

THE GOLD AND SILVER INDUSTRIES  
IN THE WORLD, UNITED STATES  
AND ARIZONA

SALIENT STATISTICS  
YEAR 1965

Compiled By

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SOURCES

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## THE GOLD INDUSTRY

### G O L D

By J. Patrick Ryan Commodity Specialist, Division of Minerals, U. S. B. M.

The inauguration of the Carlin mine and a rise in gold production to the highest level since 1960 were salient features of the domestic gold-mining industry in 1965. The production gain was the second consecutive annual increase in gold output. World gold production increased for the 12th consecutive year, again establishing an alltime record.

The gain in U.S. gold production came chiefly from new production at the Carlin gold mine in Nevada and from increased output of gold-bearing copper ore at the Utah Copper mine in Utah which more than offset production losses in most other gold-producing States. As in several preceding years, the gain in world output of gold was attributed almost entirely to increased production from South African gold mines which contributed 64 percent of the estimated world gold production.

Consumption of gold in domestic arts and industries again increased reaching an alltime record, more than three times domestic mine production.

A sharp rise in the outflow of gold reduced the U.S. gold stock to \$13,806 million at yearend, the lowest level since 1938. The estimated free world official gold reserve was about \$43,310 million at yearend, a gain of \$250 million for the year.

### LEGISLATION AND GOVERNMENT PROGRAMS

Two groups of bills to aid the domestic gold-mining industry through the establishment of premium prices or cost differential payments were introduced in the 89th Congress, 1st Session. The first group includes H.R. 6505, H.R. 799, H.R. 10681, H.R. 5272, and S. 1377 which were similar to H.R. 9756 and S.2125 introduced in the 88th Congress on which Executive agencies issued unfavorable reports. Essentially, these bills would direct the Secretary of the Interior to compensate eligible gold producers for the difference between production costs in the fourth quarter of 1939 and costs in the fourth quarter of 1963.

The second group of proposed bills which includes S. 2562, H.R. 10924, H.R. 10925, H.R. 11667, and H.R. 11081 would provide financial assistance to eligible gold producers at an annual rate of 5 to 6 percent per year of the value of gold produced with provision for annual increases tied to the Consumer Price Index.

A bill (H.R. 6542) was introduced to establish a gold procurement and sales agency in the Department of the Interior which would buy gold from domestic producers and sell it for nonmonetary use at a price determined by the Secretary of the Interior but not to exceed \$105 per ounce. This bill was referred to the Committee on Interior and Insular Affairs. Another bill (H.R. 6504) to permit free marketing of gold and pay a subsidy of \$35 per fine ounce for all domestically mined gold was introduced and referred to the Committee on Banking and Currency. A resolution (S. Res. 83) introduced and referred to the Committee on Interior and Insular Affairs would establish a Senate Committee to study the gold-mining situation and recommend appropriate legislation.

A bill (H.R. 3818) to eliminate the requirement that Federal Reserve banks maintain reserves of gold against deposit liabilities became Public Law 89-3. Another bill (S. 2596), to increase the percentage depletion allowance for gold and silver from 15 to 23 percent with an increase in net income limitations from 50 - 75 percent, was introduced and referred to the Committee on Finance.

The Treasury Department amended part 54 of the Gold Regulations by placing additional restrictions on the use of gold in the arts and industry and redefining certain illegal uses. Paragraph 14 redefined "customary" use of gold to prohibit the plating of any coins, the manufacture of gold medals except special award medals, and the acquisition, holding, transportation, importation, or exportation of goldplated coins or medals, except special awards. A supplementary amendment permitted trading in gold bars having recognized numismatic value.

The Legal and Monetary Affairs Sub-committee of the Committee on Government Operations, House of Representatives, surveyed the gold situation and published a report thereon in July. Data relating to the Nation's gold stock, price and proposed plans for monetary reform were reviewed, but no specific recommendations were made.

With reference to the dollar-gold relationship, President Johnson stated in his Economic Report to the Congress in January 1965:

. . . The stability of the American dollar is central not only to progress at home but to all our objectives abroad. There can be no question of our capacity and determination to maintain the gold value of the dollar at \$35 an ounce. The full resources of this Nation are pledged to that end. . .

