

***Society of Economic Geologists Foundation, Inc.
Student-Dedicated Field Trip Course – Precious Metal Deposits of the
Southwestern U.S. - Supplementary Figures***

May 12 - 18, 2013

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William X. Chávez, Jr.



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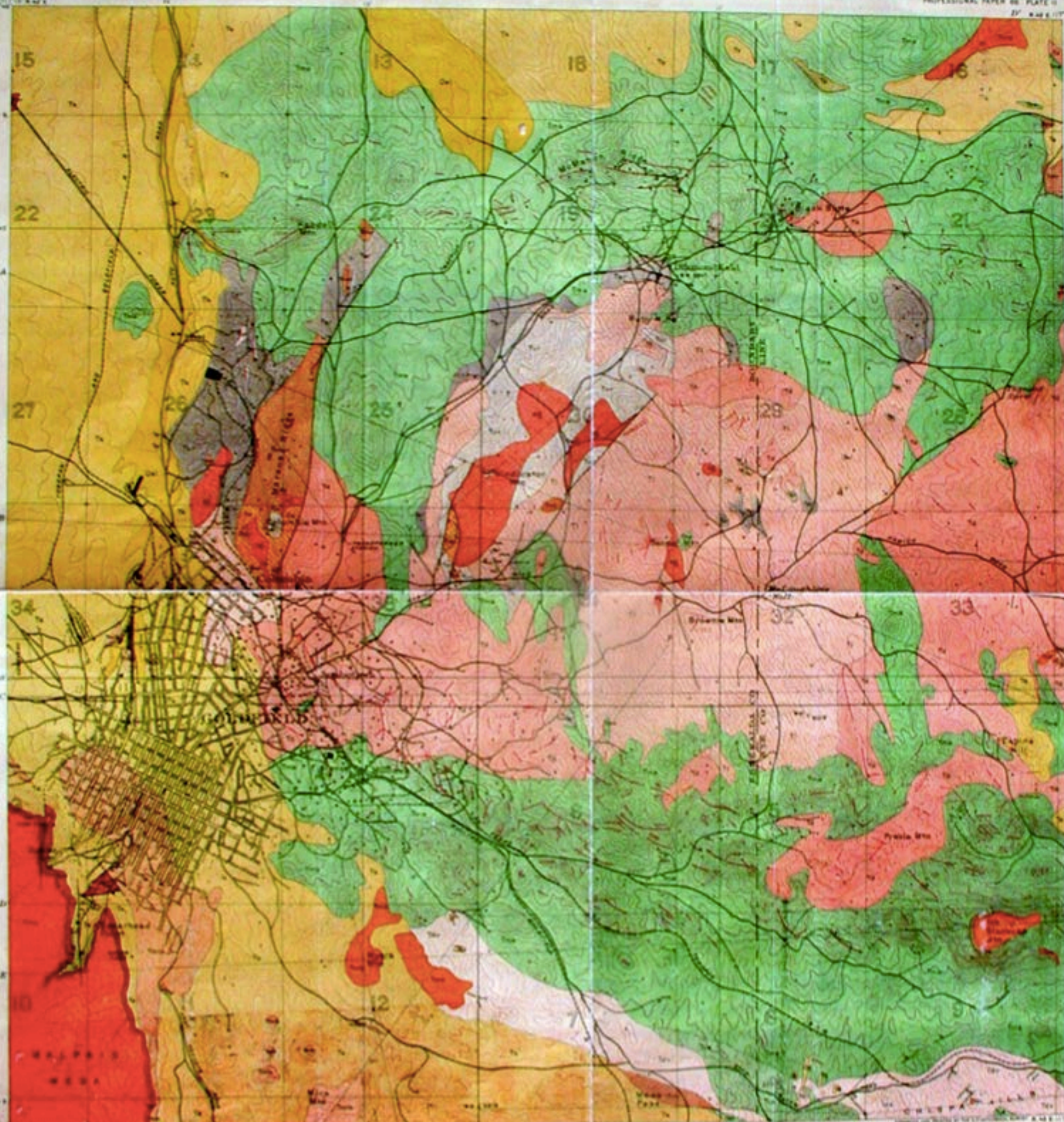


