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KEEP THIS ON TOP

GOLD

File No. 13-19.13C-(7)

Subject: Metals and Minerals

Miscellaneous file

See file 13-19.2A Wayne Burnham Thesis, 1955 on "Metallogenic Provinces of Western United States and Mexico"

AMERICAN SMELTING AND REFINING COMPANY
Tucson Arizona

May 16, 1969

FILE MEMORANDUM

In the recent USGS circular 610, titled "Gold in Igneous, Sedimentary and Metamorphic Rocks," there are several analysis listed showing substantial amounts of gold, for instance:

<u>Rock</u>	<u>Location</u>	<u>Gold content (ppm)</u>	<u>Silver (ppm)</u>
Granite	Australia: Timbarra, New South Wales	3.406	829
Granite	Candelaria, Nevada	1.130	
Syenite	Candelaria, Nevada	0.72	
Diabase	Washoe District, Nevada	0.75	7.2
Prophyllite	New Zealand: Thames, North Island	2.42	
Basaltic Tuff,	New Zealand: Richmond River	15.180	
Serpentinite	New Caldonia: Northern Part	7.5	

The foregoing analyses are from tables regarding analyses prior to 1955 and are mainly fire assays. In the tables of analyses made since 1954, mainly by neutron activation, results are generally lower.

JHC:lzb

J. H. Courtright
J.H. Courtright

cc: JJC Collins
WESaegart
WLKurtz
DMFletcher
RBSprague

November 28, 1961

Mr. J. P. Leavitt
11201 Huston
North Hollywood, California

Copper - Gold Deposits
Near St. George, Utah

Dear Sir:

This will acknowledge your letter of October 30 to Mr. Welch in which you bring to our attention the fact that recently discoveries of copper and other metals have been made on claims held by you and Vern Leavitt.

We appreciate knowing about this, but I am sorry to advise that at the present time we are unable to check into this matter. At some time in the future if one of our field men is in that area, we will get in touch with you.

Yours very truly,

Walter S. Smith
E. J. Smith

KENYON RICHARD

KR/z
cc: RFWelch

K. R.
OCT 31 1961

11201 Huston,
North Hollywood, Calif.

Oct. 30th 1961

RECEIVED
OCT 29 1961
REED F. WELCH

Dear Mr. Welch:

Your letter of several days ago was read and must say that I am at a loss as to just what you want unless it is a geologist report. I am willing to give you any information that I have at my fingertips that does not cost money. I have spent about \$2500.00 finding this outcrop and don't see any immediate prospect of selling it. I could have leased it long ago if I had been willing to wait three or four years for a mining company to put in machinery and get into production and even after all this wait get just a small percentage of the production. No I wont lease it and I wont put anoter cent out in trying to sell it after I have sent this letter. The next money that I spend on it will be for machinery to open up the prospect myself. Since it appears that the only real money to be made is in production and not in discovery. We have discovered deposits of copper, Lead, Zinc, gold and silver. All of it I figger is commercial stuff and we have not sold anything as yet. So now I am going to start looking around for machinery and ways and means to open the deposits myself.

So if you would like to see copper deposits, or gold ~~deposits~~ deposits with a view to buy, you have but to drive up to Gunlock, Utah and inquire for Vern Leavitt who will be glad to show you what we have found. In the meantime if you are not intrested in a cash ~~purchase~~ purchase but know someone that has machinery and no ore please direct them to us and we may make a deal for their machinery. I am sending you a sketch of what our deposit looks like to me. It is about five miles west of the old worked out gold town of Gold Strike and the deposit may have some relation to theirs. Their strike was on the east fork or the upper Beaver Dam Creek. Curs is in between that and the

west fork of the Beaver Dam creek. It is ~~####~~ about three miles west and north of Motoqua and about 25 miles west of St. George Utah.

Thanking you in advance for any effort you may put our in our behalf and for the letter just received, I wish to remain:

Respectfully


J.P. Leavitt

MAP OF GENERAL AREA

IRON

GOLD STRIKE
UTAH LARGEST NUGGET
ghost town

MINERAL MOUNTAIN DIRT ROAD

\$5300 GOLD
MESSELYER

90N LOCK

THREE CORNERS AREA
NEVADA, UTAH AND ARIZONA.

EAST FORK

WEST

NEVADA

MOTOGUN

DIRT ROAD

INDIAN RES

6% COPPER
CARPENTER GROUP
CLAIMS 7% COPPER
LEAVITT GROUP
CLAIMS 7% COPPER
COPPER 5% & GOLD \$12
RES LEAVITT

INACTIVE
MINE

ST GEORGE

611
MINE

ACTIVE
COPPER 6%
APEX
MINE

VIRGIN RIVER

UTAH

ARIZONA

BEAVER DAM LODGE

BEAVER DAM CREEK

PERCENTAGE
ONLY HEAR SAY
EXCEPT WHERE
GOLD IS
involved.

LAS VEGAS

MESQUITE
NEVADA

GRAN
chamber
VOLCANIC

UNCONFORMITY OF FAULT

VOLCANIC ✓

PROBABLE FAULT

OLDER
GRANITE

\$53.20 GOLD & SILVER
grey quartz on periphery

LOW grade
LEAD-ZINC

MASSIVE LIME

LOCAL MAP

This is at NEARAS I can
come at describing our
deposit

W. P. Hewitt, Western Ming. Dept.
American Smelting & Refining Co.
600 Crandall Bldg.
Salt Lake City 1, Utah

mib

W. P. H.
NOV 25 1959

COLORADO SCHOOL OF MINES



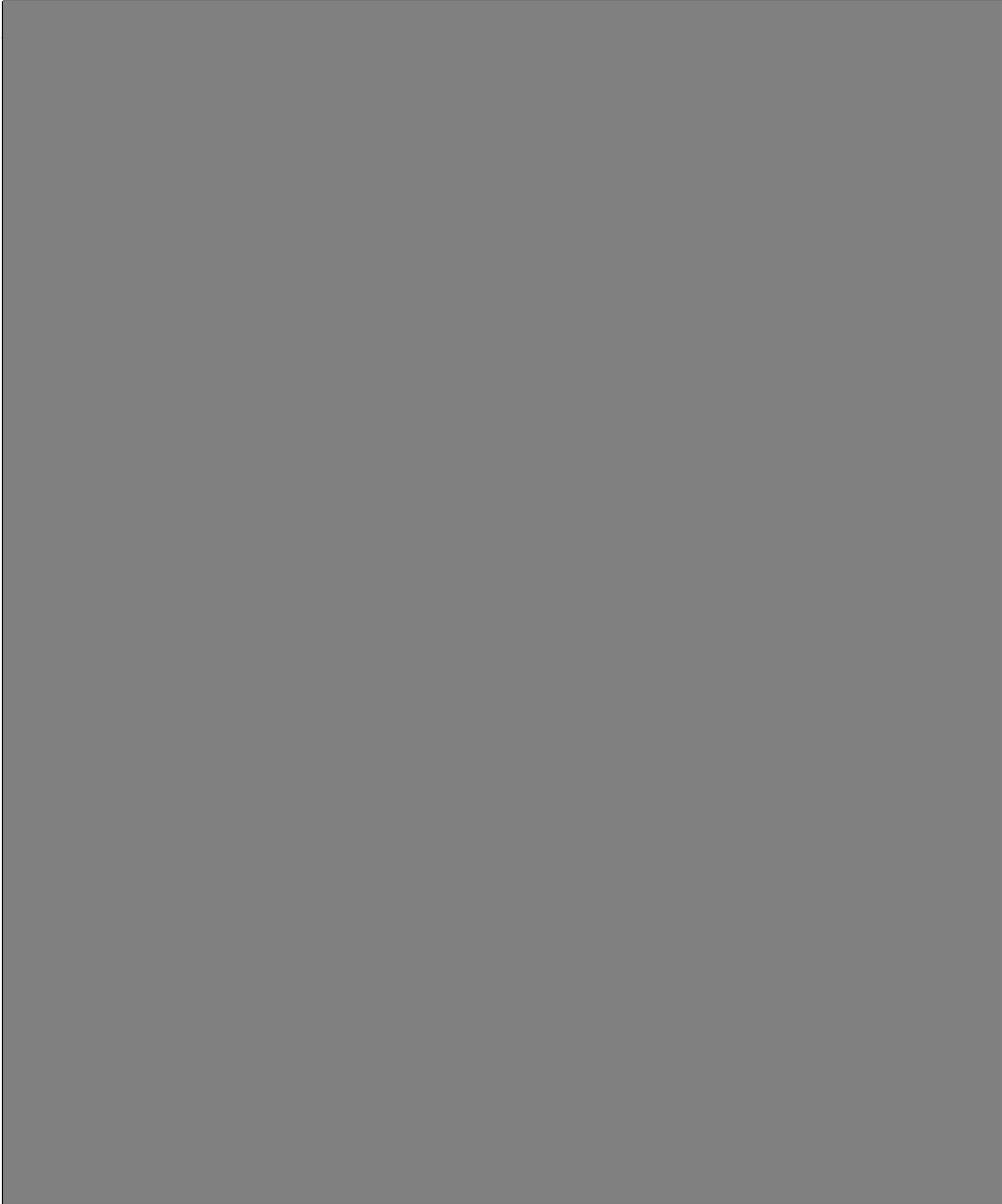
Mineral Industries Bulletin

The Colorado School of Mines Mineral Industry Bulletin is published every other month by the Colorado School of Mines and the Colorado School of Mines Research Foundation to inform those interested in the mineral industry regarding the elements of the geology and mineral resources, mining operations, metal markets, production statistics, economics, and other aspects of the mineral industry in the State of Colorado. This publication may be obtained without charge by writing to the Department of Publications, Colorado School of Mines, Golden, Colorado. Entered as second class matter at the Post Office at Golden, Colorado, under Act of Congress, July 16, 1894. Copyright 1959 by the Colorado School of Mines. All rights reserved. This publication or any part of it may not be reproduced in any form without written permission of the Colorado School of Mines.

Volume 2

November, 1959

Number 6



RECEIVED

W. P. H.

JUL 21 1959

JUL 27 1959

WESTERN MINING DEPT.
AMERICAN SMELTING AND REFINING COMPANY

P. O. Box 241
Toms River, New Jersey
July 17, 1959

Mr. W. Y. Chester
1592 Willowbrae Avenue
San Jose, California

S. I. B.

JUL 27 1959

READ & RETURN	EWN	<input checked="" type="checkbox"/>	<i>EWN</i>
	NW	<input type="checkbox"/>	
	SLT	<input type="checkbox"/>	
RJL	JFF	<input checked="" type="checkbox"/>	
SIB	AWN	<input checked="" type="checkbox"/>	

Dear Sir:

Your letter of June 19, 1959, requesting information regarding panning and identification of minerals in panned concentrates, has been forwarded to me by the Western Mining Department in Salt Lake City.

During the past month, many of my files have been in transit to this office, and I had hoped to locate some specific reference for you. However, the only ones that I find which may be of assistance to you are as follows:

Information Circular 6786, Sept. 1934, U.S. Bureau of Mines, "Placer Mining in the Western United States, Part I", by E. D. Gardner and C. H. Johnson.

Bulletin 135, 1946, "Placer Mining for Gold in California", California State Printing Office.

I would suggest that you could obtain additional information at the California Division of Mines, Ferry Building, San Francisco 11, California, or from the U. S. Bureau of Mines.

Very truly yours,

ORIGINAL SIGNED
JOHN F. LORD

John F. Lord
Placer Engineer

cc: W. P. Hewitt, Salt Lake City
w/copy of Mr. Chester's letter.

J.F.L.
JUL 27 1959

Sampling a Gold Placer - excerpts from a
letter from E. W. Newman to R. K. Kirkpatrick
re Timberlake Basin Au Placers

John Lord was here last week so we persuaded him to go out to the Research Lab with us and pan the samples. While he was panning them he gave us a running lecture on how to pan gold, how to interpret the results, and how to proceed in general with the sampling of a placer property.

He said he usually looks for banks or cuts where he can take samples and then pans them right in the field so he can size up the property as he goes along. Where there are no steep banks he says it is good procedure to dig pits or put down auger holes, as we did. When he gets the material concentrated to the black sand stage he counts the colors, and for a rough estimate figures each color represents 1 cent per yard.

In case the above gives him results that look interesting, he then takes a definite volume of the sand or gravel (say 1 cubic foot), pans it all down to a black sand concentrate, collects the gold with mercury from a bottle he carries in his kit, then drives off the mercury by heating it, and weighs the gold residue on a small pair of scales which he carries with him in the field. From these figures he can quickly compute the exact amount per yard.

It is Mr. Lord's opinion that in working ground where the deposits are as shallow as these, the cost of working the placer would be similar to working an open cut mine; consequently the placers would have to go at least \$1.00 per yard to be of any interest.

PREPRINT FROM
BUREAU OF MINES MINERALS YEARBOOK

1954

Gold

BY JAMES E. BELL AND
KATHLEEN M. McBREEN



*For sale by the Superintendent of Documents, U. S. Government Printing Office
Washington 25, D. C. Price 15 cents*

PROPERTY
OF
AMERICAN SMELTING AND REFINING COMPANY
WESTERN MINING DEPARTMENT
PACIFIC NATIONAL LIFE BUILDING
SALT LAKE CITY 1, UTAH

UNITED STATES DEPARTMENT OF THE INTERIOR • Fred A. Seaton, Secretary

BUREAU OF MINES • Marling J. Ankeny, Director

This publication is a chapter from Volume I, MINERALS YEARBOOK, 1954. The complete volume, covering all mineral commodities, except fuels, may be purchased from the Superintendent of Documents, Washington 25, D. C., at a date to be announced later. Volume II (Mineral Fuels) and Volume III (Geographic Areas) also will be available from the Superintendent of Documents.

Gold

By James E. Bell¹ and Kathleen M. McBreen²



MINE production of gold in the United States in 1954 failed to maintain the gains made in the preceding year. The domestic output of gold was 6 percent less in 1954 than in 1953; further, it was smaller than in any other year since 1893, except in the war period 1943-46. However, the production rate of gold in Alaska, California, and South Dakota together, which are the principal producers of gold by straight gold-mining operations, was nearly the same in 1954 as in 1953. Most of the decline in production in 1954 was due to lower yield from base-metal ores containing byproduct gold, notably in Utah, where output dropped because of curtailed copper-ore mining in the early part of the year and labor strikes in the latter part.

South Dakota again was the leading State in gold production, followed in order by Utah, Alaska, and California, the same as in 1953. These 4 areas supplied 78 percent of the total domestic gold production in 1954. The South Dakota output was obtained almost entirely from gold ore produced at the Homestake mine in Lawrence County; most of Utah's gold was a byproduct from large-scale mining operations of low-grade copper ore in the West Mountain (Bingham) district; virtually all of the Alaska production came from placer operations, mainly bucketline dredging; and the California yield resulted principally from straight gold mining, both lode and placer. Of the domestic gold production in 1954, 23 percent was recovered by placer mining, 39 percent by amalgamation and cyanidation, and 38 percent in smelting ores and concentrates.

Outside of the United States, gold production increased 5 percent in 1954 compared with 1953, owing principally to substantial gain in Union of South Africa. Production rose also in Canada, Australia, Gold Coast, and the Federation of Rhodesia and Nyasaland. The world production rate of gold in postwar years has remained well below prewar averages.

In Union of South Africa a larger tonnage of ore of slightly higher average grade was milled in 1954 than in the preceding year. The average profit from gold per ton of ore increased slightly despite higher working costs. Recovery of byproduct uranium from gold mining in the Union, which was begun late in 1952, attained major importance in 1954 as a source of additional revenue and profit to the industry. Moreover, several mines that might otherwise have

¹ Commodity-industry analyst.

² Statistical assistant.

closed were able to continue operations because the combined gold-uranium content of the ore made it economic. Increasing prosperity in Union of South Africa appeared to be in the making as new gold fields in Orange Free State, the West Witwatersrand area, and the Klerksdorp district added their production to the output of the long-established Witwatersrand area.

The United States Treasury continued to purchase gold at \$35 per fine troy ounce in 1954. There was a net outflow of gold from the United States during most months of the year, which resulted in a decline in Treasury gold reserves that exceeded 300 million dollars.

Legislation introduced in the United States in 1954 comprised a bill to authorize private selling, holding, and using of gold, but no action on this proposal was taken by Congress.

TABLE 1.—Salient statistics of gold in the United States,¹ 1945-49 (average) and 1950-54

	1945-49 (average)	1950	1951
Mine production, fine ounces.....	1,728,860	2,394,231	1,960,512
Ore (dry and siliceous) produced (short tons):			
Gold ore.....	2,784,171	3,584,360	2,606,202
Gold-silver ore.....	402,961	493,461	368,184
Silver ore.....	349,068	627,349	492,143
Percentage derived from—			
Dry and siliceous ores.....	39	43	39
Base-metal ores.....	31	31	36
Placers.....	30	26	25
Net consumption in industry and the arts.....	\$93,071,961	\$97,845,753	\$69,476,979
Imports.....	\$1,091,765,733	\$162,748,661	\$81,258,502
Exports.....	\$204,076,640	\$534,035,794	\$630,381,566
Monetary stocks (end of year) ²		\$22,706,000,000	\$22,695,000,000
Price, average, per fine ounce ⁴	\$35.00	\$35.00	\$35.00
World production, fine ounces (estimated).....	28,750,000	32,700,000	33,500,000

	1952	1953	1954
Mine production, fine ounces.....	1,893,261	² 1,958,293	1,837,310
Ore (dry and siliceous) produced (short tons):			
Gold ore.....	2,339,160	2,193,688	2,258,604
Gold-silver ore.....	237,211	81,638	46,345
Silver ore.....	502,208	555,050	680,442
Percentage derived from—			
Dry and siliceous ores.....	40	40	43
Base-metal ores.....	38	39	34
Placers.....	22	21	23
Net consumption in industry and the arts.....	\$96,350,540	\$75,000,000	\$44,443,000
Imports.....	\$740,254,160	\$47,024,515	\$37,852,514
Exports.....	\$55,921,206	\$44,808,300	\$21,293,551
Monetary stocks (end of year) ²	\$23,186,000,000	\$22,030,000,000	\$21,213,000,000
Price, average, per fine ounce ⁴	\$35.00	\$35.00	\$35.00
World production, fine ounces (estimated).....	² 34,300,000	² 33,700,000	35,100,000

¹ Includes Alaska.

² Revised figure.

³ Owned by Treasury Department; privately held coinage not included.

⁴ Price under authority of Gold Reserve Act of Jan. 31, 1934.

In December 1954 the Bureau of the Mint announced that the United States Assay Office in Seattle, Wash., would be closed permanently in January 1955. Established in 1898, the office purchased gold bullion, amalgam, and nuggets from Alaska mines, as well as from mines in the Pacific Northwest.

The London gold market under the Bank of England was reopened on a restricted basis in 1954 after a suspension of nearly 15 years. The reopening was considered a step toward increasing the importance

of London as an international financial center and furthering the restoration of currency convertibility.

Sale of substantial quantities of gold to world markets by the U. S. S. R., which began in 1953, continued in the first quarter of 1954. It was estimated that the total sold in 1954 amounted to at least 1 million ounces; most was consigned to free markets in Western Europe.

The litigation by some domestic gold-mining claimants to obtain compensation from the Government for damages caused by the promulgation of War Production Board Limitation Order L-208, which restricted gold mining during a period in World War II, was reported in the chapter on Gold and Silver, vol. I, Minerals Yearbook, 1952. The matter of such damages was under study by the United States Court of Claims during 1953, and the Report of the Court Commissioner was made in March 1954. The finding was favorable to the gold-mining industry and permitted submission of test cases to the Court. A decision on such test cases, however, had not been handed down to the end of 1954.

Agitation for higher official national gold prices based on raising the United States Treasury price for gold of \$35 per ounce, carried on vigorously in recent years by many gold producers and some foreign governments, was markedly less in volume in 1953 and 1954, due apparently to the decline of premiums on the free gold markets. Meanwhile, no encouragement for a higher Treasury price for gold could be taken from utterances on the subject by officials of the Administration.³

PREMIUM PRICE OF GOLD

Developments in transactions in gold at premium prices and in private hoarding of gold have been reported in the chapter on Gold of Bureau of Mines Minerals Yearbooks for several years.

Action by the International Monetary Fund in September 1951, permitting member gold-producing countries to ease restrictions on the sale of newly mined gold on the free market, resulted in a greater quantity of gold becoming available for such disposal. Sales of gold on world markets by the U. S. S. R. in 1953 and 1954 also added to the supply. Meanwhile, improvement in political, economic, and currency stability in some parts of the world led to diminishing interest in gold for private hoarding. As a consequence of these factors, the premium price of gold, which had ranged from around \$39 to \$36.75 per ounce in 1952 and from \$38 to \$35 in 1953, remained close to parity (\$35 per ounce) in 1954. It was estimated that sales of gold on the free market declined from around 12 million ounces in 1952 to 9 million in 1953 and to 5 million in 1954.

A forecast made in June 1954 on the prospects for premium prices in gold was as follows:⁴

Looking to the near future, there seems to be little prospect of a substantial premium in the price of gold reappearing in the free market, barring, of course, a sudden war scare or a plunge into renewed inflation. A substantial volume of potential selling overhangs the free market, especially now that most producing countries have abandoned their restrictions on sales of gold in the free market and that South African producers are free to offer gold in refined bars. There is

³ de Wet, J. P., Soviet Russia Now a Hard-Currency Paying Nation: Precambrian, vol. 27, No. 2, February 1954, pp. 9-10, 23.

