DESCRIPTIVE MODEL OF W VEINS

By Dennis P. Cox and William C. Bagby

APPROXIMATE SYNONYM Quartz-wolframite veins (Kelly and Rye, 1979).

DESCRIPTION Wolframite, molybdenite, and minor base-metal sulfides in quartz veins (see fig. 39).

GEOLOGICAL ENVIRONMENT

Rock Types Monzogranite to granite stocks intruding sandstone, shale, and metamorphic equivalents.

Textures Phanerocrystalline igneous rocks, minor pegmatitic bodies, and porphyroaphanitic dikes.

Age Range Paleozoic to late Tertiary.

Depositional Environment Tensional fractures in epizonal granitic plutons and their wallrocks.

Tectonic Setting(s) Belts of granitic plutons derived from remelting of continental crust. Country rocks are metamorphosed to greenschist facies.

Associated Deposit Types Sri-W veins, pegmatites.

DEPOSIT DESCRIPTION

Mineralogy Wolframite, molybdenite, bismuthinite, pyrite, pyrhotite, arsenopyrite, bornite, chalcopyrite, scheelite, cassiterite, beryl, fluorite; also at Pasto Bueno, tetrahedrite-tennantite, sphalerite, galena, and minor enargite.

Texture/Structure Massive quartz veins with minor vugs, parallel walls, local breccia.

Alteration Deepest zones, pervasive albitization; higher pervasive to vein-selvage pink K-feldspar replacement with minor disseminated REE minerals; upper zones, vein selvages of dark-gray muscovite or zinnwaldite (greisen). Chloritization. Widespread tourmaline alteration at Isla de Pines.

Ore Controls Swarms of parallel veins cutting granitic rocks or sedimentary rocks near igneous contacts.

Weathering Wolframite persists in soils and stream sediments. Stolzite and tungstite may be weathering products.

Geochemical Signature W, Mo, Sn, Bi, As, Cu, Pb, Zn, Be, F.

EXAMPLES

Pasto Bueno, PERU	(Landis and Rye, 1974)
Xihuashan, CINA	(Hsu, 1943; Giuliani, 1985; and personal visit)
Isla de Pines, CUBA	(Page and McAllister, 1944)
Hamme District, USNC	(Foose and others, 1980)
Round Mountain, USNV	(Shawe and others, 1984)
Chicote Grande, BLVA	(Personal visit)

GRADE AND TONNAGE MODEL OF W VEINS

By Gail M. Jones and W. David Menzie

COMMENTS Data are for vein systems rather than for individual veins or mines. Some data are based on past production only. Xihuashan is the sole deposit from the Peoples Republic of China. See figs. 40,41.

DEPOSITS

Name	Country	Name	Country
Carrock Fell	GRBR	Montredon	FRNC
Chicote Grande	BLVA	Needle Hill	HONG
Grey River	CNNF	Oakleigh Creek	AUTS
Hamme District	USNC	Panasqueria	PORT
Isla de Pinos	CUBA	Pasto Bueno	PERU
Josefina	AGTN	San Martin	AGTN
Kami	BLVA	Storeys Creek	AUTS
Los Condores	AGTN	Xihuashan	CINA

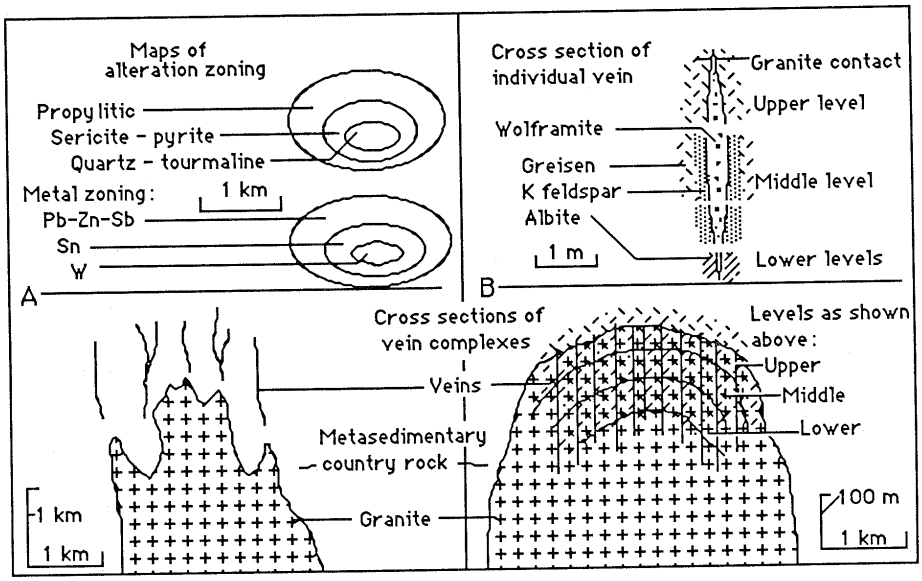

Figure 39. Maps and sections of W vein deposits illustrating mineral and alteration zoning. A, Chicote Grande deposit, Bolivia. B, Xihuashan, China.

