Appendix B. Locality abbreviations

[Some abbreviations are from Singer and Cox (1986, app. A); some are new]

AGTN	Argentina
ALGR	Algeria
AUWA	Australia, Western Australia
CINA	China
BLGM	Belgium
CZCL	Czechoslovakia
CLBA	Colombia
CNBC	Canada, British Columbia
CNNF	Canada, Newfoundland
EGPT	Egypt
FRNC	France
GRMY	Germany
GUYN	Guyana
ITLY	Italy
MRCO	Morocco
MXCO	Mexico
PERU	Peru
PORT	Portugal
PKTN	Pakistan
SRNM	Suriname
TRKY	Turkey
TUNS	Tunisia
YUGO	Yugoslavia
UKEN	United Kingdom, England
UKSC	United Kingdom, Scotland
USAL	United States, Alabama
USAK	United States, Alaska
USAZ	United States, Arizona
USCA	United States, California
USCO	United States, Colorado
USID	United States, Idaho
USMT	United States, Montana
USNM	United States, New Mexico
USNV	United States, Nevada
USSR	Union of Soviet Socialist Republics
USUT	United States, Utah
USWY	United States, Wyoming

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models

- Findings
  - Geologic-Ages
    - Precambrian
      - Archean
      - Proterozoic
    - Phanerozoic
      - Paleozoic
        - Cambrian
        - Ordovician
        - Silurian
        - Devonian
        - Carboniferous
          - Mississippian
          - Pennsylvanian
        - Permian
      - Mesozoic
        - Triassic
        - Jurassic
        - Cretaceous
      - Cenozoic
        - Tertiary
          - Paleogene
            - Paleocene
            - Eocene
            - Oligocene
          - Neogene
            - Miocene
            - Pliocene
        - Quaternary
          - Holocene
          - Pleistocene

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Rock-Types
  - Igneous
    - Plutonic
      - Felsic-plutonic
        - Granite
          - Alaskite
          - Leucogranite
            - Muscovite-leucogranite
            - Biotite-leucogranite
            - Granulite
          - Plagiogranite
            - Trondhjemite
          - Alkali-granite
            - Alkali-feldspar-granite
          - Charnockite
          - Monzogranite
        - Granodiorite
        - Tonalite
        - Alkali-quartz-syenite
        - Quartz-syenite
        - Quartz-monzonite
        - Monzonite
        - Syenite
          - Syenite-porphyry
          - Nepheline-syenite
          - Larvikite
          - Naujaite
          - Nordmarkite
          - Shonkinite
        - Nephelinite
      - Intermediate-plutonic
        - Quartz-monzodiorite
        - Quartz-monzogabbro
        - Quartz-diorite
        - Diorite
          - Ferrodiorite
        - Ijolite
        - Diabase
      - Mafic-plutonic
        - Gabbro
          - Ferrogabbro
          - Eucrite
          - Essexite
          - Troctolite
          - Olivine-gabbro
          - Gabbro-norite
            - Norite
          - Hornblende-gabbro
          - Jutunite
          - Picritic-gabbro
        - Jacupirangite
      - Ultramafic-plutonic
        - Dunite
        - Pyroxenite
          - Websterite
          - Hornblende-clinopyroxenite
          - Hornblende-magnetite-clinopyroxenite
          - Magnetite-hornblende-pyroxenite

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Rock-Types—Continued
  - Igneous—Continued
    - Plutonic—Continued
      - Ultramafic-plutonic—Continued
        - Peridotite
          - Lherzolite
          - Harzburgite
          - Kimberlite
          - Wehrlite
        - Chromitite
        - Zoned-ultramafic
      - Other-plutonic
        - Anorthosite
          - Andesine-anorthosite
    - Volcanic
      - Volcanic-rocks
        - Felsic-volcanic-rocks
          - Alkali-rhyolite
            - Alkali-feldspar-rhyolite
          - Quartz-trachyte
          - Quartz-latite
          - Rhyolite
            - Rhyodacite
          - Dacite
            - Rhyodacite
        - Mafic-volcanic-rocks
          - Andesite
          - Tholeiitic-basalt
          - Trachyte
          - Latite
            - Quartz-latite
          - Basalt
            - Shoshonite
          - Phonolite
        - Alkaline-volcanic-rocks
        - Other-volcanic
          - Ignimbrite
          - Komatiite
          - Tephra
          - Tuff
            - Andesitic-tuff
            - Tuff-breccia
            - Tholeiitic-tuff
          - Tuffite
          - Volcanic-breccia
            - Vent-breccia
          - Volcaniclastic-rocks
          - Calc-alkaline-pyroclastics
          - Flows
          - Siliceous-sinter
          - Agglomerate
    - Hypabyssal
      - Lamprophyre
        - Monchiquite
        - Vogesite
      - Leucite-lamproite
      - Olivine-lamproite
      - Diabase

