230
 Comstock claims 331–333
 concentration/distance relations 60
 cones, biogeochemistry 159
 copper
 Bell deposit 60, 63
 in colluvium 329
 Cordillera 145
 in GIS 170
 Hill-Tout Lake 133
 in humus 177, 181
 Nak prospect 54

- Newfoundland 267
 Old Fort Mountain 59
 sample statistics 171
 in soil 327
 in stream sediments 309
 in stream water 310
 in till 312, 315
 copper anomalies, surficial deposits 173
 copper concentrations, basal till 52
 copper and zinc anomalies 172
 correlation 189
 and glacial dispersion 189–190
 in lake sediments 186
 lithological signatures 185, 187, 188, 197
 in soils 186, 194
 in surficial deposits 185
 Coppermine River 130
 Cordilleran Ice Sheet 325
 coring 33, 34
Cornus stolonifera 111, 155
 correlation analysis 140
Corylus cornuta 111, 155
 Country Harbour 243
 Counts Lakes, molybdenum 135
 crag-and-tail landforms 6, 53, 273
 Cree Lake deposit 231
 creep 57
 Cross diatreme 85
 Crowfoot Mountain 330
 cryoturbation 26
 cumulative frequency plots 140

 Daniels Harbour 267
 data collection 55, 56
 Davis Lake pluton 247
 debris flow deposits
 glacigenic 50
 ice-marginal 51
 Newfoundland 282
 decollement surfaces 7
 deformation till 6, 48
 density concentration 98
 depositional environments 6
 depositional processes, ice sheet margins 2
 Destor-Porcupine fault 168, 201, 217, 218
 diamictons 48, 51, 270, 280, 281
 diamond
 drilling for 31, 33
 exploration 83–123
 kimberlite indicator minerals 70, 90
 regional surveys 103–107
 diamond indicator minerals 94
 Diamond Lake 102, 108
 diatreme facies 88
 Diavik prospect 85, 88
 dickite 229
 digital elevation models 183
 2.5 dimensional image maps 182, 183
 diopside 77
 see also chrome–diopside
 dispersal curves 60
 dispersal fans 7, 249, 307, 328
 dispersal profiles 20
 dispersal trains 6
 in basal till 48
 case studies 327
 contacts 52
 detection 61
 diffuse 283
 elongate 22, 46, 52
 geochemical signatures 334
 gold in 70, 71
 ice flow 11
 kimberlite in 83, 97, 109, 112, 113
 length 333
 mercury in 291–293
 modelling 262
 palimpsest 7, 20, 249
 Pinchi Lake 293–294
 platinum group elements in 74
 shapes 9–12
 Strange Lake 273, 284
 surface expression 333
 three-dimensional geometry 53
 and topography 54
 see also specific forms
 dissolved oxygen 127
 distance/concentration plots 191, 192, 193
 Diversion Lake 277
 Doctor's Point 153
 dogwood, red, *see* *Cornus stolonifera*
 dot maps, Swayze greenstone belt 175
 Douglas fir, *see* *Pseudotsuga menziesii*
 drainage lakes 132–134
 dravite 226, 229, 231, 232, 233, 234
 drift, carbonate-rich 9, 10
 drift prospecting 83, 239
 drill bits, contamination by 31
 drill cores 33, 34, 35
 drilling, sampling from 31, 33
 drilling methods 30
 drumlin tills 251–252
 drumlins 6, 53, 54
 Nova Scotia 239, 241, 247
 sections 250
 till transport 8
 Dry Bones 85
 Dumont sill 77

 Eagle Bay, drift exploration 324
 Eagle Bay Assemblage 302, 303, 306, 325, 333
 Eakin Creek property 329–330
 East Kemptville 127, 143, 237, 247
 East Milford Till 241
 Eastern Shore 256
 Eastmain deposit 126, 143
 eclogites 90
 Ekati diamond mine 85
 element analyses
 detection limits 307
 Newfoundland and Labrador 271
 rock samples 317
 stream sediments 308
 element associations 37
 element concentrations
 background 61
 Kirkland Lake 111
 Peddie kimberlite 110

