DEPARTMENT OF THE INTERIOR
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TO ACCOMPANY MAP MR-20

ANTIMONY IN THE UNITED STATES

(Exclusive of Alaska and Hawaii)

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Introduction

The principal sources of antimony in the United States (exclusive of Alaska and Hawaii) are shown on the accompanying map. The types of deposits are indicated by shape of symbols and the relative importance of the deposits is indicated by size of symbols.

In the locality index the localities are listed by States and are keyed by numbers to the map. Localities are distinguished by name of mine, prospect, or geographic area, and their coordinates are given to the nearest minute of latitude and longitude. Geologic relations of each occurrence are characterized briefly. The text and map were compiled from published and unpublished information, and at least one reference is given for each locality if reports on it have been published.

Geology

Antimony deposits of the United States are classified as two types, one of which is mineralogically simple and the other complex. The first type commonly is also structurally simple and the second structurally complex, but gradations between both types exist.

The simple type consits dominantly of antimony minerals in a siliceous gangue, commonly with a little pyrite and in places small quantities of other metal sulfides. The original antimony mineral is stibnite, antimony sulfide, or, rarely, native antimony. Where exposed to oxidation, the original minerals have been converted to antimony oxides. Deposits of the "manto" type, common in Mexico in carbonate rocks and with carbonate or siliceous gangue, are very rare in the United States.

In the complex type, the principal antimony mineral may be stibnite associated with pyrite, arsenopyrite, cinnabar, or scheelite. More commonly, the antimony occurs in sulfo-salts with copper, lead, and silver along with the common sulfides of these metals and zinc. With few exceptions the ores are mined primarily for lead, gold, silver, quicksilver, zinc, or tungsten. The antimony may be a byproduct of only minor value, or the value of the ore may even be decreased because of its antimony content. However, some of the complex ores of the Yellow Pine district in Idaho contain enough antimony for the value of this metal to exceed that of other metals.

Most of the antimony produced in the United States is from deposits of the complex type. Of the 70 deposits or districts shown on the map by number and listed in the locality index, 36 have been classified as the simple type and 34 as complex.

Most antimony deposits, including all the most productive, lie in a north-south belt between 111° and 122° W. longitude. The Coast Ranges west of 122° and the Rocky Mountains are significantly lacking in important known deposits. In all of the eastern half of the United States, only a few stibnite deposits have been found in Arkansas, and one in Maine. Antimony has been detected in a complex ore in Virginia and probably occurs elsewhere as a minor component.

The western belt appears to be the northern extension of a prominent northwest-striking zone of antimony deposits in Mexico. These deposits, mostly of the simple type, extend from western Oaxaca through Queretaro, San Luis Potosi, Zacatecas, eastern Durango, western Chihuahua, and Sonora. This belt continues north into British Columbia and Alaska, generally lying within 200 miles of the Pacific Ocean.

Within the antimony belt of the western United States, a tendency exists for deposits of simple type to be locallized in the western half of the belt. About two-thirds of the simple type but only one-third of the complex type are west of the 117° meridian. Another suggestion of regional zoning is provided by quicksilver deposits, which tend to occur in the western part of or west of the antimony belt. A similar tendency has been recognized in Mexico.

Generalization cannot be made with confidence on the age of the deposits. Of the 70 numbered deposits or districts, the tentative ages of the youngest rocks of known close association are: Precambrian, 1; Paleozoic, 12; Mesozoic, 27; Tertiary, 27; inadequate data, 3. Of the 50 deposits that are closely associated with igneous rocks of probable Mesozoic and Tertiary ages, about half appear to be more closely associated with dikes and lava flows, mostly of Tertiary age, and half with coarse-grained intrusive rocks. The latter are generally granodiorite or quartz monzonite. These generalizations, although crude and certain to be changed in detail by further study, indicate that the generally held view of a Tertiary age and a volcanic association for antimony deposits is an over-simplification.