. . . Clearly, we should place beyond any doubt our ability to use our gold to make good our pledge to maintain the gold value of the dollar at \$35 an ounce with every resource at our command. I am requesting the Congress, therefore, to eliminate the requirement that the Federal Reserve banks maintain a gold certificate reserve against their deposit liabilities.

Four contracts aggregating \$246,890 were executed during the year for gold exploration under the Government program of financial assistance, administered by the Office of Minerals Exploration, U. S. Geological Survey. The Government share of the exploration cost was 50 percent or \$123,445.

## DOMESTIC PRODUCTION

A 17-percent gain in U. S. gold production resulted chiefly from sharp increases in gold output in Utah and Nevada. These gains, combined with small increases in South Dakota and New Mexico, more than offset production losses in other gold-producing States. Notwithstanding the overall gain in domestic gold output, increasing production costs in relation to the fixed price of gold continued to have an unfavorable effect on gold-mining operations. The rise in labor and supply costs was offset to some extent by improved operating techniques and by treating higher grade ore, but depletion of minable reserves forced some mines to close.

The Homestake Mining Co. reported a new high in the quantity of gold produced at its Lead, S. Dak., operations, but a decline in profits from gold mining. Value of recovered bullion increased \$400,000 to \$22.1 million. Ore milled dropped slightly to 2.03 million tons but average recovered grade was up slightly to \$10.88 per ton. Metallurgical recovery was 95.7 percent compared with 96.24 percent in 1964. Measured ore reserves at yearend totaled 16.4 million tons averaging 0.315 ounces (\$11.01) of gold per ton, compared with 16.8 million tons of the same grade at the end of 1964. Nearly 1,900 persons were employed at the mine.

The 48-percent gain in Utah's gold production was largely due to a sharp rise in output and increased yield per ton of gold-bearing copper ore at the Utah Copper mine of Kennecott Copper Corp. Production at that mine was below normal in 1964 because of a 2-month shutdown due to a labor strike. An increase of more than 150 percent in Nevada's output was attributed principally to commencement of productive operations by Carlin Gold Mining Co., a subsidiary of Newmont Mining Corp., at its new Carlin mine.

During 9 months of operation at the Carlin mine, 128,500 ounces of gold was produced from 497,000 tons of ore. Average grade of ore milled was 0.28 ounce of gold per ton. The estimated ore reserve was 11 million tons averaging 0.32 ounce per ton. The presently proven Carlin ore body is about 7,500 feet long, dips about 35 degrees and varies in thickness from 25 to 150 feet. The overburden stripping ratio was about 3 : 1. The Carlin mine, when operating at capacity, will rank second to Homestake in gold output.

The Montana output of gold, mostly a byproduct of base-metal operations, dropped 22 percent despite significant increases in copper, lead, and zinc production.

Gold output in Alaska continued to decline, and in 1965 it was down more than 28 percent to the lowest level since 1894. The large dredging operation of New York-Alaska Gold Dredging Corp. at Nyac shut down. United States Smelting, Refining and Mining Co., the largest producer, operated dredges at Hogatza and at Chicken Creek. During part of 1964, the company also operated a dredge at Fairbanks.

Approximately 3,900 persons were employed in the gold-mining industry.

South Dakota and Utah furnished 62 percent of the total domestic gold production. Including Nevada, the three States contributed more than three-fourths of the total output. The Homestake mine, the Nation's leading gold producer, accounted for 37 percent of the total.

The 25 leading U. S. gold producers contributing 97 percent of the total domestic output included 7 lode mines, 3 placer mines, 10 copper mines, 2 copper-lead-zinc mines and 3 lead-zinc mines.

TABLE I

SALIENT GOLD STATISTICS

		1955-60 1956 (average)	1963	1964	1965
UNITED STATES:					
Mine production	thousand troy ozs.	1,726	1,454	1,456	1,705
Value	thousands	\$60,408	\$50,889	\$50,971	\$59,682
Ore (dry and siliceous) produced:					
Gold Ore	thousand short tons	2,316	2,459	2,631	3,113
Gold-silver ore	thousand short tons	190	223	224	206
Silver ore	thousand short tons	655	556	542	752
Percentage derived from:					
Dry and siliceous ores		46	51	54	54
Base-metal ores		35	36	37	40
Placers		19	13	9	6
Refinery production	thousand troy ozs.	1,748	1,469	1,469	1,675
Imports, general <u>1/</u>	thousand troy ozs.	7,472	1,281	1,169	2,905
Exports <u>1/</u>	thousand troy ozs.	1,305	5,820	12,078	36,717
Stocks Dec 31: Monetary <u>2/</u> millions		\$20,540	\$15,596	\$15,471	\$13,806
Consumption in industry and the arts					
	thousand troy ozs.	2,041	2,920	4,801	5,276
Price: Average <u>3/</u>	per troy oz.	\$35.00	\$35.00	\$35.00	\$35.00
World: Production	thousand troy ozs.	39,860	44,250	46,100	47,700