⁴ Bareau, Paul, The Free Market in Gold: Optima, vol. 4, No. 2, June 1954, pp. 24-28.

not only a substantial volume of newly-mined gold; but, as soon as a substantial premium re-emerged, there would be further sales from Russian reserves and offerings by speculative holders of gold who had been anxiously awaiting a profitable rise in the free market price. In the circumstances, therefore, it would seem improbable, in the absence of a fundamental change in the hoarding demand for gold, that we shall again see the wide disparities between the free market and official prices that were a commonplace of the eight post-war years.

According to information available to the Bureau of Mines, sales of natural gold in recent years on the domestic open market at prices higher than the United States Treasury price of \$35 per ounce amounted to between 1,000 and 2,000 ounces annually. Much of the "natural gold" sold was in nugget form for use in making jewelry, for which a premium of \$3 to \$8 per ounce was paid, depending on the fineness, size, and color of the nuggets.

DOMESTIC PRODUCTION ⁵

Production of gold in the United States is measured at mines and refineries. Both measures are tabulated by States of origin, but there is a small annual variation between them, explained largely by time lag. Over a period of years the deviations are found to be negligible. Compared with the mine reports compiled by the Bureau of Mines, the refinery reports compiled by the Bureau of the Mint in cooperation with the Bureau of Mines for the 50 years, 1905-54, show a total excess of gold of 60,190 ounces (a difference of 0.04 percent).

TABLE 2.—Gold produced in the United States,¹ 1905-54, according to mine and mint returns, in fine ounces, of recoverable metal

Year	Mine	Mint	Year	Mine	Mint
1905-49.....	151,323,437	151,567,890	1953.....	* 1,953,293	1,970,000
1950.....	2,394,231	2,283,703	1954.....	1,837,310	1,859,000
1951.....	1,920,512	1,894,725			
1952.....	1,893,261	1,927,000	Total 1905-54.....	161,447,044	161,507,234

¹ Includes Alaska.

² Revised figure.

MINE PRODUCTION

The domestic mine output of recoverable gold declined 6 percent in 1954 compared with 1953 and was smaller than in any postwar year since 1946; it also was only 38 percent of the alltime high established in 1940. Part of the drop was due to suspension or curtailment of smaller straight gold-mining operations in several areas due to mounting costs for labor and supplies in relation to the fixed price of gold. However, most of the decrease resulted from lower yield of byproduct gold from base metal ores, chiefly because of reduced output of copper ore in Utah. Gold production was maintained at nearly the 1953 rate in Alaska, California, and South Dakota, where virtually all the gold output was recovered by placer mining or from dry gold ores.

⁵ Production data for 1954 were collected jointly with the Bureau of the Census (U. S. Department of Commerce). Production totals will be compared with the Census totals when they are available and differences adjusted or explained.

All tonnage figures used in this report are short tons of 2,000 pounds "dry weight"; that is, they do not include moisture. Figures in cubic yards used in measuring material treated in placer operations are "bank measure"; that is, the material is measured in the ground before excavation. The weight unit for gold is the troy ounce (480 grains). The totals are calculated upon the basis of recovered or recoverable fine gold shown by assays to be contained in ore, bullion, or other material produced.

TABLE 3.—Mine production of gold in the United States¹ in 1954, by months

	Fine ounces		Fine ounces
January.....	137,788	August.....	160,764
February.....	131,791	September.....	172,348
March.....	142,283	October.....	162,999
April.....	138,705	November.....	155,003
May.....	140,057	December.....	156,040
June.....	178,006		
July.....	161,526	Total.....	1,837,310

¹ Includes Alaska.

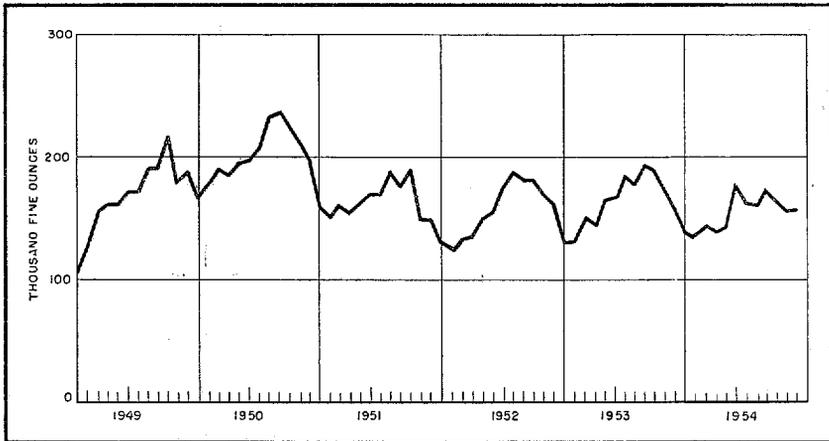


FIGURE 1.—Mine production of gold in the United States, 1949-54, by months, in terms of recoverable gold.

Mines are grouped in two main classes—placers and lodes. The placers are those in which gold (and, in a few placers, platinum) is recovered from gravel as native metal; a small but variable quantity of silver is always alloyed with the gold. Except for such small-scale hand methods as those utilizing the gold pan, the rocker, or the dry washer, most placer recovery methods employ sluice boxes; methods are distinguished by the means used for delivering the gravel to the sluices. Those methods where gravel is delivered mechanically include bucketline dredging, dragline dredging, and treatment in non-floating washing plants of gravel delivered by power shovel, dragline excavator, truck, slackline scraper, or other mechanical means. In the hydraulic method the gravel is mined from the bank by a powerful jet of water; in some small-scale hand methods the gravel is shoveled

into sluices; and in drift operations the gravel is mined underground and delivered to sluices at the surface. The lode mines are those yielding gold and silver from ore (as distinguished from gravel), mainly from underground workings, and, in addition to those worked chiefly for one or both of the precious metals, include those that yield ore mined chiefly for copper, lead, zinc, or other metals but contribute the precious metals as byproducts. As far as possible, the mine unit used is not the operator but the mining claim or group of claims.

PRINCIPAL MINING DISTRICTS AND LEADING MINES

Lawrence County (Lead), S. Dak., which long had been the leading gold producer in the United States, was surpassed in 1943-45 by the West Mountain (Bingham), Utah, copper district. In 1946 Lawrence County regained the lead, a position held through 1954; the West Mountain district has ranked second in this period. The Yuba River, Calif., gold-dredging district rose from ninth place in 1953 to third in 1954; and the Grass Valley-Nevada City, Calif., gold-ore district dropped from third to seventh. The two leading districts produced about 50 percent of the total domestic output of 1954.

Of the 25 leading gold producers operating in the United States in 1954, 10 were lode-gold mines, 6 were placers worked by bucketline dredges, 6 were copper mines, 2 were lead-zinc mines, and 1 was a copper-lead-zinc mine. The entire 25 mines on the list supplied about 85 percent of the domestic output of 1954.

TABLE 4.—Mine production of recoverable gold in the United States, 1945-49 (average) and 1950-54, by districts that produced 10,000 fine ounces or more during any year (1950-54), in fine ounces¹

District or region	State	1945-49 (average)	1950	1951	1952	1953	1954
Lawrence County	South Dakota	323, 574	567, 986	458, 040	482, 511	534, 984	541, 445
West Mountain (Bingham)	Utah	278, 591	428, 313	407, 196	417, 607	450, 882	369, 760
Yuba River	California	(²)	(²)	(²)	(²)	(²)	(²)
Chelan County	Washington	35, 003	64, 711	46, 458	54, 135	61, 468	66, 477
Republic (Eureka)	do.	22, 093	24, 929	(²)	(²)	(²)	(²)
American River (Folsom)	California	86, 264	91, 260	86, 867	78, 366	65, 275	61, 885
Grass Valley-Nevada City	do.	(²)	(²)	(²)	(²)	(²)	(²)
Cripple Creek	Colorado	40, 270	5, 779	27, 699	48, 527	51, 559	48, 935
Warren (Bisbee)	Arizona	14, 519	13, 695	25, 338	26, 697	29, 840	40, 208
Robinson	Nevada	39, 989	49, 878	60, 955	59, 521	61, 093	54, 139
Ajo	Arizona	33, 087	37, 632	33, 805	36, 372	36, 599	32, 798
Park City Region	Utah	17, 272	24, 125	18, 476	13, 327	27, 919	27, 900
Upper San Miguel	Colorado	30, 797	52, 567	34, 030	34, 822	39, 876	21, 514
Bullion	Nevada	12, 600	20, 405	(²)	17, 824	(²)	(²)
Big Bug	Arizona	10, 367	19, 328	19, 724	17, 317	17, 788	17, 802
Summit Valley (Butte)	Montana	14, 723	23, 092	15, 674	16, 918	19, 871	17, 325
Battle Mountain	Nevada	(²)	(²)	(²)	(²)	(²)	(²)
Klamath River	California	(²)	1, 181	154	37	3, 727	13, 638
Pioneer	Arizona	8, 900	14, 392	12, 207	11, 665	14, 480	13, 382
Redcliff (Battle Mountain)	Colorado	1, 053	5, 636	2, 793	1, 700	3, 750	10, 121
Alleghany	California	(²)	14, 314	10, 776	9, 683	13, 112	8, 483
California (Leadville)	Colorado	(²)	(²)	(²)	18, 405	9, 321	5, 438
Mother Lode	California	(²)	24, 513	(²)	7, 127	3, 524	842
Animas	Colorado	16, 071	12, 874	9, 497	9, 657	2, 225	312
Oroville (Palermo)	California	17, 640	(²)	(²)	2, 946	47	67
Scott River	do.	(²)	12, 289	3, 919	6	14	61
Round Mountain	Nevada	1	(²)	(²)	(²)	60	23
Fairplay	Colorado	(²)	(²)	(²)	2, 019		
Potosi	Nevada	(²)	(²)	(²)			
Yellow Pine	Idaho	25, 489	48, 472	19, 605	17, 638		

¹ Exclusive of Alaska.

² Figure withheld to avoid disclosure of individual company operations.

³ Chelan and Ferry Counties combined in 1952-54 to avoid disclosure of individual company operations.

TABLE 5.—Twenty-five leading gold-producing mines in the United States in 1954, in order of output

Rank	Mine	District	State	Operator	Source of gold
1	Homestake	Whitewood	South Dakota	Homestake Mining Co.	Gold ore.
2	Utah Copper	West Mountain (Bingham)	Utah	Kennecott Copper Corp.	Copper ore.
3	Fairbanks Unit	Fairbanks	Alaska	U. S. Smelting, Refining & Mining Co.	Dredge.
4	Yuba Unit	Yuba River	California	Yuba Consolidated Gold Fields	Do.
5	Natomas	American River (Folsom)	do.	Natomas Co.	Do.
6	Copper Queen-Lavender Pit	Warren (Bisbee)	Arizona	Phelps Dodge Corp.	Copper ore.
7	Empire Star Group	Grass Valley-Nevada City	California	Empire Star Mines, Ltd.	Gold ore.
8	New Cornelia	Ajo	Arizona	Phelps Dodge Corp.	Copper ore, copper tailings.
9	Mayflower-Galena	Blue Ledge	Utah	New Park Mining Co.	Lead-zinc ore.
10	Knob Hill	Republic	Washington	Knob Hill Mines, Inc.	Gold ore.
11	Ajax Group	Cripple Creek	Colorado	Golden Cycle Corp.	Do.
12	Gold King	Wenatchee River	Washington	Lowitt Mining Co., Inc.	Do.
13	Goldacres	Bullion	Nevada	London Extension Mining Co.	Do.
14	Holden Group	Chelan Lake	Washington	Howe Sound Co.	Copper ore.
15	Treasury Tunnel, etc.	Upper San Miguel	Colorado	Idarado Mining Co.	Copper-lead-zinc ore.
16	New York-Alaska	Aniak	Alaska	New York-Alaska Gold Dredging Co.	Dredge.
17	Brunswick	Grass Valley-Nevada City	California	Idaho Maryland Mines Corp.	Gold ore.
18	Iron King	Big Bug	Arizona	Shattuck Denn Mining Corp.	Lead-zinc ore.
19	Nome Unit	Nome	Alaska	U. S. Smelting, Refining & Mining Co.	Dredge.
20	Portland, etc.	Bald Mountain	South Dakota	Bald Mountain Mining Co.	Gold ore.
21	Greenan Placers	Battle Mountain	Nevada	Natomas Co.	Dredge.
22	Siskon	Klamath River	California	Siskon Corp.	Gold ore.
23	Magma	Pioneer (Superior)	Arizona	Magma Copper Co.	Copper ore.
24	Cresson	Cripple Creek	Colorado	Cresson Consolidated Gold Mining & Milling Co.	Gold ore.
25	Morris Brooks Pit	Robinson	Nevada	Consolidated Coppermines Corp.	Copper ore.

TABLE 6.—Mine production of recoverable gold in the United States, 1944-54, with production of maximum year, and cumulative production from earliest record to end of 1954, by States, in fine ounces

	Maximum production ¹		Production by years											Total production from earliest record to end of 1954
	Year	Quantity	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	
Western States and Alaska:														
Alaska.....	1936	1,066,080	40,296	68,117	223,781	270,988	248,895	220,416	289,272	239,486	240,557	253,788	248,511	28,112,987
Arizona.....	1937	332,094	112,162	77,223	79,024	95,500	109,487	108,993	118,813	110,693	112,855	112,824	114,800	11,756,893
California.....	1882	3,932,631	117,373	147,938	356,824	431,416	421,473	417,231	412,118	389,782	258,170	234,591	237,836	104,683,841
Colorado.....	1900	1,391,364	111,455	100,935	142,613	163,279	184,802	102,613	130,390	110,508	124,594	110,218	96,148	40,070,498
Idaho.....	1871	370,750	28,008	17,780	42,975	64,982	53,454	77,829	79,632	45,064	32,997	17,630	13,245	3,230,602
Montana.....	1871	370,750	50,021	44,607	70,507	90,124	73,091	52,724	51,764	30,502	24,161	24,708	23,660	17,422,615
Nevada.....	1910	913,265	119,056	92,293	99,689	89,093	111,532	139,399	178,447	121,086	117,293	101,769	79,007	26,445,547
New Mexico.....	1915	70,081	6,918	5,004	4,909	3,146	3,414	3,249	3,414	3,959	2,040	2,614	3,539	2,209,110
Oregon.....	1940	118,492	1,300	4,467	17,593	18,979	14,611	16,226	11,053	7,927	5,600	3,488	6,520	5,730,870
South Dakota.....	1939	613,536	11,621	55,948	312,247	407,194	377,850	404,650	597,096	468,101	482,534	534,937	541,445	24,381,058
Texas.....	1929	1,279			0	45	57	40	49	82	39			8,552
Utah.....	1953	463,430	344,223	279,979	173,533	421,652	368,422	314,053	457,551	432,216	436,607	433,430	403,401	13,969,225
Washington.....	1950	92,117	47,277	57,800	51,183	34,965	70,075	71,994	92,117	67,406	54,776	62,560	66,740	2,699,302
Wyoming.....	1869	7,493	20	2	105	1,486	115	389		0	1	1	407	80,449
Total.....			995,799	952,715	1,573,078	2,107,188	2,011,773	1,980,810	2,392,141	1,973,065	1,891,868	1,969,093	1,835,376	236,291,853
West Central States: Missouri.....														
	1900	33												33
States east of the Mississippi:														
Alabama.....	1936	4,726		5	1									40,495
Georgia.....	1832	12,094	5		21	76	19	18		3		2		870,663
Indiana.....	(3)	(3)												(4)
Maryland.....	1937	1,040							20	1				0,123
Michigan.....	1890	4,354												33,297
North Carolina.....	1837	10,884	21											1,164,315
Pennsylvania.....	1942	2,499	2,115	1,588	1,150	1,518	2,200	1,645	1,704	2,179	1,500	1,134	1,317	33,541
South Carolina.....	1941	15,593												313,301
Tennessee.....	1930	696	222	143	95	303	156	171	160	108	241	203	218	22,615
Vermont.....	1954	135	100	104	165	100	104	120	146	150	162	171	185	1,503
Virginia.....	1933	2,943	132	12										107,558
Total.....			2,595	1,357	1,432	1,997	2,479	1,967	2,090	2,447	1,903	2,160	1,934	2,073,471
Grand total.....			998,394	954,072	1,574,510	2,109,185	2,014,257	1,991,733	2,394,231	1,980,512	1,893,261	1,971,253	1,837,310	238,365,327

¹ For Central and Eastern States figures are peaks since 1880, except Pennsylvania and Vermont, for which the figures are peaks since 1906. For Alaska, Nevada, and Oregon figures are likewise peaks since 1880 only.

² Revised figure.

³ Figure not available.

⁴ Small, figure not available.

⁵ 1903-54 only.

⁶ 1905-54 only.

ORE PRODUCTION, CLASSIFICATION, METAL YIELD, AND METHODS OF RECOVERY

Tables 7 to 12 give details on classes of ore, metal yield in fine ounces of gold to the ton, and gold output by classes of ore and by methods of recovery, embracing all ores that yielded gold in the United States in 1954. These tables were compiled from the individual State chapters in volume III, in which more detailed data are presented.

The classification of ores originally adopted in 1905, on the basis of smelter terminology, smelter settlement contracts, and metal recovery has been used continuously in succeeding years, except for modification necessitated by the improvement in metallurgy and the lowering of the grade of complex ores treated. Details of the current basis of ore classification are given below:

Copper ores include smelting ores that contain 2.5 percent or more recoverable copper and ores and tailings concentrated or leached chiefly for their copper content. Ores leached in place or ores for which the tonnage cannot be calculated are excluded; slags smelted for their copper content are included.

Lead ores are those that contain 5 percent or more recoverable lead, irrespective of the precious metal content; and ores, tailings, or slags that are treated chiefly for their lead content.

Zinc concentrating ores and tailings include those from which a marketable zinc concentrate is made, irrespective of precious metal content. Virtually no zinc ore is now smelted directly except for cold slags, which when fumed are classified as smelting ore and may contain as little as 5 percent recoverable zinc.

TABLE 7.—Ore, old tailings, etc., yielding gold, produced in the United States, and average recoverable content, in fine ounces, of gold per ton in 1954¹

State	Gold ore		Gold-silver ore		Silver ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska:						
Alaska.....	19,721	0.051				
Arizona.....	1,330	.380	2,376	0.230	9,093	0.022
California.....	194,904	.497			1,753	.010
Colorado.....	141,759	.359	2,216	.140	95,455	.007
Idaho.....	3,557	.142	2,208	.863	379,706	.002
Montana.....	4,040	.524	17,875	.112	2,773	.012
Nevada.....	170,529	.140	2,555	.225	21,306	.035
New Mexico.....	120	1.808	995	.108	101	.040
Oregon.....	868	.597	2,004	.500		
South Dakota.....	1,600,784	.338				
Texas.....						
Utah.....	308	.266	16,116	.046	170,220	.025
Washington.....	109,089	.421			30	.033
Wyoming.....	1,420	.285				
Total.....	2,248,429	.340	46,345	.155	680,442	.022
States east of the Mississippi.....	175	1.223				
Total.....	2,248,604	.340	46,345	.155	680,442	.022

See footnotes at end of table.

TABLE 7.—Ore, old tailings, etc., yielding gold, produced in the United States, and average recoverable content, in fine ounces, of gold per ton in 1954¹—Con.

State	Copper ore		Lead ore		Lead-copper ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska:						
Alaska	26	0.115				
Arizona	43,126,993	.002	4,309	0.050		
California	8,558	.006	4,799	.015		
Colorado	162,145	.127	24,837	.036		
Idaho	3,789,454	.009	119,631	.001	63	0.016
Montana	8,615,197	.002	8,641	.402	894	.004
Nevada	6,734,682	.004	11,408	.129		
New Mexico	44	.182	45,200			
Oregon						
South Dakota						
Texas			10			
Utah	24,100,099	.015	11,798	.047		
Washington	449,664	.046	600			
Wyoming	25	.080				
Total	87,987,090	.006	241,378	.019	957	.005
States east of the Mississippi	4,600,625		74			
Total	92,587,715	.006	241,452	.019	957	.005

State	Zinc ore		Zinc-lead, zinc-copper, and zinc-lead-copper ores		Total ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska:						
Alaska					19,747	0.051
Arizona	2,737	0.011	337,974	0.053	43,484,792	.003
California	122	.093	21,381	.008	231,517	.422
Colorado	200,130	.007	493,467	.063	973,177	.097
Idaho	² 127,786		1,165,816	.002	² 1,960,962	.003
Montana	54,945	.001	1,225,661	.009	5,104,288	.004
Nevada	505	.016	21,707	.042	9,843,202	.006
New Mexico					6,781,098	.001
Oregon					2,916	.524
South Dakota					1,600,784	.338
Texas					10	
Utah	³ 16,940	.001	541,683	.066	24,857,164	.016
Washington	150		992,608		1,552,141	.043
Wyoming					1,445	.282
Total	403,205	.004	4,805,297	.021	96,413,243	.015
States east of the Mississippi	2,049,697		2,826,298		⁴ 9,476,869	(*)
Total	2,453,002	.001	7,631,595	.013	105,890,112	.013

¹ Missouri excluded.² Includes 111,689 tons of old zinc slag.³ Zinc slag.⁴ Excludes magnetite-pyrite ore and gold and silver therefrom. Includes material classified as fluor spar ore mined in Illinois and Kentucky.

The mixed ores are combinations of those enumerated above; they will be designated by the names of their constituent base metals in alphabetical order, irrespective of the predominance of value.