Another misconception is that antimony and quicksilver deposits are closely associated. A tendency for parallelism of the belts of antimony and quicksilver deposits has been mentioned; cinnabar, however, is a notable associate in only four of the listed deposits, and quicksilver minerals have been found in minor quantities in only a few additional deposits.

Locality Index

	Lat. N.	Long. W.
ARIZONA		
Yavapai County		
1. Florence. Quartz-stibnite vein in Yavapai series near granite. Assoc. metals: (As, Cu). *	34°30'	112°21'
2. Tip Top district. Galena, sphalerite, wolframite, and tetrahedrite in quartz-chalcedony veins in Bradshaw granite. Assoc. metals: Au, Ag, W, Pb, Zn. Lindgren, 1926, p. 180-182.	34°03'	112°16'
ARKANSAS		
Sevier County		
1. Stewart May. Stibnite, siderite, and lead-antimony sulfides in quartz bedding-plane veins in Mississippian Stanley shale. Assoc. metals: (Pb, Bi). Hess, 1908, p. 247-248; Miser and Purdue, 1929, p. 150.	34°11'	94°12'
2. Otto. Quartz, stibnite, sphalerite, and lead sulphantimonides in Stanley shale. Assoc. metals: (Pb, Zn, Ag). Hess, 1908, p. 249; Miser and Purdue, 1929, p. 150.	34°08'	94°20'
CALIFORNIA		
Inyo County		
1. Wildrose Canyon. Antimony oxides and stibnite in quartz veins and lenses in schist. White, 1940b, p. 307.	36°14'	117°10'
2. Transportation (Old Dependable). Stibnite and antimony oxides in Paleozoic shale overlying limestone.	36°17'	117°03'
Kern County		
3. Tom Moore, Erskine Creek. Vein in porphyritic granite. Goldman, 1957, p. 37.	35°34'	118°24'
4. San Emigdio (Antimony Peak). Antimony oxides and stibnite in quartz in shear zone in granodiorite and granitized metamorphic rock. Assoc. metal: (Ag). Blake, 1855, p. 291-295; Jermain and Ricker, 1949.	34°52'	119°06'
San Benito County		
5. Stayton district. Quien Sabe (French mine). Chalcedony vein, pockets of stibnite in silicified breccia zones in Tertiary volcanic rocks. Assoc. metal: (Hg). Bradley, 1918, p. 105; Bailey and Myers, 1942; Wiebelt, 1956.	36°55'	121°13'
San Bernardino County		
6. Atolia district. Chalcedony, quartz, scheelite, stibnite, and carbonate in veins in quartz monzonite; probably post-Miocene. Assoc. metals: W, Au, Hg. Hulin, 1925, p. 69-76; Lemmon and Dorr, 1940.	35°19'	117°37'
7. Desert Antimony (Wade). Quartz-stibnite-barite-calcite veins in granitic gneiss. Tucker and Sampson, 1930, p. 204-205; Wright and others, 1953, p. 59-60.	35°31'	115°31'
COLORADO		
Ouray County		
1. Uncompahgre district. Quartz, barite, and complex sulfides in veins and replacement deposits in the Jurassic Pony Express limestone member of Wanakah formation. Assoc. metals: Ag, Cu, Pb, Zn, Ba. Burbank, 1940.	38°04'	107°40'
Teller County		
2. Cripple Creek district. Stibnite in rich gold ores in Tertiary volcanic rocks and Precambrian granite. Assoc. metals: Au, Ag, Te.	38°44'	105°09'
IDAHO		
Owyhee County		
1. Nugent Antimony mine. Quartz-stibnite-pyrite-chalcopyrite veins in granodiorite. Assoc. metal: (Cu). Piper and Laney, 1926, p. 80.	43°04'	116°45'
Blaine County		
2. Wood River district. Galena, pyrite, tetrahedrite, boulangerite, and stibnite with quartz in shear zone in black argillite of Carboniferous age. Assoc. metals: Pb, Zn, Ag, As, Au. Umpleby, Westgate, and Ross, 1930, p. 174-183; Kaiser and others, 1954, p. 50.	43°40'	114°17'
Bonner County		
3. Whitedelf mine, Clark Fork district. Antimony in high-grade lead ore. Assoc. metals: Pb, Ag, Cu,	48°10'	116°10'

* Associated metals are enclosed in parentheses if subordinate in importance to the antimony.