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

TABLE II

PRODUCTION OF GOLD IN 1963, 1964 and 1965 IN THE UNITED STATES

Troy Ounces

STATE	MINE PRODUCTION			Refinery Production 1965
	1963	1964	1965	
Alaska	99,573	58,416	42,249	42,720
Arizona	140,030	153,676	150,566	154,000
California	86,867	71,028	62,885	61,400
Colorado	33,605	42,122	37,228	38,500
Idaho	5,477	5,677	5,078	4,500
Montana	18,520	29,115	22,772	25,720
Nevada	98,879	90,469	229,050	205,200
New Mexico	7,805	6,110	9,506	9,640
North Carolina	33	- - -	- - -	- - -
Oregon	1,809	661	499	320
Pennsylvania		Included with Washington		30
South Dakota	576,726	616,913	628,259	656,500
Tennessee	137	133	122	160
Utah	285,907	287,674	426,299	388,800
Washington	98,638	94,308	90,674	88,000
Wyoming	4	6	3	10
TOTAL	1,454,010	1,456,308	1,705,190	1,675,500

1965: Percent by type of mine production:-  
 Placers 6%  
 Dry Ore 54%  
 Copper Ore 33%  
 Lead & Zinc Ores - Less than 0.5%  
 Complex Base Metal Ores 6%



## CONSUMPTION AND USES

A chapter on consumption and uses in Industry and Arts may be found in the 1965 Minerals Yearbook to be published in 1967.

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 1960-1965.

TABLE III

(Thousand Troy Ounces)

YEAR	Issued for Industrial Use	Returned from Industrial Use	Net Industrial Consumption
1956-60 (average)	2,781	740	2,041
1961	3,913	1,138	2,775
1962	4,486	910	3,576
1963	4,252	1,332	2,920
1964	5,887	1,086	4,801
1965	6,551	1,275	5,276

## MONETARY STOCKS

The total U. S. gold stock dropped \$1,665 million in 1965 and stood at \$13,806 million at yearend, the lowest level since September 1938. The 1965 gold outflow, the largest since 1960, was closely allied to the continued balance-of-payments deficit and reflected a stepped-up rate of conversion of dollars to gold by Western European countries, particularly France, which received more than half of the total outflow; \$259 million represented a payment of 25 percent of the U. S. quota increase to the International Monetary Fund.

Congressional approval of the President's proposal to exclude Federal Reserve deposit liabilities from the 25-percent gold reserve requirement freed nearly \$5 billion in gold to accommodate money and credit needs of the expending economy. This action also provided reassurance to foreign governments that the United States would continue to supply gold to them at the established price of \$35 per ounce.

The ratio of gold reserves to Federal Reserve note liability was 35.4 percent at yearend against 25 percent to be held as backing for the dollar.

Continued



MONETARY STOCKS (Continued)

Gold reserves of free world central banks and governments and international banking institutions at yearend were estimated at \$43,300 million, compared with \$43,060 million at the end of 1964. Free world central bank reserves showed little gain during the year because most of the \$1.7 billion of newly mined gold apparently went into private stocks and industrial use. Strong private demand in late 1964 and early 1965 reflected the effect of the sterling crisis, President de Gaulle's call for a return to the gold standard, and the French decision to convert accumulated dollar credits into gold. Concern about the future of the international monetary system and international liquidity also were factors contributing to the strong private demand for gold.

The U. S. reserve of \$13,806 million constituted about 32 percent of the total official free world gold reserves. Gold reserves of other principal free world countries, in million dollars, were as follows: France, 4,706; West Germany 4,410; Switzerland, 3,042; Italy, 2,404; Netherlands, 1,756; Belgium, 1,558; and Canada, 1,151. The International Monetary Fund reported gold reserves of \$1,869 million.