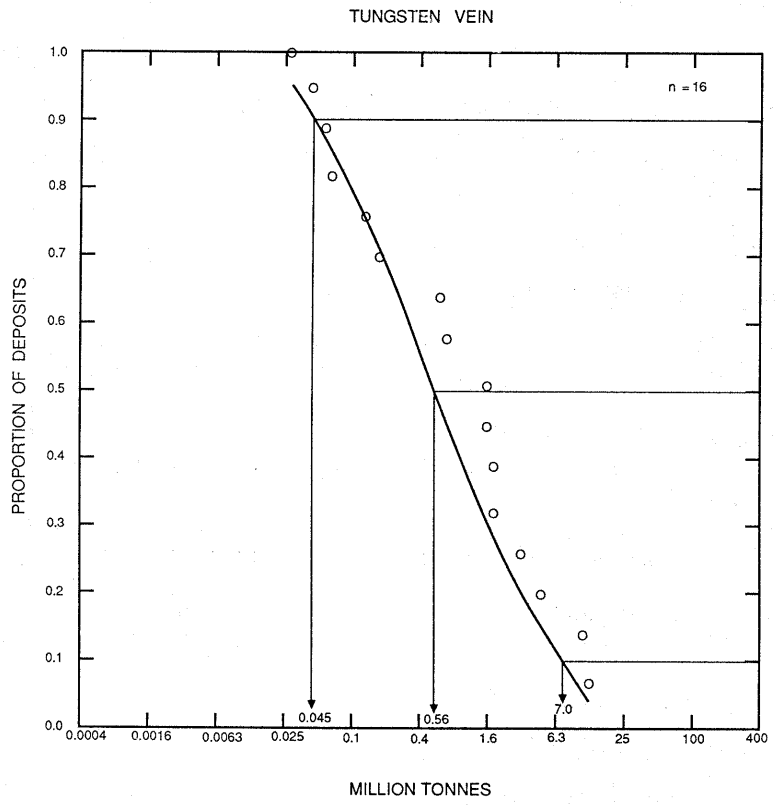

Figure 40. Tonnages of W vein deposits.

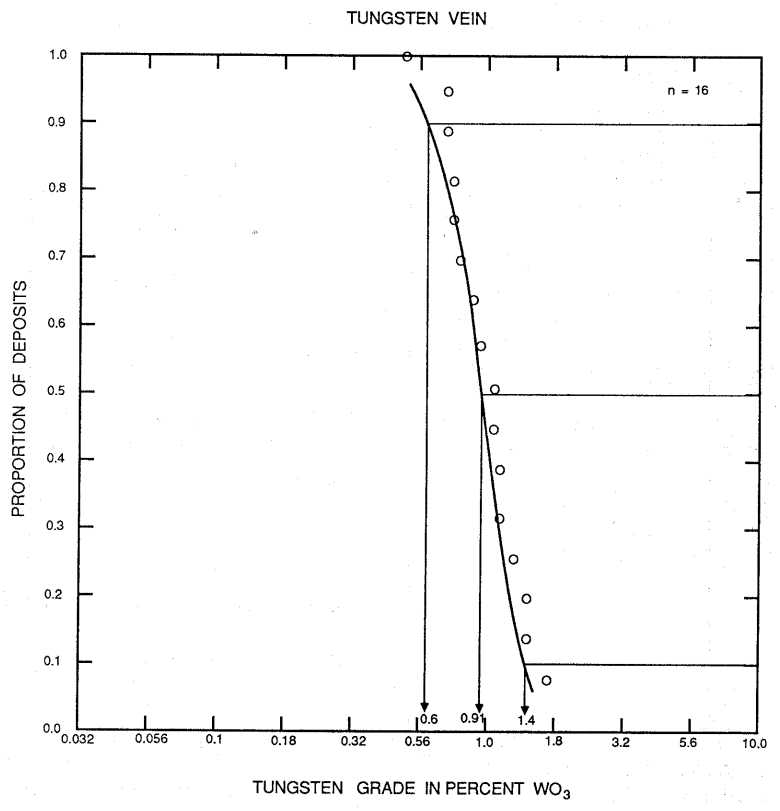

Figure 41. Tungsten grades of W vein deposits.