

G O L D A N D S I L V E R I N D U S T R Y

STATISTICS FOR 1966 COMPARED WITH OTHER YEARS

ARIZONA, UNITED STATES AND WORLD

COMPILED BY ARIZONA DEPARTMENT OF MINERAL RESOURCES

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GOLD 1966

"A 6-percent rise in United States gold production to the highest level since 1956 highlighted the domestic industry in 1966. This included a sharp increase in gold output at the Carlin mine in Nevada following its first full year of operation. Domestic consumption of gold in arts and industries increased 15 percent during the year, establishing an alltime record. This was more than three times domestic mine production. The outflow of gold from the United States during the year totaled \$571 million, about a third of the \$1,665 million loss in 1965. At yearend the total U. S. gold stock was \$13,235 million, the lowest level since August 1938. World gold production was up about 1 percent in 1966, the 13th consecutive annual gain and another alltime record. However, the rate of production increase in the Republic of South Africa, which accounts for about two-thirds of the world output, was only 1 percent compared with increases of 5 percent in 1965 and 6 percent in 1964. During 1966 most of the world's newly mined gold went into private holdings for industrial use, investment, or speculation. Virtually no gold went into monetary stocks. The International Gold Pool had to supply gold to meet private demands. Official monetary stocks reported by central banks and governments declined slightly to \$43,205 million as no additions appear to have been made."

"Output of gold from 46 lode and 1 placer deposit in Arizona totaled 143,000 troy ounces; 127,000 ounces, 89 percent, was recovered as a byproduct of copper refining; 14,000 ounces, 10 percent, from the smelting of lead-zinc ores; and the balance from gold, gold-silver, silver and other base metal ores, and miscellaneous lode material.

"Accounting for 61 percent of the total output, Phelps Dodge Corp. was the major producer. In its annual report the company stated that the combined output of byproduct gold at the Morenci, New Cornelia, and Copper Queen branches totaled 87,000 troy ounces.

"Magma Copper Co. the second largest gold producer in the State, accounted for 25 percent of the total output. According to its annual report, 35,200 troy ounces of gold was recovered from ores produced by the company at the Magma (12,800 ounces) and San Manuel (22,400 ounces) mines.

"Shattuck Denn Mining Corp., Iron King mines, the fourth largest producer of gold in the State was the largest producer of gold from lead-zinc ores." (1)

Of the twenty five leading gold-producing mines in the United States in 1966, listed by the U.S. Bureau of Mines in order of output, seven were in Arizona as listed below:

Rank	Mine	Operator	Source of Gold
8	Copper Queen Lavender Pit	Phelps Dodge Corporation	Copper Ore
9	New Cornelia	Phelps Dodge Corporation	Copper, gold-silver ores
12	San Manuel	Magma Copper Company	Copper ore
15	Iron King	Shattuck Denn Mining Corp.	Lead-zinc ore
16	Magma	Magma Copper Company	Copper, gold-silver ores
17	Morenci	Phelps Dodge Corporation	Copper, gold-silver ores
24	Christmas	Inspiration Cons. Copper	Copper ore

(1) U.S. Bureau of Mines Yearbook 1966

TABLE I

SALIENT UNITED STATES GOLD STATISTICS

		1957-61 (average)	1964	1965	1966
UNITED STATES:					
Mine Production	thousand troy ozs.	1,670	1,456	1,705	1,803
Value	thousands	\$58,456	\$50,971	\$59,682	\$63,119
Ore (dry and siliceous) produced:					
Gold ore	thousand short tons	2,277	2,631	3,113	3,447
Gold-silver ore	thousand short tons	191	224	206	248
Silver ore	thousand short tons	631	542	752	669
Percentage derived from:					
Dry and siliceous ores		47	54	54	58
Base-metal ores		35	37	40	37
Placers		18	9	6	5
Refinery production	thousand troy ozs.	1,688	1,469	1,675	1,802
Imports, general <u>1/</u>	thousand troy ozs.	7,049	1,169	2,905	1,200
Exports <u>1/</u>	thousand troy ozs.	5,587	12,078	36,717	13,067
Stocks Dec 31: Monetary <u>2/</u>	millions	\$19,539	\$15,471	\$13,806	\$13,235
Consumption in industry and the arts					
	thousand troy ozs.	2,316	4,801	5,276	6,062
Price: Average <u>3/</u>	per troy oz.	\$35.00	\$35.00	\$35.00	\$35.00
WORLD: Production	thousand troy ozs.	36,310	45,250	46,700	47,000