U. S. short-term liabilities to foreign interests, payable in dollars, increased \$38 million to \$25,444 million at yearend. These liabilities constitute a potential claim on the U. S. gold reserve. Nearly one-half of the total short-term liabilities was payable to West European countries and Canada.

TABLE IV

GOLD MONETARY STOCKS

(In billions of dollars)

	U. S. Monetary Stocks	U. S. % of World	World Monetary Stocks 1/ Estimated by Federal Reserve 2/
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	60.8 %	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 43.015
" " 1965 . . . . .	13.8	31.9 %	43.3 43.230
1966	13.238	30.63	43.205

1/ Excluding Russia; but includes International Monetary Fund.

2/ Total World gold reserves are not positively known, since some countries do not report.

## P R I C E S

Under authority of the Gold Reserve Act of 1934, the Treasury Department, through the Bureau of the Mint and licensed refiners and dealers, continued to buy virtually all newly mined gold from domestic mines and gold offered by foreign banks and agencies at the official price of \$35 per troy ounce less charges for handling, melting and refining. Similarly, gold was sold by the Treasury and licensed dealers for industrial and artistic use at a base price of \$35 per ounce.

Following the pattern of recent years, average price quotations on gold bars in markets outside of London were moderately higher than in the London market, except in the Bombay market where trading was in currencies, not readily convertible, which reflected local political conditions and monetary habits. Average prices per ounce in U. S. dollars were as follows:

<u>Market:</u>	<u>Price</u>	<u>Market</u>	<u>Price</u>
Manila . . . . .	\$ 35.59	Beirut . . . . .	\$35.29
Hong Kong . . . . .	39.35	Paris . . . . .	35.38
Bombay . . . . .	58.58	Buenos Aires . . . . .	37.55

With regard to the official price of gold, Secretary Dillon, in an address to the House Committee on Banking and Currency on February 1, stated:

. . . Gold will continue to be made freely available, at the fixed price of \$35 per ounce, to meet the legitimate demands of foreign monetary authorities - a policy that is the basic foundation of the international monetary system . . .

## FOREIGN TRADE

A chapter on Foreign Trade will be found in the 1965 Mineral Yearbook to be published early in 1967.

TABLE V

## WORLD PRODUCTION OF GOLD

1940, 1964 and 1965

Source: U.S.B.M. Unit: Troy Ounces

	1940	1964 <u>2/</u>	1965 <u>P/</u>
Union of South Africa . .	14,037,741	29,111,524	30,553,874
Canada . . . . .	5,311,145	3,799,278	3,587,168
United States . . . . .	* 4,862,979	1,456,308	1,705,190
Australia . . . . .	1,191,481	965,113	877,139
Ghana . . . . .	- - -	864,917	755,191
Southern Rhodesia . . . .	826,485	575,386	544,100
Philippines . . . . .	1,140,126	425,770	435,545
Colombia . . . . .	631,927	364,991	319,362
Belgian Congo . . . . .	618,565	188,693	66,327
Mexico . . . . .	883,117	209,976	215,796
Japan . . . . .	1/	253,300	264,408
Brazil . . . . .	318,935	142,492	161,044
India . . . . .	289,357	148,504	130,628
Other Free Countries. . .	6,983,142	1,666,975	1,651,728
TOTAL FREE WORLD (Estimated)	37,095,000	40,173,227	41,267,500
U.S.S.R. (Estimated)	5,100,000 <u>2/</u>	5,600,000	6,100,000
North Korea & China	- - -	220,000	220,000
Yugoslavia	75,000	106,773	112,500
TOTAL COMMUNIST CONTROLLED	5,175,000 <u>2/</u>	5,926,773	6,432,500
TOTAL WORLD (Estimated)	42,270,000	46,100,300	47,700,000

\* Refined production.

P Preliminary

1/ Data not available. Estimated.2/ Data revised in U.S.B.M.'s 1965 Preprint.