■
Reno



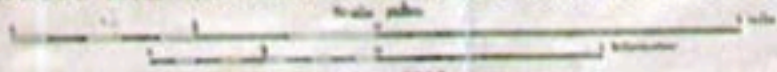
Gold field

■
Las Vegas



- LEGEND**
- Alluvium
Sands and gravels on the plains and alluvial fans underlying mountain fronts
 - G₄
Cretaceous
Alluvium
Sands and gravels on the plains
 - T₁₀
Miocene basalt
Chiefly in the eastern part
 - T₉
Rabbit Spring
Formation
Fluvial gravels and sands
 - T₈
Spheroidal chert
Fluvial gravels
 - T₇
Pine formation
Fluvial gravels and sands
 - T₆
Salton formation
Lava beds
 - T₅
Mesa basalt
Fluvial gravels
 - T₄
Egawa basalt
Fluvial gravels
 - T₃
Avalanche basalt
Fluvial gravels
 - T₂
Mesa chert
Fluvial gravels
 - T₁
Avalanche chert
Fluvial gravels
 - T₀
Chaparral basalt
Fluvial gravels
 - T₀
Ductile vitrophyre
Fluvial gravels
 - T₀
Ductile
Fluvial gravels
 - T₀
Millstone
Fluvial gravels and small detritus
 - T₀
Mesa chert
Fluvial gravels
 - T₀
Sanctuary chert
Fluvial gravels
 - T₀
Kendall
Fluvial gravels and sands
 - T₀
Lava
Fluvial gravels
 - T₀
Victory chert
Fluvial gravels
 - T₀
Alabaster and granite
masses
 - C₁
Cretaceous shale
 - Outcrops of alluvium
beds
 - Wells
 - Shaft
 - Tunnel
 - Prospect pit
 - Lateral moraine
 - Road