Gold, gold-silver, and silver ores with the base-metal content too small to be classified in accordance with the above are "dry" ores, irrespective of the ratio

of concentration. The dry ores are thus ores, chiefly siliceous, valuable for their silver and gold content and in some instances for their fluxing properties, regardless of method of treatment. Dry gold ores are defined as those in which the gold value equals or exceeds three-fourths of the combined gold and silver values; dry silver ores are those in which the silver value equals or exceeds three-fourths of the combined gold and silver values. In dry gold-silver ores both the gold and silver values equal or exceed one-fourth of the combined gold and silver values. Tailings and slags follow the same scheme of classification as ores.

The classifications are not to be modified by considerations of payments of metals by smelters or customs mills, or by method of treatment by the smelters.

The lead, zinc, and lead-zinc ores in most districts in the States east of the Rocky Mountains carry no appreciable quantity of gold; such ores are excluded from this report unless otherwise indicated.

TABLE 8.—Mine production of gold in the United States,¹ 1945-49 (average) and 1950-54, by percentage from sources and in total fine ounces

Year	Percent from—						Total fine ounces
	Placers	Dry ore	Copper ore	Lead ore	Zinc ore	Zinc-lead, zinc-copper, lead-copper, and zinc-lead-copper ores	
1945-49 (average).....	30.0	39.4	22.7	0.5	0.3	7.1	1,728,860
1950.....	25.5	43.1	23.1	.7	.1	7.5	2,394,231
1951.....	24.8	38.9	27.5	.5	.2	8.1	1,980,512
1952.....	22.5	39.5	29.4	.4	.2	8.0	1,893,261
1953.....	20.9	40.4	30.9	.3	.1	7.4	² 1,958,293
1954.....	22.8	42.8	28.6	.3	.1	5.4	1,837,310

¹ Includes Alaska.

² Revised figure.

TABLE 9.—Mine production of gold in the United States in 1954, by States and sources, in fine ounces of recoverable metals

State	Placers	Dry ore	Copper ore	Lead ore	Lead-copper ore	Zinc ore	Zinc-lead, zinc-copper, and zinc-lead-copper ores	Total
Alaska.....	247,509	999	3	-----	-----	-----	-----	248,511
Arizona.....	78	1,255	95,233	217	-----	30	17,996	114,809
California.....	140,197	96,886	564	72	-----	4	163	237,886
Colorado.....	1,555	60,493	27	1,273	-----	1,309	31,489	96,146
Idaho.....	6,693	3,115	1,438	155	1	6	1,837	13,245
Montana.....	1,529	4,160	6,034	878	4	80	10,975	23,660
Nevada.....	17,246	25,217	34,201	1,474	-----	8	921	79,067
New Mexico.....	14	328	3,176	21	-----	-----	-----	3,539
North Carolina.....	-----	214	-----	-----	-----	-----	-----	214
Oregon.....	4,992	1,520	8	-----	-----	-----	-----	6,520
Pennsylvania.....	-----	-----	1,317	-----	-----	-----	-----	¹ 1,317
South Dakota.....	-----	541,445	-----	-----	-----	-----	-----	541,445
Tennessee.....	-----	-----	-----	-----	-----	-----	218	218
Utah.....	-----	5,011	362,070	558	-----	16	35,746	403,401
Vermont.....	-----	-----	185	-----	-----	-----	-----	185
Washington.....	118	45,919	20,653	-----	-----	-----	50	66,740
Wyoming.....	-----	405	2	-----	-----	-----	-----	407
Total.....	419,931	786,967	524,911	4,648	5	1,463	99,395	1,837,310

¹ From magnetite-pyrite ore.

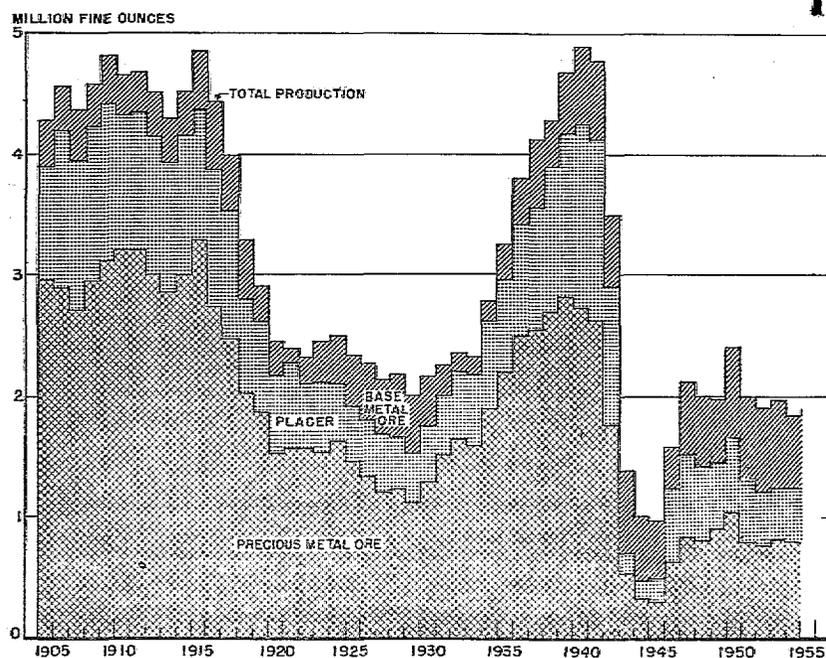


FIGURE 2.—Gold production in the United States, 1905-54.

TABLE 10.—Gold produced in the United States from ore and old tailings, in 1954, by States and methods of recovery, in terms of recoverable metals¹

State	Total ore, old tailings, etc. treated (short tons)	Ore and old tailings to mills				Crude ore to smelters	
		Short tons	Recoverable in bullion (fine ounces)	Concentrates smelted and recoverable metal		Short tons	Fine ounces
				Concentrates (short tons)	Fine ounces		
Western States and Alaska:							
Alaska.....	19,747	19,719	971	6	26	28	5
Arizona.....	² 40,357,494	³ 39,605,565	2,337	1,337,628	77,302	751,639	35,092
California.....	231,517	221,030	33,595	9,615	13,153	10,487	941
Colorado.....	973,177	868,655	53,956	114,845	24,881	104,522	10,754
Idaho.....	³ 1,960,962	1,836,190	1,438	210,667	4,499	124,772	615
Montana.....	5,104,288	4,974,479	516	429,171	17,402	129,809	4,213
Nevada.....	9,843,202	9,744,828	21,761	262,426	34,384	98,374	5,676
New Mexico.....	6,781,098	6,372,467	48	201,926	2,988	103,631	489
Oregon.....	2,916	2,872	251	169	1,265	44	12
South Dakota.....	1,600,784	1,600,784	541,445				
Texas.....	10					10	
Utah.....	24,857,164	24,620,963		335,157	396,923	236,181	6,473
Washington.....	1,552,141	1,499,349	4,912	69,845	40,710	52,792	21,000
Wyoming.....	1,445	1,420	317	1	88	25	2
Total.....	93,285,945	91,668,631	716,547	3,471,456	613,626	1,617,314	85,272
States east of the Mississippi.....	⁴ 9,476,869	9,476,748		562,412	1,934	121	
Grand total.....	102,762,814	101,145,379	716,547	4,033,868	615,560	1,617,435	85,272

¹ Missouri excluded.² Excludes 3,127,298 tons of ore leached from which no gold or silver was recovered.³ Includes 111,689 tons of old zinc slag.⁴ Excludes magnetite-pyrite ore from Pennsylvania. Includes material classified as fluor spar ore mined in Illinois and Kentucky.

TABLE 11.—Gold produced at amalgamation and cyanidation mills in the United States and percentage of gold recoverable from all sources, 1945-49 (average) and 1950-54¹

Year	Bullion and precipitates recoverable (fine ounces)		Gold from all sources (percent)			
	Amalgamation	Cyanidation	Amalgamation	Cyanidation	Smelting ²	Placers
1945-49 (average).....	814,306	231,921	18.2	13.4	38.5	29.9
1950.....	547,118	300,783	22.9	12.6	39.0	25.6
1951.....	445,466	224,968	22.5	11.3	41.4	24.8
1952.....	422,087	256,787	22.3	13.6	41.6	22.5
1953.....	467,561	265,552	23.9	13.5	41.7	20.9
1954.....	429,558	286,989	23.4	15.6	38.1	22.9

¹ Includes Alaska.

² Both crude ore and concentrate.

TABLE 12.—Gold produced at amalgamation and cyanidation mills in the United States in 1954, by States

State	Amalgamation	Cyanidation	Gold from all sources in State (percent)	
	Bullion recoverable (fine ounces)	Bullion and precipitates recoverable (fine ounces)	Amalgamation	Cyanidation
Western States and Alaska:				
Alaska.....	971		0.39	
Arizona.....	8	2,329	.01	2.03
California.....	51,649	31,946	21.71	13.43
Colorado.....	10,111	48,845	10.52	50.80
Idaho.....	1,438		10.86	
Montana.....	516		2.18	
Nevada.....	735	21,026	.93	26.59
New Mexico.....	48		1.36	
Oregon.....	251		3.85	
South Dakota.....	363,831	177,614	67.20	32.80
Washington.....		4,912		7.36
Wyoming.....		317		77.89
Total.....	429,558	286,989	23.40	15.64
States east of the Mississippi.....				
Grand total.....	429,558	286,989	23.38	15.62

PLACERS

Production of placer gold in the United States rose 3 percent to 419,900 ounces in 1954 and accounted for 23 percent of the domestic total output. Among the placer gold-producing areas, gains were scored in California, Idaho, and Nevada; and drops were reported in Alaska, Colorado, and Oregon.

Of the domestic 1954 production of placer gold, 85 percent was recovered by bucketline dredges. The total quantity of gold recovered by bucketline dredges in the United States to the end of 1954 is recorded as 23,281,018 ounces, of which 13,577,000 ounces was produced in California, 6,937,000 in Alaska (some from single-dipper dredges and hydraulicking), 787,000 in Montana, 708,000 in Idaho, and 1,336,000 in other States.

TABLE 13.—Gold production at placer mines in the United States, by class of mine and method of recovery, 1945-49 (average) and 1950-54¹

Class and method	Mines producing	Washing plants (dredges)	Material treated (cubic yards)	Gold recoverable		
				Fine ounces	Value	Average value per cubic yard
Surface placers:						
Gravel mechanically handled:						
Bucketline dredges:						
1945-49 (average)	53	71	100,140,841	408,141	\$14,284,942	\$0.143
1950	43	63	108,250,189	492,939	17,252,865	.159
1951	36	56	98,214,943	404,305	14,150,675	.152
1952	37	56	69,940,788	358,492	12,547,220	.179
1953	21	41	65,313,835	343,132	12,009,620	.184
1954	22	44	62,082,120	356,018	12,460,630	.201
Dragline dredges:						
1945-49 (average)	44	42	5,619,354	30,136	1,054,760	.188
1950	23	21	4,623,474	21,032	736,120	.159
1951	25	23	2,342,647	8,820	308,700	.132
1952	16	16	1,936,587	8,517	298,095	.154
1953	14	13	659,600	2,453	85,855	.130
1954	15	15	554,460	4,184	146,440	.264
Becker-Hopkins dredges:						
1945-49 (average)			1,000	6	224	.224
1950-54						
Suction dredges:						
1945-49 (average)	7	7	96,091	549	19,222	.200
1950	17	14	263,800	1,422	49,770	.189
1951	13	9	180,500	717	25,095	.139
1952	9	9	74,100	305	10,675	.144
1953	7	8	87,700	341	11,935	.136
1954	3	3	3,800	53	1,855	.488
Nonfloating washing plants:						
1945-49 (average)	121	120	3,983,275	49,349	1,727,208	.434
1950	183	183	8,510,139	85,932	3,007,620	.353
1951	117	115	7,049,866	69,592	2,435,720	.346
1952	103	102	4,795,100	54,866	1,920,310	.400
1953	128	128	4,019,325	58,295	2,040,325	.508
1954	128	128	2,973,510	52,491	1,837,185	.618
Gravel hydraulically handled:						
1945-49 (average)	131		1,850,312	21,849	764,708	.413
1950	88		639,585	4,342	151,970	.238
1951	51		257,800	3,460	121,100	.470
1952	33		130,401	1,323	46,410	.365
1953	48		440,290	1,923	67,305	.153
1954	48		258,100	2,079	72,765	.282
Small-scale hand methods:						
Wet:						
1945-49 (average)	256		427,385	6,779	237,279	.555
1950	250		261,562	4,856	169,960	.650
1951	148		99,604	3,106	108,710	1.089
1952	119		101,152	2,598	90,930	.899
1953	139		152,565	2,534	88,690	.581
1954	112		171,780	3,246	113,630	.662
Dry:						
1945-49 (average)	12		3,414	148	5,173	1.515
1950	7		2,200	88	3,030	1.400
1951	4		650	27	945	1.738
1952	3		9,875	103	3,605	.365
1953	3		905	78	2,730	3.017
1954						
Underground placers (drift):						
1945-49 (average)	27		9,798	512	17,913	1.828
1950	34		12,790	802	26,070	2.195
1951	16		4,275	493	17,430	4.077
1952	14		4,370	159	5,565	1.273
1953	13		3,778	172	6,020	1.593
1954	23		9,130	304	10,640	1.165
Unclassified placers:						
1945-49 (average)						
1950-53						
1954				² 1,476	² 51,660	(³)
Grand total placers:						
1945-49 (average)	³ 651		112,131,470	617,469	18,111,429	.162
1950	647		122,563,739	611,413	21,399,455	.175
1951	413		103,150,085	490,525	17,168,375	.166
1952	331		76,982,468	426,263	14,919,205	.194
1953	373		70,686,968	408,953	14,313,355	.202
1954	354		66,053,805	419,931	14,697,535	.223

¹ Includes Alaska.² Included in total of gold recoverable and value, but not computed into average value per cubic yard.³ A mine using more than 1 method of recovery is counted but once in arriving at total for all methods.

The gold-placer-mining method second in importance in 1954 was nonfloating washing plants, with mechanical earth-moving equipment for gravel delivery. Dragline dredging, small-scale hand methods, and hydraulic mining were in third, fourth, and fifth places, respectively.

Alaska supplied 59, California 33, Nevada 4, Idaho 2, and Oregon 1 percent of the United States placer-gold yield in 1954. Alaska led in recovery by bucketline dredging, nonfloating washing plants, and hydraulic mining; and California in dragline dredging, small-scale hand methods, and underground placer mining. A small output by dry placer mining was reported in 1954 by Arizona and New Mexico.

Table 13 shows the placer gold produced in the United States, classified by mining methods, in 1950-54. Additional information on placer mining may be found in the State reviews of volume III.

REFINERY PRODUCTION

Table 14 contains official estimates of gold production in the United States made by the Bureau of the Mint, based upon arrivals at United States mints and assay offices and at privately owned refineries. The mints and assay offices determine the State source of all newly mined, unrefined material when deposits are received. The State source of material received by privately owned refineries is determined from information submitted by them and by intervening smelters, mills, etc., involved in the reduction processes.

TABLE 14.—Gold refined in the United States, 1945-49 (average) and 1950-54, and approximate distribution by source (State) in 1954, in fine ounces

[U. S. Bureau of the Mint]

State or Territory	Fine ounces	State or Territory	Fine ounces
1945-49 (average).....	1,700,799	1954—Continued	
1950.....	2,288,708	New Mexico.....	3,500
1951.....	1,894,726	North Carolina.....	80
1952.....	1,927,000	Oregon.....	7,100
1953.....	1,970,000	Pennsylvania.....	1,320
1954:		South Dakota.....	543,500
Alaska.....	259,800	Tennessee.....	230
Arizona.....	114,000	Utah.....	410,230
California.....	236,000	Vermont.....	190
Colorado.....	96,800	Washington.....	68,000
Idaho.....	14,000	Wyoming.....	250
Montana.....	24,000		
Nevada.....	80,000	Total.....	1,859,000

CONSUMPTION AND USES IN INDUSTRY AND THE ARTS

Gold has been used for coinage in most nations of the world for centuries. Since about 1933 gold coins have been withdrawn from circulation almost universally, and the use of gold mostly as a reserve in the form of bullion to give stability to paper currency and for settlement of international balances has become its chief monetary function.

The popularity and uses of gold for jewelry and allied articles are well known; the esteem in which gold is held is explained largely by its attractive color and freedom from ordinary corrosion. In addition

to the natural yellow gold, white, green, blue, and purple gold can be produced by alloying with other metals. Varying proportions of silver, copper, zinc, nickel, or palladium added give white gold; cadmium, green gold; iron, blue gold; and aluminum, purple gold.

Numerous articles are prepared by covering their surfaces with gold, in which several processes are used, including electroplating and gold filling. By the latter process gold sheet is soldered or welded to a block of ordinary metal, and the whole is rolled to the desired thickness; the gold coating remains in the same proportional thickness to the other metal as in the original block. Articles coated with the thicker coverings of gold have high wearing qualities.

TABLE 15.—Gold produced in the United States, 1792-1954 ¹

Period	Fine ounces	Value ²
1792-1847.....	1, 187, 170	\$24, 537, 000
1848-73.....	60, 021, 278	1, 240, 750, 000
1874-1954.....	230, 818, 723	5, 676, 195, 080
Total.....	292, 027, 171	6, 941, 482, 080

¹ Includes Alaska. From Report of the Director of the Mint. The estimates for 1792-1873 are by R. W. Raymond, Commissioner of Mining Statistics, Treasury Department, and since then, by the Director of the Mint.

² Gold valued in 1934 and thereafter at \$35 per fine ounce; before that date, at \$20.67½ per fine ounce.

Goldleaf is used for window signs, printing titles on books, and decorating picture frames and many other articles. In making goldleaf the extreme malleability of gold is utilized. Most goldleaf is prepared by hand hammering the metal in "goldbeaters' skin" to a thickness of about five-millionths inch; around 250 square feet of leaf can be obtained from 1 ounce of gold.

Because of its excellent workability and resistance to mouth secretions, gold is widely used in dentistry, principally as dental fillings, dentures, and wires.

Based on its resistance to corrosion and other chemical action, gold finds some application in industry. Gold alloy is used for hairsprings of marine chronometers, in galvanometers, and in various other delicate instruments. Gold and gold alloys, both in massive form and as lining of other metals, are used considerably for laboratory ware and equipment in chemical plants.

The net absorption of gold in the arts and industry in the United States in 1954 equaled about 69 percent of the total new gold produced from domestic mines during the year.

TABLE 16.—Net industrial¹ consumption of gold in the United States, 1945-49 (average) and 1950-54

[U. S. Bureau of the Mint]

Year	Gold (dollars)		
	Issued for industrial use	Returned from industrial use	Net industrial consumption
1945-49 (average).....	135,371,397	42,299,437	93,071,960
1950.....	134,537,773	36,742,020	97,845,753
1951.....	105,012,094	35,535,115	69,476,979
1952.....	127,189,469	30,838,949	96,350,540
1953.....	112,379,041	37,379,041	75,000,000
1954.....	78,266,265	33,823,265	44,443,000

¹ Including the arts.

PRICE AND MONETARY STOCKS

Since January 1934 the price of gold at the United States Mint has been \$35 per fine troy ounce.

According to information published in the Federal Reserve Bulletin, gold holdings of the United States Treasury dropped \$317 million from \$22,030 million on December 31, 1953 to \$21,713 million on December 31, 1954. Most of the decline took place in the latter part of the year. The net outflow was due in large part to foreign aid programs of the United States Government. Total world gold reserves are not positively known, since reports of some countries are not received. However, the Federal Reserve Board estimated that the world monetary reserves of gold rose to \$37,350,000,000 in 1954, exclusive of holdings of the Soviet Union.

FOREIGN TRADE ⁶

The excess of exports over imports of gold that prevailed in 1950 and 1951 was replaced by an excess of imports over exports in 1952 and 1953 and again in 1954. Imports of gold plus domestic output exceeded domestic net consumption in 1954, and gold stocks thus increased.

TABLE 17.—Value of gold imported into and exported from the United States, 1945-49 (average) and 1950-54

[U. S. Department of Commerce]

	Imports	Exports	Excess of imports over exports ¹
1945-49 (average).....	\$1,091,766,733	\$204,076,640	\$887,690,093
1950.....	162,748,661	534,035,794	-371,287,133
1951.....	81,258,502	630,381,566	-549,123,064
1952.....	740,254,160	55,921,206	684,332,954
1953.....	47,024,515	44,808,300	2,216,215
1954.....	37,852,514	21,298,551	16,553,963

¹ Excess of exports over imports indicated by minus sign.

⁶ Figures on imports and exports compiled by Mae B. Price and Elsie D. Page, Division of Foreign Activities, Bureau of Mines, from records of the U. S. Department of Commerce.

