DESCRIPTIVE MODEL OF SIMPLE Sb DEPOSITS

By James D. Bliss and Greta J. Orris

APPROXIMATE SYNONYM Deposits of quartz-stibnite ore (Smirnov and others, 1983).

DESCRIPTION Stibnite veins, pods, and disseminations in or adjacent to brecciated or sheared fault zones.

GENERAL REFERENCES White (1962), Miller (1973).

GEOLOGICAL ENVIRONMENT

Rock Types One or more of the following lithologies is found associated with *over* half of the deposits: limestone, shale (commonly calcareous), sandstone, and quartzite. Deposits are also found with a wide variety of other lithologies including slate, rhyolitic flows and tuffs, argillite, granodiorite, granite, phyllite, siltstone, quartz mica and chloritic schists, gneiss, quartz porphyry, chert, diabase, conglomerate, andesite, gabbro, diorite, and basalt.

Textures Not diagnostic.

Age Range Known deposits are Paleozoic to Tertiary.

Depositional Environment Faults and shear *zones.*

Tectonic Setting(s) Any erogenic area.

Associated Deposit Types Stibnite-bearing veins, pods, and disseminations containing base metal sulfides ± cinnabar ± silver ± gold ± scheelite that are mined primarily for lead, gold, silver, zinc, or tungsten; low-sulfide Au-quartz veins; epithermal gold and gold-silver deposits; hot-springs gold; carbonate-hosted gold; tin-tungsten veins; hot-springs and disseminated mercury, gold-silver placers; infrequently with polymetallic veins and tungsten skarns.

DEPOSIT DESCRIPTION

Mineralogy Stibnite + quartz ± pyrite ± calcite; minor other sulfides frequently less than 1 percent of deposit and included ± arsenopyrite ± sphalerite ± tetrahedrite ± chalcopyrite ± scheelite ± free gold; minor minerals only occasionally found include native antimony, marcasite, calaverite, berthierite, argentite, pyrargyrite, chalcocite, wolframite, richardite, galena, jamesonite; at least a third (and possibly more) of the deposits contain gold or silver. Uncommon gangue minerals include chalcedony, opal (usually identified to be ß-cristobalite by X-ray), siderite, fluorite, barite, and graphite.

Texture/Structure Vein deposits contain stibnite in pods, lenses, kidney forms, pockets (locally); may be massive or occur as streaks, grains, and bladed aggregates in sheared or brecciated zones with quartz and calcite. Disseminated deposits contain streaks or grains of stibnite in host rock with or without stibnite vein deposits.

Alteration Silicification, sericitization, and argillization; minor chloritization; serpentinization when deposit in mafic, ultramafic rocks.

Ore Controls Fissures and shear zones with breccia usually associated with faults; some replacement in surrounding lithologies; infrequent open-space filling in porous sediments and replacement in limestone. Deposition occurs at shallow to intermediate depth.

Weathering Yellow to reddish kermesite and white cerrantite or stibiconite (Sb oxides) may be useful in exploration; residual soils directly above deposits are enriched in antimony.

Geochemical Signature Sb ± Fe ± As ± Au ± Ag; Hg ± W ± Pb ± Zn may be useful in specific cases.

EXAMPLES

Amphoe Phra Saeng, THLD	(Gardner, 1967)
Caracota, BLVA	(U.S. Geological Survey Mineral Resources Data System)

Coimadai Antimony Mine, AUVT (Fisher, 1952)
Last Chance, USNV (Lawrence, 1963)
Lake George, CNNB (Scratch and others, 1984)

GRADE AND TONNAGE MODEL OF SIMPLE Sb DEPOSITS

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COMMENTS Grade and tonnage have been modeled separately for vein-dominated and disseminated simple antimony deposits. The vein-dominated deposits' grades and tonnages in this model reflect hand-sorting of the ore. A grade-tonnage model for deposits containing disseminated antimony, number 27e, follows this model. At least 15 percent of the simple antimony veins are accompanied by disseminated antimony mineralization. See figs. 140-142.