GEOLOGIC MAP OF THE GOLDFIELD DISTRICT, NEVADA

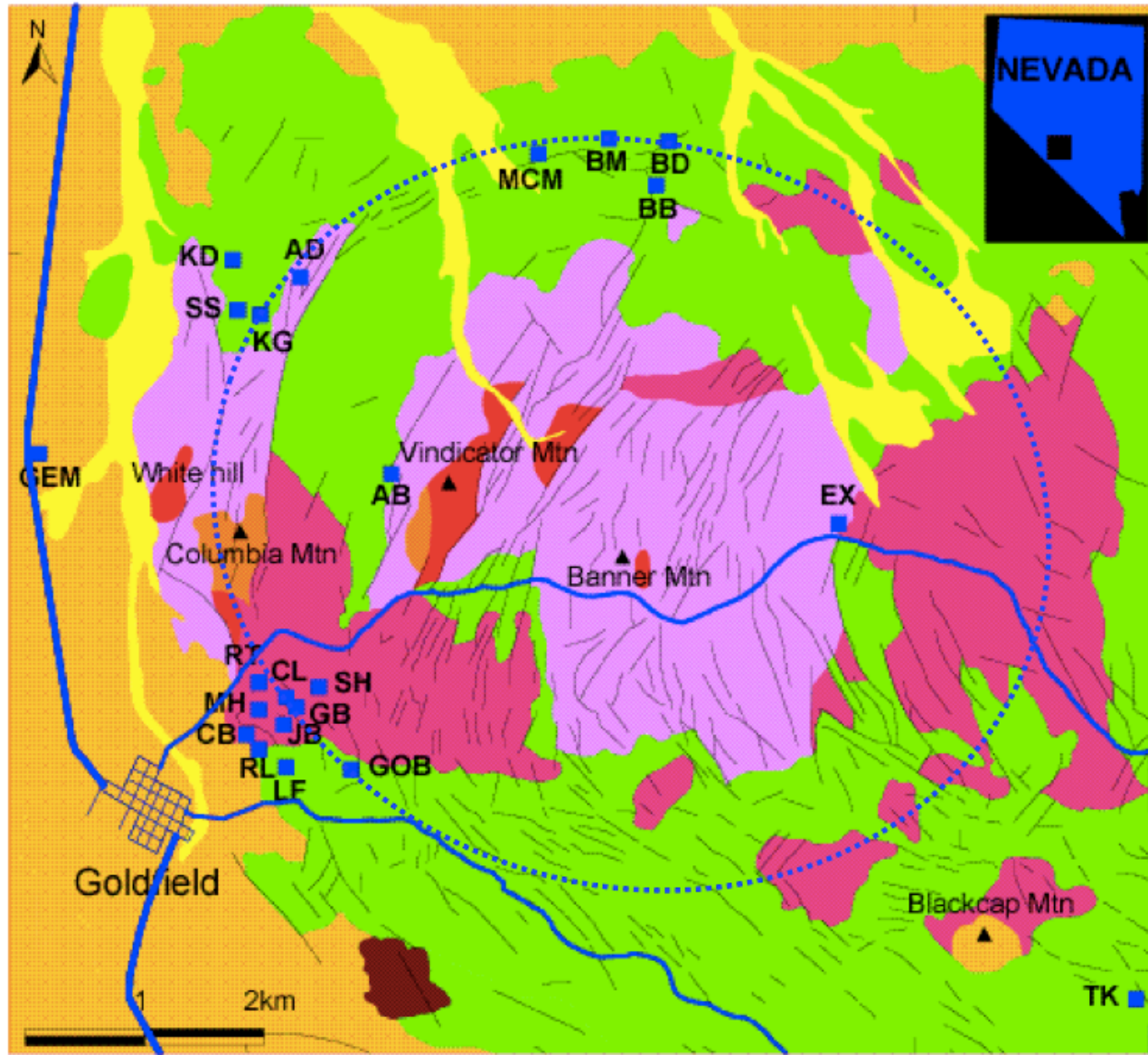


C. M. Douglas, Designer
 W. H. Chapman, in charge of section
 Topography by Wm. Strickland
 Lithography by W. H. Chapman
 Printed at the U.S. Geological Survey
 Culture revised, 1908, by W. H. Beaman

Contours interval 20 feet
 Refer to notes and brief

Geology by U. S. Geological Survey
 by W. H. Chapman and G. H. Derby
 Survey in 1905 and 1906