1/ Excludes coinage.2/ Includes gold in Exchange Stabilization Fund.3/ Price under authority of Gold Reserve Act of Jan. 31, 1934.

April, 1968

TABLE II

PRODUCTION OF GOLD IN 1964, 1965 and 1966, IN THE UNITED STATES

STATE	Troy Ounces			Refinery Production 1966
	MINE 1964	PRODUCTION 1965	1966	
Alaska	58,416	42,249	27,325	27,070
Arizona	153,676	150,431	142,528	140,000
California	71,028	62,885	64,764	64,600
Colorado	42,122	37,228	31,915	30,140
Idaho	5,677	5,078	5,056	4,170
Montana	29,115	22,772	25,009	29,000
Nevada	90,469	229,050	366,903	361,100
New Mexico	6,110	9,641	9,295	13,600
North Carolina	- - -	- - -	- - -	- - -
Oregon	661	499	281	170
Pennsylvania	Included with Washington			15
South Dakota	616,913	628,259	606,467	633,900
Tennessee	133	122	141	125
Utah	287,674	426,299	438,736	413,900
Washington	94,308	90,674	85,000	83,800
Wyoming	6	3		
TOTAL	1,456,308	1,705,190	1,803,420	1,801,600

Percent by type of mine production:-

Placers	6	5
Dry Ore	54	58
Copper Ore	33	30
Lead & Zinc Ores	0.5	0.3
Complex Base Metal Ores	6	6

April, 1968

TABLE III

WORLD PRODUCTION OF GOLD

1964, 1965 and 1966

	Troy Ounces		
	1964 ^{1/}	1965	1966 P
Republic of South Africa	29,111,524	30,553,874	30,879,700
Canada	3,799,278	3,587,168	3,273,905
United States	1,456,308	1,705,190	1,803,420
Australia	963,834	924,392	912,385
Ghana	864,917	755,191	684,395
Rhodesia	575,386	544,100	550,000
Philippines	425,770	435,545	452,672
Colombia	364,991	319,362	275,267
Republic of the Congo	138,693	90,408	158,632
Mexico	209,976	215,796	190,815
Japan	253,300	264,842	254,345
Brazil	142,492	161,044	207,565
India	148,504	130,628	120,244
Other Free Countries	1,875,027	1,762,460	1,646,655
TOTAL FREE WORLD (Estimated)	40,380,000	41,450,000	41,410,000
U.S.S.R. (Estimated)	4,650,000	5,030,000	5,370,000
North Korea & China	220,000	220,000	220,000
Yugoslavia	<u>2/</u>	<u>2/</u>	<u>2/</u>
TOTAL COMMUNIST CONTROLLED	4,870,000	5,250,000	5,590,000
TOTAL WORLD (Estimated)	45,250,000	46,700,000	47,000,000

^{1/} Data revised in U. S. Bureau of Mines 1966 Yearbook.^{2/} Yugoslavia now included in "Other Free Countries".

P Preliminary.