- element mobilization 20
 end member tills 7, 249–256, 262
 end moraines, transport distances 8
 Endako mine 132
 Engelmann spruce, *see* *Picea engelmannii*
 englacial till 251
 englacial transport 9, 258
 enstatite 76, 85, 90
 enzyme leach 111
 epidote, manganese 75
 epithermal deposits 145
 erosion, differential 5
 erosional features 239
 erosional processes, ice sheet margins 2
 erosional stratigraphy 239
 erratics trains 57, 252
 Escuminac Ice Centre 241
 Escuminac Phase 241–243, 251, 254
 esker sediments 73, 95
 exhalative mineralization 128
 Exploits River 277
- facies recognition 6
 factor analysis 140
 Fawnie Creek 61, 63
 Fennell Formation 325
 Fennoscandian Shield, glaciation 21
 field data form 56
 field methods, shield terrain 21–22
 fine fractions, geochemical sampling 19
 Fish Lake 295
 Flatwater Pond 280, 281
 floods, outburst 6
 Fluke claims 330
 fluorine 139
 fluorite 77
 flutes 6, 53
 forest climatic zone 21
 forsterite 76, 77
 Fort à la Corne 85, 88, 107, 109–111
 Fort Fraser 131
 Fort St James 131
 fracturing, glacial 253
 Francois Lake 135
 franklinite 74
 Fraser Basin 288
 Fraser Glaciation 304, 325, 329
 Fraser Lake 135
 freeze-thaw reworking 257
 frost action 25
 fuchsite 317
- G9 pyrope 94
 G10 pyrope 94
 gahnite 74, 75
 Galaxy porphyry deposit 52
 galena 217, 219, 308
 Gander River 277
 Garden of Eden, dispersal 248
 garnets
 kimberlite indicator minerals 73, 85
 mantle-derived 93
 plots 93
 surface features 100–101
- Gaspereau Ice Centre 241
 geobotanical survey 111, 112
 geochemical analysis 36
 gold exploration 207–209
 quality control 58
 geochemical anomalies 20
 evaluation 45
 and mineralization 190–195
 geochemical criteria, massive sulphides 320
 geochemical dispersion, lake basins 127
 geochemical distributions, characterising 170–174
 geochemical exploration, Quaternary 1–17
 geochemical exploration model 318, 319
 geochemical profiles 24, 27
 geochemical sampling, for GIS 177
 geochemical surveys
 property scale 131–135
 scales 21
 southern B.C. 305
 Swayze greenstone belt 168
 geochemical variation, and partitioning 13
 geographical information systems 141, 165–200
 data analysis 170–195
 geological mapping 57
 Germansen Landing 291
 glacial deposition, modelling 238
 glacial dispersal
 granite pebbles 251
 modelling 257–260
 Newfoundland and Labrador 267–285
 processes 20
 and till thickness 317
 zonal concept 244–249
 glacial dispersal models 1, 2, 7–12
 local 58
 Maritime Canada 237–265
 vector addition 249
 zonal concept 244
 glacial erosion 6
 modelling 238
 glacial flow lines, boulder transport 8
 glacial lakes 269
 glacial landforms, map 3
 glacial processes, and partitioning 12–13
 glacial sedimentology 6–7
 glacial sediments, identification 21
 glacial transport
 modelling 238
 trace elements 323–337
 glaciation, Maritime Canada 239–249
 glacier calving 271
 glacier flow, linear 46
 glaciers, polythermal 252
 glaciofluvial outwash 48
 glaciofluvial sediments, kimberlite sampling 95
 glaciolacustrine deposits
 characteristics 51
 sandy 95–96
 shearing 7
 size fractions 12
 glaciomarine deposits
 Newfoundland 271
 shearing 7
 Glenwood 277