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Rock-Types—Continued
  - Igneous—Continued
    - Hypabyssal—Continued
      - Picrite
        - Picrite-porphyrites
      - Felsic-hypabyssal
        - Aplite
        - Granophyre
        - Felsic-dikes
        - Quartz-porphyry
        - Granite-porphyry
    - Other-igneous-rocks
      - Carbonatite
        - Anierite-carbonatite
        - Sovite
      - Melilite
      - Diabase
      - Pegmatite
      - Migmatite
      - Ophiolite
  - Sedimentary
    - Pelites
      - Mudstone
      - Shale
        - Calcareous-shale
        - Siliceous-shale
        - Carbonaceous-shale
        - Black-shale
        - Gray-shale
        - Green-shale
        - Pyritic-shale
      - Clay
        - Claystone
      - Carbonaceous-pelites
    - Siltites
      - Siltite
      - Siltstone
    - Arenites
      - Sand
      - Sandstone
        - Graywacke
        - Quartzite
        - Grit
        - Red-beds
          - Arkose
        - Feldspathic-sandstone
          - Arkose
        - Phosphatic-sandstone
        - Tuffaceous-sandstone
        - Turbidites
    - Calcareous-rocks
      - Carbonate-rocks
        - Calcarenite
        - Marl
        - Limestone
          - Carbonaceous-limestone
          - Phosphatic-limestone
          - Cherty-limestone
          - Siliceous-limestone

- Rock-Types—Continued
  - Sedimentary—Continued
    - Calcareous-rocks—Continued
      - Carbonate-rocks—Continued
        - Quartz-carbonate-rocks
        - Dolomite
          - Carbonaceous-dolomite
          - Cherty-dolomite
      - Calcareous-shale
      - Calcareous-graywacke
      - Calcareous-phyllite
      - Calcareous-slate
      - Marble
      - Calc-silicates
    - Other-sedimentary-rocks
      - Conglomerate
      - Phosphorite
      - Chert
      - Agglomerate
      - Evaporites
        - Anhydrite
        - Gypsum
      - Gravel
      - Iron-formation
      - Shell-rocks
      - Jasper
  - Metamorphic
    - Regional-metamorphic
      - Gneisses
        - Gneiss
        - Biotite-gneiss
        - Biotite-hornblende-gneiss
        - Diorite-gneiss
        - Garnet-gneiss
        - Granite-gneiss
        - Hornblende-gneiss
        - Granodiorite-gneiss
        - Graphite-gneiss
        - Microcline-gneiss
        - Oligoclase-gneiss
        - Pyroxene-gneiss
        - Quartz-biotite-gneiss
        - Syenite-gneiss
        - Alkalic-fenitized-gneiss
      - Schists
        - Schist
        - Amphibole-schist
        - Biotite-schist
        - Biotite-sillimanite-schist
        - Calcite-biotite-schist
        - Graphitic-schist
        - Chlorite-schist
        - Garnet-biotite-schist
        - Hornblende-schist
        - Mica-schist
        - Staurolite-schist
        - Talc-schist
        - Tremolite-phlogopite-schist
        - Quartz-mica-schist