Source: U.S. Bureau of Mines

April, 1968

TABLE III A
WORLD GOLD PRODUCTION

Troy Ounces						
	1940 (1)	1945 (2)	1950 (3)	1960 (4)	1965 (5)	1966 P
Republic of So. Africa	14,096,502	12,224,629	11,663,713	21,383,019	30,553,874	30,879,800
Canada	5,311,145	2,707,494	4,441,227	4,628,911	3,587,168	3,273,905
United States (12)	4,862,979	(12) 915,403	(12) 2,288,708	(12) 1,679,800	(13) 1,705,190	(13) 1,803,420
Oceania (6)	2,266,641	880,540	1,128,672	1,237,389	1,078,427	1,062,323
Ghana (7)	886,326	539,252	689,441	893,113	755,191	684,395
Rhodesia	826,485	568,241	511,163	562,703	544,100 (e)	550,000
Philippines	1,140,126	17,208	333,991	410,618	435,545	452,672
Colombia	631,927	506,695	379,412	382,785	319,362	275,267
Republic of the Congo	555,404	346,971	339,415	14,145	90,408	158,632
Mexico	883,117	499,301	408,122	300,256	215,796	190,815
Japan (9)	900,000	123,410	135,180	261,496	264,842	254,345
Brazil	264,322	212,200	195,500	118,893	161,044	207,563
India	239,324	168,366	196,925	160,593	130,628	120,244
Other Free Countries	2,508,552	2,921,129	5,914,896	1,523,847	1,608,425	1,476,617
TOTAL FREE WORLD						
(Part Estimated)	35,422,850	22,635,839	28,626,365	33,557,568	41,450,000	41,410,000
U.S.S.R. (Estimated) (15)	5,100,000	(15) 3,200,000	(15) 3,600,000	4,100,000	5,030,000	5,370,000
North Korea (Chosen) (10)	947,279	(10) 96,452	200,000	160,000	160,000	160,000
China Mainland	578,188	- - -	108,000	50,000	60,000	60,000
Yugoslavia (11)	75,000	(11) 75,000	(14)	(14)		
Other Soviet Sphere	146,683	92,709	165,635	332,432		
TOTAL SOVIET SPHERE	6,847,150	3,464,161	4,073,635	4,642,432	5,250,000	5,590,000
TOTAL WORLD (Estimated)	42,270,000	26,100,000	32,700,000	38,200,000	46,700,000	47,000,000
Arizona Oz.	294,807	77,223	118,313	143,064	150,431	142,528

(1) From U.S.B.M. Minerals Yearbooks: (1) 1945 (2) 1950 (3) 1954 (4) 1964 (5) 1966
 (6) Australia, New Zealand & Mandated Islands (7) Formerly Gold Coast (8) Actual Production Data Not Available
 for all Countries Due to Clandestine Trade or Non-reporting. Estimates therefor are included in total.
 (9) Approximate Production (10) Includes S. Korea (11) Conjectural Figure (12) Refinery Production
 (13) Mine Production (14) Included in Free World (15) Adjustment in 1964 Yearbook. (P) Preliminary (e) Estimate.

April, 1968

TABLE IV

ARIZONA PRODUCTION OF GOLD AND SILVER IN 1966

By Class of Ore In Terms of Recoverable Metal

Source	Number of Mines <u>1/</u>	Material sold or treated (short tons)	Gold Troy Oz.	Silver Troy Oz.
Lode Ore:				
Dry Gold	2	21	<u>2/</u> 32	<u>2/</u> 35
Dry gold-silver	4	103,572	213	6,936
Dry silver	15	19,576	39	72,227
TOTAL	21	123,169	284	79,198
Copper	45	101,558,298	127,431	5,595,644
Copper-zinc and uranium <u>2/</u>	<u>3/</u> 4	<u>4/</u> 19,426	75	28,335
Lead	7	556	16	4,720
Lead-zinc	4	320,674	13,627	589,841
Zinc	2	1,623	4	4,812
TOTAL	61	101,900,577	141,153	6,223,352
Other 'lode' material:				
Gold tailings	1	5	2	- -
Gold-silver tailings and silver tailings <u>2/</u>	3	42,813	1,058	34,070
Copper Cleanup	<u>5/</u>	474	30	684
Copper precipitates	19	82,684	- -	- -
Lead assay office Cleanup	<u>5/</u>	2	- -	- -
Lead tailings	<u>2/</u>	1,350	1	1,392
TOTAL	25	127,328	1,091	36,146
Total 'lode' material	92	102,151,704	142,528	6,338,696
Placer	1	- - -	<u>2/</u>	<u>2/</u>
TOTAL ALL SOURCES	93	102,151,704	142,528	6,338,696

1/ Detail will not necessarily add to totals because some mines produce more than one class of material.

