

## NOTES AND NEWS

### TELLURIUM MINERALS OF NEW MEXICO

WM. P. CRAWFORD, *Bisbee, Arizona.*

Petzite was reported from the Red River District, Taos County, in 1904, and is the first recorded occurrence of a tellurium mineral in New Mexico. Tetradymite was identified in 1908 at Sylvanite and since then tellurium minerals have been described from other localities. Unfortunately for collectors, many of the localities are now exhausted and none are noted for exceptionally fine mineral specimens.

A total of ten tellurium minerals have been reported (Fig. 1); eight have been reliably identified and two, sylvanite and calaverite, are probably mixtures of a telluride and native gold.

MINERAL	COUNTY
Tellurium	Catron
Tetradymite	Colfax, Grant, Dona Ana, Hidalgo, Sierra
Copper telluride	Dona Ana
Altaite	Dona Ana
Hessite	Hidalgo, Dona Ana,* Sierra*
Petzite	Taos, Dona Ana*, Sierra*
Sylvanite	Hidalgo*, Sierra*
Calaverite	Sierra*
Montanaite	Dona Ana
Durdenite	Catron

\* Indicates identity is doubtful.

#### CATRON COUNTY

Ballmer<sup>1</sup> identified native tellurium in vein material collected at a gold prospect in southern Catron County, 41 miles northwest of Silver City. The tellurium was associated with bismuthinite and pyrite in a gangue composed principally of quartz and fluorite. The tetradymite reported from this locality proved a mixture of tellurium and bismuthinite. Durdenite<sup>2</sup> was identified in several oxidized specimens and is a new and unreported occurrence of this mineral. The exploitation of the deposit as a source of tellurium was unsuccessful but a number of mineral specimens were obtained.

#### COLFAX COUNTY

Tetradymite has been found in small amounts at the Aztec mine, Ute Creek District. A mine report (dated 1916) by E. H. Perry and Augustus Locke mentioned chlorite carrying "scattered grains of pyrite and native

<sup>1</sup> Ballmer, G. J., Native tellurium from northwest of Silver City, New Mexico: *Am. Mineral.*, vol. 17, pp. 491-492, 1932.

