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Virginia T. McLemore

1988, pp. 199-201. https://doi.org/10.56577/FFC-39.199

in:

Cretaceous and Laramide Tectonic Evolution of Southwestern New Mexico, Mack, G. H.; Lawton, T. F.; Lucas, S. G.; [eds.], New Mexico Geological Society 39th Annual Fall Field Conference Guidebook, 216 p. https://doi.org/10.56577/FFC-39

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COPPER, GOLD, SILVER, LEAD AND ZINC PRODUCTION IN DOÑA ANA, SOUTHERN GRANT, HIDALGO AND LUNA COUNTIES, NEW MEXICO

VIRGINIA T. McLEMORE
New Mexico Bureau of Mines and Mineral Resources, Socorro, New Mexico 87801

Abstract—Copper, gold, silver, lead and zinc have been produced from 25 mining districts in Doña Ana, southern Grant, Hidalgo and Luna Counties since 1880. Seven types of base and precious metal deposits occur in these districts: placer, volcanic-epithermal, sedimentary-hydrothermal barite-fluorite-galena (copper/silver), carbonate-hosted lead-zinc, Laramide skarn, Laramide vein and Precambrian vein and replacement deposits. The Lordsburg district in Hidalgo County was the largest producing district with production amounting to more than $60 million; 229 million pounds of copper; 259,000 ounces of gold; 7.2 million ounces of silver; 11 million pounds of lead; and four million pounds of zinc were produced. Lead production from the Cooke's Peak district in Luna County amounted to over 50 million pounds. The mineral resource potential is high in these and other districts in southwestern New Mexico.

MINING DISTRICTS OF SOUTHWESTERN NEW MEXICO

Copper, gold, silver, lead and zinc have been important to the economy of Doña Ana, southern Grant, Hidalgo and Luna Counties, New Mexico since the mid-1880s. These metals are widely distributed in southwestern New Mexico in a variety of deposit types.

Known and estimated production of copper, gold, silver, lead and zinc is given by district in Table 1. Mining districts are shown in Figure 1. These data come from many sources of varying reliability. The best data are from the U.S. Geological Survey and U.S. Bureau of Mines mineral yearbooks, supplemented by various published and unpublished reports and miscellaneous file data.

Previous publications have incorrectly reported total production for various reasons. These have been resolved to the best of our ability at New Mexico Bureau of Mines and Mineral Resources; however, due to the chaotic nature of some records, we expect continuing updates and corrections as our work in specific districts continues.

Ore deposits in Doña Ana, southern Grant, Hidalgo and Luna Counties occur in seven distinct types (Table 2). It is beyond the scope of this paper to discuss this classification; however, the reader is referred to North and McLemore (1986, 1988).

The mineral resource potential for additional copper, gold, silver, lead and zinc deposits is excellent in several of these districts, particularly the Organ Mountains, Eureka, Lordsburg and Cooke's Peak districts. Future reports will address the geology and mineral resource potential of these and other areas in New Mexico.

ACKNOWLEDGMENTS

This article is part of several on-going projects at the New Mexico Bureau of Mines and Mineral Resources characterizing and delineating metalliferous deposits in New Mexico. Robert W. Eveleth is acknowledged for his review of this article. Numerous staff at NMBMMR assisted the author and colleague, Robert M. North, in formulating this classification and providing data on mineral deposits in New Mexico. Robert M. North and Shawn Leppert assisted in compiling the production statistics. Their help is greatly appreciated.

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TABLE 1. Copper, gold, silver, lead and zinc production in Doña Ana, southern Grant, Hidalgo and Luna Counties, New Mexico. Type of deposit described in Table 2. Estimated production is in parenthesis. +Statistics for specific mines listed under comments. —No data. Small—A minor amount of production, actual figures are not known. Some—Production figures are not known, but actual production could be thousands of pounds or ounces.