2/ Combined to avoid disclosing individual company confidential data.

3/ Copper-zinc mines only.

4/ Excludes uranium-ore tonnage.

5/ From properties not classed as mines.

Source: U.S. Bureau of Mines

April, 1968

S I L V E R

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"Domestic mine production of silver reached the highest level since 1942 and the United States became the world's leading silver-producing country in the world, exceeding Mexico for the first time in more than 50 years. Industrial consumption continued to expand for the third consecutive year reaching an alltime record. Coinage consumption dropped to one-sixth of the record high of 1965, following passage of the 1965 Coinage Act which changed the composition of subsidiary coinage. The outflow of silver from the Treasury in 1966, reduced the Treasury bullion stock 25 percent to 592 million ounces at yearend. The New York price of silver for prompt delivery remained unchanged at 129.3 cents per ounce, the third consecutive full year of price stability. The continued availability of silver from the Treasury stock was again the principal stabilizing factor in the market. In contrast to the stable New York price for prompt delivery, prices on the Commodity Exchange for future delivery were quoted at substantial premiums. Silver continued to dominate the Government program of financial aid administered by the Office of Minerals Exploration. Fifteen contracts were executed and 29 contracts were active or in force during the year. World silver production dropped slightly, notwithstanding significant gains in the principal North American countries and Australia which failed to offset sharp losses in Peru, Japan, Burma and Yugoslavia. Free world consumption of silver for industrial use increased moderately but coinage consumption dropped sharply from the alltime high of 1965, largely reflecting changes in U.S. demand."

"Arizona's silver production was 6.3 million troy ounces, a 4-percent increase. Of the total silver produced in 1966, 88 percent was recovered from copper ore mined at 22 properties in 7 counties, 9 percent from lead-zinc ores from mines in 2 counties, 1 percent from dry silver ores, and 2 percent from miscellaneous ores and material. The five leading silver-producing companies - Phelps Dodge Corp., Asarco, Magma Copper Co., Duval Corp., and Shattuck Denn Mining Corp. - accounted for 80 percent of the State total. In 1966, the ratio of silver to copper was about 8.2 ounces of silver for each ton of copper produced from copper ores, the same as that reported for the previous year."

Of the twenty five leading silver-producing mines in the United States in 1966, in order of output, eight were in Arizona as listed below:-

Rank	Mine	Operator	Source of Silver
11	Copper Queen, Lavender Pit	Phelps Dodge Corporation	Copper Ore
12	Mission	American Smelting & Refining Co.	Copper Ore
18	Morenci	Phelps Dodge Corporation	Copper,gold-silver ores
19	Iron King	Shattuck Denn Mining Co.	Lead-zinc ore
20	Mineral Park	Duval Corporation	Copper ore
21	Pima and Northeast	Pima Mining Co.	Copper ore
23	New Cornelia	Phelps Dodge Corporation	Copper,gold-silver ores
25	Magma	Magma Copper Co.	Copper,gold-silver ores