- goethite 26, 295
- gold
- analytical methods 37
 - anomaly patterns 221
 - in basal till 61
 - Capoose Batholith 53
 - central British Columbia 289, 291
 - Clisbako Lake 133
 - concentrations 208, 217
 - in dispersal trains 70, 71
 - drilling for 31, 33
 - Eakin Creek 330
 - lake sediment surveys 127, 128, 145
 - Matheson 210
 - mineralization 139
 - Newfoundland 279
 - partitioning 287–299
 - Peterlong Lake 212
 - in soil 316
 - southern British Columbia 301–327
 - in stream sediments 309
 - in till 208, 311, 312
 - in trees 160
 - Wolf prospect 62
- gold concentrations, trees 153
- gold grains
- Abitibi 205–207
 - abundance 206, 211, 214, 215
 - analysis 71
 - laboratory methods 204
 - Matheson 210
 - modified 206
 - pristine 205–206
 - reshaped 206
 - size 206–207, 207, 296
 - wear 70, 72, 205, 206
- gold mineralization 206, 221
- gold signatures, Abitibi Greenstone Belt 201–224
- gold-arsenic correlation 152
- gold-bearing formations 26
- Golden Pond deposits 71, 216
- section 216
- gossans 138, 301, 303
- grain-size effect 257
- Grand Falls 277
- granite, peralkaline 273
- granophile deposits 145
- graphite 226
- gravel, sandy 48
- gravel lithology 12
- gravity flow deposits 50, 51
- Great Northern Peninsula 269
- greenschist facies, minerals 77
- greisen deposits 71, 74, 77
- Grew Creek 47
- grossular 77
- groundwater, leaching 334
- Gulf of Maine 243
- Gulf of St Lawrence 241
- Gullbridge 273
- gyttja 126, 132, 137
- Halifax 254
- hand excavation 27
- Harrison Lake 153
- Hartlen Till 241, 251, 254, 255
- harzburgite 79
- hazelnut, beaked, *see Corylus cornuta*
- Hazelton 131
- Hazelton Group 61
- heavy mineral concentrates 97, 103, 217, 291, 294
- heavy mineral fractions 36, 57, 204
- heavy minerals
- alteration zones 76
 - analytical methods 37, 69
 - localities 70
 - nickel-copper deposits 77
 - skarn and greisen deposits 76
- helicopter support 29, 135
- Hemlo deposit 143
- hercynite 77, 78
- high strain zones, Au deposits 168
- Hill-Tout Lake, copper 133, 134
- Hislop gold deposit 218–219, 220
- Homestake deposit 301, 302, 303
- Hope Brook deposit 128, 267, 277
- Houston 134
- Hudson Bay
- Laurentide Ice Sheet 2
 - stream sediments 96
- hummocky moraine, transport distances 8
- hummocky topography 51
- hybrid till 7, 254–256, 262
- hydromorphic dispersion 328, 335
- hydrothermal alteration 73, 76
- ice ablation 12
- ice bed, shear stress 4
- ice divide tills 252–254, 262
- ice divides 2
- active 4
 - evolution 6
 - shifting 238
- ice dynamics, variation 253
- ice flow
- Abitibi Greenstone Belt 202
 - indicators 325, 326
- ice flow histories
- central British Columbia 288
 - flowlines 240
 - kimberlite exploration 96
 - mapping 57
 - Maritime Canada 260
 - Newfoundland 276, 280
 - and till formation 238
- ice flow record 5–6
- ice flow trends 5
- ice flow velocity 2
- subglacial 2
- ice rafting 51, 270
- ice retreat 269
- ice rises 249
- ice sheet models 1, 2
- ice sheets, growth and decay 5
- ice streams 4, 249, 257
- deformation till 7
 - landforms 6
 - till 262