IDAHO (cont'd.)

Bonner County (cont'd.)

Zn. Kaiser and others, 1954, p. 50.

Elmore County

4. Hermada. Quartz-stibnite-native antimony veins in shear zones in granodiorite associated with porphyry dikes. Popoff, 1953, p. 1-28. 43°52' 115°22'

Shoshone County

5. Sunshine area. "Silver Belt" ores with tetrahedrite, galena, sphalerite, quartz, and carbonate in quartzite and siliceous argillite of the Precambrian Belt series. Assoc. metals: Cu, Pb, Zn, Ag, As. 47°30' 116°04'

6. Same as 5. 47°30' 116°01'

7. Stanley (Hercules). Stibnite, sphalerite, arsenopyrite, and gold in quartz vein in slaty quartzite. Assoc. metals: Zn, As, Au. Shannon, 1926, p. 79. 47°33' 115°48'

8. Coeur d'Alene Antimony. Quartz-stibnite-gold vein in argillite and shale of Precambrian Prichard formation. Assoc. metals: (Zn, Au). Shannon, 1926, p. 78-79; Jones, 1919, p. 31-34; Thomson, 1919, p. 52-53. 47°32' 116°15'

9. Star (Commercial Traveler). Same as 8. 47°28' 116°17'

10. Pearson and Hannibal. Same geology as 8, except no Zn, Au. 47°28' 116°11'

11. Bunker Hill. Galena-sphalerite-boulangerite-carbonate veins in Precambrian Belt series. Assoc. metals: Pb, Zn, Ag. 47°33' 116°10'

Valley County

12. Yellow Pine. Stibnite-scheelite-arsenopyrite-pyrite veinlets and disseminations in shear zone in granodiorite. Assoc. metals: W, Au, Ag, As. White, 1940a, p. 247-279; Cooper, 1951, p. 151-197. 44°56' 115°20'

13. Meadow Creek. Same as 12. 44°54' 115°20'

14. Antimony Ridge. Stibnite-quartz veins in granodiorite. Assoc. metal: Ag. 44°56' 115°28'

MONTANA

Beaverhead County

1. Ermont-Comstock. Stibnite with gold in silicified limestone in footwalls of andesite sills. Assoc. metals: Au, Pb, Zn. Sahinen and Crowley, 1959, p. 3. 45°17' 112°54'

Beaverhead County (cont'd.)

Sanders County

2. Stibnite Hill-Barto. Quartz-stibnite veins in limy argillite and quartzite of Precambrian age. 47°37' 115°39'

Silver Bow County

3. Butte district. A few hundredths of 1 percent antimony in lead concentrates, a little in copper ores. Assoc. metals: Cu, Zn, Pb, Mn, Au, Ag. Weed, 1912, p. 71; Kaiser and others, 1954, p. 72. 46°02' 112°31'

NEVADA

Churchill County

1. Solomon King. Stibnite in quartz veins with dike, in limestone and black shale. 39°47' 117°47'

Humboldt County

2. National district. Stibnite and gold in quartz veins in Tertiary volcanic rocks. Assoc. metal: Au. Lindgren, 1915, p. 45-47. 41°51' 117°33'