<sup>2</sup> Ballmer, G. J., *personal communication.*

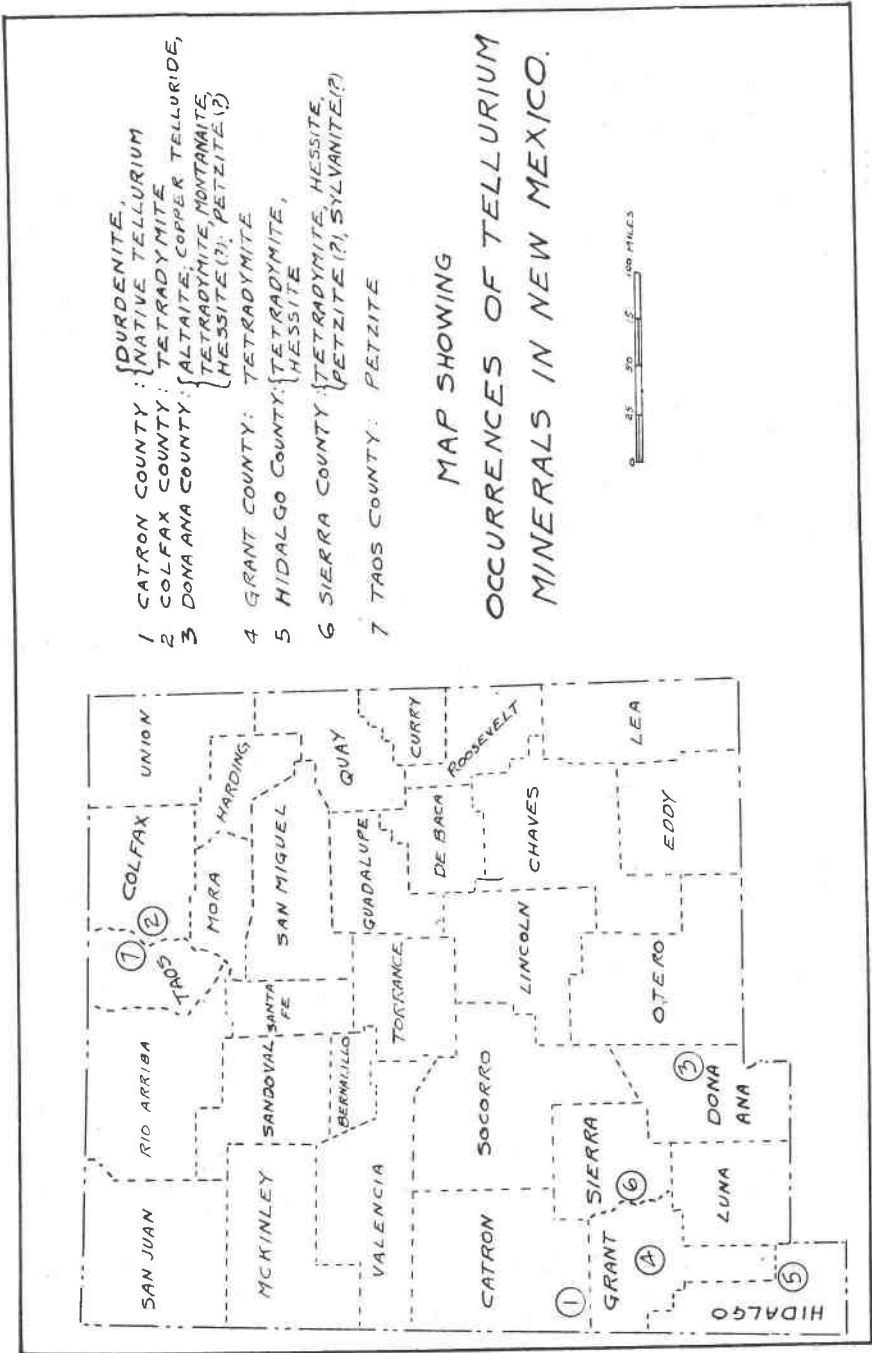


Fig. 1. Occurrences of Tellurium Minerals in New Mexico.

gold, with occasional gray metallic specks which may be telluride or selenide of gold." No attempt was made to identify the mineral.

A detailed study of the mine later made by Chase and Muir<sup>3</sup> showed tetradymite but no telluride or selenide of gold. "Besides masses of coarse and fine native gold, this ore contained quartz, limonite, garnet, pyroxene, and other silicates, a little pyrite and chalcopyrite, and always an appreciable amount of bismuth telluride. The latter mineral, tetradymite, was identified by A. J. Weinig. Native gold in coarse particles was embedded in it, yet practically uncombined with tellurium."

#### DONA ANA COUNTY

Tetradymite has been identified in the ores of the Ben Nevis, Crested Butte, Texas Main, and Memphis mines in the Organ District. Oxidized tetradymite from the South Shaft of the Memphis mine exhibited, in polished surfaces, a graphic pattern which Dunham<sup>4</sup> attributes to a possible intergrowth of pure tetradymite with one rich in sulphur or selenium. A similar structure is shown in bismuth telluride from the Gold Bug mine, Bannack mining district, Montana, when it is etched with nitric acid.<sup>5</sup>

Altaite is found at the Hilltop mine in association with pyrite and galena. It yields in the oxidation zone a very soft mineral which is probably a lead tellurite.<sup>6</sup> This oxidation product of altaite from the Hilltop mine, while mentioned by Schneiderhöhn and Ramdohr,<sup>7</sup> has not been found in sufficient quantity for analysis and has not been named.

Hessite and petzite: the identity of these tellurides in Dona Ana County is based upon qualitative tests for tellurium made by L. B. Bentley on hand specimens in 1914. None of the material is now available for microscopic study. Hessite was reported from the Little Buck mine, as rich silver ore gave strong tellurium tests. Gold-silver ore from the Gonzales prospect contained tellurium and it may be in the form of hessite or petzite.

Copper telluride: hand specimens from the Eureka and Rickardite claims, Organ District, contained small grains of a mineral which gave strong qualitative tests for copper and tellurium, and which, on the

<sup>3</sup> Chase, Chas. A., and Muir, Douglas, The Aztec Mine, Baldy, New Mexico: *Trans. Am. Inst. Min. Eng.*, vol. 69, p. 276, 1923.

<sup>4</sup> Dunham, K. C., The geology of the Organ Mts. New Mexico: *N. M. Bur. of Mines and Min. Res., Bull.* 11, p. 132, 1935.

<sup>5</sup> Shenon, P. J., Geology and ore deposits of Bannack and Argenta, Montana: *Montana Bur. of Mines and Geology, Bull.* 6, p. 54, 1931.

<sup>6</sup> Dunham, K. C., *op. cit.*, p. 159.

<sup>7</sup> Schneiderhöhn, H., and Ramdohr, P., *Lehrbuch der Erzmikroskopie*. Bd. II, pp. 264-265, Berlin, 1931.

basis of these tests, was identified as rickardite by L. B. Bentley. Two specimens in Mr. Bentley's collection were examined by the writer and it is his belief that the copper telluride is weissite rather than rickardite. It occurs as small grains in a calcite gangue and none of the material shows the characteristic purple color of rickardite. The color of a freshly scratched surface is a bluish-black, tarnishing to a deep black and resembles the type specimen of weissite from the Good Hope mine.<sup>8</sup> Only a few specimens were recognized as copper telluride while the Eureka and Rickardite claims were being worked and none is available now.