- illite 226, 229, 231
 in composite boulders 230, 232
- ilmenite
 Mg-rich 73, 85, 90, 101, 102, 108
 plots 91
- incompatible elements 85, 102, 277
- indicator clasts 271
- indicator concentration 8
- indicator erratics 2, 275
 and transport distance 7
- Indicator Lake 87
- indicator minerals 69–81
- inheritance, *see* till, inheritance
- instrumental neutron activation analysis 37, 57, 103, 109, 128, 207, 271, 290, 306
- integrated images 183
- intensity-hue-saturation transforms 183
- Interior Plateau 47, 51, 131, 323
- Intermontane Belt 325
- interpolation, in GIS 177–179
- interval sampling 30, 31
- Inzana Lake 291
- iron ore, Labrador 267
- jack pine, *see* *Pinus banksiana*
- James Bay Lowlands 87, 96
- Jericho pipe 88
- Joggins 257
- johannsenite 77
- Johnson Creek 307
- Johnson Lake 302
- Kaipokok River 275
- Kamad 3 property 328
- kames 95
- Kamloops 302
- kaolin 227, 229
- Kechika Trough 128, 131
- Keewatin 26
- Kejimikujik National Park 260
- kelyphite 100
- Ken deposit 132
- Kennady Lake 85, 88
- Kenty 168
- Key Lake 128, 143, 225, 231
- Kikkerk Lake 85
- kimberlite indicator minerals 70, 73, 79, 90–95, 99, 112
 geochemical methods 102–103
 local surveys 107–112
 physical features 92
 relative abundance 102
 size range 101–102
- kimberlites 33
 analytical methods 98–100
 boulders 95
 in Canada 85
 characterisation 85
 in dispersal trains 83, 113
 distribution 86
 facies 88
 fields 87
 hypabyssal facies 88
 model 87
 pebble abundance 108
 pipe cross-sections 88
 published surveys 84
 root zones 88
 Siberia 114
 volcanoclastic facies 88, 110
- kinoshitalite 85
- Kirkland Lake 33, 73, 85, 88
 cross-section 90
 dispersal trains 97
 erosion 89
 geochemistry 102
 gold deposits 168, 201
 local surveys 107–109
 pyrope 104
 regional surveys 103–105
- Kisseynew gneisses 76
- Kitts 275
- knebelite 77
- komatiites 77
- Kootenay Terrane 47, 302, 325
- kriging 179
- Kuyakuz Lake, molybdenum 134
- kyanite 75, 76
- Kyle Lake 87, 96
- La Manche, copper 267
- La Ronge belt 72, 128, 143
- Labrador, glacial history 269
- Labrador and Newfoundland
 glacial dispersal 267–285
 location map 268
- Labrador tea, *see* *Ledum groenlandicum*
- Labrador Trough 269, 272
- Lac de Gras
 aerial photograph 89
 beach deposits 96
 chrome-pyrope 105
 dispersal train 97
 geochemistry 102
 kimberlite 83, 88
 local surveys 109
 regional surveys 105–107
- Lac des Iles 128
- Lac Rocher 77, 79
- Ladner Creek 157
- Lake Agassiz 72
- Lake Melville 269
- Lake Ojibway 203
- lake sediments 125–149
 accumulation 126
 analytical methods 138–139
 arsenic 140
 composition 126–127
 copper and zinc anomalies 186, 195
 field observations 137–138
 gold 145
 nickel anomalies 143
 reconnaissance surveys 130–131
 sample site choice 136
 sampling devices 136
 sampling methods 135–138, 137
 Shield deposits 143–145
 statistical analysis 139–141
 surveys 129

- Swayze greenstone belt 169
 in uranium exploration 127
- Lake Timiskaming 85, 88, 102
 local surveys 107–109
- lakes
 glacial 21
 profundal 126
- lamproites 90
- lamprophyres, ultrabasic 87, 90
- landforms, streamlined 6
- Larder Lake, gold deposit 201
- Larder Lake-Cadillac fault zone 201
- Larix occidentalis* 155
- Laurentian Channel 243
- Laurentide Ice Sheet 2, 269, 275
 Abitibi Greenstone Belt 203
 and Appalachian Glacier Complex 4, 5, 241
- Lawrencetown Till 241, 251, 254
 clast lithologies 256
 overprinting 256
- layered intrusions 77
- leaching 111, 334
- lead
 in soil 316, 330
 in till 314
- lead anomalies 52
- leaves and needles, biogeochemistry 157
- Ledum groenlandicum* 155
- Lemotte's Lake 277
- Lewis Hills 267
- lherzolites 79
- limnological factors 127
- lithochemical trends, uranium deposits 232–233
- lithochemistry, composite boulders 230–231
- lithologic signatures, in geochemical data 184–189
- lithology, description 56
- lithophile elements 127, 274, 295
- Little Bay 267
- Little Fort 329
- Locker Lake Formation 225
- lodgement till 6, 48, 251, 270, 281
- lodgepole pine, *see Pinus contorta*
- loellingite 74, 75, 77
- Long Range Mountains 269
- loss on ignition 139, 140
- Lupin deposit 143
- Mac deposit 127, 131, 145
- McArthur River deposit 225, 231, 232–233
- maceration 161
- McLean deposit 231
- McLean Lake 269
- Magdalen Shelf 241, 243, 252
- magmatic sulphides 71, 128
- magnesium minerals
 alteration 231
 enrichment 233
- magnetic highs, Swayze greenstone belt 174
- magnetic surveys 96
- manganese 75
 and copper 194, 195
- Manitou Falls Formation 225, 226, 227, 230, 234
- mantle, partial melting 85
- map production 141
- marcasite 288
- marine limit
 Labrador 275
 Newfoundland 270
- Maritime Canada
 bedrock geology 238
 glacial dispersal models 237–265
 glacial evolution 240
 glaciation 239–249
 mass wasting 57, 325
- massive sulphide deposits 70, 75, 128, 277, 301–321
 location map 302
- massive sulphide indicator minerals 73–79
- Matachewan gold deposit 217–218, 219
- Matheson 73
 geochemical surveys 209–211
- Matheson Till 203, 217
- Mealy Mountains 269
- megacrysts 85, 90
- Meguma Zone 237, 241, 249, 251, 255, 260
- Melody Lake 275
- melt-out deposits 48
- melt-out till 251, 257, 270
- meltwater, and landforms 6
- mercury
 analytical methods 37
 and grain size 294, 295
 lake sediments 145
 mineralization 288, 293
 partitioning 287–299
 in soils 332
 in till 290, 291, 292
- metal mobilization, secondary 323–337
- metal zonation, lake sediments 132, 134
- metamorphism, Barrovian 76
- metasomatism 73, 79
- MgO/Al₂O₃ ratios, composite boulders 231, 233, 234
- Michelin 275
- Mine Series 303
- mineral deposit types, element associations 37
- mineral exploration, and element partitioning 296–297
- mineral partitioning 12, 38
- mineral preservation 21
- mineralization, and geochemical anomalies 190–195
- mineralization zones, element concentrations 171
- mineralized ground, sampling 22
- Misery kimberlite 88
- molybdenum 127
 Cordillera 145
 Counts Lakes 135
 Kuyakuz Lake 134
 lake sediments 130, 131
 Tatin Lake 132
- Monashee Mountains 325
- monticellite 85
- moraines
 Athabasca Basin 226
 kimberlite sampling 95
- Moran Lake 275
- Moran Lake Group 274
- Mount Milligan 47
- Mount Peyton 277, 280
- mountain hemlock, *see Tsuga mertensiana*
- Mountain Lake 85, 111–112