# ARIZONA PRODUCTION OF GOLD AND SILVER IN 1965

By Class of Ore In Terms of Recoverable Metal

Source	Number of Mines 1/	Material sold or treated (short tons)	Gold (troy Ozs.)	Silver (troy ozs.)
LODE ORE:				
Dry Gold . . . .	3	96	39	85
Dry Gold-silver. . . .	6	114,793	428	9,519
Dry Silver . . . .	17	23,847	24	31,348
TOTAL	26	138,736	491	40,952
Copper . . . .	40	92,859,535	133,830	5,352,850
Copper-zinc . . . .	4	85,172	87	21,602
Lead . . . .	7	1,403	30	2,812
Lead-zinc . . . .	4	336,557	15,402	624,807
Zinc . . . .	1	2,763	- -	8,828
TOTAL	56	93,285,430	149,349	6,010,899
OTHER LODE MATERIAL:				
Gold tailings . . . .	1	19	8	2
Gold-silver Tailings and Silver Tailings 2/. . . .	4	29,815	529	15,213
Copper Cleanup and copper Smelter Cleanup 2/. . . .	(3/)	807	43	1,061
Copper Precipitates. . . .	19	63,159	- -	- - -
Lead Cleanup . . . .	(3/)	2	- -	- - -
Lead Tailings . . . .	2	11,200	1	946
Lead-zinc mill cleanup . . . .	(3/)	4/ 72	4/ 2	4/26,174
Zinc Mill cleanup. . . .	(3/)	(4/)	(4/)	(4/)
Uranium Ore . . . .	-	- - -	- - -	(4/)
TOTAL	26	105,074	583	43,396
TOTAL "LODE" MATERIAL	92	93,529,240	150,423	6,095,247
Placer . . . .	2	- - -	8	1
TOTAL ALL SOURCES. . . .	94	93,529,240	150,431	6,095,248

- 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/ From properties not classed as mines.
- 4/ Gold mill cleanup, silver cleanup, uranium ore combined to avoid disclosing individual company confidential data.

## THE SILVER INDUSTRY

### S I L V E R

Source: J. Patrick Ryan, Commodity Specialist, Division of Minerals U.S.B.M.

The salient event of the year in silver was the enactment of the new U.S. coinage law which completely changed the composition of subsidiary coins. Substantial increases in domestic mine production and in industrial and coinage consumption of silver also highlighted the year.

Domestic mine production rose to its highest level since 1950; industrial consumption was the greatest since World War II; and the coinage consumption reached an alltime high. The U.S. Treasury's silver stock continued its sharp decline. The U. S. silver trade returned to a more normal net import pattern. The worldwide imbalance between new production and consumption continued to increase and prompted increased trading on the Commodity Exchange, although the price range was about the same as in 1964. The New York market price for prompt delivery remained unchanged for the second consecutive year.

Outside the United States the overall production of silver increased slightly. Consumption in the arts and industries was about 15 percent higher, but consumption for coinage dropped 11 percent.

### LEGISLATION AND GOVERNMENT PROGRAMS

The Treasury Department completed a 2-year study of silver supply and demand and coinage problems as a basis for developing policies to insure the adequacy of United States coinage. New coinage recommendations contained in legislative proposals sent to Congress were based on the fundamental conclusion that the U.S. silver supply and production situation, and outlook did not warrant continued large-scale use of silver in the U.S. coinage. Cupro-nickel, modified for accommodation by vending machines, was judged the best material for subsidiary coins.

Following extensive hearings in the House and Senate, The Coinage Act of 1965 was passed and became law on July 23, 1965. The principal provisions of the Act are as follows:

1. It provides for a new half-dollar composed of an outer layer containing 80-percent silver and 20-percent copper clad on a core containing approximately 21.5-percent silver and 78.5-percent copper. The coin as a whole contains 40-percent silver compared with 90-percent silver in old type half dollars.
2. It provides for new silverless quarters and dimes, composed of an alloy of 75-percent copper and 25-percent nickel clad on a core of pure copper. Formerly these coins, like the half-dollar, contained 90-percent silver.
3. The silver dollar will remain unchanged, but none shall be minted for 5 years from the date of the Act.



4. The Treasury shall buy newly mined domestic silver, if offered, at \$1.25 an ounce.

5. The Secretary of the Treasury is authorized at his discretion to prohibit the export or melting of any coin of the United States.

6. The President is authorized to establish a Joint Commission on the Coinage to study the progress made in introducing the new coins and to review and make recommendations on all aspects of the coinage system.