District Geology

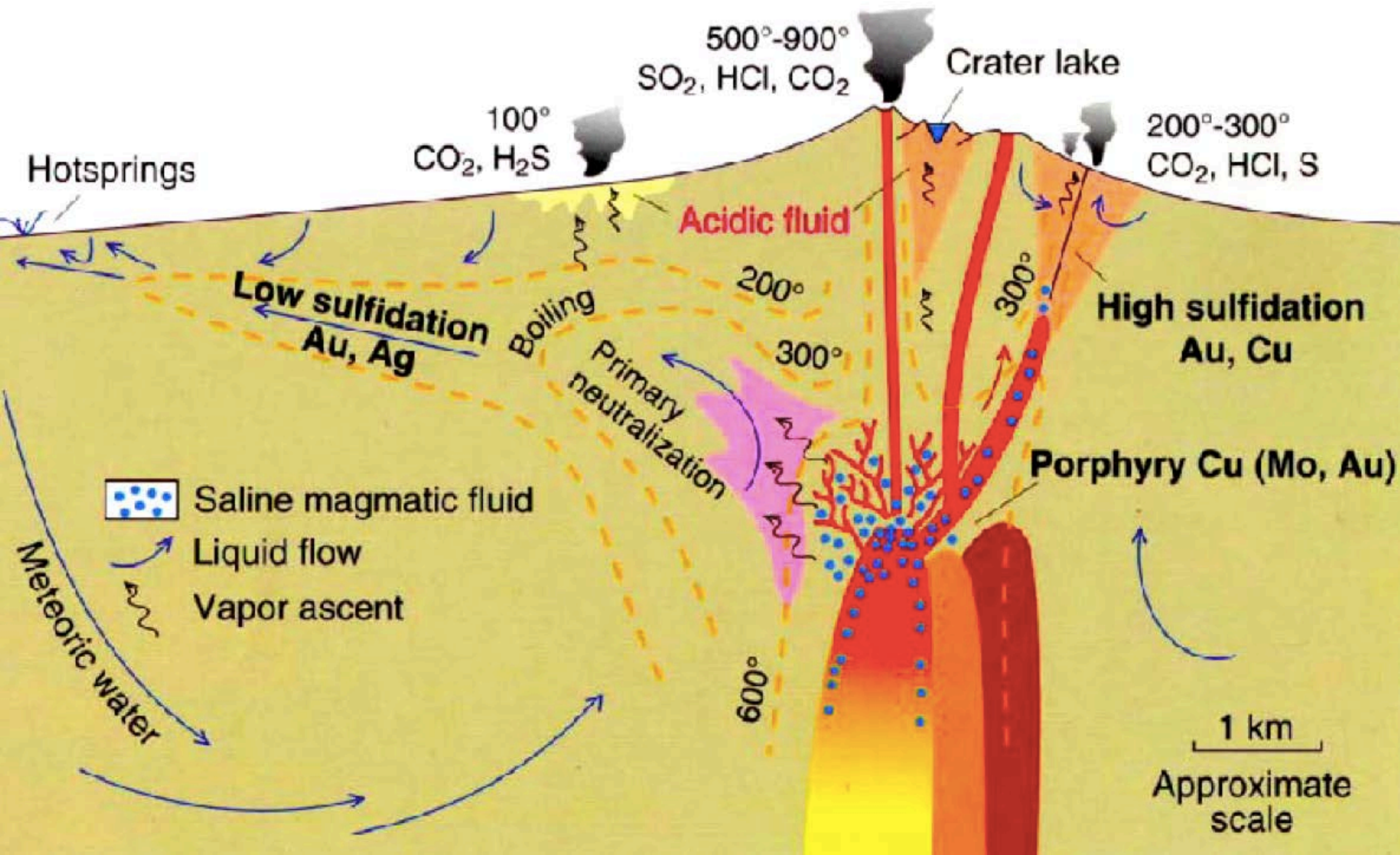


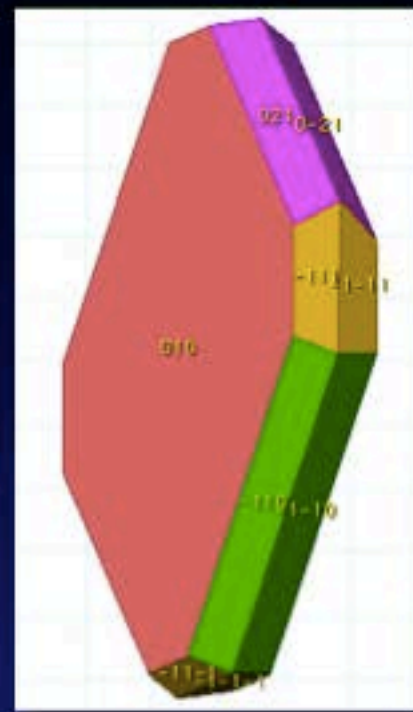
Legend

- Alluvium - Holocene
- Rhyolite and basalt - Middle Miocene (Tuff, flows) 7-17m.y.
- Andesite - Lower Miocene 17-20m.y. (Flows)
- Hydrothermal events** (20-21.5m.y.) 21.5-23m.y.
- Dacite - Lower Miocene
- Milltown andesite - Lower Miocene
- Rhyolite and latite - Oligocene (Tuff, flows)
- Unconformity
- Quartz monzonite - Jurassic 173-147m.y.
- Unconformity
- Palmetto formation - Ordovician (Siliceous shale and argillite) 300-435m.y.
- Mine