- mudboils 26, 29, 275
 multiple deposits, signatures 334–335
 Munro Esker 73, 95, 103
 Myra Falls 47
- Nadina Lake 134
 nail-head striations 270
 Nain plateau 273
 Nain Province 74, 87, 128
 Nak prospect 54
 Naskaupi Lake 269
 National Geochemical Reconnaissance Programme 126, 168
 nearest point algorithm 189, 190
 Nechako Plateau 126, 128, 130, 131, 145, 288
 Nechako River
 properties 47, 54
 surveys 131
 neutron activation analysis, *see* instrumental neutron activation analysis
 Newfoundland
 glacial history 269
 ice flow histories 276
 mining 267
 Newfoundland and Labrador
 glacial dispersal 267–285
 location map 268
 surficial geology 271, 272
 nickel anomalies 13
 Lac de Gras 106
 lake sediments 143
 in streams 307
 nickel deposit, Voisey's Bay 267
 Nickel Plate 47
 nickel-copper mineralization 73, 76
 indicator minerals 77–79
 Labrador 143–145
 Nikwikaia Creek 331, 333
 Nipigon Diabase 74
 location map 75
 Nithi Mountain 135
 non-cohesive flows 51
 Noranda/Kuroko deposit 325
 norite 77
 normal probability plots 172
 normalizing data, in GIS 174, 197–198
 North American Craton 288
 North Star Hill 153
 North Thompson River 325, 329
 Northumberland Strait 241, 244
 Norwegian Fjordslands 21
 Notre Dame Bay 267
 Nova Scotia
 cross section 243
 mineral exploration 237
 nugget effect 37, 132, 179, 290, 291, 297
 Nugget Pond 277
 Nunavut 26, 85, 88
- Old Fort Mountain, copper concentrations 59
 Old Woman formation 174
 olivine 77, 85, 90
 Omineca Mountains 288
 Ootsa Lake Group 61
 orange peel texture 100–101
 ore bodies, buried 22
 ore-indicator elements 36
 organic carbon, lake sediments 139
 organic gels 126
 orthopyroxene 75, 77
 orthopyroxenites 79
 Outokumpu 77, 79
 outwash sediments 95
 overburden drilling 22, 221
 overconsolidation, deformation till 7
 overland flows 51
 overprinting, *see* till, overprinting
 Owl Creek deposit 214–215
 oxidation 26
 oxidation zone 20, 22
- Pacific silver fir, *see* *Abies amabilis*
 palimpsest landforms 239
 Pamour gold deposit 216–217, 217
 paraglacial environments 51
 partitioning
 and glacial processes 12–13
 minerals 12
 pathfinder elements 36, 37, 102–103, 106, 208, 221, 318, 327
 Peace River 85
 pebble lithology 239, 255
 Peddie kimberlite 88, 108, 109
 surface 91
 pedogenesis 61
 peralkaline granites 273, 280
 percentile ranges 58, 59
 percussion drills 34, 35
 Percy Lake 126, 143
 peridotite 73
 xenoliths 90, 94
 permafrost
 active layer 22, 25
 weathering processes 25–27
 perovskite 85
 Peterlong Lake 206, 211–214
 pH, stream water 310
 phlogopite 85, 90
 phyllosilicates, size fractions 58
Picea engelmannii 155
P. mariana 109, 155
 Pinchi 131
 Pinchi Fault 287, 288, 290
 Pinchi Lake 290
 Pine Cove 277
Pinus banksiana 155
P. contorta 155
P. ponderosa 155
 Pipe Mine 2 body 79
 pit sampling 27
 placer deposits 73
 plant species, selection 154–155
 plant tissues
 ash yields 158
 element concentrations 158
 selection 156–159
 platinum, Tulameen 47
 platinum group elements