TABLE 18.—Gold imported into the United States in 1954, by countries of origin

[U. S. Department of Commerce]

Country of origin	Ore and base bullion		Bullion, refined		Foreign coin (value)
	Troy ounces	Value	Troy ounces	Value	
North America:					
Bermuda.....	35	\$1,225			
Canada.....	339,241	11,847,503			
Cuba.....	677	23,676			
El Salvador.....	5,310	185,869			
Guatemala.....	1	35			
Honduras.....	26,489	925,119			
Mexico.....	101,445	3,535,619			\$20,000
Netherlands Antilles.....	7	240			
Nicaragua.....	87,387	3,052,543			
Panama.....	309	10,832			
Total.....	560,901	19,582,661			20,000
South America:					
Bolivia.....	671	23,472	214,313	\$7,500,948	
Brazil.....	1,026	36,265			
British Guiana.....	13,920	487,576			
Chile.....	20,228	707,406			
Colombia.....	17,425	607,394			
Ecuador.....	17,399	604,571			
Peru.....	42,188	1,470,068	43,836	1,533,864	
Venezuela.....	253	8,858			
Total.....	113,110	3,946,110	258,149	9,034,812	
Europe:					
Belgium-Luxembourg.....	128	4,327	174	6,085	
France.....	73	2,550			
Greece.....	92	3,220			
Norway.....	30	1,036			
Portugal.....	19,869	691,536			
Switzerland.....	3	115			
Turkey.....	1,318	46,065			
United Kingdom.....	3,032	106,301	48	1,690	
Total.....	24,543	855,200	222	7,775	
Asia:					
Israel.....	629	22,000			
Japan.....	22	770			
Philippines.....	112,004	3,912,630			
Total.....	112,655	3,935,400			
Africa:					
British East Africa ¹	224	7,840			
Federation of Rhodesia and Nyasaland ¹	3,339	116,332			
Union of South Africa.....	60	2,100			
Total.....	3,623	126,772			
Oceania: Australia.....	7,352	274,495	1,950	69,289	
Grand total.....	822,634	28,720,638	260,321	9,111,876	20,000

¹ Effective July 1954 Nyasaland excluded from British East Africa and combined with Northern and Southern Rhodesia as Federation of Rhodesia and Nyasaland.

TABLE 19.—Gold exported from the United States in 1954, by countries of destination

[U. S. Department of Commerce]

Country of destination	Ore and base bullion		Bullion, refined		Foreign coin (value)
	Troy ounces	Value	Troy ounces	Value	
North America:					
Canada.....			20,559	\$720,492	\$1,939,045
Cuba.....			33	1,166	
El Salvador.....			16,143	565,002	
Honduras.....					2,017
Panama.....			137	4,978	
Total.....			36,872	1,291,638	1,941,062
South America:					
Brazil.....			217	7,588	
Chile.....			1,612	56,380	
Venezuela.....			56,635	2,007,986	
Total.....			58,464	2,071,954	
Europe:					
Belgium-Luxembourg.....			95	3,340	
Germany, West.....			14,863	527,021	
Portugal.....			21,893	766,495	
Switzerland.....			412	16,223	
Turkey.....			1,711	59,895	
United Kingdom.....	3,495	\$122,343	1,692	59,300	
Total.....	3,495	122,343	40,666	1,432,274	
Asia:					
Lebanon.....			251,265	8,794,260	
Philippines.....			103,195	5,640,020	
Total.....			354,460	14,434,280	
Grand total.....	3,495	122,343	490,462	19,230,146	1,941,062

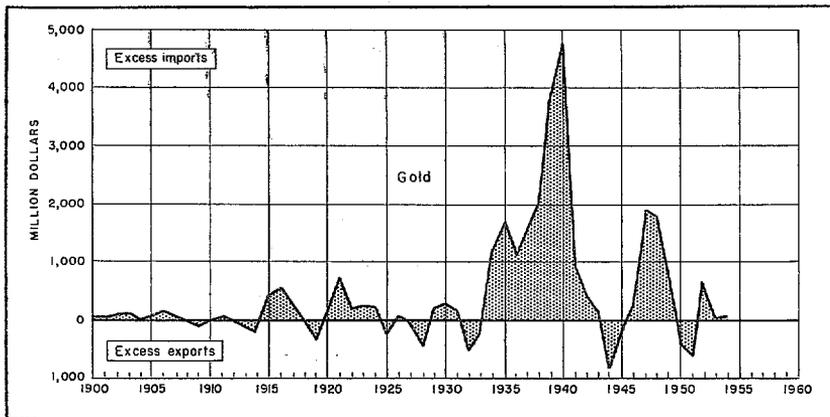


FIGURE 3.—Net imports or exports of gold, 1900-54.

WORLD REVIEW

The world output of gold rose 4 percent in 1954 compared with 1953, owing mostly to gains in Union of South Africa and Canada. The 1954 output was 7 percent under the average for the 5 prewar years 1936-40.

According to the Bureau of the Mint, the world output of gold from 1493 to 1954 was 1,820,108,100 fine ounces valued at \$47,483,110,800. It has been estimated that, of the total gold output of the world, governments and central banks hold 60 percent and private interests 25 percent and that 15 percent has been lost or dissipated.

Australia.—With a 4-percent gain in 1954, Australia's gold output rose for the fourth successive year; over 75 percent of the total was produced in Western Australia. A subsidy to provide Government aid to the gold-mining industry was adopted in 1954, by which mining companies received three-fourths of the excess of the average cost per ounce of gold over A£13 10s. (\$30.51) to a maximum payment of A£2 (\$4.52) per ounce.

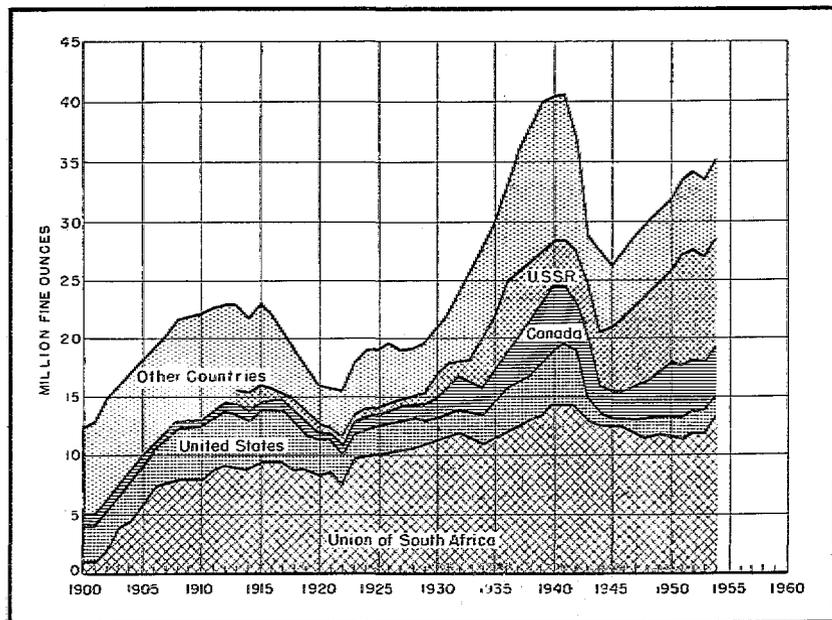


FIGURE 4.—World production of gold, 1900-54.

TABLE 20.—World production of gold, 1945-49 (average) and 1950-54, by countries,¹ in fine ounces²

(Compiled by Pauline Roberts and Berenice B. Mitchell)

Country ¹	1945-49 (average)	1950	1951	1952	1953	1954
North America:						
United States (including Alaska) ³	1,698,101	2,288,708	1,894,726	1,927,000	1,970,000	1,859,000
Canada.....	3,257,656	4,441,227	4,392,751	4,471,725	4,055,723	4,366,440
Central America and West Indies:						
Costa Rica ⁴	1,535	115	1			
Cuba ⁴	1,584	6,915	835	881	1,181	677
Dominican Republic ⁴	434	475	411	332		
Guatemala ⁴	32	397	7		3	1
Haiti.....	23			4		
Honduras.....	16,283	36,546	31,216	31,967	47,523	20,429
Nicaragua (exports).....	212,072	229,206	251,160	254,675	261,899	232,212
Panama.....	⁵ 2,131	1,118	2,897			
Salvador (exports).....	19,390	29,053	27,097	27,682	23,359	5,326
Mexico.....	431,540	408,122	394,007	459,370	483,483	386,870
Total.....	5,640,800	7,441,900	6,995,100	7,173,600	6,843,200	6,871,000
South America:						
Argentina ⁶	7,084	8,000	8,000	8,000	8,000	8,000
Bolivia.....	16,583	7,716	3,200	10,770	22,923	⁵ 14,388
Brazil ⁶	178,920	195,500	200,000	180,000	180,000	180,000
British Guiana.....	20,202	12,366	13,485	22,237	19,247	26,938
Chile.....	186,276	192,390	174,868	177,054	130,693	124,970
Colombia.....	404,326	379,412	430,723	422,231	437,297	377,466
Ecuador.....	76,374	96,403	12,601	24,294	29,239	18,479
French Guiana.....	16,738	12,249	12,056	8,231	2,576	1,512
Peru.....	134,394	127,458	144,765	130,944	140,228	147,298
Surinam.....	4,530	4,546	6,494	6,134	6,482	6,771
Uruguay.....	⁶ 200					
Venezuela.....	51,667	34,462	2,861	4,797	27,804	56,074
Total ⁶	1,097,300	1,070,500	1,009,000	995,000	1,004,000	962,000
Europe:						
Austria.....	⁶ 1,400	(?)	(?)	(?)	(?)	(?)
Bulgaria.....	⁶ 2,400	(?)	(?)	(?)	(?)	(?)
Czechoslovakia.....	1,904	(?)	(?)	(?)	(?)	(?)
Finland.....	10,230	8,198	18,069	19,741	19,483	16,976
France.....	46,711	63,755	68,127	68,706	58,000	(?)
Germany:						
East.....	⁶ 600	(?)	(?)	(?)	(?)	(?)
West.....	⁶ 890	⁶ 1,500	1,498	2,009	6,398	(?)
Hungary.....	⁶ 1,500	(?)	(?)	(?)	(?)	(?)
Italy.....	10,070	10,674	12,089	14,854	12,153	5,208
Portugal.....	8,925	15,465	18,358	17,940	14,854	15,794
Rumania.....	89,716	(?)	(?)	(?)	(?)	(?)
Spain.....	10,032	13,217	12,777	8,944	8,263	(?)
Sweden.....	80,942	78,866	70,474	65,877	88,254	110,277
U. S. S. R. ⁶	6,400,000	8,000,000	9,500,000	9,500,000	⁶ 9,000,000	9,000,000
Yugoslavia.....	22,660	42,760	21,380	36,266	36,620	(?)
Total ⁶	6,700,000	8,400,000	9,800,000	9,900,000	9,400,000	9,490,000
Asia:						
Burma.....	105	150	173	43	647	107
China.....	⁶ 51,150	108,000	100,000	⁶ 100,000	⁶ 100,000	(?)
India.....	163,296	196,925	226,364	253,264	223,020	240,708
Indonesia ⁷	19,800	42,000	(?)	(?)	(?)	(?)
Japan.....	62,800	135,180	177,521	200,935	228,255	237,272
Korea:						
North ⁸		200,000	(?)	(?)	(?)	(?)
Republic of.....	⁸ 244,600	14,854	7,620	18,647	15,882	52,406
Malaya.....	5,975	18,436	17,018	19,806	18,283	20,955
Philippines.....	115,329	333,991	393,602	469,408	480,625	416,052
Sarawak.....	506	1,440	931	843	442	531
Saudi Arabia.....	55,761	66,202	73,104	69,394	81,566	34,298
Taiwan (Formosa).....	9,980	30,446	30,511	33,147	24,821	21,541
Thailand.....	⁶ 2,400	(?)	(?)	(?)	(?)	(?)
Total ⁸	732,000	1,150,000	1,290,000	1,430,000	1,440,000	1,440,000

See footnotes at end of table.

TABLE 20.—World production of gold, 1945-49 (average) and 1950-54, by countries,¹ in fine ounces²—Continued

Country ¹	1945-49 (average)	1950	1951	1952	1953	1954
Africa:						
Angola.....	499	201	61	40	20	36
Bechuanaland.....	6,036	261	495	1,245	1,109	1,216
Belgian Congo ¹⁰	322,671	339,415	352,308	368,737	371,020	365,430
Egypt.....	3,759	10,724	16,469	17,059	14,234	17,887
Eritrea.....	2,738	1,042	675	699	1,363	1,494
Ethiopia.....	44,357	43,524	32,937	27,291	26,696	33,634
French Cameroon.....	11,876	7,170	5,422	2,604	1,022	586
French Equatorial Africa.....	67,760	54,996	52,849	51,655	54,180	45,307
French Morocco.....	624	119	2,069	4,051	2,533	3,556
French West Africa.....	35,838	11 96,000	5,700	1,500	1,608	413
Gold Coast.....	606,469	689,441	698,676	691,490	730,963	787,075
Kenya.....	26,774	22,945	19,765	10,210	9,603	6,607
Liberia.....	14,192	11,025	11 9,806	12 9,249	863	1,135
Madagascar.....	3,118	1,935	1,951	1,784	1,640	1,363
Mozambique.....	3,238	997	861	831	1,034	2,027
Nigeria.....	4,121	2,238	1,566	1,348	689	730
Rhodesia and Nyasaland, Federation of.....						
Northern Rhodesia ¹¹	2,050	1,432	857	2,523	3,303	2,694
Southern Rhodesia.....	535,638	511,163	486,907	496,731	501,057	535,852
Sierra Leone.....	1,518	3,484	3,261	2,638	1,451	2,254
South-West Africa.....	134	32				
Sudan.....	3,342	3,503	1,495	1,545	2,175	2 2,000
Swaziland.....	4,017	1,794	322	1		
Tanganyika.....	54,611	65,127	65,533	64,693	69,886	72,212
Uganda (exports).....	1,529	509	223	201	511	568
Union of South Africa.....	11,728,394	11,663,713	11,516,450	11,818,681	11,940,616	13,237,119
Total.....	13,487,000	13,535,000	13,275,000	13,570,000	13,740,000	15,120,000
Oceania:						
Australia:						
Commonwealth.....	839,012	867,837	895,551	980,435	1,075,181	1,117,077
New Guinea.....	47,893	80,099	94,085	122,431	120,568	86,195
Papua.....	233	788	248	149	141	313
Fiji.....	93,763	103,421	93,635	78,282	76,970	6 75,000
New Zealand.....	107,734	76,527	75,115	59,151	38,656	41,713
Total.....	1,088,635	1,128,672	1,158,634	1,240,448	1,311,516	1,320,000
World total (estimate)...	28,750,000	32,700,000	33,500,000	34,300,000	33,700,000	35,100,000

¹ Figures used derived in part from American Bureau of Metal Statistics. For some countries accurate figures are not possible to obtain owing to clandestine trade in gold (as for example, French West Africa).

² This table incorporates a number of revisions of data published in previous Gold chapters.

³ Refinery production. Excludes production of the Philippines.

⁴ Imports into United States.

⁵ Exports.

⁶ Estimate.

⁷ Data not available; estimate included in total.

⁸ Output from U. S. S. R. in Asia included with U. S. S. R. in Europe.

⁹ Production is believed to have decreased because of a probable diversion of forced labor into other activities.

¹⁰ Includes Ruanda-Urundi.

¹¹ Estimate based on reported production.

¹² Year ended September 30 of year stated.

¹³ Included is yield from Nkana mine-refinery slimes: 1946-49 (average), 2,278 ounces; 1950, 1,206; 1951, 756; 1952, 2,503; 1953, 2,999; and 1954, 2,516.

Canada.—Due largely to termination of labor strikes that had closed some mines for long periods in the latter part of 1953, Canada gained 8 percent in gold production in 1954. Canada was exceeded in gold output only by Union of South Africa and (probably) U. S. S. R. For many years, gold was the leading mineral in Canada in output value, but in 1953 gold was forced into fourth place, exceeded in order by petroleum, nickel, and copper, and this same ranking continued for 1954. Mining was handicapped by rising costs for labor and supplies and by lower revenue realized for gold because of

the over-par exchange value of the Canadian dollar in relation to the United States dollar. On the other hand, gold producers were aided by the Canadian Government under the Emergency Gold Mining Assistance Act, through subsidy payments as determined by formula. All straight gold producers received cost aid in 1954, with payments averaging \$4.30 per ounce of gold output.

The total gold output of Canada in 1954 was 4,366,440 ounces, of which British Columbia produced 6 percent, Manitoba 3, Northwest Territories 7, Ontario 54, Quebec 26, Saskatchewan 2, and Yukon 2, and Alberta, Newfoundland, and Nova Scotia together less than 1. Of the total output of 1954, 2 percent was obtained by placer mining, 12 percent as a byproduct of base-metal mining, and 86 percent from straight lode-gold mining.

Colombia.—Colombia was the leading gold-producing country in South America by a wide margin; most of the output was obtained by placer mining. Gold production dropped 14 percent in 1954 compared with 1953. Three foreign companies produced 81 percent of the total; several small operations were shut down because of rising costs. As an aid to small gold-mining companies (defined as those whose gold production in the first half of 1953 did not exceed 180 fine ounces of gold) the Colombian Government authorized in 1954 a reduction in the production tax on gold and a premium payment to those who sold their gold to the Bank of the Republic at the official price of \$35 per ounce.

Philippines.—Gold production in the Philippines dropped about 14 percent to 416,100 ounces in 1954. The decline reflected the depressed condition of the gold-mining industry because of rising costs, despite action by the Government in 1953 exempting gold mines from various taxes. Efforts in 1954 by the Philippine Gold Producers Association to obtain further relief led to enactment of the Gold Subsidy Law in September. Under this law the Gold Subsidy Board had authority to promulgate rules and regulations and to determine the benefit allowable to each operator.

Union of South Africa.—A 6-percent increase in tonnage of ore milled, with an average grade 4 percent higher, led to an 11-percent gain in gold production in Union of South Africa in 1954; improvement in the power and native labor situation also was a factor.⁷ In the new gold field in Orange Free State 4 mines reached a preliminary production stage in 1954, making a total of 8; 5 additional mines were still under development. Production in the new field increased 154 percent to 1,095,540 ounces in 1954, with most of the ore treated still coming from development workings. To the end of 1954 development on the Basal Reef in the new field totaled more than 1,500,000 linear feet. Reef exposures in most mines showed a higher gold content than was indicated by the original drilling results.

Interesting figures on production to the end of 1953 and estimated future production of Union of South Africa were published, as follows.⁸

⁷ Mining Journal, Improved Labor and Power Supply Eases Production Problems in South African Mines: Vol. 243, No. 6218, Oct. 22, 1954, p. 450.

⁸ Stokes, R. S. G., Future Resources and Problems of the Witwatersrand Goldfield: South African Min. and Eng. Jour., vol. 65, pt. 1: No. 3205, July 17, 1954, pp. 761—771.

	Production to date			Future production		Final aggregate		
	Tons milled (millions)	Ounces gold (millions)	Average dwt. per ton	Tons milled (millions)	Ounces gold (millions)	Tons milled (millions)	Ounces gold (millions)	Average dwt. (per ton)
Old Rand (Randfontein-E. R. P. M.).....	1,138.0	284.0	5.0	285	47.4	1,423	332	4.7
Far East Rand.....	736.0	205.0	5.6	297	56.8	1,033	262	5.1
West Wits-Klerksdorp.....	44.0	13.3	6.0	551	203.0	595	216	7.3
Orange Free State.....	3.5	.7	4.0	722	224.6	725	225	6.2
Total.....	1,921.5	503.0	5.23	1,855	531.8	3,776	1,035	5.5

¹ Grade lowered by dilution in early stages of production.

Production of byproduct uranium from gold mining in Union of South Africa advanced substantially in 1954; this was reflected in declared uranium profits, which increased fourfold to more than £8 million. It was demonstrated that at some properties additional revenue from uranium would permit mining ore containing less gold. Further information on the production of byproduct uranium from gold mining in Union of South Africa will be found in the chapter in this volume on Uranium.

TABLE 21.—Salient statistics of gold mining in the Union of South Africa, 1945-49 (average) and 1950-54

[Transvaal Chamber of Mines]

	1945-49 (average)	1950	1951	1952	1953	1954
Ore milled (tons).....	56,340,930	59,515,200	58,645,800	60,500,000	58,772,000	62,534,500
Gold recovered (fine ounces).....	11,722,396	11,663,713	11,516,450	11,818,681	11,440,830	12,682,328
Gold recovered (dwt. per ton).....	3.891	3.759	3.756	3.767	3.893	4.068
Working revenue.....	£100,126,810 ¹	£139,491,029	£137,494,860	£141,271,310	£142,188,156	£158,630,787
Working revenue per ton.....	35s. 6d.	46s. 11d.	46s. 11d.	47s. 1d.	48s. 5d.	50s. 11d.
Working cost.....	£72,644,532	£87,956,943	£93,494,860	£102,525,003	£107,306,956	£120,435,001
Working cost per ton of ore.....	25s. 10d.	28s. 7d.	31s. 10d.	34s. 2d.	36s. 6d.	38s. 3d.
Working cost per ounce of metal.....	129s. 4d.	157s. 3d.	169s. 6d.	181s. 6d.	187s. 7d.	198s. 11d.
Working profit.....	£27,481,270	£51,534,356	£44,157,054	£38,746,307	£34,891,200	£38,195,786
Working profit per ton.....	9s. 9d.	17s. 4d.	15s. 1d.	12s. 11d.	11s. 11d.	12s. 3d.
Premium gold sales.....				£3,699,124	£1,934,421	£12,999
Estimated uranium profits.....				£125,000	£1,828,067	£8,105,744
Dividends.....	£13,824,227	£24,699,544	£22,787,806	£19,804,928	£18,994,307	£19,946,297

¹ £ Jan. 1, 1945 to Sept. 19, 1949—\$4.03 (approx. average).

² £ after Sept. 19, 1949—\$2.80.

PREPRINT FROM
BUREAU OF MINES MINERALS YEARBOOK

1953

Gold

BY JAMES E. BELL AND
KATHLEEN M. McBREEN



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This publication is a chapter from Volume I, MINERALS YEARBOOK, 1953. The complete volume, covering all mineral commodities, except fuels, may be purchased from the Superintendent of Documents, Washington 25, D. C., at a date to be announced later. Volume II (Mineral Fuels) and Volume III (Geographic Areas) also will be available from the Superintendent of Documents.