Specimens of oxidized bismuth ore from the Memphis mine contained a yellow mineral giving positive micro-chemical tests for bismuth and tellurium. No unaltered tetradymite was found and identification was tentatively made as montanaite.<sup>9</sup>

#### GRANT COUNTY

A specimen of tellurium-bearing gold ore from a prospect in the Little Burro Mountains, given the writer by Mr. Ira L. Wright, was identified as tetradymite by Dr. G. M. Schwartz, University of Minnesota. It occurred in masses 2.5 cm. in greatest diameter, in association with chalcopyrite, malachite(?), and limonite. Large areas of the tetradymite are altered along contacts and cleavages, but show no intergrowth. Material from this property is no longer obtainable. This occurrence of tetradymite in Grant County has not been previously reported.

#### HIDALGO COUNTY

Tetradymite has been found in the Sylvania mining district<sup>10</sup> in the ores of the Hand Car, Golden Eagle, Gold Hill, Ridgewood, Little Mildred,<sup>11</sup> and Pearl claims. Native gold, uncombined with tellurium, is associated with the bismuth telluride.

Hessite has been observed in polished sections of tetradymite from the Little Mildred claim<sup>12</sup> and the two tellurides are intergrown and contemporaneous with native gold.

Sylvania has been reported from the Sylvania district but specimens examined by the writer proved a mixture of tetradymite and native gold.

<sup>8</sup> Crawford, Wm. P., Weissite—A new mineral: *Am. Jour. Sci.*, vol. 13, pp. 345-346, 1927.

<sup>9</sup> Dunham, K. C., *op. cit.*, p. 160.

<sup>10</sup> Lindgren, Waldemar, Gratton, L. C., and Gordon, Chas. H., The ore deposits of New Mexico: *U. S. Geol. Survey, Prof. Paper* 68, pp. 341-343, 1910.

Short, M. N., and Henderson, E. P., Tetradymite from Hachita, N. M.: *Am. Mineral.*, vol. 11, pp. 316-317, 1926.

<sup>11</sup> Crawford, Wm. P., and Johnson, Frank, *personal notes*.

<sup>12</sup> Lasky, S. G., *oral communication*.

## SIERRA COUNTY

Small amounts of tetradymite and free gold were shown in vein material from a surface trench on the Copper Flat mining claims, Hillsboro mining district.<sup>13</sup>

Calaverite, petzite, and sylvanite were reported present in ores from the Lookout mine, Tierra Blanca district, but no investigation of the tellurides was made until 1931 when G. T. Harley collected a small suite of specimens from the Lookout. The only telluride identified by Mr. S. G. Lasky in this suite was hessite. Lasky found native gold, younger than the silver telluride, traversing the silver telluride in minute veinlets.<sup>14</sup> The gold was present in varying amounts and perhaps explains the gold-silver tellurides reported in the earlier mined ores. The deposit is exhausted.

## TAOS COUNTY

Petzite<sup>15</sup> has been reported from several mines in the Red River District. It is said to have been present in siliceous ore from the Sampson mine and in some of the ore from the Memphis mine. Quartz boulders containing a mixture of pyrite and a telluride were found in the Independence mine in 1904, and is the first reported occurrence of a tellurium mineral in New Mexico. "Qualitative tests showed the presence of tellurium but the telluride, small lustrous grains of dark-gray color, was so intimately associated with the pyrite that a separation for analysis was too difficult." A specimen from the original find is now in the possession of Mr. Wm. Earle and shows grains of native gold included in the telluride. The mineral in this hand specimen resembles petzite but as Mr. Earle was unwilling to sell or loan the specimen for polishing, microscopic examination was impossible. Most collectors of tellurides will have a kindred feeling for Mr. Earle.

## A NEW OCCURRENCE OF GYPSUM IN KENTUCKY

A. C. MUNYAN, *Lexington, Kentucky.*

Many small deposits of gypsum have long been known in Kentucky; some of the most notable being those found in the limestone caves of Edmonson County, and other caves of the western part of the State. Richardson<sup>1</sup> lists a few of the occurrences more widely known, such as

<sup>13</sup> Harley, Geo. T., The geology and ore deposits of Sierra County, N. M.: *N. M. Bur. of Mines and Min. Res., Bull.* 10, p. 164, 1934.

<sup>14</sup> Harley, G. T., *op. cit.*, p. 109.

<sup>15</sup> Lindgren, Graton, and Gordon, *op. cit.*, pp. 87-88.

<sup>1</sup> Richardson, C. H., Mineralogy of Kentucky: *Ky. Geol. Sur., Ser.* 6, pp. 85-87, 1925.