3. Pansy-Lee. Tetrahedrite, sphalerite, and galena in quartz veins in shale. Assoc. metals: Cu, Zn, Pb. 41°02' 117°52'

Lander County

4. Antimony King Group. Stibnite in silicified fault breccia in shale and limestone. 39°24' 117°06'

5. Big Creek Antimony. Stibnite and quartz in brecciated Devonian quartzite. 39°19' 117°07'

6. Cottonwood Canyon. Stibnite in quartz vein on contact of quartz porphyry dike in quartzite. 40°36' 117°05'

Mineral County

7. Candelaria district (Potosi mine). Jamesonite, bindheimite, sphalerite, and manganese carbonate in quartz veins in Lower Triassic Candelaria formation. Assoc. metals: Pb, Ag, Mn, Zn. Knopf, 1923. 38°09' 118°06'

Nye County

8. Last Chance. Stibnite in quartz veins in shaly limestone near andesite dike. 38°43' 117°16'

9. White Caps. Gold, realgar, orpi- 38°31' 117°04'

NEVADA (cont'd.)

Nye County (cont'd.)

ment, stibnite, cinnabar, quartz, and carbonates in veins in limestone and shale; some high-grade stibnite ore shoots. Assoc. metals: Au, As, Hg. Ferguson, 1924, p. 82-94.

Pershing County

10. Arabia district. Bindheimite in quartz veins in granodiorite near shale and quartzite. Assoc. metals: Ag, Pb. Knopf, 1918. 40°22' 118°24'

11. Black Warrior. Stibnite in quartz veins in rhyolite flows and tuffs. 40°26' 118°08'

12. Bloody Canyon. Stibnite in quartz veins in rhyolite flow. 40°31' 118°08'

13. Hollywood. Stibnite and antimony oxides in quartz veins in Upper Triassic shale and thin-bedded limestone. 40°09' 118°07'

14. Sutherland. Stibnite in quartz vein in calcareous shale near volcanic plug. 40°13' 118°16'

White Pine

15. Lage claims. Stibnite in veinlets and disseminations in silicified Paleozoic limestone. 39°52' 115°03'

NEW MEXICO

Grant County

1. Santa Rita-Central. Some stibnite and complex antimony minerals. Assoc. metals: Cu, Zn, Ag, Pb. Northrup, 1959, p. 490-491. 32°47' 108°07'

OREGON

Baker County

1. Gray Eagle (Koehler). Quartz-antimony vein in altered volcanic rocks and argillite. Assoc. metal: (Au). Wagner, 1944, p. 5-8. 44°47' 117°45'

Malheur County

2. Coyote. Quartz-antimony vein on wall of basalt dike in quartz diorite. Assoc. metal: (Au). Wagner, 1944, p. 8-9. 44°18' 117°44'

Union County

3. Stibnite (Parker). Quartz-stibnite vein in granodiorite. Wagner, 1944, p. 9. 45°04' 118°13'

Jackson County

4. Jay Bird (Blue Jay). Antimony- 42°05' 123°09'

Jackson County (cont'd.)

quartz lenses in shear zone in metamorphosed sedimentary and volcanic rocks. Wagner, 1944, p. 11-13.

5. Lowry. Antimony lenses in quartz vein in andesite flow and tuff. Wagner, 1944, p. 13-14. 42°04' 123°08'

UTAH

Beaver County

1. San Francisco (Horn Silver mine). Galena, pyrite, sphalerite, sulfantimonides, quartz, barite replacement of volcanic rocks. Assoc. metals: Pb, Zn, As. Butler and others, 1920, p. 108, 518-519. 38°28' 113°16'

Box Elder County

2. Dry Lake. Stibnite-quartz vein in limestone. 41°34' 112°01'

Garfield County

3. Antimony Canyon (Coyote Creek). Pods and disseminations of stibnite and oxides in Upper Cretaceous sandstone overlying conglomerate; *some fault control.* Richardson, 1908. 38°06' 111°55'

Juab County

4. Tintic. Complex sulfide ores, largely in Paleozoic carbonate rocks associated with Tertiary volcanic rocks. Assoc. metals: Pb, Cu, Ag, Au, Zn, As. Butler and others, 1920, p. 410-414; Kaiser and others, 1954, p. 108. 39°56' 112°08'