District	Period of production	Ore (short tons)	Copper (pounds)	Gold (troy ounces)	Silver (troy ounces)	Lead (pounds)	Zinc (pounds)	Type of deposit	References	Comments
Doña Ana County										
Black Mountain	1883-1900's	--	--	(600)	small	small	--	J,C	Dunham, 1935; North and McLemore, 1986	$12,000 of gold production from Mountain Chief mine
Doña Ana Mountains	early 1900's	--	small	(100)	(5,000)	--	--	B	North and McLemore, 1986	
Northern Franklin Mountains	1914	--	--	--	small	small	--	C	North and McLemore, 1986	
Organ Mountains	1902-1961 1849-1942 1904-1957	56,456 -- >67,204	1,531,820 (4,526,000) 3,037,100	947 (11,500) 1,130	437,437 (780,000) 756,819	-- 25,000,000 10,398,976	236,701 (1,000,000) 1,675,531	D	USBM files; Jones, 1965; North and McLemore, 1986; Seager, 1981; USBM Mineral Yearbooks	produced about $1.5 million (Eveleth, 1983)
Portrillo Mountains		--	some	--	some	some	--	C	North and McLemore, 1986	
San Andrecito	1920-1930	--	small	--	--	--	--	C	Anderson, 1957	<$10,000 produced
San Andres Canyon	early 1900's	--	some	--	--	some	--	C		

TABLE 1 (continued)

District	Period of production	Ore (short tons)	Copper (pounds)	Gold (troy ounces)	Silver (troy ounces)	Lead (pounds)	Zinc (pounds)	Type of deposit	References	Comments
Southern Grant County										
Eureka (Hachita)	1903-1957	83,605	488,261	1,062	445,877	W	W	E,A	USBM files; North and McLemore, 1986; USBM Mineral Yearbooks	
	1880-1957	--	--	(5,000)	(300,000)	--	--			
	1934-1957	38,807	27,000	90	103,226	1,713,300	15,850,000			
Gold Hill	1911-1941	5,686	6,845	1,620	W	W	--	I,A	USBM files; USBM Mineral Yearbooks; North and McLemore, 1986	
	1933-1940	1,074	3,010	493	2,888	15,400	--			
Hidalgo County										
Apache No. 2	1939-1956	807	32,400	41	7,082	111,600	14,300	D	USBM Mineral Yearbooks; North and McLemore, 1986	
		--	--	--	(125,000)	--	--			
Big Hatchet Mountains		--	--	--	small	small	small	D	North and McLemore, 1986	
Fremont		--	some	(10)	(10,000)	some	some	B	North and McLemore, 1986; USBM Mineral Yearbooks	
	1947-1951	279	400	3	377	20,500	--			
Gillespie	1908-1950	3,746	--	--	14,249	1,019,500		B	Elston, 1965; North and McLemore, 1986; USBM Mineral Yearbooks	
		--	--	--	(16,000)	--	--			
	1938-1950	2,254	2,700	5	7,453	274,700	--			