Gold

By James E. Bell ¹ and Kathleen M. McBreen ²



REVERSING the downtrend that marked 1951 and 1952, United States mine production of recoverable gold in 1953 rose 3 percent over that in the preceding year. In some areas gold production dropped because straight gold mining was curtailed further owing to rising costs of labor and supplies or because of less activity at base-metal mines that yield gold as a byproduct, owing to reduced prices for lead and zinc. In other areas, however, gold production from straight gold mining or yield of byproduct gold from copper mining increased substantially, and resulted in the overall gain.

South Dakota was again the leading State in gold production in 1953, a position held since 1949. Utah, the leading gold producer in the war years 1943-45, was again second in 1953, scoring a new high. With its gold production declining steadily since 1947, California, in first place in 1946-48, second in 1949, and third in 1950-52, was forced into fourth place in 1953 by Alaska, which had ranked fourth in 1947-52. South Dakota, Utah, Alaska, and California furnished 77 percent of the total United States gold yield of 1953. Nearly all of the South Dakota output of gold was obtained from gold ore produced at the Homestake mine; the Utah production was principally byproduct gold from large-scale mining of low-grade copper ore in the West Mountain (Bingham) district; Alaska's gold was almost entirely from placer operations, mainly bucketline dredging; and the California output was principally from straight gold mining, both lode and placer. Of the domestic gold produced in 1953, 21 percent was recovered by placer methods, 37 percent by amalgamation and cyanidation, and 42 percent in the smelting of ores and concentrates.

Production of gold outside the United States was slightly less in 1953 than in 1952, with gains in the Union of South Africa and Australia more than offset by drops in Canada and the Soviet Union. The world production rate of gold in recent years has remained well below prewar averages.

In the Union of South Africa less ore was milled, but the average grade was higher; the average profit from gold per ton of ore declined, reflecting higher costs. Recovery of byproduct uranium in the Rand gold field, which was begun late in 1952, increased substantially in 1953; the initial profits demonstrated that this source of additional revenue probably would permit mining ore containing less gold. Rapid development of the new gold field in the Orange Free State continued throughout 1953, and 5 of the 13 properties in the area had reached the production stage by the end of the year.

¹ Commodity-industry analyst.

² Statistical clerk.

TABLE 1.—Salient statistics of gold in the United States,¹ 1944-48 (average) and 1949-53

	1944-48 (average)	1949	1950	1951	1952	1953
Mine production, fine ounces.....	1,530,183	1,991,783	2,394,231	² 1,980,512	1,893,261	1,958,291
Ore (dry and siliceous) produced (short tons):						
Gold ore.....	2,501,879	3,378,139	3,584,300	2,000,202	2,330,100	2,198,088
Gold-silver ore.....	393,425	412,378	433,461	368,184	237,211	81,558
Silver ore.....	311,735	470,990	627,349	492,143	502,293	555,050
Percentage derived from—						
Dry and siliceous ores.....	37	45	43	39	40	40
Base-metal ores.....	35	28	31	36	38	30
Placers.....	28	27	26	25	22	21
Net consumption in industry and the arts.....	\$90,763,123	\$108,842,471	\$97,845,753	\$60,476,970	\$66,350,540	\$75,000,000
Imports.....	\$980,255,052	\$771,390,261	\$162,748,661	\$81,258,502	\$740,254,100	\$47,024,515
Exports.....	\$378,635,039	\$84,935,078	\$634,036,794	\$630,881,566	\$55,921,206	\$44,808,300
Monetary stocks (end of year) ³		\$24,427,000,000	\$22,706,000,000	\$22,095,000,000	\$23,186,000,000	\$22,090,000,000
Price, average, per fine ounce ⁴	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00	\$35.00
World production, fine ounces (estimated).....	27,760,000	31,000,000	32,700,000	33,500,000	34,200,000	33,500,000

¹ Includes Alaska.

² Revised figure.

³ Owned by Treasury Department; privately held coinage not included.

⁴ Price under authority of Gold Reserve Act of Jan. 31, 1934.

The United States Treasury continued to purchase gold at \$35 per fine troy ounce in 1953. Throughout all of 1953 except December, there was a steady net outflow of gold from the United States, which led to a decline in Treasury gold reserves of nearly \$1,200 million.

Legislation proposed in 1953 in the United States included a bill to increase the Treasury price of gold and another to permit free marketing of domestic newly mined gold. No action was taken by the Congress on either bill during the year.

Of interest was the appearance on world markets in the latter part of 1953 of gold from the Soviet Union. It was estimated that about 1 million ounces of Soviet gold was sold on continental free markets. Additional to such sales to private holders, it was persistently reported by the press that perhaps as much as 2 million ounces of Soviet gold was sold to the Bank of England, but such transactions were not confirmed officially.

The litigation by some domestic gold-mining claimants to obtain compensation for damages suffered through promulgation of War Production Board Limitation Order L-208, which restricted gold mining during a period in World War II, was reported in the chapter on Gold and Silver, Volume I, Minerals Yearbook 1952. Such damages were under study by the United States Court of Claims during 1953, but to the end of the year the findings of the Court Commissioner on which test cases would be briefed had not been filed.

Propaganda for higher official national gold prices, based on raising the United States Treasury price for gold (\$35 per ounce), carried on strongly in recent years by many gold producers and some foreign governments, decreased markedly in 1953. Apparently it was felt in some quarters that the beneficial effects to the gold-mining industry of increasing the price of gold would shortly become nullified by the inflationary effects that would follow; also, that the propaganda for raising the price of gold was being poorly received by the American public. The National City Bank of New York in its Monthly Letter of April 1953, stated:

In all the theorizing about the price of gold, it would be well not to overlook the very practical fact that only an act of Congress can change the gold parity of the dollar. Not only has the President's former power to revalue lapsed long since, but—more important—in the Bretton Woods Agreements Act of July 31, 1945, whereby the United States joined the International Monetary Fund, it was specifically stated that:

“Unless Congress by law authorizes such action, neither the President nor any person or agency shall on behalf of the United States * * * propose or agree to any change in the par value of the United States dollar.”

In view of this country's ample gold stock, its experience with inflation, and the commitments by the new Administration to protect the buying power of the dollar, it seems inconceivable that any alteration of the gold parity of the dollar would be approved.

PREMIUM PRICE OF GOLD

Developments in transactions in gold at premium prices and in private hoarding of gold have been reported in the chapter on Gold

and Silver of Bureau of Mines Minerals Yearbooks for the past several years.

In September 1951 the International Monetary Fund yielded to growing demand to permit member gold-producing countries to form their own regulations regarding the sale of newly mined gold on the free market. The result of this action was that the quantity of gold available for such disposal was greatly increased, and it was estimated that in 1952 around 12 million ounces of new gold was bought for private hoarding. Reacting to the more abundant supply, however, the premium price of gold on the continental free market declined in 1952 from about \$39 per ounce at the beginning of the year to \$36.75 in November.

The premium price of gold continued its downward trend during 1953, dropping steadily from around \$38 per ounce in January to \$35 in November. In addition to the plentiful supply of newly mined gold, other factors in the decline were lower buying power in the Far East and the substantial sales of gold on world markets by the Soviet Union. It was estimated the free gold markets absorbed around 7 million ounces of newly mined gold in 1953.

An article analysing methods for stimulating gold production was published in 1953.³

A forecast of free market prospects made in January 1954 follows:⁴

There are no visible factors at the time of writing likely to affect violently the present level of free market prices. Supplies are more than adequate for the comparatively modest demand. Political and economic upheavals seem for the time being to be less threatening and certainly much less of an influence on the market than formerly; and finally, and perhaps most important, there appears to be much less money available in those centres in which gold holding is traditionally favoured as a form of investment.

According to information available to the Bureau of Mines, the quantity of "natural gold" sold in 1953 on the domestic open market at prices higher than the United States Treasury price of \$35 per ounce was insignificant. Most of the "natural gold" was sold in nugget form for use in making jewelry.

DOMESTIC PRODUCTION

Production of gold in the United States is measured at mines and refineries. Both measures are tabulated by States of origin, but there is a small annual variation between them, explained largely by time lag. Over a period of years the deviations are found to be negligible. Compared with the mine reports compiled by the Bureau of Mines, the refinery reports compiled by the Bureau of the Mint in cooperation with the Bureau of Mines for the 49 years 1905-53 show a total excess of gold of 38,531 ounces (a difference of 0.02 percent).

³ Merrill, C. W., *Peace and Gold: Mines Magazine*, vol. 43, No. 3, March 1953, pp. 49-59.

⁴ Samuel Montagu & Co., Ltd., *Bankers and Bullion Merchants: London, Annual Bullion Review 1953*, page 6.

TABLE 2.—Gold produced in the United States,¹ 1905–53, according to mine and mint returns, in fine ounces of recoverable metal

Year	Mine	Mint	Year	Mine	Mint
1905-48.....	149,391,654	149,645,851	1952.....	1,893,261	1,927,000
1949.....	1,991,783	1,921,949	1953.....	1,958,291	1,970,000
1950.....	2,394,231	2,288,708			
1951.....	² 1,980,512	1,894,726	Total 1905-53...	159,609,732	159,648,234

¹ Includes Alaska.² Revised figure.

MINE PRODUCTION

Although mine production of recoverable gold in the United States was 3 percent greater in 1952 than in 1953, it was 7 percent lower than the average for the postwar years 1947–51 and only 40 percent of the alltime high established in 1940. Reflecting the difficulties of high costs of labor and supplies in relation to the fixed price of gold, production in most straight gold mining areas continued to decline in 1953. The output of byproduct gold derived from base metal ores also declined in some areas, owing to curtailment of mining because of lower prices for lead and zinc. On the other hand, straight gold mining gained in Alaska and South Dakota in 1953, and byproduct gold from copper ore rose to a new record high in Utah, with the overall result that domestic gold production showed a moderate increase.

All tonnage figures used in this report are short tons of 2,000 pounds "dry weight"; that is, they do not include moisture. Figures in cubic yards used in measuring material treated in placer operations are "bank measure"; that is, the material is measured in the ground before excavation. The weight unit for gold is the troy ounce (480 grains). The totals are calculated upon the basis of recovered or recoverable fine gold shown by assays to be contained in ore, bullion, or other material produced.

TABLE 3.—Mine production of gold in the United States¹ in 1953, by months

	Fine ounces		Fine ounces
January.....	129,103	August.....	178,104
February.....	130,416	September.....	193,540
March.....	148,478	October.....	187,530
April.....	144,277	November.....	173,117
May.....	165,602	December.....	158,323
June.....	165,837		
July.....	183,964	Total.....	1,958,291

¹ Includes Alaska.

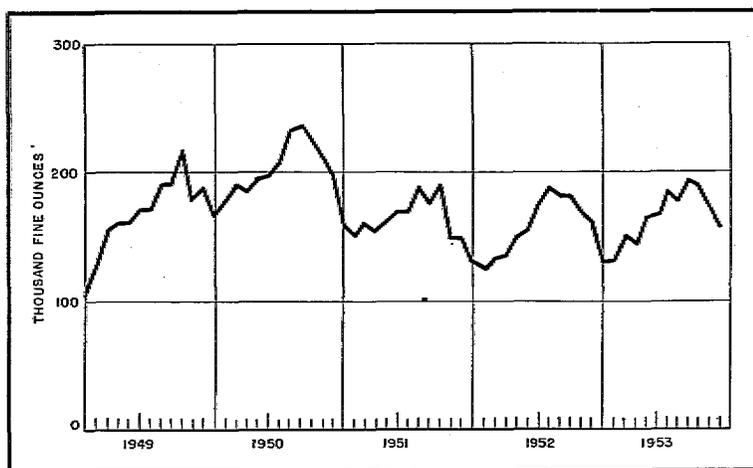


FIGURE 1. Mine production of gold in the United States, 1949-53, by months, in terms of recoverable gold.

Mines are grouped in two main classes—placers and lodes. The placers are those in which gold and silver (and, in a few placers, platinum) are recovered from gravel as native metals or in natural alloy. Except for such small-scale hand methods as those utilizing the gold pan, the rocker, or the dry washer, all placer recovery methods employ sluice boxes; methods are distinguished by the means used for delivering the gravel to the sluices. Those methods where gravel is delivered mechanically include bucketline dredging, dragline dredging, and treatment in nonfloating washing plants of gravel delivered by power shovel, dragline excavator, truck, slackline scraper, or other mechanical means. In the hydraulic method the gravel is mined from the bank by a powerful jet of water; in some small-scale hand methods the gravel is shoveled into sluices; and in drift operations the gravel is mined underground and delivered to sluices at the surface. The lode mines are those yielding gold and silver from ore (as distinguished from gravel), mainly from underground workings, and, in addition to those worked chiefly for one or both of the precious metals, include those that yield ore mined chiefly for copper, lead, zinc, or other metals but contribute the precious metals as byproducts. As far as possible, the mine unit used is not the operator but the mining claim or group of claims.

PRINCIPAL MINING DISTRICTS AND LEADING MINES

Lawrence County (Lead), S. Dak., which long had been the leading gold producer in the United States, was surpassed in 1943-45 by the

West Mountain (Bingham), Utah, copper district. In 1946 Lawrence County regained the lead, a position held through 1953; the West Mountain district has ranked second in this period. The Fairbanks, Alaska, district gained third rank over the Grass Valley-Nevada City, Calif., gold-ore district in 1952 and was again third in 1953. These 3 leading districts produced about 56 percent of the domestic gold output of 1953.

Of the 25 leading gold producers operating in the United States in 1953, 8 were lode gold mines, 5 were placers worked by bucketline dredges, 5 were copper mines, 3 were lead-zinc mines, 1 was a zinc-copper mine, and 3 produced more than 1 type of ore. The entire 25 mines on the list supplied about 85 percent of the domestic output of 1953.

TABLE 4.—Mine production of recoverable gold in the United States, 1944-48 (average) and 1949-53, by districts that produced 10,000 fine ounces or more during any year (1949-53), in fine ounces ¹

District or region	State	1944-48 (average)	1949	1950	1951	1952	1953
Lawrence County	South Dakota	232,968	464,650	567,996	458,040	482,511	534,984
West Mountain (Bingham)	Utah	283,859	286,155	428,313	407,196	417,607	450,882
Grass Valley-Nevada City	California	(2)	(2)	(2)	(2)	(2)	(2)
American River (Folsom)	do	71,335	98,435	91,260	86,867	73,366	65,275
Chelan County	Washington	30,631	48,183	64,711	46,458	54,135	61,469
Republic (Eureka)	do	21,438	23,751	24,929	(2)	(2)	(2)
Robinson	Nevada	41,872	38,703	49,878	60,055	59,521	61,093
Cripple Creek	Colorado	43,755	13,460	5,779	27,609	48,527	51,559
Yuba River	California	(2)	(2)	(2)	(2)	(2)	(2)
Upper San Miguel	Colorado	27,462	35,217	52,567	34,030	34,822	39,876
Ajo	Arizona	31,200	38,455	37,632	33,805	36,372	36,599
Warren (Bisbee)	do	19,832	11,837	13,695	25,338	26,697	29,840
Park City Region	Utah	16,413	19,443	24,125	18,476	13,827	27,919
Summit Valley (Butte)	Montana	14,463	15,742	23,092	15,674	16,918	19,871
Bullion	Nevada	9,241	16,791	20,405	(2)	17,894	(2)
Big Bug	Arizona	8,642	14,035	19,328	19,724	17,317	17,788
Battle Mountain	Nevada	(2)	(2)	(2)	(2)	(2)	(2)
Pioneer (Superior)	Arizona	7,658	12,839	14,392	12,207	11,665	14,480
Alleghany	California	(2)	(2)	14,314	10,776	9,683	13,112
California (Leadville)	Colorado	(2)	(2)	(2)	(2)	18,405	9,321
Mother Lode	California	(2)	21,948	24,513	(2)	7,127	3,524
Animas	Colorado	19,630	10,658	12,874	9,407	9,657	2,225
Verde (Jerome)	Arizona	8,732	10,790	9,421	7,325	4,328	797
Comstock	Nevada	5,271	18,540	9,691	267	10	143
Round Mountain	do	1	(2)	(2)	(2)	(2)	60
Oroville (Palermo)	California	15,071	22,701	(2)	(2)	2,946	47
Scott River	do	(2)	(2)	12,289	3,919	6	14
Merced River (Snelling)	do	(2)	(2)	(2)	4,768	(2)	9
Fairplay	Colorado	(2)	(2)	(2)	(2)	2,019	-----
Potosi	Nevada	(2)	(2)	(2)	(2)	(2)	-----
Yellow Pine	Idaho	16,324	53,576	48,472	19,605	17,638	-----

¹ Exclusive of Alaska.

² Figure withheld to avoid disclosure of individual company operations.

³ Corrected figure.

⁴ Chelan and Ferry Counties combined in 1952-53 to avoid disclosure of individual company output.

TABLE 5.—Twenty-five leading gold-producing mines in the United States in 1953, in order of output

Rank	Mine	District	State	Operator	Source of gold
1	Homestake.....	Whitewood.....	South Dakota..	Homestake Mining Co.....	Gold ore.
2	Utah Copper.....	West Mountain (Bingham).....	Utah.....	Kennecott Copper Corp.....	Copper ore.
3	Fairbanks Unit.....	Fairbanks.....	Alaska.....	U. S. Smelting, Refining & Mining Co.....	Dredge.
4	Natomas.....	American River (Folsom).....	California.....	Natomas Co.....	Do.
5	Yuba Unit.....	Yuba River.....	do.....	Yuba Consolidated Gold Fields.....	Do.
6	New Cornelia.....	Ajo.....	Arizona.....	Phelps Dodge Corp.....	Copper ore, old tailings.
7	Empire Star Group.....	Grass Valley-Nevada City.....	California.....	Empire Star Mines, Ltd.....	Gold ore.
8	Brunswick.....	do.....	do.....	Idaho Maryland Mines Corp.....	Do.
9	Copper Queen.....	Warren (Bisbee).....	Arizona.....	Phelps Dodge Corp.....	Copper, lead-zinc ores.
10	Ruth Plc.....	Robinson.....	Nevada.....	Kennecott Copper Corp.....	Copper ore.
11	Nome Unit.....	Nome.....	Alaska.....	U. S. Smelting, Refining & Mining Co.....	Dredge.
12	Park Galena-Mayflower.....	Blue Ledge.....	Utah.....	New Park Mining Co.....	Lead-zinc ore.
13	Gold King.....	Wenatchee River.....	Washington.....	Lovitt Mining Co.....	Gold ore.
14	Treasury Tunnel, etc.....	Upper San Miguel.....	Colorado.....	Idarado Mining Co.....	Copper-lead-zinc ores.
15	Ajax Group.....	Cripple Creek.....	do.....	Golden Cycle Corp.....	Gold ore.
16	Knob Hill.....	Republic.....	Washington.....	Knob Hill Mines.....	Do.
17	Goldacres.....	Bullion.....	Nevada.....	London Extension Mining Co.....	Do.
18	Iron King.....	Big Bug.....	Arizona.....	Shattuck Denn Mining Corp.....	Lead-zinc ore, zinc tailings.
19	Smuggler Union.....	Upper San Miguel.....	Colorado.....	Telluride Mines, Inc.....	Lead-zinc ore.
20	Greenan Placers.....	Battle Mountain.....	Nevada.....	Natomas Co.....	Dredge.
21	Holden Group.....	Chelan Lake.....	Washington.....	Howe Sound Co., Chelan Division.....	Copper-zinc ore.
22	Portland, Dakota, Clinton, Decorah.....	Portland, Bald Mountain.....	South Dakota.....	Bald Mountain Mining Co.....	Gold ore.
23	Butte Hill Mines.....	Summit Valley.....	Montana.....	Anaconda Copper Mining Co.....	Copper, lead-zinc ores.
24	Magma.....	Pioneer (Superior).....	Arizona.....	Magma Copper Co.....	Copper ore.
25	Morris Brooks Pit.....	Robinson.....	Nevada.....	Consolidated Coppermines Corp.....	Do.