117°10'

Comparison of geological environments





Diaspore
 $AlO(OH)$

Kaolinite in dacite



Alunite in dacite

Silicified barite

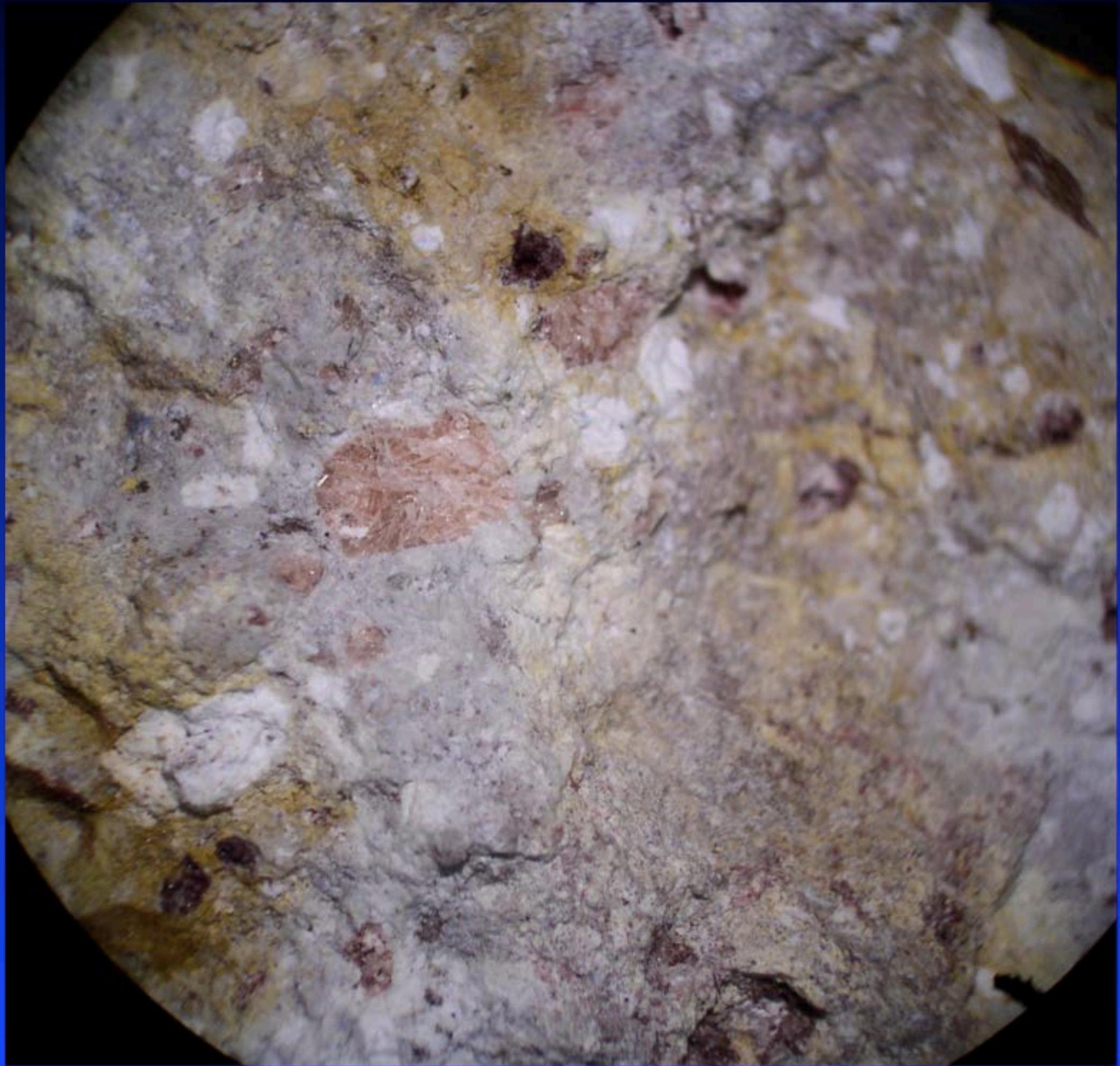


*Altered rocks of
Goldfield*

Pyrophyllite, Pyrophyllite Hill, Goldfields, NV



Alunite, Ruby Hill, Goldfields, NV



Vuggy Silica (McMahon Ridge)