Granite Gap (San Simon)	1899-1926	(60,000)	some	(250)	(600,000)	19,200,000	--	D	Richter and Lawrence, 1983; USBM Mineral Yearbooks	1899-1926 estimate based on data in Richter and Lawrence (1983)
	1934-1955	16,906	20,400	303	91,652	1,606,750	652,200			
Kimball (Steins Pass)	1875-1950's	--	some	(1,500)	(400,000)	some	some	B	North and McLemore, 1986	
Lordsburg	1902-1961	3,994,911	195,236,059	237,809	6,740,691	11,016,062	4,198,783	F	USBM files; Richter and Lawrence, 1983; USBM Mineral Yearbooks	
	1885-1978	--	--	259,129	7,237,672	--	--			
	1904-1957	3,643,545	173,010,000	222,325	6,151,963	4,816,820	468,600			
McGhee Peak	+1894-1956	100,000	some	(100)	(200,000)	(12,000,000)	(10,000,000)	D	Richter and Lawrence, 1983	+Carbonate Hill mine produced over $1.5 million
Rincon (Animas)		--	some	some	(>10,000)	some	--	D	North and McLemore, 1986	
Silver T. P. (Bunk Robinson and Whitmore areas)	none	--	--	--	--	--	--	B	North and McLemore, 1986	
Sylvanite	1933-1957	5,982	101,500	1,978	27,483	78,650	--	E,A	North and McLemore, 1986; Johnson, 1972; USBM Mineral Yearbooks	
	1933-1953	--	--	(2,500)	(35,000)	--	--	E		
	1902-1942	--	--	109	--	--	--	A		
Luna County										
Carrizalillo			small	small	small	small	--	B	North and McLemore, 1986	
Cooke's Peak	1902-1947	25,148	14,607	43	65,820	7,704,409	5,787,302	D	Jica, 1954; Thompson, 1965; USBM Mineral Yearbooks	estimated $3 million produced 1880-1908; $1 million 1900-1947 (Griswold, 1961)
	1876-1965	--	--	--	--	(50,000,000)	--			
	1903-1956	25,331	22,607	672	60,984	7,820,409	6,469,642			
Florida Mountains	1880-1920	--	some	some	some	some	some	C	Griswold, 1961; USBM Mineral Yearbooks	
	1934-1956	116	2,485	<1	411	27,300	--			
		--	--	3	8,034	--	--			
Old Hadley	1880-1929	unknown	some	--	some	some	some	B	Jica, 1954; North McLemore, 1986	
		--	--	150	533	--	--			
Tres Hermanos	1915-1948	1,566	--	--	1,585	142,892	897,356	D	Griswold, 1961; USBM Mineral Yearbooks	Mahoney area produced $500,000 estimated
	1934-1951	570	550	7	3,804	90,000	55,000			
Victorio	1904-1957	30,741	32,271	2,477	186,882	6,232,492	52,465	D	Griswold, 1961; Tooker and Vercoutere, 1986; USBM Mineral Yearbooks	$1.5 million prior to 1904
	to 1959	--	--	(12,200)	--	--	--	D		