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Rock-Types—Continued
  - Metamorphic—Continued
    - Regional-metamorphic—Continued
      - Amphibolites
        - Amphibolite
        - Epidote-amphibolite
      - Meta-gabbro
      - Serpentinite
      - Metasedimentary-rocks
        - Marble
        - Fine-grained-metasedimentary-rocks
          - Phyllites
            - Phyllite
            - Calcarous-phyllite
            - Sericitic-phyllite
          - Argillite
          - Slates
            - Slate
            - Calcareous-slate
            - Quartzose-slate
        - Coarse-grained-metasedimentary-rocks
          - Quartzite
      - Metavolcanic-rocks
        - Felsic-metavolcanic-rocks
        - Mafic-metavolcanic-rocks
          - Mafic-metatuff
    - Contact-metamorphic-rocks
      - Hornfels
      - Quartzite
      - Siliceous-dolomite
      - Marble
      - Fenite
    - Other-metamorphic-rocks
      - Breccia
      - Greenstone
      - Mylonite
      - Ophiolite
  - Other rock-types
    - Aluminous-silicate-rocks
    - Apatite-magnetite-rocks
    - Breccia
- Form-Structure
  - Vein
    - Lode
    - Greisen
    - Pegmatite
    - Shear-zone
  - Fissure
    - Fissures
    - Fissure-filling
  - Fracture
    - Fractures
  - Veins
    - Veinlets
  - Porphyry
    - Stockwork
      - Veinlets
    - Stock
    - Zoned-complex

- Form-Structure—Continued
  - Stratiform
    - Zoned-complex
    - Layered-complex
    - Massive
    - Bedded
    - Banded
    - Lenses
    - Disseminated
      - Fine-grained
    - Pellets
    - Nodules
    - Oolites
    - Pisolites
    - Fossil-fragments
    - Gash-filling
    - Ribbon-veins
  - Replacement
    - Contact-metasomatic
      - Skarn
    - Massive-replacement
    - Open-space-filling
    - Breccia
      - Pipe
      - Collapse-breccia
      - Breccia-filling
      - Diatreme
  - Surficial
    - Gossan
    - Laterite
    - Placer
- Alteration
  - Type
    - Spilitic
    - Zoned
    - Potassic
    - Phyllic
      - Sericitization
        - Sericite
    - Propylitic
    - Argillic
      - Sericitization
        - Sericite
      - Kaolinization
        - Kaolin
    - Sodic-calcic
      - (Zeolites)
    - Supergene
  - Process
    - Leaching
    - Sericitization
      - Sericite
    - Dolomitization
      - Dolomite
    - Albitization
      - Albite
    - Kaolinization
      - Kaolin

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Alteration—Continued
  - Process—Continued
    - Oxidation
      - Gossan
    - Hematization
      - Hematite
    - Serpentinization
      - Serpentine
    - Silicification
      - (Silicates)
    - Tourmalinization
      - Tourmaline
    - Feldspar-destruction
    - Chloritization
      - Chlorite
    - Pyritization
      - Pyrite
    - Fenitization
      - Fenite
    - Greisenization
      - Greisen
    - Carbonation
      - (Carbonates)
      - Amorphous-carbon
    - Recrystallization
    - Reduction
    - Replacement
      - Calc-silicates
        - Endoskarn
        - Exoskarn
  - (Oxides)
  - Jarosite
  - Alunite
- Geochemical-Elements
  - (all-elements-in-periodic-table)
  - REE
    - (Y La Ce Pr Nd Pm Sm Eu Gd Tb Dy Ho Er Tm Yb Lu)
  - PGE
    - (Ru Rh Pd Os Ir Pt)
  - NH3
- Minerals
  - Hydrocarbons
  - Native-elements
    - Metals
      - Gold
      - Silver
      - Copper
      - Platinum
      - Iron
      - Mercury
      - Amalgam
    - Semimetals
      - Arsenic
      - Bismuth
    - Nonmetals
      - Sulfur
      - Diamond
        - Carbonado