Kaolinite in dacite



Alunite in dacite

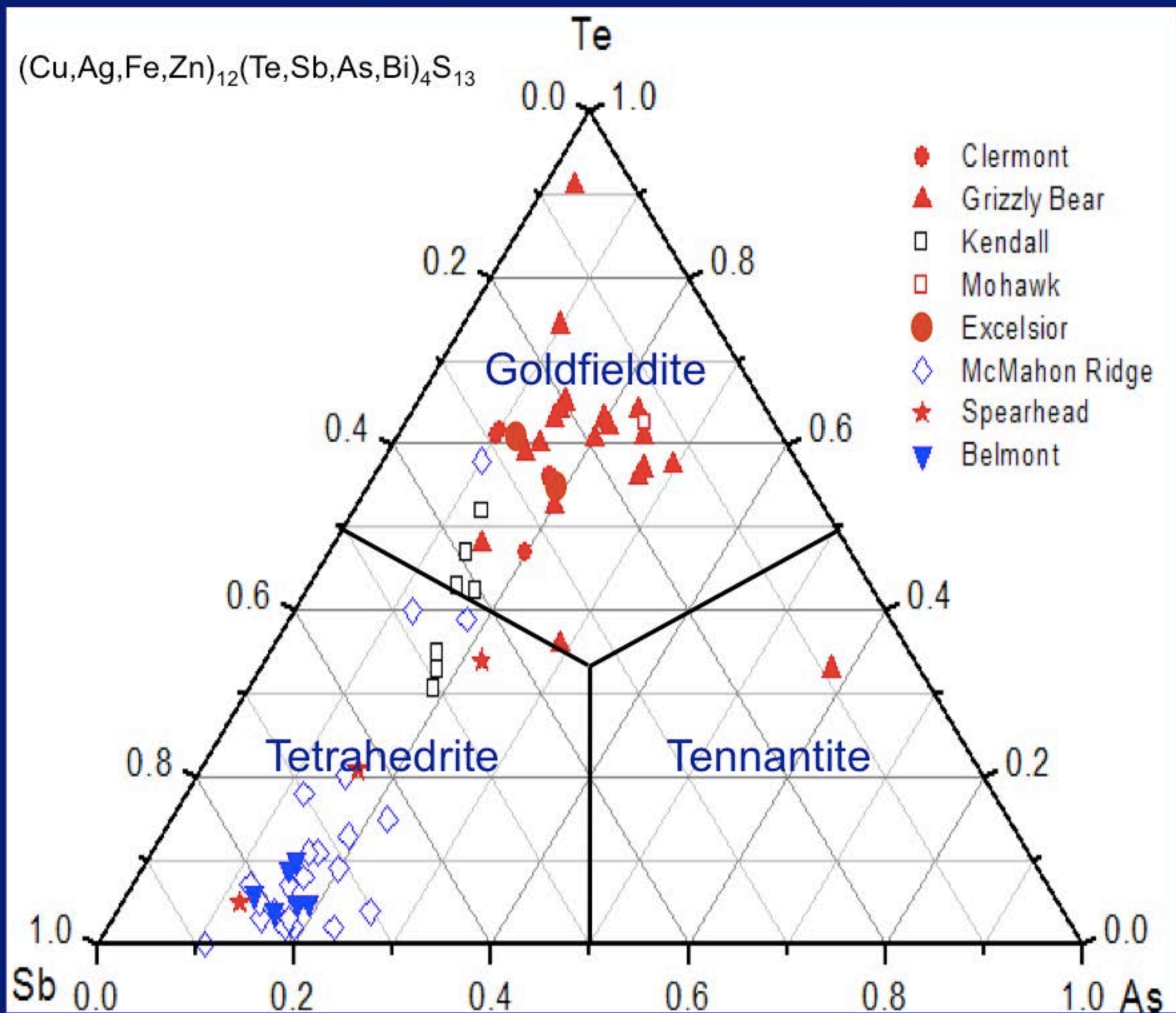


Silicified barite