7. The Secretary of the Treasury is authorized to sell silver not needed to back silver certificates at not less than the monetary value of \$1.29+ an ounce.

In June the Office of Emergency Planning established a stockpile objective of 165 million ounces of silver earmarked from the Treasury stock.

Nine contracts totaling \$535,120 were executed during the year under the Government program of financial assistance administered by the Office of Minerals Exploration (OME). The Government share of the exploration cost was 75 percent.

#### DOMESTIC PRODUCTION

Output of recoverable silver from mines in the United States increased 3.5 million ounces over that of 1964. Production gains in Arizona, Idaho, Utah, and Nevada more than offset losses in Colorado and Montana. A 12-percent gain brought Idaho's silver output to the highest level since 1938; it reflected uninterrupted operations and increased production at the Sunshine mine. Similarly, a 24-percent increase in Utah's output of silver was attributed principally to the uninterrupted production of silver-bearing copper ore by the Utah Copper Division of Kennecott Copper Corp. Shutdowns owing to labor strikes had reduced output from these mines in 1964. A 2-percent falloff in silver production in Montana resulted from reduced output of byproduct silver from Butte copper mines and from operations in Phillips and Beaverhead Counties.

Idaho, the leading silver-producing State, contributed 46 percent of the total domestic silver output.

Continuing the pattern of recent years, approximately two-thirds of the total domestic silver output was recovered as a byproduct or coproduct of ores mined chiefly for copper, lead, zinc, and gold. Virtually all of the remainder came from ores in which silver was the principal product. Of the leading 25 silver-producing mines, only 4 in Idaho depended chiefly on the value of silver in the ore. Nine mines produced over 1 million ounces each, and supplied 61 percent of the total domestic output; the 25 leading mines supplied 84 percent. Domestic mines contributed 29 percent of the silver used in the Nation's arts and industries.

Exploration and development intensified, especially in Idaho, Nevada, Colorado, and Utah. In the Coeur d'Alene region, The Bunker Hill Co. reported significant ore intersections of the 3,300-foot level of the Crescent mine. Hecla Mining Co. reported new ore exposures on the 3,600-foot level of the Silver Summit mine. American Smelting and Refining Company began sinking to explore deep ore bodies on the Rainbow and Coeur d'Alene mines' properties. Hecla Mining Co. also reported significant new ore development on the 2,200-foot level of the Mayflower mine in the Park City District, Utah.

The Sunshine mine, the Nation's leading silver producer, substantially increased production in 1965. Recovery increased from 4.63 million ounces in 1964 to 6.44 million ounces in 1965. The quantity of ore milled increased 22 percent over 1964, and average-grade of ore increased from 36 to 38.7 ounces per ton. According to a company letter of June 9, 1966, discovery of new ore and extensions of productive ore shoots on deep levels increased ore reserves to 745,330 tons at the end of 1965 as compared with 424,900 tons at the end of 1964.

At the Lucky Friday mine of the Hecla Mining Co. 181,100 tons of ore was treated averaging 17.8 ounces of silver per ton, 11.3 percent lead, and 1.0 percent zinc. The ore reserve at yearend was 607,000 tons compared with 671,000 tons at the end of 1964

#### CONSUMPTION AND USES

Net consumption of silver in the arts and industries was 137 million ounces, 11 percent more than in 1964, according to data compiled by the Bureau of the Mint. This was the highest consumption since the end of World War II. Imports and Mine production furnished about two-thirds of domestic industrial requirements; the Treasury silver stock supplied most of the remainder.

Industrial silver consumption continued to increase, especially for sterling silverware and electrical and electronic products. Detailed data on end-use consumption were incomplete, but it was estimated that the manufacture of photographic materials and electrical and electronic products accounted for over half of the total silver used. The silverware industry consumed about one-quarter, and a large part of the remainder was used in fabricating brazing alloys and jewelry.

The quantity of silver used in minting U.S. subsidiary silver coins increased 117.3 million ounces to 320.3 million ounces, an alltime high. U.S. coinage requirements constituted 85 percent of the total silver used in free world coinage. The 1965 gain was the seventh consecutive annual increase and, as in 1964, was due essentially to growth in the use of coin-operated vending and metering machines and to withdrawals of coins from circulation by collectors and speculators.