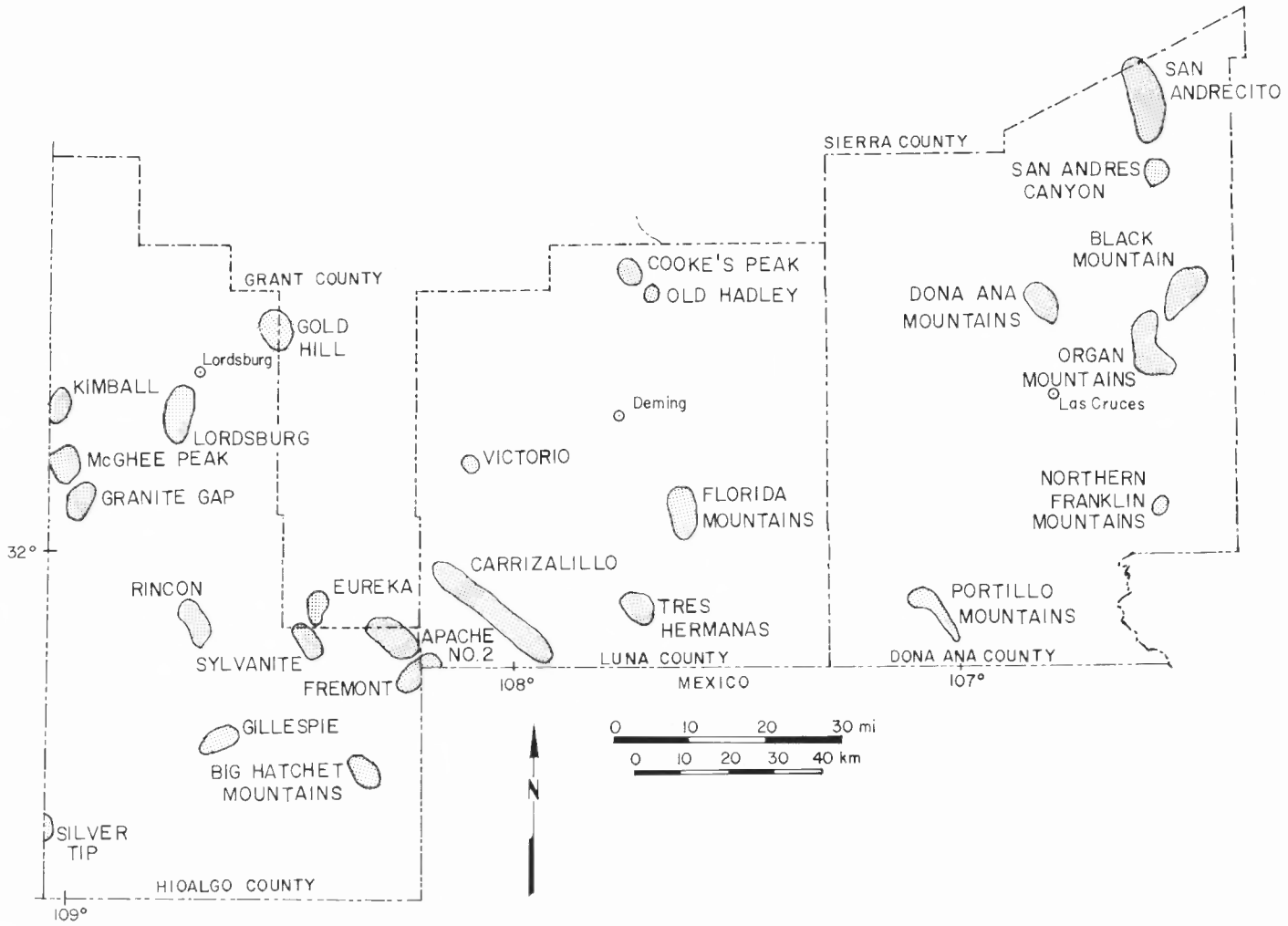


FIGURE 1. Copper, gold, silver, lead and zinc districts in Doña Ana, southern Grant, Hidalgo and Luna Counties, New Mexico.

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TABLE 2. Classification of copper, gold, silver, lead and zinc deposits of New Mexico (from North and McLemore, 1986, 1988).

A	Placer deposits (Tertiary-Quaternary)
B	Volcanic-epithermal deposits (Late Cretaceous-Pliocene)
C	Sedimentary-hydrothermal barite-fluorite-galena (copper/silver) deposits (early Tertiary?)
D	Carbonate-hosted lead-zinc (copper, silver) deposits (Eocene-Oligocene)
E	Laramide skarn deposits (Late Cretaceous-Eocene)
F	Laramide vein deposits (Late Cretaceous-Eocene)
G	Precambrian vein and replacement deposits (Proterozoic)

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Southern end of Little Hatchet Mountains, looking northeast from Hatchet Gap. View is N18°E. Low, small hill on right composed of Bliss Formation resting on Precambrian granite which forms the southern end of the Little Hatchet Mountains. The coarsely crystalline, porphyritic granite contains ovoid phenocrysts of orthoclase and microperthite in matrix of potassium and sodium feldspars, quartz and biotite with accessory apatite, zircon, sphene and magnetite (Lasky, 1947). Zeller (1965) reported Ph-alpha ages of 605 and 640 Ma on zircons from this granite. M. Shafiqullah (written commun. 1983) reported Rb/Sr ages of 1063 Ma on an aplite in the granite and 776 Ma on the granite. Rills and gullies on piedmont fans are accentuated by the low sun angle. In the foreground and middle distance the flat floor of Playas Valley is sparsely covered by a nearly pure stand of saltbush. Camera station is west of NM Highway 81 in the northeast part of T30S, R16W. Altitude about 1341 m. W. Lambert photograph No. 87L60. 25 July 1987, 7:40 p.m., MDT.