- Minerals—Continued
  - Native-elements—Continued
    - Nonmetals—Continued
      - Diamond—Continued
        - Ballas
        - Bort
      - Graphite
  - Sulfides
    - Iron-sulfides
      - Pyrite
      - Pyrrhotite
      - Marcasite
      - Arsenopyrite
      - Chalcopyrite
        - Stannite
      - Bornite
      - Cubanite
      - Pentlandite
      - Mackinawite
    - Lead-sulfides
      - Galena
    - Zinc-sulfides
      - Sphalerite
  - Sulfides-other-than.Fe.Pb.Zn
    - Silver-sulfides
      - Argentite
    - Copper-sulfides
      - Chalcopyrite
        - Stannite
      - Bornite
        - Carrollite
      - Covellite
      - Chalcocite
      - Cubanite
      - Digenite
    - Nickel-sulfides
      - Pentlandite
      - Millerite
      - Mackinawite
    - Cobalt-sulfides
      - Cobaltite
        - Gersdorffite
    - Cinnabar
    - Cooperite
    - Laurite
    - Molybdenite
    - Greenockite
    - Realgar
    - Orpiment
    - Stibnite
    - Bismuthinite
  - Selenides-Tellurides-Arsenides-Antimonides
    - Selenides
      - Naumannite
    - Tellurides
      - Hessite
      - Coloradoite
      - Calaverite
      - Sylvanite

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Minerals—Continued
  - Selenides-Tellurides-Arsenides-Antimonides—Continued
    - Arsenides
      - Pararammelsbergite
      - Maucherite
      - Skutterudite
      - Sperrylite
      - Loellingite
      - Arsenopyrite
      - Niccolite
    - Antimonides
    - Polarite
  - Sulfosalts
    - Jamesonite
    - Silver-sulfosalts
      - Pyrargyrite
      - Proustite
    - Copper-sulfosalts
      - Tetrahedrite
      - Tennantite
      - Enargite
        - Luzonite
      - Bournonite
  - Oxides
    - Cuprite
    - Zincite
    - Cassiterite
    - Spinel
      - Chromite
        - Ferrichromite
      - Gahnite
    - Hydroxides
      - Brucite
      - Manganite
      - Valleriite
      - Goethites
        - Limonite
        - Goethite
      - Bauxite-minerals
        - Gibbsite
        - Boehmite
        - Diaspore
    - Columbite
    - Chrysoberyl
    - Mn-oxides
      - Pyrolusite
      - Todorokite
      - Braunite
      - Cryptomelane
      - Coronadite
      - Hausmannite
      - Hollandite
      - Psilomelane
    - Iron-oxides
      - Hematite
      - Magnetite
      - Ilmenite
        - Leucoxene

- Minerals—Continued
  - Oxides—Continued
    - Titanium-oxides
      - Rutile
      - Anatase
      - Ilmenite
        - Leucoxene
    - Uranium-oxides
      - Uraninite
      - Pitchblende
      - Coffinite
      - Carnotite
  - Halides
    - Chlorides
      - Halite
      - Sylvite
      - Cerargyrite
      - Atacamite
      - Carnallite
    - Fluorides
      - Cryolite
      - Fluorite
      - Parisite
      - Bastnaesite
  - Carbonates
    - Hydrous
      - Malachite
      - Azurite
      - Trona
    - Anhydrous
      - Calcite
      - Dolomite
      - Ankerite
      - Siderite
      - Smithsonite
      - Aragonite
      - Witherite
      - Strontianite
      - Cerussite
      - Bastnaesite
      - Breunnerite
      - Mn-carbonates
        - Rhodochrosite
          - Manganocalcite
      - Magnesite
      - Parisite
  - Nitrates-Borates-Phosphates-Arsenates
    - Nitrates
    - Borates
    - Phosphates
      - Apatite
        - Fluorapatite
      - Monazite
    - Arsenates
      - Beudantite
      - Durangite
      - Mimetite