- alloys 77
- analytical methods 37
- in dispersal trains 74
- lake sediments 128
- Ponderosa pine, *see Pinus ponderosa*
- Populus tremuloides* 111
- porcellanite 275
- porosity 114
- porphyry deposits 47, 128, 135, 327
- portable drills 34–36, 36
- preglacial deposits 6, 12
- pressure conditions 48
- Prince Edward Island, erratics 241
- Prince of Wales Island 10
- principal component analysis 277
- proportional symbol map, Swayze greenstone belt 176
- provenance envelopes, West Lawrencetown 242, 262
- Prunus pennsylvanica* 109
- Pseudotsuga menziesii* 155
- pyrite 26, 217, 218, 288, 303
- pyrochlore 295
- pyrope 73, 85, 90, 94
 - abundance 103
 - fractured 101
 - Kirkland Lake 104
 - in Munro Esker 103
 - SEM images 100
- pyrope-almandine garnet 94
- pyroxene, omphacitic 90
- quarrying, glacial 253
- Quaternary, geochemical exploration 1–17
- Quesnel 133
- Quesnel Terrane 128
- Quesnelia 288
- Rabbit Lake 225
- Radisson Lake 211–214
- Rainy River 71, 72, 77
- raised beaches 270
- Rambler deposit 277
- rammelsbergite 74, 77
- Ranch Lake 109
- Rankin Inlet 85
- rapakivi granite 273, 274
- rare earth elements
 - Labrador 267
 - Strange Lake 97, 126, 128, 145, 269
- rat-tail features 270
- Rea gold deposit 301, 302, 303, 317, 318
- Read Lake 232, 233
- reconnaissance exploration 80
- regolith, size fractions 12
- renewal distance 252, 253, 257
- reverse circulation drills 31, 32, 32, 204
- ribbon-shaped dispersal trains 9, 329, 331, 333
- Rideout strain zone 174, 179
- Ridge Zone 62
- road cuts 27
- rock hardness 257
- Rocking Horse Lake 85
- Rocky Mountains 47
- root systems, biogeochemistry 151
- rotary drill 31
- rotasonic drilling 32–34, 34, 204
- Rottenstone mine 153
- Rouyn-Noranda 216
- rutile 75, 77
- St John's, copper 267
- Samatosum deposit 301, 302, 303, 317, 318
 - dispersal train 333
 - geology 303
 - location 302
 - surficial geology 304
- sample processing
 - biogeochemistry 160–161
 - flow charts 38, 97, 205
 - for gold grains 204
 - kimberlite exploration 97
- sample sizes 96
- sampling density 22, 128, 135
- sampling depths 22
- sampling grids 22, 55
- sampling methods 21–22
 - biogeochemical surveys 155–156
 - composite 227
 - diamond exploration 96–97
 - lake sediments 135–138
 - thick drift areas 30–36, 30
 - thin drift 27–30, 28, 29, 221
 - till geochemical surveys 55, 63, 96, 209, 271, 290
- sapphirine 75
- saprolite 244
- scale factors, lake sediments 128–135
- scale variations 1, 2, 54
- scatter plots 141
- scavenging, by Mn 195, 198
- scheelite 74, 77, 295
- Schefferville 145, 269
- Scotch Creek 325
- Scotian Ice Divide 243, 244, 247, 253
- Scotian Phase 243, 254, 256, 260
- Scotian Shelf 241
- sea-level changes, Newfoundland and Labrador 269–270
- seasonal variation, biogeochemical survey 154
- secondary weathering 21
- sediment sampling, geochemical surveys 95–98
- sedimentological data 55
- sedimentology, *see also* glacial sedimentology
- sediments
 - characteristics 49
 - deformation 6
 - size fractions 12
- seepage lakes 134–135
- selective queries, in GIS 193, 194, 198
- Selwyn Basin 128
- SEM images, kimberlite minerals 100
- serpentine 85, 89
- shearing, subglacial 7
- Shebandowan Greenstone Belt 74, 78
 - location map 75
- Shediac Channel 243
- Shield deposits, lake sediments 143–145
- shield terrain, field methods 21–22
- Shunsby 168, 174, 177, 179
- Shuswap Basin 325