TABLE I

SALIENT SILVER STATISTICS

		1957-61 (average)	1964	1965	1966
United States:					
Mine Production	thousand troy ozs.	33,806	36,334	39,806	43,669
Value	thousands	\$30,731	\$46,980	\$51,469	\$56,463
Ore (dry & siliceous) produced:					
Gold ore	thousand short tons	2,277	2,631	3,113	2,580
Gold-silver ore	thousand short tons	191	224	205	248
Silver ore	thousand short tons	631	644	902	1,069
Percentage derived from					
Dry & Siliceous ores		39	32	35	33
Base-Metal ores		61	68	65	67
Imports, General <u>1/</u>	thousand troy ozs.	110,417	51,674	54,709	63,032
Refinery Production	thousand troy ozs.	34,044	37,000	39,000	48,358
Exports <u>1/</u>	thousand troy ozs.	17,727	109,395	39,665	85,538
Stocks Dec 31 Treasury	million troy ozs.	2,007	1,218	796	594
Consumption					
Industry and Arts <u>2/</u>	thousand troy ozs.	97,880	123,000	137,000	183,696
Coinage	thousand troy ozs.	46,700	203,000	320,321	53,852
Price <u>3/</u>	per troy oz.	\$ 0.908+	\$1.293+	\$1.293+	\$1.293+
WORLD:					
Production	thousand troy ozs.	234,140	246,600	254,200	253,100
Consumption <u>4/</u>					
Industry & the arts	thousand troy ozs.	216,020	290,900	333,600	390,200
Coinage	thousand troy ozs.	98,220	264,500	374,721	107,652

1/ Excludes coinage.2/ Source: U. S. Bureau of the Mint 1957-1965; U.S. Bureau of Mines 19663/ Treasury buying price for newly mined silver.4/ Free World only; Source: Handy and Harmon 1957-1965;
H & H and U.S. Bureau of Mines 1966.

Source: U. S. Bureau of Mines

April, 1968

TABLE II

MINE PRODUCTION OF RECOVERABLE SILVER IN THE UNITED STATES

State	By States		In Troy Ounces	
	1964	1965	1966	Refinery Production 1966
Alaska	7,336	7,673	7,193	7,100
Arizona	5,810,510	6,095,285	6,338,696	6,414,400
California . . .	171,621	196,787	189,989	182,400
Colorado	2,626,431	2,051,105	2,085,534	1,869,500
Idaho	16,483,495	18,456,809	19,776,785	18,950,000
Kentucky	1,673	1,931	1,086	1,140
Michigan	349,195	457,851	483,000	529,400
Missouri	- - -	299,522	- - -	50,180
Montana	5,289,959	5,207,031	5,319,785	5,000,000
Nevada	172,447	507,113	867,567	705,940
New Mexico . . .	242,405	287,472	242,620	300,000
New York	13,306	11,441	21,590	55,000
North Carolina .	- - -	- - -	- - -	- - -
Oregon	14,372	8,801	343	1,970
Pennsylvania . .	<u>1/</u>	<u>1/</u>	- - -	- - -
South Dakota . .	132,981	128,971	109,385	109,900
Tennessee	90,539	94,142	100,716	97,200
Utah	4,551,960	5,635,570	7,755,411	7,842,000
Washington . . .	375,603	358,477		345,700
Wyoming	28	52		30
Other States . .			368,788	38,140
TOTAL	36,333,861	39,806,033	43,668,988	<u>2/</u> 42,500,000

1/ Combined with Washington in 1963 and 1964, and with Oklahoma and Washington in 1965.

2/ Includes refinery production from Illinois 12,890; So. Carolina, less than 1; Texas, 1,620; Wisconsin 23,630.

April, 1968

TABLE III

WORLD PRODUCTION OF SILVER, BY COUNTRIESIn Thousand Troy Ounces

	1964	1965	1966
Mexico	41,716	40,332	41,984
United States	36,334	39,806	43,669
Canada	29,902	32,272	33,342
Peru	37,043	36,470	32,841
Australia	18,452	17,312	18,278
Japan	8,715	8,989	3,578
Republic of the Congo	1,480	1,538	1,851
Republic of South Africa	2,917	3,132	3,134
Other Free Countries	29,825	40,980	41,054
Total Free World	206,384	220,831	219,731
Total Communist Sphere	40,016	33,369	33,369
TOTAL WORLD	246,400	254,200	253,100

TABLE IV

SILVER CONSUMPTION IN INDUSTRY AND THE ARTSIN THE UNITED STATES(Thousand Troy Ounces)

Year	Issued for Industrial Use	Returned from Industrial Use 1/	Net Industrial Con- sumption
1956-60 (average)	135,847	39,067	96,780
1961	155,812	50,312	105,500
1962	180,812	70,412	110,400
1963	204,490	94,490	110,000
1964	196,600	76,100	r 123,000
1965	198,000	61,000	137,000
1966	237,548	53,852	183,696

r Revised

1/ Includes secondary materials (scrap) received by U.S. Mints and Assay Offices and by private refiners and dealers.