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Minerals—Continued
  - Sulfates
    - Anhydrous-sulfates
      - Barite
      - Celestite
      - Anglesite
      - Anhydrite
    - Hydrous-sulfates
      - Gypsum
      - Chalcanthite
      - Epsomite
      - Antlerite
      - Alunite
      - Beudantite
  - Tungstates
    - Wolframite
    - Huebnerite
    - Scheelite
  - Silicates
    - Titano-silicates
      - Sphene
    - Ortho-silicates
      - Phenacites
        - Phenacite
        - Willemite
      - Olivines
        - Forsterite
        - Fayalite
      - Datolite
      - Sphene
      - Garnets
        - Garnet
        - Andradite
        - Grossularite
        - Pyrope
        - Spessartine
        - Uvarovite
      - Chondrodites
        - Alleghanyite
      - Aluminum-silicates
        - Staurolite
        - Topaz
        - Andalusite
        - Kyanite
        - Sillimanite
      - Zircon
      - Allanite
    - Di-silicates
      - Hemimorphite
      - Lawsonite
      - Niocalite
      - Epidotes
        - Zoisite
        - Clinzoisite
        - Epidote
      - Vesuvianite

- Minerals—Continued
  - Silicates—Continued
    - Cyclosilicates
      - Axinite
      - Beryls
        - Beryl
          - Emerald
        - Cordierite
      - Tourmaline
    - Chain-silicates
      - Pyroxenes
        - Clino-pyroxenes
          - Hedenbergite
          - Augite
          - Jadeite
          - Aegirine
          - Diopside
          - Spodumene
        - Ortho-pyroxenes
          - Enstatite
          - Hypersthene
      - Pyroxenoids
        - Wollastonite
        - Pectolite
        - Rhodonite
      - Amphiboles
        - Amphibole
        - Anthophyllite
        - Tremolites
          - Tremolite
          - Actinolite
          - Cummingtonite
        - Hornblende
        - Riebeckites
          - Glaucophane
          - Riebeckite
    - Sheet-silicates
      - Apophyllite
      - Clay-minerals
        - Illite
        - Attapulgite
        - Bementite
        - Neotocite
        - Montmorillonites
          - Montmorillonite
          - Beidellite
          - Nontronite
          - Hectorite
          - Saponite
        - Kaolin
          - Kaolinite
          - Dickite
          - Halloysite-7Å
          - Halloysite-10Å
          - Allophane
      - Serpentine
        - Garnierite
      - Pyrophyllite

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Minerals—Continued
  - Silicates—Continued
    - Sheet-silicates—Continued
      - Talc
      - Asbestos
        - Chrysotile
      - Micas
        - Mica
        - Muscovite
        - Sericite
        - Magnesia-mica
          - Phlogopite
          - Biotite
        - Glauconite
        - Lepidolite
        - Margarite
      - Chlorites
      - Prehnite
      - Chrysocolla
    - Framework-silicates
      - Silicas
        - Silica
        - Quartz
        - Chalcedony
        - Jasper
        - Chert
        - Opal
        - Cristobalite
        - Tridymite
      - Feldspars
        - Feldspar
        - Plagioclase-feldspars
          - Plagioclase
          - Albite
          - Oligoclase
          - Andesine
          - Labradorite
          - Bytownite
          - Anorthite
        - Barium-feldspar
        - K-feldspar
          - Microcline
          - Adularia
          - Orthoclase
          - Sanidine
          - Anorthoclase
      - Feldspathoids
        - Leucite
        - Nepheline
        - Sodalite
        - Lazurite
        - Petalite
      - Scapolites
      - Zeolites
        - Zeolite
        - Analcime
        - Natrolite
        - Chabazite

Appendix C. Taxonomy used to define the attributes of numerical mineral deposit models—Continued

- Minerals—Continued
  - Silicates—Continued
    - Framework-silicates—Continued
      - Zeolites—Continued
        - Heulandite
        - Stilbite
  - Titanites-Niobates-Tantalates
    - Titanites
      - Perovskite
      - Brannerite
    - Niobates
      - Pyrochlore
    - Tantalates
  - Alteration-products
    - Carbonates
    - Silicates
      - Calc-silicates
        - Skarn
          - Endoskarn
          - Exoskarn
    - Zeolites
    - Oxides
    - Alunite
    - Chlorite
    - Greisen
    - Jaresite
    - Amorphous-carbon
- Geophysics
  - Geophysical-anomalies
    - Magnetic-anomaly
      - Magnetic-high
      - Magnetic-low
    - Gravity-anomaly
      - Gravity-high
      - Gravity-low
    - Radioactive-anomaly
    - Electromagnetic-anomaly
    - Induced-polarization-anomaly