TABLE 6.—Mine production of recoverable gold in the United States, 1943-53, with production of maximum year, and cumulative production from earliest record to end of 1953, by States, in fine ounces

	Maximum production ¹		Production by years										Total production from earliest record to end of 1953	
	Year	Quantity	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952		1953
Western States and Alaska.....														
Alaska.....	1906	1,066,030	99,583	49,296	68,117	226,781	279,988	248,395	229,416	289,272	239,486	240,557	253,783	27,864,476
Arizona.....	1937	332,694	171,810	112,162	77,223	79,024	95,860	109,487	108,993	118,313	116,093	112,355	112,824	1,642,084
California.....	1852	3,932,631	148,328	117,373	147,938	356,824	431,415	421,473	417,231	412,118	339,732	258,176	234,591	104,395,955
Colorado.....	1900	1,391,364	137,558	111,455	100,935	142,613	168,279	154,802	102,618	130,390	116,503	124,594	119,218	39,974,347
Idaho.....	1871	212,850	30,808	25,008	17,780	42,975	64,982	58,454	77,829	79,652	45,064	32,997	17,630	8,217,357
Montana.....	1865	870,750	59,586	50,021	44,597	70,507	90,124	73,091	52,724	51,764	30,502	24,161	24,768	17,399,255
Nevada.....	1910	913,265	144,442	119,056	92,265	90,680	89,063	111,532	130,399	178,447	121,036	117,203	101,799	26,366,480
New Mexico.....	1915	70,681	5,563	6,918	5,604	4,009	3,146	3,414	3,249	3,414	3,959	2,949	2,614	2,205,580
Oregon.....	1943	113,402	1,097	1,369	4,467	17,598	18,979	14,611	16,225	11,058	7,927	5,509	8,488	5,774,350
South Dakota.....	1939	618,536	106,444	11,621	55,948	312,247	407,194	377,850	464,650	567,996	458,101	482,534	534,987	24,339,613
Texas.....	1929	1,279	4			9	45	57	40	49	32	39	39	8,552
Utah.....	1953	483,430	390,470	344,223	279,979	178,533	421,662	368,422	314,058	457,551	432,216	435,507	483,430	13,555,824
Washington.....	1950	92,117	65,244	47,277	57,860	51,168	34,965	70,075	71,994	92,117	67,405	54,776	62,560	2,632,562
Wyoming.....	1869	7,498		20	2	105	1,486	115	389		9	1	1	80,042
Total.....			1,360,937	995,799	952,715	1,573,073	2,107,188	2,011,778	1,989,816	2,392,141	2,197,865	1,891,358	1,956,693	284,456,477
West Central States: Missouri.....	1900	33												33
States east of the Mississippi:														
Alabama.....	1936	4,726			5	1								49,495
Georgia.....	1882	12,094	12	5		21	76	19			3			870,663
Indiana.....	(²)	(²)												(²)
Maryland.....	1937	1,040								20	1			6,123
Michigan.....	1890	4,354												33,297
North Carolina.....	1887	10,884	131	21										1,164,601
Pennsylvania.....	1942	2,499	2,218	2,115	1,598	1,150	1,518	2,200	1,645	1,764	2,179	1,500	1,134	5,377,224
South Carolina.....	1941	15,808	147											318,801
Tennessee.....	1930	696	303	222	148	95	303	156	171	160	108	241	293	22,397
Vermont.....	1953	171	17	100	104	165	100	104	120	146	156	162	171	1,378
Virginia.....	1938	2,943	50	132	12									167,558
Total.....			2,878	2,595	1,857	1,432	1,997	2,479	1,967	2,090	2,447	1,903	1,598	2,671,537
Grand total.....			1,363,815	998,394	954,572	1,574,505	2,109,185	2,014,257	1,991,783	2,394,231	2,198,512	1,893,261	1,958,291	287,128,047

¹ For Central and Eastern States figures are peaks since 1880, except Pennsylvania and Vermont, for which the figures are peaks since 1905. For Alaska, Nevada, and Oregon figures are likewise peaks since 1880 only.

² Revised figure.

³ Figure not available.

⁴ Small figure not available.

⁵ 1908-53 only.

ORE PRODUCTION, CLASSIFICATION, METAL YIELD, AND METHODS OF RECOVERY

Tables 7 to 12 give details on classes of ore, metal yield in fine ounces of gold to the ton, and gold output by classes of ore and by methods of recovery, embracing all ores that yielded gold in the United States in 1953. These tables were compiled from the individual State chapters in volume III, in which more detailed data are presented.

The classification of ores originally adopted in 1905, on the basis of smelter terminology, smelter settlement contracts, and metal recovery, has been used continuously in succeeding years, except for modification necessitated by the improvement in metallurgy and the lowering of the grade of complex ores treated. Details of the current basis of ore classification are given below:

Copper ores include smelting ores that contain 2.5 percent or more recoverable copper and ores and tailings concentrated or leached chiefly for their copper content. Ores leached in place or ores for which the tonnage cannot be calculated are excluded; slags smelted for their copper content are included.

Lead ores are those that contain 5 percent or more recoverable lead, irrespective of the precious metal content; and ores, tailings, or slags that are treated chiefly for their lead content.

TABLE 7.—Ore, old tailings, etc., yielding gold produced in the United States, and average recoverable content, in fine ounces, of gold per ton in 1953¹

State	Gold ore		Gold-silver ore		Silver ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska						
Alaska	441	1.497				
Arizona	2,252	.278	2,467	0.315	22,772	0.028
California	241,548	.455			107	.037
Colorado	182,038	.294	48,616	.038	22,619	.140
Idaho	17,292	.440	32	3.844	313,554	.003
Montana	1,476	1.287	14,572	.054	2,333	.004
Nevada	155,993	.430	1,832	.133	2,569	.019
New Mexico	1,445	.189	124	.363	371	.003
Oregon	1,156	1.021				
South Dakota	1,479,735	.362				
Texas						
Utah			14,015	.034	190,725	.021
Washington	115,312	.400				
Wyoming						
Total	2,193,688	.354	81,658	.061	555,050	.016
States east of the Mississippi						
Total	2,193,688	.354	81,658	.061	555,050	.016

See footnotes at end of table.

TABLE 7.—Ore, old tailings, etc., yielding gold produced in the United States, and average recoverable content, in fine ounces, of gold per ton in 1953—Con.

State	Copper ore		Lead ore		Lead-copper ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska:						
Alaska.....			34	0.206		
Arizona.....	² 45,264,368	0.002	6,059	.222	1	
California.....	8,517	³ .044	7,489	.023		
Colorado.....	172	.087	29,066	.063		
Idaho.....	66,299	.010	152,575	.003	53,792	
Montana.....	⁴ 1,185,818	.001	6,949	.050		
Nevada.....	² 7,758,567	⁴ .008	11,376	.063		
New Mexico.....	⁵ 7,884,048	(⁶)	54,824			
Oregon.....	59	.322				
South Dakota.....			67	.045		
Texas.....						
Utah.....	29,941,541	.015	5,826	.043		
Washington.....	1,186	.018	3,989			
Wyoming.....	2					
Total.....	95,110,577	.006	278,254	.018	53,793	
States east of the Mississippi.....	5,622,965		168			
Total.....	100,733,542	.006	278,422	.018	53,793	

State	Zinc ore		Zinc-lead, zinc-copper, and zinc-lead-copper ores		Total ore	
	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton	Short tons	Average ounces of gold per ton
Western States and Alaska:						
Alaska.....					⁷ 475	1.404
Arizona.....	7,619	0.029	421,479	0.045	² 45,727,017	.002
California.....			132,922	.006	390,583	³ .285
Colorado.....	187,106	.011	734,900	.075	1,204,517	.098
Idaho.....	75,664		1,410,977	.001	⁸ 2,090,185	.006
Montana.....	⁹ 28,143		1,862,057	.008	⁹ 6,101,348	.004
Nevada.....	326		96,739	.023	⁸ 8,027,402	⁴ .011
New Mexico.....	135,869	.004	10,369	.007	³ 8,087,050	
Oregon.....					1,215	.987
South Dakota.....					1,479,802	.362
Texas.....						
Utah.....	20,143	.001	526,554	.068	¹⁰ 30,698,804	.016
Washington.....	(¹¹)	(¹¹)	¹² 1,585,923	¹² .010	1,706,410	.037
Wyoming.....					2	
Total.....	454,870	.006	6,781,920	.022	105,514,810	.015
States east of the Mississippi.....	2,712,592		1,472,221		¹³ 9,807,946	(¹³)
Total.....	3,167,462	.001	8,254,141	.018	115,322,756	.013

¹ Missouri excluded.

² Includes copper precipitates.

³ Includes metal recovered from tungsten ore or tungsten tailings.

⁴ Includes metal recovered from manganese ore.

⁵ Includes copper precipitates and old slag.

⁶ Includes 381 ounces of gold recovered from 4,353 tons of blister copper.

⁷ Includes 34 tons of lead ore containing 7 ounces of gold produced in 1952 and shipped in 1953.

⁸ Includes 75,664 tons of old zinc slag.

⁹ Includes 28,089 tons of old zinc slag.

¹⁰ Includes 20,143 tons of old zinc slag.

¹¹ Combined with lead-zinc ore to avoid disclosure of individual output.

¹² Includes zinc ore to avoid disclosure of individual output.

¹³ Excludes magnetite-pyrite ore and gold and silver therefrom.

Zinc concentrating ores and tailings include those from which a marketable zinc concentrate is made, irrespective of precious metal content. Virtually no zinc ore is now smelted directly except for cold slags, which when fumed are

classified as smelting ore and may contain as little as 5 percent recoverable zinc.

The mixed ores are combinations of those enumerated above; they will be designated by the names of their constituent base metals in alphabetical order, irrespective of the predominance of value.

Gold, gold-silver, and silver ores with the base-metal content too small to be classified in accordance with the above are "dry" ores, irrespective of the ratio of concentration. The dry ores are thus ores, chiefly siliceous, valuable for their silver and gold content and in some instances for their fluxing properties, regardless of method of treatment. Dry gold ores are defined as those in which the gold value equals or exceeds three-fourths of the combined gold and silver values; dry silver ores are those in which the silver value equals or exceeds three-fourths of the combined gold and silver values. In dry gold-silver ores both the gold and silver values equal or exceed one-fourth of the combined gold and silver values. Tailings and slags follow the same scheme of classification as ores.

The classifications are not to be modified by considerations of payments of metals by smelters or customs mills, or by method of treatment by the smelters.

The lead, zinc, and lead-zinc ores in most districts in the States east of the Rocky Mountains carry no appreciable quantity of gold; such ores are excluded from this report unless otherwise indicated.

TABLE 8.—Mine production of gold in the United States,¹ 1944-48 (average) and 1949-53, by percentage from sources and in total fine ounces

Year	Placers	Dry ore	Copper ore	Lead ore	Zinc ore	Zinc-lead, zinc-copper, lead-copper, and zinc-lead-copper ores	Total fine ounces
1944-48 (average).....	23.5	36.7	26.4	0.6	0.4	7.4	1,530,183
1949.....	26.8	44.8	19.8	.6	.2	7.8	1,991,783
1950.....	25.5	43.1	23.1	.7	.1	7.5	2,394,231
1951.....	24.8	38.9	27.5	.5	.2	8.1	1,980,512
1952.....	22.5	39.5	29.4	.4	.2	8.0	1,893,261
1953.....	20.9	40.4	30.9	.3	.1	7.4	1,933,291

¹ Includes Alaska.

TABLE 9.—Mine production of gold in the United States in 1953, by States and sources in fine ounces of recoverable metals

State	Placers	Dry ore	Copper ore	Lead ore	Lead-copper ore	Zinc ore	Zinc-lead, zinc-copper, and zinc-lead-copper ores	Total
Alaska.....	253,116	660		7				253,783
Arizona.....	109	2,039	90,093	1,346		219	19,018	112,824
California.....	123,346	103,953	1,377	170			745	1,234,591
Colorado.....	1,629	58,623	15	1,838		2,092	55,016	119,218
Idaho.....	5,887	8,622	666	436	17		2,002	17,630
Montana.....	1,223	2,689	6,180	344			14,332	24,768
Nevada.....	16,310	20,612	² 61,902	722			2,253	³ 101,799
New Mexico.....	5	319	³ 1,603	14		596	77	2,614
Oregon.....	7,289	1,180	19					8,488
Pennsylvania.....			⁴ 1,134					1,134
South Dakota.....		534,984		3				534,987
Tennessee.....			293					293
Utah.....	9	5,265	441,882	253		13	36,008	483,430
Vermont.....			171					171
Washington.....	29	46,146	21	1		(5)	⁶ 16,363	62,560
Wyoming.....	1							1
Total.....	408,953	791,097	604,356	5,134	17	2,920	145,814	1,958,291

¹ Includes metal recovered from tungsten ore or tungsten tailings.

² Includes metal recovered from manganese ore.

³ Includes 381 ounces of gold recovered from 4,353 tons of blister copper.

⁴ From magnetite-pyrite ore.

⁵ Combined with lead-zinc ore to avoid disclosure of individual output.

⁶ Includes zinc ore to avoid disclosure of individual output.

TABLE 10.—Gold produced in the United States from ore and old tailings, in 1953 by States and methods of recovery, in terms of recoverable metal¹

State	Total ore, old tailings, etc. treated (short tons)	Ore and old tailings to mills				Crude ore to smelters	
		Short tons	Recoverable in bullion (fine ounces)	Concentrates smelted and recoverable metal		Short tons	Fine ounces
				Concentrates (short tons)	Fine ounces		
Western States and Alaska:							
Alaska.....	² 475	² 440	437	32	204	35	26
Arizona.....	³ 42,150, 223	³ 41,423, 025	72	1,331, 215	84, 293	4 727, 198	28, 350
California.....	⁵ 390, 583	378, 276	95, 576	30, 524	14, 445	12, 307	1, 224
Colorado.....	1, 204, 517	1, 175, 899	71, 827	125, 671	42, 040	23, 618	3, 722
Idaho.....	⁶ 2, 090, 185	1, 993, 769	6, 581	242, 383	4, 413	96, 416	749
Montana.....	7 6, 101, 348	5, 965, 610	65	640, 414	18, 875	135, 738	4, 605
Nevada.....	⁴ 8, 027, 402	7, 917, 546	19, 305	291, 390	62, 495	109, 856	3, 689
New Mexico.....	⁸ 8, 087, 050	7, 961, 301	266	249, 436	1, 424	125, 749	919
Oregon.....	1, 215	1, 156	142	127	1, 038	59	19
South Dakota.....	1, 479, 802	1, 479, 735	534, 984			67	3
Utah.....	¹⁰ 30, 698, 804	30, 448, 505		977, 962	477, 603	250, 299	5, 818
Washington.....	1, 706, 410	1, 650, 035	3, 858	91, 110	34, 658	56, 375	24, 075
Wyoming.....	2					2	
Total.....	101, 938, 016	100, 395, 297	733, 113	3, 980, 264	741, 488	1, 542, 719	73, 139
States east of the Mississippi.....	¹¹ 9, 807, 946	¹¹ 9, 807, 946		631, 686	1, 598		
Grand total.....	111, 745, 962	110, 203, 243	733, 113	4, 611, 950	743, 086	1, 542, 719	73, 139

¹ Missouri excluded.² Excludes ore reported in prior years that produced 223 ounces of gold shipped in 1953.³ Excludes 3,576,794 tons of ore leached from which no gold was recovered.⁴ Includes copper precipitates.⁵ Excludes tungsten ore.⁶ Includes 75,664 tons of old zinc slag.⁷ Includes 28,089 tons of old zinc slag.⁸ Excludes manganese ore.⁹ Includes copper precipitates and old slag.¹⁰ Includes 20,143 tons of old zinc slag.¹¹ Excludes magnetite-pyrite ore from Pennsylvania. Includes material classified as fluorspar ore mined in Illinois and Kentucky.
TABLE 11.—Gold produced at amalgamation and cyanidation mills in the United States and percentage of gold recoverable from all sources, 1944-48 (average) and 1949-53¹

Year	Bullion and precipitates recoverable (fine ounces)		Gold from all sources (percent)			
	Amalgamation	Cyanidation	Amalgamation	Cyanidation	Smelting ²	Placers
1944-48 (average).....	238, 977	188, 986	15.6	12.3	43.6	28.5
1949.....	450, 618	290, 938	22.6	14.6	36.0	26.8
1950.....	547, 118	300, 783	22.9	12.6	39.0	25.5
1951.....	445, 466	224, 968	22.5	11.3	41.4	24.8
1952.....	422, 087	256, 787	22.3	13.6	41.6	22.5
1953.....	467, 561	265, 552	23.9	13.5	41.7	20.9

¹ Includes Alaska.² Both crude ores and concentrates.

TABLE 12.—Gold produced at amalgamation and cyanidation mills in the United States in 1953, by States

State	Amalga- mation	Cyanida- tion	Gold from all sources in State (percent)	
	Bullion recoverable (fine ounces)	Bullion and precipitates recoverable (fine ounces)	Amalga- mation	Cyanida- tion
Western States and Alaska:				
Alaska.....	437	-----	0.17	-----
Arizona.....	72	-----	.06	-----
California.....	74,203	21,373	31.63	9.11
Colorado.....	20,632	51,195	17.31	42.94
Idaho.....	5,412	1,169	30.70	6.63
Montana.....	65	-----	.26	-----
Nevada.....	873	18,432	.86	18.11
New Mexico.....	266	-----	10.18	-----
Oregon.....	142	-----	1.67	-----
South Dakota.....	365,442	169,542	68.31	31.69
Washington.....	17	3,841	.03	6.14
Wyoming.....	-----	-----	-----	-----
Total.....	467,561	265,552	23.90	13.57
States east of the Mississippi.....				
Grand total.....	467,561	265,552	23.88	13.56

PLACERS

Continuing a downtrend, production of placer gold in the United States declined from 426,000 ounces in 1952 to 409,000 in 1953; these quantities corresponded to 23 and 21 percent, respectively, of the total domestic outputs for those years. Most of the drop in 1953 was in California and Nevada; it reflected the progressive exhaustion of gravels that could be worked profitably under continuing high operating costs and the fixed price of gold.

Eighty-four percent of the total placer gold of 1953 was recovered by bucketline dredges. The total quantity of gold recovered by bucketline dredges in the United States to the end of 1953 is recorded as 22,925,000 ounces, of which 13,437,000 ounces was produced in California, 6,690,000 in Alaska (some from single-dipper dredges and hydraulicking), 785,000 in Montana, 701,000 in Idaho, and 1,312,000 in other States.

The gold-placer-mining method second in importance in 1953 was nonfloating washing plants, with mechanical earth-moving equipment for gravel delivery. Small-scale hand methods, dragline dredging, and hydraulic mining were in third, fourth, and fifth places, respectively.

TABLE 13.—Gold production at placer mines in the United States, by class of mine and method of recovery, 1944-48 (average) and 1949-53¹

Class and method	Mines producing	Washing plants (dredges)	Material treated (cubic yards)	Gold recoverable		
				Fine ounces	Value	Average value per cubic yard
Surface placers:						
Gravel mechanically handled:						
Bucketline dredges:						
1944-48 (average).....	46	60	83,130,061	343,826	\$12,033,889	\$0.145
1949.....	52	74	110,897,581	425,863	14,905,205	.134
1950.....	43	63	108,250,189	492,939	17,252,865	.159
1951.....	36	56	93,214,943	404,305	14,150,675	.152
1952.....	37	56	69,940,758	358,492	12,547,220	.179
1953.....	21	41	65,313,835	343,132	12,009,620	.184
Dragline dredges:						
1944-48 (average).....	138	136	24,945,343	126,826	1,938,924	.190
1949.....	35	31	4,583,055	22,789	797,615	.174
1950.....	23	21	4,623,474	21,032	736,120	.159
1951.....	25	23	2,342,647	8,820	308,700	.132
1952.....	16	16	1,936,587	8,517	298,095	.154
1953.....	14	13	659,600	2,453	85,855	.130
Becker-Hopkins dredges:						
1944-48 (average).....			1,000	6	224	.224
1949-53.....						
Suction dredges:						
1944-48 (average).....	5	4	40,338	266	9,296	.230
1949.....	12	13	278,765	1,418	49,630	.178
1950.....	17	14	263,800	1,422	49,770	.189
1951.....	13	9	180,500	717	25,095	.139
1952.....	9	9	74,100	305	10,675	.144
1953.....	7	8	87,700	341	11,955	.136
Nonfloating washing plants:						
1944-48 (average).....	188	187	23,041,882	135,471	1,241,485	.408
1949.....	183	183	4,995,465	70,974	2,484,090	.497
1950.....	185	183	8,510,139	85,932	3,007,620	.353
1951.....	117	115	7,049,566	69,592	2,435,720	.346
1952.....	103	102	4,795,100	54,866	1,920,310	.400
1953.....	128	128	4,019,325	58,295	2,040,325	.508
Gravel hydraulically handled:						
1944-48 (average).....	1119		21,743,062	120,632	1,722,113	.414
1949.....	81		779,800	7,107	248,745	.319
1950.....	88		639,585	4,342	151,970	.238
1951.....	51		257,800	3,460	121,100	.470
1952.....	33		130,401	1,326	46,410	.356
1953.....	48		440,290	1,923	67,305	.153
Small-scale hand methods:						
Wet:						
1944-48 (average).....	1220		2,402,848	16,386	1,223,524	.555
1949.....	279		245,076	4,234	148,190	.597
1950.....	250		261,562	4,556	169,960	.650
1951.....	148		93,804	3,106	108,710	1.089
1952.....	119		101,152	2,598	90,930	.899
1953.....	139		152,565	8,534	88,690	.681
Dry:						
1944-48 (average).....	10		3,040	133	4,641	1.527
1949.....	13		2,870	144	5,040	1.756
1950.....	7		2,200	88	3,080	1.400
1951.....	4		550	27	945	1.718
1952.....						
1953.....	3		9,875	103	3,605	.365
Underground placers (drift):						
1944-48 (average).....	125		210,334	1575	120,125	1.947
1949.....	26		3,717	206	7,210	1.940
1950.....	34		12,790	802	28,070	2.195
1951.....	19		4,275	498	17,430	4.077
1952.....	14		4,370	159	5,565	1.273
1953.....	13		3,778	172	6,020	1.593
Unclassified placers:						
1944-48 (average).....	38		(³)	1,466	51,317	(³)
1949-53.....						
Grand total placers:						
1944-48 (average).....	4588		293,317,908	435,587	15,245,538	.163
1949.....	4680		121,789,329	532,735	18,645,725	.153
1950.....	647		122,563,739	611,413	21,399,455	.175
1951.....	413		103,150,085	490,525	17,168,375	.166
1952.....	331		76,982,468	426,263	14,919,205	.194
1953.....	373		70,686,968	408,953	14,313,355	.202

¹ Data for Alaska not separately available; included with "Unclassified placers" for 1944.² Data for Alaska not available and not included for year 1944.³ Data not available for year 1944.⁴ A mine using more than 1 method of recovery is counted but once in arriving at total for all methods.

Alaska produced 62 percent of the United States placer gold in 1953, California 30, Nevada 4, Oregon 2, and Idaho 1. Alaska led in production by bucketline dredging, nonfloating washing plants, and hydraulic mining; Idaho by dragline dredging; and California by small-scale hand methods and underground placer mining. A small production by dry placer mining was reported in 1953 in Arizona.