DEPOSITS

Name	Country	Name	Country
Amphoe Phra Saeong	THLD	Gribble	USNV
Antimonial	USNV	Happy Return	USNV
Antimony Canyon	USUT	Hard Luck	USNV
Antimony King I	USNV	Hermada	USID
Antimony King II	USNV	Hollywood	USNV
Antimony Lode	USNV	Hoyt	USNV
Antimony Mines	USMT	Huai Nai Khao	THLD
Antimony Ridge	USID	I.H.X.	USNV
Apex Antimony	USNV	Ichinokawa	JAPN
Black Warrior	USNV	Idaho	USID
Bloody Canyon	USNV	Jay Bird	USOR
Blue Dick	USNV	Jerritt Canyon	USNV
Blue Jay	USOR	Johnson-Heizer	USNV
Blue Nose	USNV	Last Chance	USNV
Blue Ribbon	USNV	Lithia	USNV
Bradley	USNV	Lofthouse	USNV
Bray-Beulah	USNV	Lowry	USNV
Burns Basin	USNV	Lucky Knock	USWA
Cervantite	USNV	Merrimac	USNV
Choates	USNV	Milton Canyon	USNV
Cia Minera Norcro	HNDR	Mizpah	USNV
Coasano	USAK	Mug i	JAPN
Coeur d'Alene	USID	Neardie	AUQL
Coimadai	AUVT	Nevada King	USNV
Conyarigi	TRKY	Nieves	MXCO
Costerfield	AUVT	Ore Drag	USNV
Cottonwood	USNV	Page	USNV
Darwin	USNV	Panther	USNV
Desert	USCA	Prunty	USNV
Doi Pha Khan	THLD	Scrafford	USAK
Donatelli	USNV	Snowdrift	USNV
Drumm	USNV	St. George	AUQL
Dry Canyon	USNV	Stewart May	USAR
Eaton	USNV	Stibnite	USAK
Elalmis	TRKY	Sutherland	USNV
Electric	USNV	Thompson Falls	USMT
Enterprise	USNV	Upper Bellingen	AUNS
Four-of-July	USID	Volcanic Peak	USNV
Fujinokawa	JAPN	W.P.	USNV
Green Antimony	USNV	Wall Canyon	USNV
Grey Eagle	USOR		

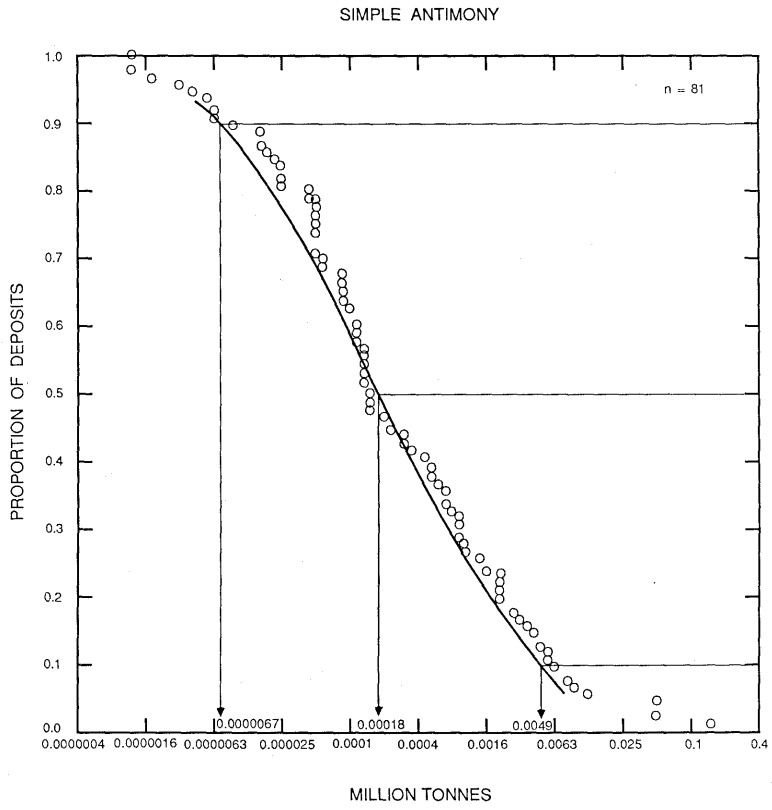

Figure 140. Tonnages of simple Sb deposits.

