Capítulo 10
Diques de Guijarros
Cráteres de Maar
ESQUEMA DE LAS MINERALIZACIONES DE MERBURIO DE LA ZONA DE ALMADEN

LEYENDA

1. ALMADEN, EL ENTREDICH, LA VIEJA CONCEPCION
2. LAS CUEVAS
3. LA NUEVA CONCEPCION
4. GUADALPERAL

ESCALA GRAFICA APROX.

0 50 100 150 200 250
Complejo de Diatremas
Cripple Creek - Colorado
COLORADO

- Denver
- Colorado Springs
- Cripple Creek
- Durango

- Quartz Creek
- Durango
- RGF

KILOMETERS

- SJVF
- TPVF

SPANISH PEAKS

- TMVF
- RH

- Cripple Creek Complex

- Durango Springs

- Denver

COLORADO AND YOUNGER: Basalt to rhyolite, contemporaneous with rifting
MIOCENE TO RECENT: Sedimentary rocks in Rio Grande rift
MIDDLE TERTIARY: Andesite to rhyolite; some alkaline rocks
LARAMIDE TO LOWER MIOCENE: Intrusive rocks
PALEOZOIC AND MESOZOIC: Sedimentary rocks
PRECAMBRIAN: Metamorphic and igneous rocks
NORMAL FAULT
FIG. 2. Geologic cross section A-A' across the Cripple Creek diatreme complex. Symbols are the same as those in Figure 1.
Fig. 5. Total alkali vs. silica diagram of igneous phases most closely linked to mineralization in various deposits. Cu(Au) deposits are generally associated with mafic-intermediate phases (<63 wt % SiO₂), whereas Mo(Au) deposits are associated with intermediate-felsic phases (>68 wt % SiO₂). Deposits such as Sierra Blanca, which lie between these two ranges, contain both Cu and Mo + Au mineralization (Giles and Thompson, 1972).

Porgera and the monzonite stocks of Eaton and Setterfield (1998) on Eaton Island display similar characteristics.
Fuentes Termales
fuentes termales
sinter
brechas
cinabrio
pirita (puede ser abundante)
calcedonía
ópalo
cuarzo
alúntita
cao lím
ilita
Yellowstone, Parque Nacional Wyoming
Beowawe, Nevada
Gold Hill, Nevada
Mina Sleeper, Nevada
SLEEPER MINE
AMAX

Reserves:
2,540,000 oz Au
2,750,000 oz Ag
Heap leach ore ave. 0.02 oz/t Au
Mill ore ave. 0.4 oz/t Au
55% high grade vein ore
25% breccia
20% stockwork ore.

PARAGENETIC SEQUENCE:

EARLY       LATE
Veins  py-mc \( \text{AgTe} + \text{AgSe} \)  py-mc-stibnite
alteration opal  opal-calcite-calcite opal-quartz
Ag/Au      5?  0.7-1.5  3-10
Au oz/t   0.01  1-200  0.02-5
Summitville, Colorado
FIG. 7. Plan view of major Summitville ore zones. Underground stopes and ore zones with greater than 10 ppm Au were based on data prior to mining (Steven and Ratté, 1960). In addition to open-pit blocks and underground mine data (SCMCI, unpub. data). Northings and eastings are in feet.
Vetas de Oro de Alto Nivel
Tipo Sulfato Ácido

Vetas de enargita
Azufre nativo
Covellite
Caoilinita
Alteración propilítica
Vetillas de esfalerita y galena

Zona silicificada
Oro en huecos
Zona de cavidades

Relaciones observadas en Summitville, Colorado
Yanacocha - Perú
Alteración de Yanacocha
Olympic Dam – Australia
(Tipo “IOCG”)
FIG. 1. Interpreted geology of the Olympic Dam deposit, -350-m level, based on compilation of underground mapping (1980–1987) and drill core logs at varying levels of accuracy and coverage; in areas of sparse information, relations have been extrapolated from the area of detailed study.
Figure 4F: Hematite-rich breccia showing coarse slabby texture. White salt encrustations highlight the relatively fine-grained permeable matrix. (Field of view 3 metres wide).
Figure 4D: Hematitic breccia containing a variety of hematite-rich clasts and a significant granitic component.
Figure 4G: Unusually coarse gold localised along hairline fractures within hematite-quartz breccia.
Fig. 6. Schematic cross section illustrating alteration zoning in iron oxide (Cu–U–REE–Au) deposits formed in volcanic and plutonic host rocks such as the Swedish, Missouri, and Stuart Shelf iron oxide deposits. The section extends from the near-surface to several kilometers below the paleosurface.
assemblages are present in a number of Fe oxide occurrences (Table 1); they are hard to rationalize by ordinary igneous or magmatic-hydrothermal mechanisms, but the extremely high Na$^+$/H$^+$ of an evaporitic source could drive reactions of the type $2\text{NaCl}_{aq} + \text{Fe}_2\text{O}_3 + 2\text{SiO}_2 + \text{H}_2\text{O} = 2\text{NaFeSi}_2\text{O}_6 + 2\text{HCl}_{aq}$. Coincident with sodic
Figure 1. Distribution of some Fe oxide–(REE-Cu-Au-U) districts. See Table 1. Note correlation of most Mesozoic deposits with arid belts.
Brechas En Calizas
Tipo Mississippi Valley
CENTRAL TENNESSEE ZINC DISTRICT

MURFREESBORO LIMESTONE

WELLS CREEK FORMATION

UPPER MASCOT DOLOMITE

MIDDLE MASCOT DOLOMITE

LOWER MASCOT DOLOMITE

KINGSPORT FORMATION

Fine Rock Matrix Breccia

Mineral Matrix Breccia

Coarse Rock Matrix Breccia

Dolomitized Limestone

100 m.
400 m.
Brechas en el Gran Cañón del Rió Colorado - Arizona
FIN

Muchas Gracias Por Su Atención