Table 13 shows the placer gold produced in the United States, classified by mining methods, in 1949-53. Additional information on placer mining may be found in the State reviews of volume III.

REFINERY PRODUCTION

Table 14 contains official estimates of production of gold in the United States made by the Bureau of the Mint, based upon arrivals at United States mints and assay offices and at privately owned refineries. The mints and assay offices determine the State source of all newly mined, unrefined material when deposits are received. The State source of material received by privately owned refineries is determined from information submitted by them and by intervening smelters, mills, etc., involved in the reduction processes.

TABLE 14.—Gold refined in the United States, 1944-48 (average), and 1949-53, and approximate distribution by source (State), in 1953

[U. S. Bureau of the Mint]	
State or Territory:	<i>Fine ounces</i>
1944-48 (average)	1, 520, 857
1949	1, 921, 949
1950	2, 288, 708
1951	1, 894, 726
1952	1, 927, 000
1953:	
Alaska	265, 100
Arizona	112, 000
California	240, 000
Colorado	122, 000
Idaho	26, 000
Montana	24, 600
Nevada	110, 000
New Mexico	2, 700
Oregon	8, 300
Pennsylvania	1, 260
South Dakota	532, 300
Tennessee	260
Texas	8
Utah	462, 800
Vermont	170
Washington	62, 500
Wyoming	2
Total	1, 970, 000

CONSUMPTION AND USES IN INDUSTRY AND THE ARTS

Gold has been used for centuries for coinage in most nations of the world. In recent times gold coins have been withdrawn from circula-

tion generally, and the monetary use of gold is mostly as a reserve in the form of bullion to give stability to paper currency and for settlement of international balances.

The popularity and uses of gold for jewelry and allied articles are well known; the esteem in which gold is held is explained largely by its attractive color and freedom from ordinary corrosion. In addition to the natural yellow gold, white, green, blue, and purple gold can be produced by alloying with other metals. Varying proportions of silver, copper, zinc, nickel, or palladium added give white gold; cadmium, green gold; iron, blue gold; and aluminum, purple gold.

Numerous articles are prepared by covering their surfaces with gold, in which several processes are used, including electroplating and gold filling. By the latter process gold sheet is soldered or welded to a block of ordinary metal, and the whole is rolled to the desired thickness; the gold coating remains in the same proportional thickness to the other metal as in the original block. Articles coated with the thicker coverings of gold have high wearing qualities.

TABLE 15.—Gold produced in the United States, 1792–1953¹

Period	Fine ounces	Value ²
1792–1847.....	1, 187, 170	\$24, 537, 000
1848–73.....	60, 021, 278	1, 240, 750, 000
1874–1953.....	228, 959, 723	5, 611, 130, 080
Total.....	290, 168, 171	6, 876, 417, 080

¹ Includes Alaska. From Report of the Director of the Mint. The estimates for 1792–1873 are by R. W. Raymond, Commissioner of Mining Statistics, Treasury Department, and since then by the Director of the Mint.

² Gold valued in 1934 and thereafter at \$35 per fine ounce; before that date, at \$20.67+ per fine ounce.

Gold leaf is used for window signs, printing titles on books, and decorating picture frames and many other articles. In making gold leaf the extreme malleability of gold is utilized. Most gold leaf is prepared by hand hammering the metal in "goldbeaters' skin" to a thickness of about five-millionths inch; around 250 square feet of leaf can be obtained from 1 ounce of gold.

Because of its excellent workability and resistance to mouth secretions, gold is widely used in dentistry, principally as dental fillings, dentures, and wires.

Based on its resistance to corrosion and other chemical action, gold finds some application in industry. Gold alloy is used for hairsprings of marine chronometers, in galvanometers, and in various other delicate instruments. Gold and gold alloys, both in massive form and as lining of other metals, are used considerably for laboratory ware and equipment in chemical plants.

The net absorption of gold in the arts and industry in the United States in 1953 exceeded the total new production from domestic mines for the year by 9 percent.

TABLE 16.—Net industrial¹ consumption of gold in the United States, 1944-48 (average) and 1949-53

[U. S. Bureau of the Mint]

Year	Gold (dollars)		
	Issued for industrial use	Returned from industrial use	Net industrial consumption
1944-48 (average).....	130, 171, 728	39, 408, 605	90, 763, 123
1949.....	148, 975, 571	40, 133, 100	108, 842, 471
1950.....	134, 587, 773	36, 742, 020	97, 845, 753
1951.....	105, 012, 094	35, 535, 115	69, 476, 979
1952.....	127, 189, 489	30, 838, 949	96, 350, 540
1953.....	112, 379, 041	37, 379, 041	75, 000, 000

¹ Including the arts.

PRICES AND MONETARY STOCKS

Since January 1934 the price of gold at the United States Mint has been \$35 per fine troy ounce.

Gold holdings of the United States Treasury declined \$1,156,000,000 from \$23,186,000,000 on December 31, 1952, to \$22,030,000,000 on December 31, 1953, according to figures published in the Federal Reserve Bulletin. Except for a slight gain in December, the decline was steady throughout the year. The net outflow of gold from the United States resulted largely from international loans and grants by the United States Government. Total world gold reserves are not positively known, inasmuch as data for some countries are not available; however, the Federal Reserve Board estimated that the world monetary reserves of gold totaled \$36,170,000,000 on December 31, 1953, exclusive of holdings of the Soviet Union.

FOREIGN TRADE ⁵

The excess of exports over imports of gold that prevailed during 1950 and 1951 was replaced by an excess of imports over exports in 1952 and again in 1953. The excess of imports in 1953, however, was slight.

⁵ Figures on imports and exports compiled by Mae B. Price and Elsie D. Page, Division of Foreign Activities, Bureau of Mines, from records of the U. S. Department of Commerce.

TABLE 17.—Value of gold imported into and exported from the United States, 1944-48 (average) and 1949-53

[U. S. Department of Commerce]

	Imports	Exports	Excess of imports over exports ¹
1944-48 (average).....	\$960,255,952	\$378,935,089	\$581,320,863
1949.....	771,390,261	84,935,678	686,454,583
1950.....	162,748,661	534,035,794	-371,287,133
1951.....	81,258,502	630,381,566	-549,123,064
1952.....	740,254,160	55,921,206	684,332,954
1953.....	47,024,515	44,808,300	2,216,215

¹ Excess of exports over imports indicated by minus sign.

TABLE 18.—Gold imported into the United States in 1953, by countries of origin

[U. S. Department of Commerce]

Country of origin	Ore and base bullion		Bullion, refined		Foreign coin (value)
	Troy ounces	Value	Troy ounces	Value	
Australia.....	36,101	\$1,260,430	1,545	\$54,727	
Austria.....	2	76			
Belgian Congo.....			38	1,313	
Belgium-Luxembourg.....	2,101	73,538	5	175	
Bolivia.....	1,021	35,698			
Brazil.....	399	13,953			
British Guiana.....	4,664	163,627			
British West Africa, n. e. c.....	28	971			
British Western Pacific Islands.....			26	906	
Canada.....	169,869	5,932,753			
Chile.....	26,529	928,569			
Colombia.....	6,478	228,527	16,453	574,377	
Cuba.....	1,181	41,285			
Ecuador.....	23,166	804,466			
El Salvador.....	16,152	565,255			
Guatemala.....	3	102			
Honduras.....	46,965	1,643,437			
Iran.....	2	68			
Malta, Gozo, and Cyprus.....	1,535	53,593			
Mexico.....	104,688	3,646,868			
Mozambique.....	87	3,037			
Nicaragua.....	73,461	2,565,057			
Northern Rhodesia.....	587	20,542			
Norway.....	9	300			
Panama.....	86	3,028			
Peru.....	21,157	738,608	269,834	9,444,183	
Philippines.....	103,676	3,626,343			
Portugal.....	14,036	491,289			
Southern Rhodesia.....	2,412	84,387			
Spain.....					\$31,525
Switzerland.....					3,000
Turkey.....	4,149	145,319			
Union of South Africa.....	(¹)	8	394,360	13,802,582	
United Kingdom.....	1,048	36,438			
Uruguay.....	2	60			
Venezuela.....	117	4,115			
Total.....	661,696	23,111,727	682,261	23,878,263	34,525

¹ Less than 1 troy ounce.

TABLE 19.—Gold exported from the United States in 1953, by countries of destination

[U. S. Department of Commerce]

Country of destination	Ore and base bullion		Bullion, refined		Foreign coin (value)
	Troy ounces	Value	Troy ounces	Value	
Afghanistan			51,441	\$1,800,440	
Belgium-Luxembourg			201	7,307	
Brazil			771	27,335	
Canada			38,000	3,224,191	\$4,505,779
Ceylon			18	700	
Chile			5,355	183,420	
Cuba			25	874	
Egypt			3,363	123,258	
El Salvador			8,110	283,845	
France			21,314	769,326	
Germany, West			119,355	4,232,457	
Ireland	29	\$1,126			
Kuwait			101,998	3,674,561	
Lebanon			146,835	5,145,115	
Mexico	8	280			
Netherlands			8,864	319,780	7,942,848
Netherlands Antilles			49	1,907	
Panama			764	27,841	
Peru			888	31,164	
Philippines			108,779	5,786,297	
Portugal			89,072	3,156,941	
Switzerland			14,516	503,184	
Tangier			13,558	485,880	
Turkey			2,472	86,868	
United Kingdom	1,087	39,100			
Uruguay			11,407	427,574	
Venezuela			55,971	2,008,922	
Total	1,124	40,506	853,126	32,319,167	12,448,627

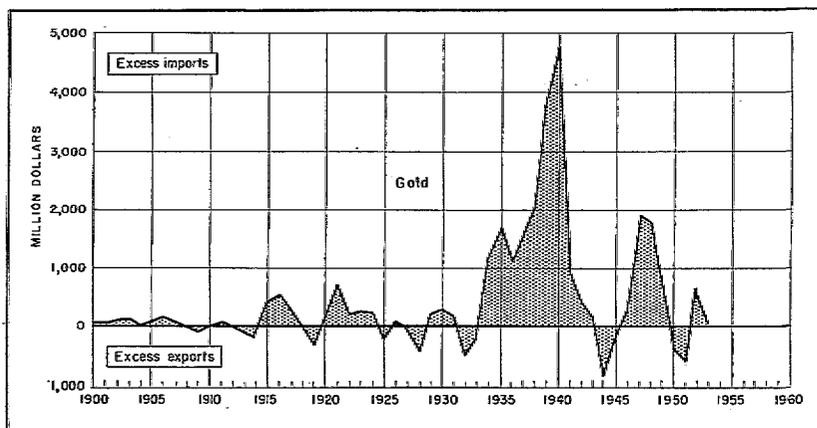


FIGURE 2.—Net imports or exports of gold, 1900-53.

WORLD REVIEW

Reversing an uptrend that started in 1946, the world rate of gold production was 2 percent smaller in 1953 than in the preceding year. Gains in Australia and the Union of South Africa were more than offset by declines in Canada and the Soviet Union. However, the 1953 output was 11 percent below the average for the 5 prewar years 1936-40.

According to the Bureau of the Mint, the world output of gold from 1943 through 1953 was 1,784,708,100 fine ounces valued at \$46,244,-110,800.

It has been estimated that, of the total gold yield of the world, 60 percent is held by governments and central banks, 25 percent is owned privately, and 15 percent has been lost or destroyed.

Australia.—Despite rising costs of labor and supplies, gold production in Australia was 10 percent greater in 1953 than in 1952. The increasing use of labor-saving machinery in ore production was an important factor in the larger yield. Most of the Commonwealth's gold output comes from Western Australia, which in 1953 produced around 75 percent of the total.

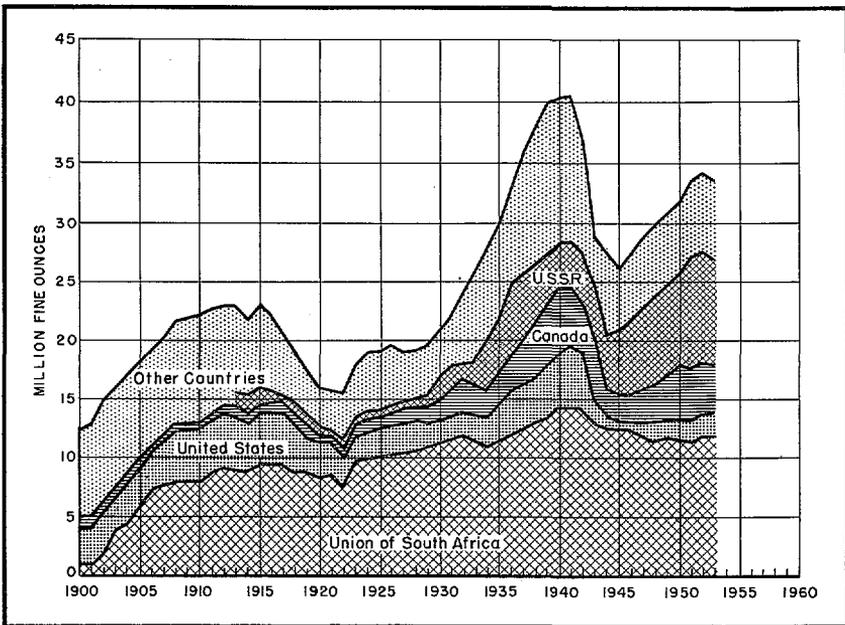


FIGURE 3.—World production of gold, 1900-53.

TABLE 20.—World production of gold, 1944-48 (average) and 1949-53, by countries,¹ in fine ounces²

[Compiled by Pauline Roberts and Berenice B. Mitchell]

Country ¹	1944-48 (average)	1949	1950	1951	1952	1953
North America:						
United States (including Alaska) ³	1,518,159	1,921,949	2,288,708	1,894,726	1,927,000	1,970,000
Canada	3,020,478	4,123,518	4,441,227	4,392,751	4,471,725	4,068,516
Central America and West Indies:						
Costa Rica ⁴	2,199	284	115	1		
Cuba	453	4,692	6,915	4,835	4,881	4,181
Dominican Republic ⁴	385	993	475	411	332	
Guatemala ⁴	56	5	397	7	4	3
Haiti	55					
Honduras	15,071	25,832	36,545	31,216	31,957	38,988
Nicaragua (exports)	212,772	219,139	229,206	251,160	254,675	261,899
Panama	200	9,657	1,118	2,897		
Salvador (exports)	18,534	27,091	29,053	27,097	27,682	23,359
Mexico	452,207	405,550	408,122	394,007	459,370	483,483
Total	5,240,580	6,739,700	7,441,900	6,995,100	7,173,700	6,847,400
South America:						
Argentina (estimate)	6,600	8,000	8,000	8,000	8,000	8,000
Bolivia	11,130	33,533	7,716	3,200	10,996	5,032
Brazil	8 177,880	8 188,500	8 195,500	8 200,000	8 180,000	115,775
British Guiana	19,788	18,988	12,366	13,485	22,237	11,350
Chile	197,828	179,144	190,172	173,646	176,025	130,683
Colombia	443,138	359,474	379,412	430,723	422,240	436,045
Ecuador	72,958	98,382	96,403	12,601	24,294	29,239
French Guiana	17,503	14,757	12,249	12,056	8,231	2,576
Peru	146,679	113,754	127,458	144,765	130,944	128,211
Surinam	4,915	3,794	4,546	6,494	6,134	6,482
Uruguay	400					
Venezuela	54,935	61,378	34,462	2,861	4,797	27,304
Total	8 1,154,000	1,075,000	1,068,000	1,008,000	994,000	897,000
Europe:						
Austria	6 1,622	(7)	(7)	(7)	(7)	(7)
Bulgaria	6 2,000	(7)	(7)	(7)	(7)	(7)
Czechoslovakia	2,507	(7)	(7)	(7)	(7)	(7)
Finland	9,272	14,587	9,465	18,500	20,100	19,483
France	39,996	55,537	63,594	68,127	45,011	36,202
Germany:						
East	6 8 1,000	(7)	(7)	(7)	(7)	(7)
West	6 8 1,000	1,447	6 1,500	1,498	2,009	6,398
Hungary	6 6,744	(7)	(7)	(7)	(7)	(7)
Italy	9,259	10,385	10,674	12,089	14,854	12,153
Portugal	6,848	10,385	15,465	18,358	17,940	14,854
Rumania	82,128	112,528	(7)	(7)	(7)	(7)
Spain	4,361	30,318	13,217	12,777	8,944	8,256
Sweden	87,398	80,280	78,866	70,474	65,877	(7)
U. S. S. R. (estimate) ¹⁰	5,800,000	7,000,000	8,000,000	9,500,000	9,500,000	11 9,000,000
Yugoslavia	6 16,141	34,594	42,760	21,380	36,266	6 34,300
Total (estimate)	6,100,000	7,400,000	8,400,000	9,800,000	9,800,000	9,300,000
Asia:						
Burma	72	158	150	131	43	647
China	39,147	6 60,000	108,000	5 100,000	8 100,000	6 100,000
Cyprus	192	(7)	(7)	(7)	(7)	(7)
India	168,096	164,203	196,925	226,475	243,629	211,124
Indonesia (estimate)	12,800	35,000	42,000	(7)	(7)	(7)
Japan	74,924	84,492	135,033	177,472	201,392	227,627
Korea:						
Korea Republic		5,466	14,854	7,620	18,647	15,860
North (estimate)	6 233,492	300,000	200,000	(7)	(7)	(7)
Malaya	3,494	13,617	18,436	17,018	19,806	18,203
Philippines	57,503	287,844	333,991	393,602	469,408	480,625
Sarawak	201	1,523	1,440	931	843	442
Saudi Arabia	44,131	66,835	66,202	73,104	69,394	81,566
Taiwan (Formosa)	10,607	19,644	30,446	30,511	33,147	24,821
Thailand	6 1,200	(7)	(7)	(7)	(7)	(7)
U. S. S. R.	(10)	(10)	(10)	(10)	(10)	(10)
Total (estimate)	646,000	1,040,000	1,150,000	1,290,000	1,420,000	1,430,000

See footnotes at end of table.

TABLE 20.—World production of gold, 1944-48 (average) and 1949-53, by countries¹ in fine ounces²—Continued

[Compiled by Pauline Roberts and Berenice B. Mitchell]

Country ¹	1944-48 (average)	1949	1950	1951	1952	1953
Africa:						
Angola.....	695	319	201	61	40	20
Bechuanaland.....	8,300	256	261	493	1,245	1,109
Belgian Congo ¹²	328,741	333,853	339,415	352,308	368,737	371,020
Egypt.....	2,557	7,045	10,724	16,469	17,059	14,234
Eritrea.....	2,323	2,243	1,042	675	(?)	⁶ 3,000
Ethiopia.....	42,967	45,102	43,524	32,937	27,291	26,696
French Cameroon.....	14,172	8,938	7,170	5,422	2,604	1,029
French Equatorial Africa.....	72,897	57,273	54,996	52,849	51,655	54,180
French Morocco.....	1,093	643	119	2,069	4,051	2,533
French West Africa.....	^{6 13} 28,219	¹³ 47,000	¹³ 96,000	5,700	1,500	749
Gold Coast.....	575,757	676,934	689,441	698,676	691,460	730,963
Kenya.....	31,211	20,072	22,945	19,765	10,210	9,603
Liberia.....	17,416	14,656	11,025	^{6 14} 9,806	^{6 14} 9,949	863
Madagascar.....	4,663	1,663	1,935	1,951	1,784	1,640
Mozambique.....	6,280	2,468	997	861	831	⁶ 1,000
Nigeria.....	5,201	2,515	2,238	1,566	1,348	689
Northern Rhodesia ¹⁵	1,874	1,186	1,432	857	2,523	3,308
Sierra Leone.....	1,258	2,330	3,484	3,261	2,638	1,451
Southern Rhodesia.....	548,548	528,180	511,163	486,907	496,731	501,057
South-West Africa.....	2,883	32	32			
Sudan.....	2,858	4,114	3,603	1,495	1,545	(?)
Swaziland.....	3,908	2,841	1,794	322	1	
Tanganyika (exports).....	51,550	68,989	65,127	65,224	64,693	69,886
Uganda (exports).....	1,918	650	509	223	201	511
Union of South Africa.....	11,843,311	11,705,048	11,663,713	11,516,450	11,818,681	11,940,61
Total.....	13,598,000	13,535,000	13,535,000	13,275,000	13,570,000	13,740,000
Oceania:						
Australia:						
Commonwealth.....	792,344	890,204	867,837	895,536	980,435	1,075,080
New Guinea.....	29,284	93,045	80,099	94,085	122,431	120,568
Papua.....	143	450	788	248	149	141
Fiji.....	81,037	104,036	103,421	93,635	78,282	⁶ 80,500
New Zealand.....	119,217	84,874	76,527	75,115	59,151	38,656
Total.....	1,022,025	1,172,609	1,128,672	1,158,619	1,240,448	⁶ 1,315,000
World total (estimate).....	27,760,000	31,000,000	32,700,000	33,500,000	34,200,000	33,500,000

¹ Figures used derived in part from American Bureau of Metal Statistics. For some countries accurate figures are not possible to obtain owing to clandestine trade in gold (as for example, French West Africa).

² This table incorporates a number of revisions of data published in previous Gold chapters.

³ Refinery production. Excludes production of the Philippines.

⁴ Imports into United States.

⁵ Exports.

⁶ Estimate.

⁷ Data not available; estimate included in total.

⁸ Average for 1945-48.

⁹ Includes gold mined in Transylvania, which temporarily formed part of Hungary.

¹⁰ Output from U. S. S. R. in Asia included with U. S. S. R. in Europe.