5. West Tintic district. Quartz-complex sulfide veins in Paleozoic limestone and granitic rocks. Assoc. metals: Pb, Cu, Zn, As. Butler and others, 1920, p. 100, 440-443. 39°47' 112°27'

Salt Lake County

6. Bingham. Tetrahedrite is a minor mineral in the copper and lead-silver ores. Assoc. metals: Cu, Pb, Zn, Ag, Au. Butler and others, 1920, p. 108, 357-361. 40°31' 112°10'

7. Little Cottonwood (Alta). Complex ores with prominent tetrahedrite replace Paleozoic carbonate rocks. Assoc. metals: Pb, Cu, Ag. W. Calkins and Butler, 1943, p. 87; Butler and others, 1920, p. 270-276. 40°36' 111°38'

UTAH (cont'd.)

Summit County

8. Park City (Uintah). Tetrahedrite, jamesonite, and bournonite are minor to abundant in veins and replacements in limestone, quartzite, and diorite. Assoc. metals: Pb, Zn, Cu, Ag, Au, As. Butler and others, 1920, p. 108, 303-306. 40°39' 111°30'

Tooele County

9. Camp Floyd (Mercur). Cinnabar and stibnite in silicified Paleozoic limestone. Assoc. metals: Ag, Au, Hg, As, Cu. Butler and others, 1920, p. 391-395; Gilluly, 1942, p. 135-138. 40°20' 112°14'

Utah County

10. East Tintic. Complex sulfide ore, largely in Paleozoic carbonate rocks underlying Tertiary volcanic rocks. Assoc. metals: Pb, Zn, Cu, Ag, As. 39°57' 112°03'

Washington County

11. Gunlock (Bull Valley). Pockets and veinlets of stibnite in silicified limestone, just above a limestone conglomerate and near biotite andesite and tuffs. 37°22' 113°50'

WASHINGTON

Ferry County

1. Longstreet-Robert E. Lee. Stibnite in altered granodiorite on the west side of an alaskite dike; base-metal sulfides on the east. Assoc. metals: Au, Ag, As, Zn, Pb, Cu. Purdy, 1951, p. 68-71. 48°14' 118°13'

King County

2. Great Republic. Stibnite-quartz-pyrite vein in argillized rocks of the Keechelus andesitic series of Eocene to Miocene age. Purdy, 1951, p. 75-78. 47°42' 121°24'

Okanogan County

3. Lucky Knock. Stibnite-quartz vein in limestone overlying chlorite phyllite near andesite dike; minor sphalerite. Assoc. metal: (Zn). Purdy, 1951, p. 92-104. 48°47' 119°29'

4. Antimony Queen. Stibnite-antimony oxide-quartz veins with pyrite, pyrrhotite, galena, sphalerite, scheelite, and gold in argillite and graywacke of Triassic 48°13' 120°10'

Okanogan County (cont'd.)

and Jurassic (?) age. Assoc. metals: (Pb, Zn, As, Au, W). Purdy, 1951, p. 109-12 .

Snohomish County

5. Foggy. Veins of quartz and complex sulfides in schist and quartz diorite. Assoc. metals: As, Zn, Pb. Purdy, 1951, p. 134-135. 48°00' 121°19'

Stevens County

6. Cleveland. Sphalerite, boulangerite, arsenopyrite, and galena in silicified dolomite near diorite dikes. Assoc. metals: Zn, Pb, As. Purdy, 1951, p. 137-141. 48°07' 118°02'

7. Chinto. Chalcopyrite-tetrahedrite-sphalerite-pyrite-arsenopyrite-quartz-calcite-siderite veins in argillite. Assoc. metals: Cu, Ag, Au, Zn, As. Purdy, 1951, p. 154, 170. 48°20' 117°42'

8. United Silver-Copper. Same as 7. Assoc. metals: Cu, Ag, Au. Purdy, 1951, p. 154, 175. 48°20' 117°41'

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