- Shuswap Highland 323
 Shuswap Lake 330
 Siberia, kimberlites 114
 significant anomalies 58
 sillimanite 75, 76
 silver
 in soils 331, 332
 in trees 157
 Silver 1 property 327–328, 327
 Sinmax Creek 302, 304, 328
 site duplicate samples 137
 size fractions, geochemical analysis 36
 skarn deposits 71, 74, 77, 327
 Skeena Mountains 288
 skip zones 9, 252, 262
 Slave Province 85
 slickensides 48
 Slide Mountain terrane 325
 slope wash 57
 Smeaton 110
 Smithers 131, 134
 Smiths Cove 250
 Snap Lake 85, 88
 Snow Lake 76
 soil geochemistry, kimberlites 114
 soil horizons 19, 22
 soil profiles 23, 25
 soils
 geochemical anomalies 61–63
 geochemical surveys 51, 54, 327
 Somerset Island 85, 88
 South Mountain Batholith 237, 254, 256
 bedrock geology 245
 South Mountain Ice Cap 244
 spatial analysis 165
 spectrometry 37, 57, 228, 271, 305
 sperrylite 74, 77
 spessartine 75, 77
 sphalerite 74, 217, 303, 308
 spinel 75, 85, 90
 discrimination 94–95
 plots 93, 94
 Springdale 282, 283
 staurolite 75, 76
 zincian 73
 stibnite 55, 288, 291, 293
 Stikine Terrane 128
 Stony Till Plain 252
 Strange Lake 97, 126, 128, 145, 267, 269
 clast distribution 273
 stream sediments
 element analyses 308
 kimberlite sampling 96
 massive sulphides 304, 306
 stream water surveys 305, 306
 striae 21, 54, 241
 striation mapping 270
 striation trends, near ice divides 5
 Stuart Lake 291
 Sturgeon Lake 111
 sub-alpine fir, *see Abies lasiocarpa*
 subaerial debris flows 51
 subaqueous debris flows 51
 sudoite 229, 231
 sulphide minerals
 gold-bearing 219
 oxidation 26
 redistribution 25
 stability 74
 sulphides, *see* massive sulphides, magmatic sulphides
 Superior Province 87
 supraglacial till 50
 surface water, percolation 51
 surficial geology, Newfoundland and Labrador 271, 272
 surficial processes 51
 Swayze greenstone belt 165–200
 analytical methods 169
 bedrock geology 166
 dot maps 175, 177
 lake sediments 169
 lithochemical data 170
 magnetic highs 174
 proportional symbol map 176, 177
 surficial geology 167
 survey methodology 168
 tabling 98
 Takatoot Lake 291
 Tatin Lake 127
 molybdenum 132
 Tchentlo Lake 290, 291, 295
 temperate conifer forest 154–155
 temperate deciduous forest 155
 tephra cones, kimberlites 88
 ternary images, in GIS 179, 180, 181, 182, 183, 196
 Teslin Plateau 131
 tetrahedrite 303, 308
 textural variation 20
 Tezzeron Lake 131, 291
 Thetford Mines 295
 thick drift areas, sampling methods 30–36
 thin drift areas, sampling methods 27–30
 Thompson Nickel Belt 78, 79
 Thompson Plateau 323
Thuja plicata 155
 Thunder Bay 128
 till
 allochthonous 106
 and biogeochemical data 162
 calcareous 25
 classification 238
 immature 253
 inheritance 254, 255, 262
 kimberlite sampling 95
 multiple sheets 226, 249
 overprinting 254–256, 255, 262
 sampling methods 203–204
 shield-derived 12
 size fractions 109
 see also specific types, e.g. basal, lodgement
 till fabric 96
 till genesis, Maritime Canada 237–265
 till geochemistry 19–43
 Abitibi 203, 213
 evaluation 58–63
 field techniques 55–57
 kimberlites 102–103, 114
 laboratory methods 36–37, 57, 204