The consumption and uses of silver will be discussed in the Silver Chapter to be issued shortly in the 1965 Issue of the Minerals Yearbook.

#### WORLD REVIEW

World silver output was estimated at 251.0 million ounces, about 4.6 million ounces more than in 1964. Production gains in the United States, Canada, Japan and Sweden more than offset declines in the silver production in Mexico, Peru and Australia. Western Hemisphere countries, Mexico, Peru, United States, and Canada contributed about 59 percent of the world output.

Consumption of silver in the arts and industries and in the coinage of the free world was estimated at 708.3 million ounces. Industrial uses consumed 333.6 million ounces, 42.7 million ounces more than in 1964, but coinage requirements aggregated 374.7 million ounces, 110.2 million ounces more than in 1964. As in 1964, the gain in coinage consumption was due principally to an accelerated demand for subsidiary coins in the United States. The demand for silver coins also increased sharply in Canada and Italy but declined in France and Japan.

Free world net consumption exceeded new production by approximately 493 million ounces. Excluding U.S. coinage requirements the production deficit was about 173 million ounces, which was balanced by withdrawals from world stocks, chiefly the U.S. Treasury stock. Foreign government stocks contributed 17.0 million ounces, demonetized coin supplied 30.0 million ounces, liquidation of speculation holdings contributed 35.0 million ounces, and salvage and miscellaneous sources accounted for the remaining 7.1 million ounces.



TABLE I

SALIENT SILVER STATISTICSSource: U.S.B.M.

		1956-60 (average)	1963	1964	1965
United States:					
Mine Production	thousand troy ozs.	34,592	35,243	36,334	39,806
Value	thousands	\$31,307	\$45,076	\$46,980	\$51,469
Ore (dry & siliceous) produced:					
Gold Ore	thousand short tons	2,316	2,460	2,631	3,113
Gold-silver ore	thousand short tons	190	223	224	205
Silver ore	thousand short tons	655	587	644	902
Percentage derived from					
Dry & siliceous ores		36	33	32	35
Base-Metal ores		64	67	68	65
Imports, General <u>1/</u>	thousand troy ozs.	132,932	59,062	51,674	54,709
Refinery production	thousand troy ozs.	34,812	35,000	37,000	39,000
Exports <u>1/</u>	thousand troy ozs.	10,861	31,485	109,395	39,665
Stocks Dec. 31 Treasury					
	million troy ozs.	2,031	1,583	1,218	804
Consumption					
Industry & Arts	thousand troy ozs.	96,780	110,000	123,000	137,000
Coinage	thousand troy ozs.	41,800	111,493	203,000	320,321
Price	per troy oz.	<u>2/</u> \$0.905+	<u>3/</u> \$1.279+	<u>3/</u> \$1.293	<u>3/</u> \$1.293
World:					
Production	thousand troy ozs.	231,860	250,300	246,400	251,000
Consumption <u>4/-</u>					
Industry & the Arts	thousand troy ozs.	211,700	257,200	290,900	333,600
Coinage	thousand troy ozs.	82,120	167,000	264,500	374,721

1/- Excludes Coinage2/- Treasury buying price for newly mined silver.3/- Average New York price.4/- Free World only.

TABLE II

## MINE PRODUCTION OF RECOVERABLE SILVER IN THE UNITED STATES

By States		In Troy Ounces		
STATE	1963	1964	1965	Refinery Production 1965
Alaska . . . .	14,010	7,336	7,673	6,700
Arizona . . . .	5,373,058	5,810,510	6,095,285	6,100,000
California . . .	156,528	171,621	196,787	176,500
Colorado . . . .	2,307,305	2,626,431	2,051,105	2,002,500
Idaho . . . . .	16,710,725	16,483,495	18,456,809	18,100,000
Kentucky . . . .	1,515	1,673	1,931	1,700
Michigan . . . .	338,997	349,195	457,851	843,650
Missouri . . . .	131,664	- -	299,522	80,000
Montana . . . .	4,241,620	5,289,959	5,207,031	5,100,000
Nevada . . . . .	214,976	172,447	507,113	350,000
New Mexico . . .	256,475	242,405	287,472	282,500
New York . . . .	19,544	13,306	11,441	52,000
North Carolina .	26,754	- - -	- - -	280
Oregon . . . . .	58,234	14,372	8,801	3,700
Pennsylvania . .	(1)	(1)	(1)	10
South Dakota . .	117,301	132,981	128,971	130,900
Tennessee . . . .	107,913	90,539	94,142	138,100
Utah . . . . .	4,790,511	4,551,960	5,635,570	5,240,740
Washington . . .	374,373	375,603	358,477	355,150
Wyoming . . . . .	- - -	28	52	75
TOTAL	35,241,503	36,333,861	39,806,033	2/ 39,000,000

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

2/ Includes refinery production from Illinois 20,000; Texas 3,420; Virginia, 75; and Wisconsin 12,000.