April, 1968

CONSUMPTION AND USES

Following is a Table showing number of troy ounces issued for industrial use, amount returned from industrial use, and the net industrial consumption for the years 1957-1966.

TABLE V

(Thousand Troy Ounces)			
YEAR	Issued for Industrial Use	Returned from Industrial Use	Net Industrial Consumption
1957-61 (average)	3,126	810	2,316
1962	4,486	910	3,576
1963	4,252	1,332	2,920
1964	5,887	1,036	4,851
1965	6,551	1,275	5,276
1966	7,774	1,712	6,062

TABLE VI

GOLD MONETARY STOCKS (In billions of dollars)

Years	U. S. Monetary Stocks	U.S. % of World	World Official Reserves ^{1/}
End of 1950	\$ 22.7	63.4%	\$ 35.8
" " 1951	22.7	63.15%	35.95
" " 1952	23.2	64.1 %	36.2
" " 1953	22.0	60.3 %	36.2
" " 1954	21.7	58.1 %	37.35
" " 1955	21.7	58.4 %	37.15
" " 1956	21.9	58.1 %	37.7
" " 1957	22.85	58.7 %	38.9
" " 1958	20.6	51.6 %	39.9
" " 1959	19.5	48.0 %	40.6
" " 1960	17.8	44.0 %	40.5
" " 1961	16.9	41.1 %	41.1
" " 1962	16.1	38.7 %	41.4
" " 1963	15.6	36.9 %	42.3
" " 1964	15.5	35.9 %	43.1
" " 1965	13.806	31.38%	43.300
" " 1966	13.235	30.63%	43.205

^{1/} Held by free World banks and governments

April, 1968

TABLE VII

TREASURY SILVER

Million Troy Ounces					
	Dec.31 1951	Dec. 31 1963	Dec.31 1964	Dec.31 1965	Dec.31 1966
 Held in Treasury					
Securing Silver Certificates:					
Silver Bullion	1,603.7	1,557.7	1,208.0	793.8	591.1
Silver Dollars	232.8	22.1	2.3	2.3	2.3
Subsidiary Coin	1.2	2.7	3.4	(a)	(a)
Free Silver Bullion	124.5				
Total Treasury Stocks	1,962.2	1,582.5 (b)	1,213.7	796.1	594.2
Outside the Treasury					
Silver Dollars	148.0	352.9	372.6	372.6	372.6
Subsidiary Coin	783.5	1,365.2	1,563.4 (c)	1,383.0(c)	1,911.0
Total Silver Outside Treasury	931.5	1,718.1	1,936.0	2,255.6	2,283.6
TOTAL SILVER	2,893.7	3,300.6	3,149.7	3,051.7	2,877.8

(a) No Breakdown is available between silver and nonsilver coins.

(b) Excludes silver, in subsidiary coin.

(c) Estimated - Treasury data do not separate silver and nonsilver coins.

E. & M. J. New York Market Price of Silver in Cents per Troy Ounce.				
			1963 Avg.	1966 Avg.
1955	89.099	January	124.382	129.3
1956	90.826	February	125.644	129.3
1957	90.820	March	127.138	129.3
1958	89.044	April	127.290	129.3
1959	91.202	May	127.873	129.3
1960	91.375	June	127.685	129.3
1961	92.449	July	128.991	129.3
1962	108.375	August	128.782	129.3
1963	127.912	September	129.260	129.3
1964	129.300	October	129.300	129.3
1965	129.300	November	129.300	129.3
1966	129.300	December	129.300	129.3

April, 1968