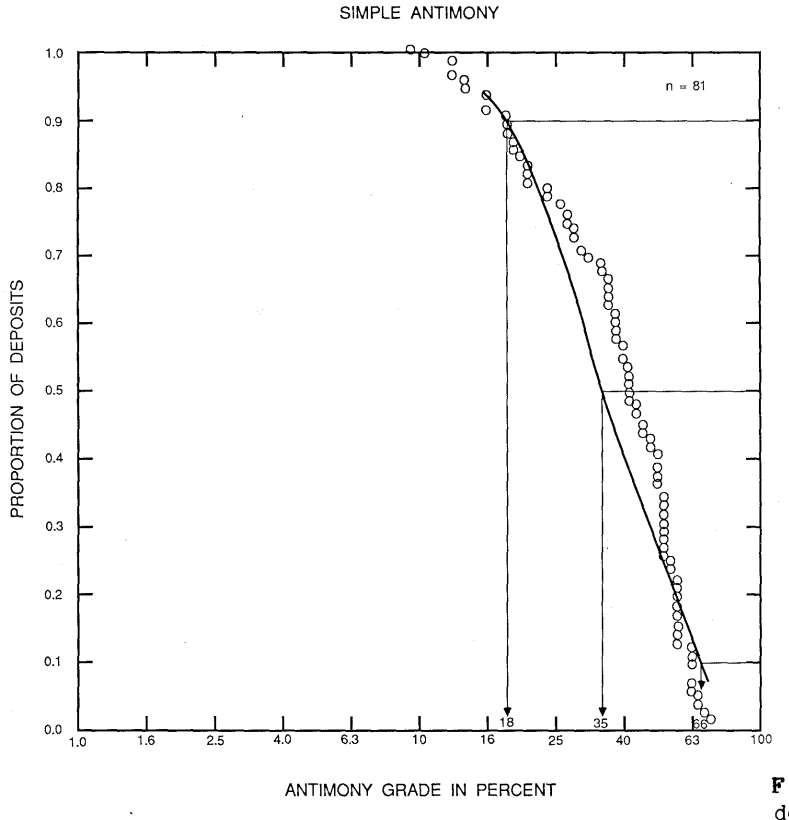

Figure 141. Antimony grades of simple Sb deposits.

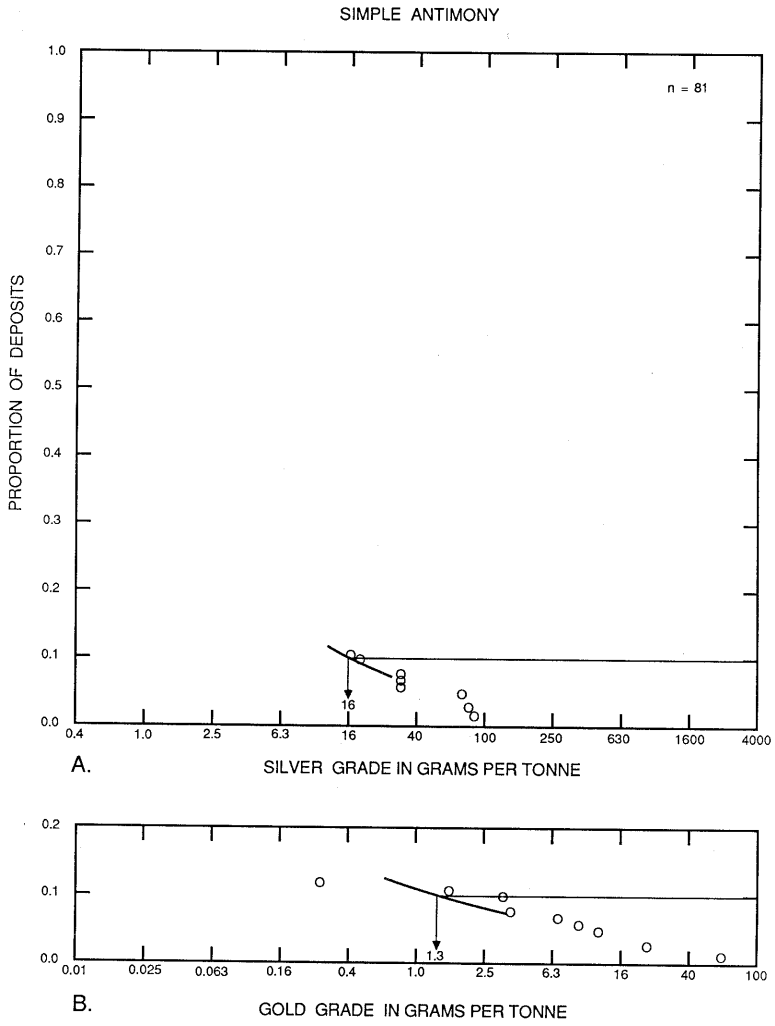

Figure 142. Precious-metal grades of simple Sb deposits. A, Silver. B, Gold.