- major and trace elements 107, 108
- massive sulphide deposits 301, 318
- Matachewan deposit 218
- methodology 325–327
- Newfoundland and Labrador 271
- principles 19–21
- southern B.C. 306, 307–318
- survey design 55
- surveys 46, 54–58, 209, 209–219
- till reworking 63, 215, 238, 249, 254
 - mechanisms 256–257
- till surface 22
- till thickness, and glacial dispersal 317
- till wedges 257
- Tilt Cove 267
- Timiskaming, metasediments 217
- Timmins 71, 168, 201
 - till distribution 203
- tin 127, 237
 - dispersal 246, 247
- Tommy prospect 145
- topaz 77
- Topsails granite 282
- Torngat Mountains 269, 270
- tourmaline 75, 77, 231
- tourmalinite 153
- trace elements, in exploration 168
- trace metal concentrations 25
- traction zone 257
- transition elements 85, 102
- transport distance
 - boulders 227
 - calculations 8
 - clasts 281, 283
 - and concentration 60
 - dispersal trains 333
 - indicator erratics 7
- transport distance distribution 8, 9
- transport time 72
- tree tissue 109, 111
- tree tops, biogeochemistry 158
- trees
 - element concentrations 153, 154, 156
 - gold concentrations 153
- Trembleur Lake 291
- trenching 30
- troctolite 77
- trunk wood, biogeochemistry 157
- Tsacha Mountain 134
- Tsacha prospect 128, 144, 145
- Tshinakin limestone 303
- Tsuga heterophylla* 155
- T. mertensiana* 155
- Tulameen 47
- tundra climatic zone 21
- tungsten 295
- tunnels, subglacial 48
- twigs, biogeochemistry 157
- Twin Mountain 303, 317, 318
- ultrabasic rocks 90, 111
- ultramafic rocks
 - clasts 282
 - till source 13
- Ungava Bay 269
- uranium deposits, Athabasca Basin 225–235
- uranium exploration
 - drilling 31
 - Labrador 267
 - lake sediments in 127
- uranium mineralization 26
- Uranium Reconnaissance Program 127
- uvarovite 77
- Val d'Or, gold deposit 201
- valley glacier 50
- Vanderhoof 134
- variograms 177, 178, 197
- vector addition 247, 249, 262
- vegetation zones 154
- vertical mixing 25
- vertical profiles 12
- Victoria Island 85
- Victoria Lake Group 277
- Vikings, iron smelting 167
- visualization, in GIS 174–184, 197
- Voisey's Bay 74, 143, 267
- volcaniclastic facies, kimberlites 88
- volcanosedimentary sulphides 70, 75–77, 128, 277
- Wakami shear zone 179
- water content, kimberlites 114
- water sampling, massive sulphides 304–305
- water table, soil horizons 23
- weathering, kimberlites 88–90
- weathering processes 20–21
- websterite 79
- wehrlite 79
- Wekusko Lake 85
- West Lake 277
- western hemlock, *see Tsuga heterophylla*
- western larch, *see Larix occidentalis*
- western red cedar, *see Thuja plicata*
- Westmin Lynx orebody 52
- Whitesail Lake 131, 134
- whole rock geochemistry 37
- willemite 74
- Wisconsinian
 - Abitibi 203
 - ice-flow history 48
 - Nova Scotia 239
- Wolf prospect 55, 61, 62, 128, 131
- wolframite 77
- Wolverine Point Formation 225
- x-ray fluorescence 37
- xenocrysts 90
- 'yellow' ground 89
- Young-Davidson gold deposit 217
- yttrium 274
- Yukon
 - deposits 47
 - lake sediments 131
- zinc
 - in GIS 170
 - in humus 179
 - Newfoundland 267

sampling statistics **171**

in soils 186, 328, 332

see also copper and zinc anomalies

zinc anomalies 52

zircon 90, 295

zonal concept, glacial dispersal 244–249, 262