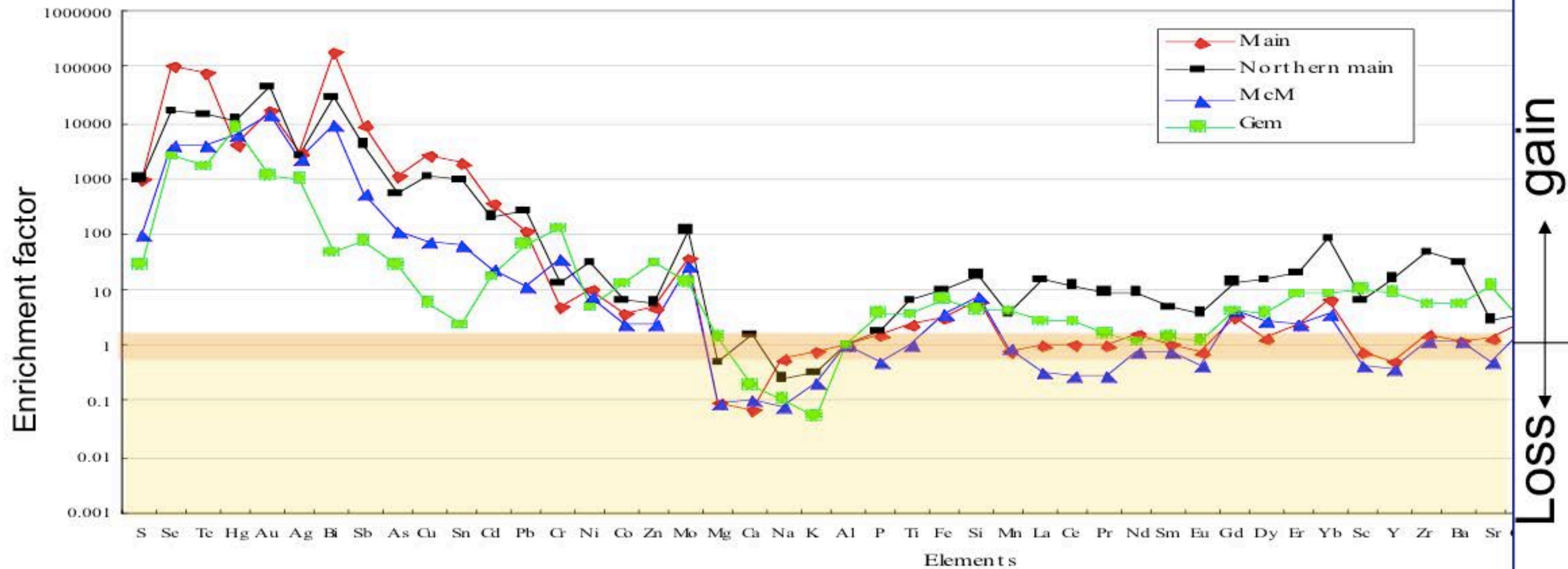


Composition of goldfieldite-tetrahedrite series

(Nomenclature of Trudu et al., 1998)