TABLE III

## WORLD PRODUCTION OF SILVER, BY COUNTRIES

In Thousand Troy Ounces

	1963	1964	1965
Mexico	42,760	41,716	40,332
United States	35,242	36,334	39,806
Canada	29,840	29,902	31,917
Peru	36,800	37,043	35,255
Australia	19,641	18,452	16,713
Japan	8,812	8,715	9,985
Republic of the Congo	1,097	1,480	1,538
Republic of South Africa	2,737	2,917	3,132
Other Free Countries	33,840	29,825	32,195
Total Free World	210,769	206,384	210,873
Total Communist Controlled	39,531	40,016	40,127
TOTAL WORLD	250,300	246,400	251,000

TABLE IV

## SILVER CONSUMPTION IN INDUSTRY AND THE ARTS

IN 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

r Revised

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

TABLE V

TREASURY SILVER

Million Troy Ounces

	Dec. 31 1965	Dec. 31 1964	Dec. 31 1963	Dec. 31 1951
Held in Treasury:				
Securing Silver Certificates:				
Silver Bullion . . . . .	801.3	1,208.2	1,557.7	1,603.7
Silver Dollars . . . . .	2.3	2.3	22.1	232.8
Subsidiary Coin . . . . .	(a)	7.5	2.7	1.2
Free Silver Bullion . . . .				124.5
Total Treasury Stocks	803.6 (b)	1,218.0	1,582.5	1,962.2
Outside the Treasury				
Silver Dollars . . . . .	372.6	372.6	352.9	148.0
Subsidiary Coin . . . . .	(c) 1,883.8	1,563.8	1,365.2	783.5
Total Silver Outside Treasury	2,256.4	1,936.4	1,718.1	931.5
TOTAL SILVER	3,060.0	3,154.4	3,300.6	2,893.7

(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.	1965 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	108.521	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
		December	129.300	129.3

AMERICAN MINING CONGRESS 1966 DECLARATION OF

GOLD, SILVER AND MONETARY POLICIES

Current estimates indicate that the nation is still faced with a substantial deficit in its balance of payments. Monetary gold stocks of the United States continue to decline as foreign central banks and other official agencies exercise their right to convert dollars into gold at \$35 per ounce. No discernible progress has been made in efforts to achieve a more stable monetary order by international agreements. None to date has done more than meet an immediate crisis.

Gold remains the final basis of settlement in international financial transactions and is not likely to be displaced by any monetary units based on credit alone. Maintenance of a monetary stock of gold more than ever is a vital need, and additions to it from whatever source are surely in the nation's interest. One obvious move to accomplish this end and improve our country's financial strength would be to increase the output of gold from domestic mines. To gain this objective, we again recommend:

Enactment of legislation by the Congress of the United States to provide tax incentives or financial assistance payments, or both, to present and potential domestic gold producers to stabilize and insure greater life of existing properties, to reopen closed mines, and to stimulate aggressive search for new gold ore reserves.

As ever larger quantities of the new base-metal 10-cent and 25-cent coins authorized by the Congress in June 1965 are released for circulation, it is apparent that silver dimes and quarters are disappearing, following in the footsteps of the silver dollar and the silver half-dollar. We believe that the complete substitution of base-metal coins for our silver coinage was a mistake and has proved unnecessary. We believe that a subsidiary coinage of intrinsic value is of great benefit to the nation and to the prestige of the dollar. We urge that the Congress, at any early date, authorize the mint to strike 10-cent and 25-cent coins of 40-percent silver content as it is now authorized to do in the case of 50-cent pieces. Furthermore, as soon as minting capacity permits, silver dollars of 40 percent silver content should be minted.