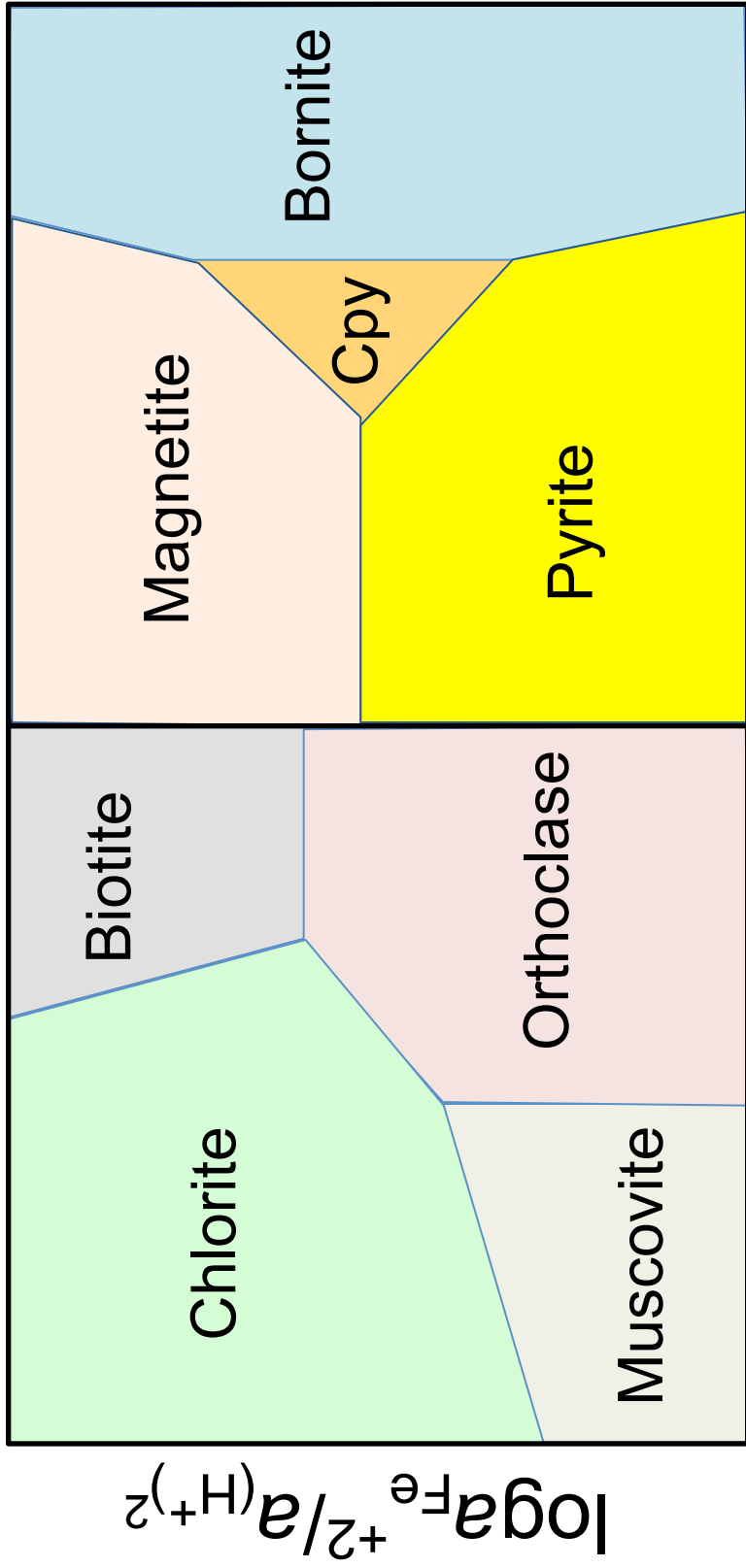


Comparison of mass transfer by sub-district



Geochemical zonation in the Goldfield District

	Main	Northern Main	McMahon Ridge
Goldfieldite - tetrahedrite Te ↑ Sb ↑ Cu ↑ Zn ↑			
Cu-Sb min. Enargite Famatinite	Yes Yes	Yes Yes	No Yes
Ag min. Hessite Argentite	No No	No No	Yes Yes
Electrum (Au/Ag) _{aq} ↑ X _{Au} ^{El} ↑			
Temperature	>250°C ?	250°C	<250°C



$\log a_{\text{Fe}^{+2}}/a_{(\text{H}^+)^2}$

$\log a_{\text{K}^+}/a_{\text{H}^+}$

$\log a_{\text{Cu}^+}/a_{\text{H}^+}$