¹¹ Production is believed to have decreased because of a probable diversion of forced labor into other activities.

¹² Includes Ruanda-Urundi.

¹³ Estimate based on reported production.

¹⁴ Year ended September 30 of year stated.

¹⁵ Included is yield from Nkana-mine refinery slimes accumulated during the war: 1946-48 (average), 2,713 ounces; 1949, 972; 1950, 1,296; 1951, 756; 1952, 2,503; and 1953, 2,999.

Canada.—Ranking third among the gold-producing countries of the world, Canada was exceeded in gold output by only the Union of South Africa and (probably) the Soviet Union. However, the gold production of Canada declined 9 percent in 1953 compared with that of the preceding year and was lowest since 1948. The drop was due mainly to strikes that closed some mines for long periods during the latter part of the year. High-cost operations continued to receive aid through Government subsidy under the Emergency Gold Mining

Assistance Act. For many years gold was the leading mineral in Canada in output value, but in 1953 gold was forced into fourth place, preceded in order by petroleum, nickel, and copper.

The gold outputs of the Provinces or Territories in 1952 and 1953 were as follows:⁶

Province or Territory:	(Fine ounces)	
	1952	1953
Newfoundland.....	8, 595	7, 575
Nova Scotia.....	1, 433	3, 402
Quebec.....	1, 113, 204	1, 018, 575
Ontario.....	2, 513, 691	2, 182, 544
Manitoba.....	141, 947	132, 500
Saskatchewan.....	93, 535	87, 150
Alberta.....	111	55
British Columbia.....	273, 059	267, 000
Northwest Territories.....	247, 591	292, 741
Yukon.....	78, 519	69, 663
Total.....	4, 471, 735	4, 061, 205

Of the 1953 output of gold, 89 percent was derived from straight gold mining and 11 percent was recovered as a byproduct of base-metal mining.

Colombia.—The gold output of Colombia exceeds that of other countries in South America by a large margin. Compared with 1952 gold production in Colombia in 1953 was up 3 percent to 436,100 ounces, of which about three-fourths was recovered by placer mining and the remainder by gold-lode mining. Some of the smaller mines were forced to close because of rising costs. An effort to aid gold producers was made by the Colombian Government by permitting sale of newly mined gold on the free market and by relaxing various exchange control regulations.

Philippines.—Although the gold output of the Philippines rose 2 percent in 1953 to 481,000 ounces, the condition of the Philippine gold-mining industry was far from prosperous. The industry as a whole was reported to have suffered a net loss of \$400,000 in 1953, and 3 out of 10 major producers were forced to close their mines. Lower prices for gold on the free market and rising labor costs, due largely to social legislation, more than offset favorable action by the Government during the year by which gold mines were exempted from various taxes. As the year closed further relief, perhaps in the form of Government subsidy for high-cost mines, was being sought by the Philippine gold-mining industry.

Union of South Africa.—Although the quantity of gold ore milled in the Union of South Africa was 4 percent less in 1953 than in the preceding year, the average recovery of gold per ton of ore was greater, and gold production increased 1 percent to 11,941,000 ounces. Average working costs per ton of ore were up 2s. 4d. (32.6 cents) and average

⁶ Canadian Mining Journal, vol. 75, No. 2, February 1954, p. 53.

working profits per ton declined 1s. (14 cents) per ton. Shortages of power, water, and native labor were serious problems to some mines during 1953. Government regulations continued to permit gold producers to sell up to 40 percent of new output on the free market, but revenue from free market sales declined because of the sharp drop in premium gold prices in 1953.

Five of the 13 separate companies with holdings in the new gold field in the Orange Free State had reached a preliminary production stage in 1953 and were treating ore derived from development workings. Five additional mines were expected to progress to the same phase in 1954.

To the end of 1953 three mines in the Transvaal had announced profits from the production of byproduct uranium. Twelve additional mines in the Transvaal and 7 in the Orange Free State had announced their acceptance for participation in the uranium program. Additional information on the production of byproduct uranium from gold mining in the Union of South Africa will be found in the chapter on Uranium, Radium, and Thorium in this volume.

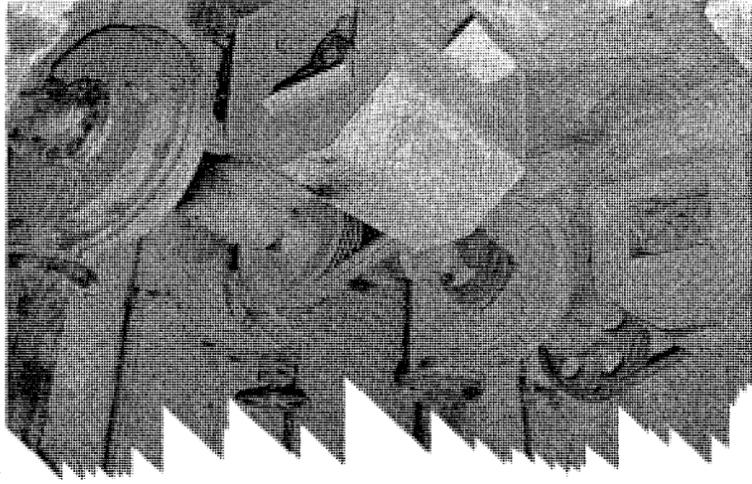
Some interesting facts as of the end of 1953 were released by the Chamber of Mines: Since the discovery of the Witwatersrand gold field in 1886, the gold output of the Union of South Africa had totaled around 525 million ounces. The three largest mines were still the Randfontein Estates, Crown Mines, and Government Areas. The three producing the most gold were the Blyvooruitzicht, Daggafontein, and Crown Mines. The deepest mine in the Union was the Crown, with workings reaching a vertical depth of 9,714 feet below the surface.

TABLE 21.—Salient statistics of gold mining in the Union of South Africa, 1944–48 (average), and 1949–53

[Transvaal Chamber of Mines]

	1944-48 (average)	1949	1950	1951	1952	1953
Ore milled (tons).....	56,665,500	56,881,550	59,515,200	58,645,800	60,500,000	60,032,768
Gold recovered (fine ounces).....	11,836,239	11,708,013	11,663,713	11,516,450	11,818,681	11,940,616
Gold recovered (dwt. per ton).....	4.011	3.942	3.759	3.756	3.767	3.893
Working revenue.....	£97,927,948	£110,617,476	£139,491,029	£137,494,860	£141,271,310	£142,198,156
Working revenue per ton.....	34s. 7d.	38s. 11d.	46s. 11d.	46s. 11d.	47s. 1d.	48s. 5d.
Working cost.....	£70,647,392	£76,667,643	£87,956,643	£93,494,860	£102,525,003	£107,306,956
Working cost per ton of ore.....	25s. 0d.	27s. 0d.	29s. 7d.	31s. 10d.	34s. 2d.	36s. 6d.
Working cost per ounce of metal.....	124s. 7d.	136s. 9d.	157s. 3d.	169s. 6d.	181s. 6d.	187s. 7d.
Working profit.....	£27,279,557	£33,949,793	£51,534,386	£44,157,054	£38,746,307	£34,891,200
Working profit per ton.....	9s. 7d.	11s. 11d.	17s. 4d.	15s. 1d.	12s. 11d.	11s. 11d.
Premium gold sales.....	.....	.....	.....	.....	£3,699,124	£1,934,421
Estimated uranium profits.....	.....	.....	.....	.....	£125,000	£1,828,067
Dividends.....	£13,068,997	£17,394,046	£24,699,544	£22,787,806	£19,804,928	£18,207,830

¹ Revised figure.



Two 6"x6" Denver SRL rubber lined pumps (one standby) deliver classifier overflow from three mills (2,000 TPD) to distributor box ahead of flotation.

sitic "Hanging Wall Dike," and are intruded within the mine by other smaller andesitic and serpentine dikes.

La Luz Mines Limited Operations

The operations consist of:

- Crushing
- Flotation
- Smelting
- Washing
- Regrind
- Grinding
- Cyanidation
- Slag recovery

Two thousand tons (per 24 hours) of 0.1213 oz. gold ore are crushed underground to a minus 5", then milled with a recovery of 90.16%, and with a resulting mill tailing of approximately 0.003 ozs. gold per ton.

Washing Plant

The wet sticky ore, especially in the wet season, gave considerable trouble to the crushing plant, crushers, chutes and screens. This was eliminated by the installation of a washing plant, which washed out the sticky slimes and thus increased tonnage through the mill. (See Flowsheet.)

Screen analysis of slimes from the washing plant:

65 mesh	14.3%
100 mesh	7.5%
200 mesh	12.4%
minus 200 mesh	65.8%

Secondary crushing consists of one 4 1/4' cone crusher, and a 4'x8' Vibrating Screen in closed circuit with three 3' cone crushers. The 4 1/4' cone crusher is set for a 1" product. The 4'x8' screen has two sections of 3/8" screen and one section of 1/4" screen.

PART LIFE—CRUSHING SECTION

Life of the 3' mantle liners	2 1/2 months
Life of 3' bowl liners	3 months
Life of 4 1/4' mantle liners	4 1/2 months
Life of 4 1/4' bowl liners	4 1/2 months
Life of 1/4" screens	18 days
Life of 3/8" screens	23 days

Grinding section consists of three 8'x8' mills in closed circuit with gold traps and rake classifiers.

Each mill at 23 r.p.m. grinds approximately 650 tons of ore per twenty-four hours, and is driven by a 300 h.p. motor, while the rake classifiers at 24 strokes per minute are driven by 5 h.p. motors. The ore grinds and separates very well. The ball consumption is .729 lbs. per ton feed, while the life of the shell liners is one year and the end throat lines 13-14 months.

At the discharge of each mill there are four hydraulic gold traps covered with 3-mesh stainless steel screen.

The traps are cleaned every third day and 30-35% of the total gold is recovered here.

The concentrates from the gold traps are tabled on a No. 12 Denver Wilfley table, with the resulting table concentrates going to the refinery and the tailings to regrind mill.

The screen analysis of the classifier overflow follows:

+65	+100	+150	+200	+325	-325
36.6%	8.7%	7.7%	4.9%	5.8%	36.6%

Flotation

Classifier overflow at 36-38% solids is pumped to three circuits each having a 6-cell No. 24 "Sub-A" Denver Flotation Machine. Capacity of flotation section is approximately 2,000 tons per twenty-four hours. Concentrates from the first four cells on each machine go to the regrind circuit, while middlings from the other two cells on each machine are returned to the primary grinding circuit. The Denver "Sub-A" Flotation Machines are supercharged by air from a 12" by 30" blower, set at 3 lbs. pressure. A No. 12 three compartment Denver Reagent Feeder is installed with each bank of flotation cells. Eight cc per minute of Aero-float and 5 cc of pine oil are fed to each machine. Flotation tailings flow by gravity to two 4'7"x33" air 14"x36" blower.

Tailings from air flotation machines pass over 54 4'x8' blanket tables, using corduroy cloth for blankets. Approximately 4-6% of gold in mill feed is recovered by these blanket tables. The blankets are removed and washed every two hours.

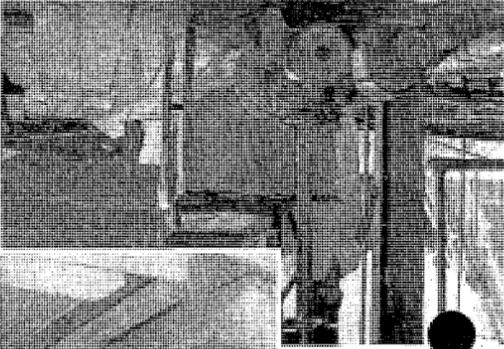
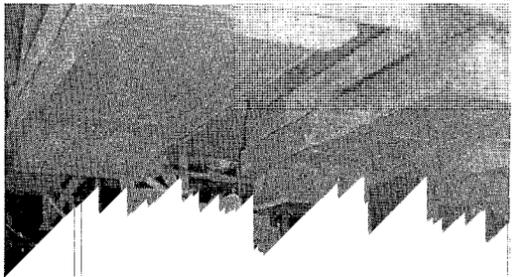
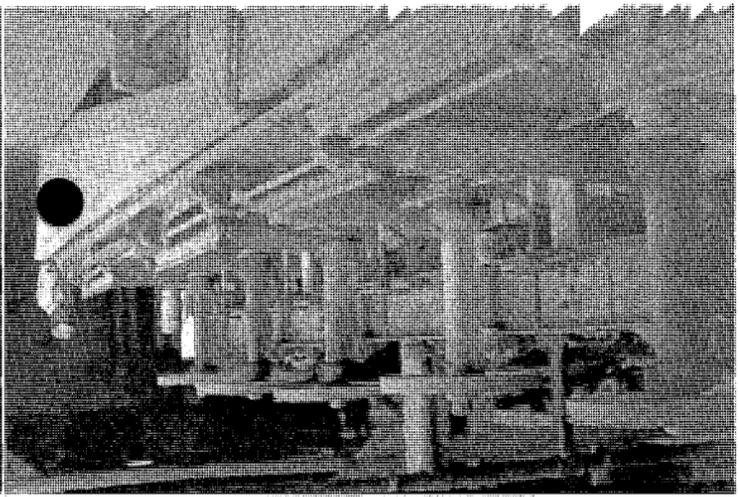
The pulp from the 30' thickener, (which is the slimes washed from the ore, by the washing plant), is pumped to two air flotation units. Five pounds per 24 hours of Z-4 sodium ethyl xanthate, together with a very small amount of pine oil and Aerofloat is added to the air flotation units.

Screen analysis on Denver 6-cell flotation tailings:

+65	+100	+200	+400
33.8%	8.2%	14.0%	44.0%

Reagent	Amount	Where Added	Method of Adding
Xanthate	0.39	No. 500 Unit Cell	No. 12 3-Comp Feeder
Aerofloat	0.34	Flotation Machines	No. 12 3-Comp Feeder
Pine Oil	0.33	Flotation Machines	No. 12 3-Comp Feeder

One of three banks of 6-cell No. 24 Denver "Sub-A" flotation machines, that receives classifier overflow at 36-38% solids. The flotation machines are supercharged with 3 lbs. pressure air. They treat 2,000 tons daily (24 hours).



Fifty-four blanket tables covered with corduroy cloth, and washing tub. These blanket tables receive tailings from the air machines. The corduroy cloths are removed and washed every two hours.

Regrind Circuit

Regrind circuit consists of a thickener and classifier in closed circuit with a 8'x36" ball mill. Approximately 116 tons per 24 hours of combined concentrates from flotation machines and the washings from the corduroy blankets, goes through the regrind circuit. The feed to the regrind circuit is first thickened to 15-20% solids, and then classified. Classifier overflow goes to cyanide circuit. Rake product goes to regrind mill. Cyanide solution and CaO are added to the classifier and mill feed, strength is kept at 0.75 KCN and 0.20 CaO.

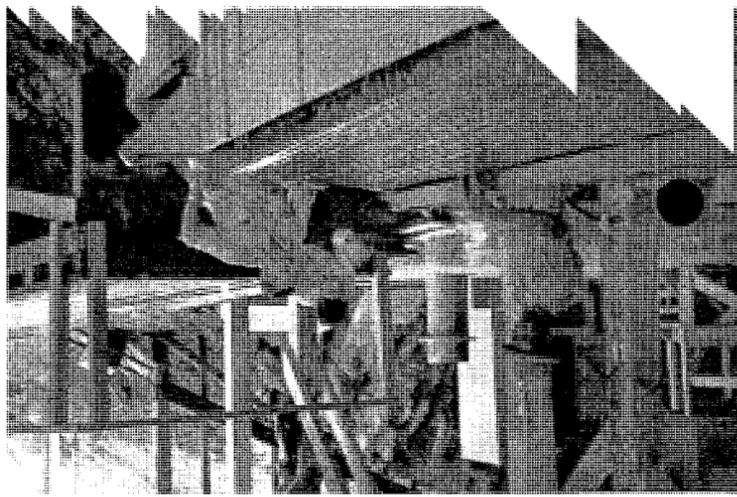
Screen analysis of regrind classifier overflow:

41.4%	-325 mesh, approximately 15% solids.
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As the concentrate tonnage is not sufficient to supply the 8'x36" ball mill full time, the rake product from the classifier is discharged into a 4'x4'x4' box, and when full the mill is started and concentrates slowly shoveled in. Running time of the mill is approximately 50%.

The cyanide treatment plant consists of four 21'-6" x20' mechanical agitators with center column air lift, and three 38'x12' thickeners for counter current decantation. Tails from No. 3 thickener discharge approximately 30% solids and assaying 0.05 ozs. gold per ton are returned to blanket tables.

No. 12 Denver-Wilfley Table receives concentrates from the gold traps, with the resulting table concentrates going to the refinery and the tailings to the regrind mill.



the dissolving tank per hour, and about 35 lbs. of lime are added every 8 hours: Maintaining a strength of 0.65 lbs. per ton KCN and 0.20 lbs. per ton CaO. The final tailings assay is 0.0103 ozs. gold per ton. Screen analysis of final tailings:

+65	+100	+200	-200
29.5%	8.6%	13.0%	41.2%

Air for agitation is supplied by a 14"x11" horizontal compressor at 50 lb. pressure.

Precipitation Section

This consists of a clarifier, two pneumatic vacuum pumps, belt type zinc feeder, pregnant solution, barren solution and unclarified solution pumps, pregnant solution tank, two Perrin gold presses and a bullion furnace. Approximately 1,000 tons solution is precipitated every 24 hours. Average heads are 0.1213 ozs. au./ton.

Refinery

The precipitate is removed from the gold presses every two weeks, fluxed in 50 lb. batches, melted and poured into buttons. Flux used per 50 lbs. of precipitate: Borax—16.51 lbs., soda—10.0 lbs., lime—10.0 lbs., silica—14.5 lbs., nitre—3.0 lbs.

Concentrates from trap product Denver Wilfley Table, is fluxed and melted into buttons, and drilled for sample. Flux used for 50 lbs. of concentrates: borax—14.0 lbs., soda—13.5 lbs., lime—9.5 lbs., silica—12.0 lbs., nitre—7.0 lbs., iron cuttings—10.0 lbs.

The buttons from concentrate and precipitate is replaced in furnace and melted, then poured in 1,000 oz. bars for shipment. Fineness of bullion is approximately 600 parts per 1,000. Life of furnace lining is 6 months.

All slag is crushed and milled by a 3'x6' Denver Ball Mill in closed circuit with Denver Spiral Classifier to remove any small beads.

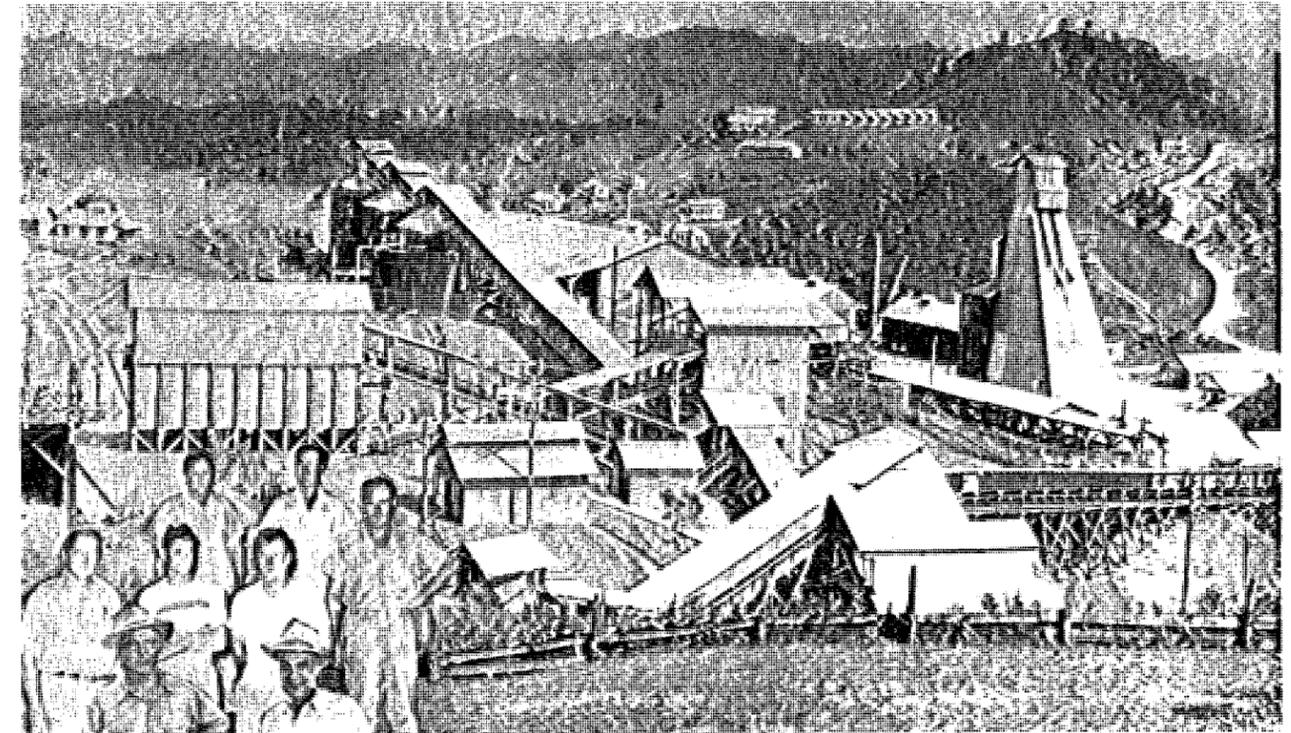
Summary

During the months of December 1955 through February 1956, an average of 58,530 tons of 0.1213 ozs. gold ore were milled, with a recovery of 90.16%.

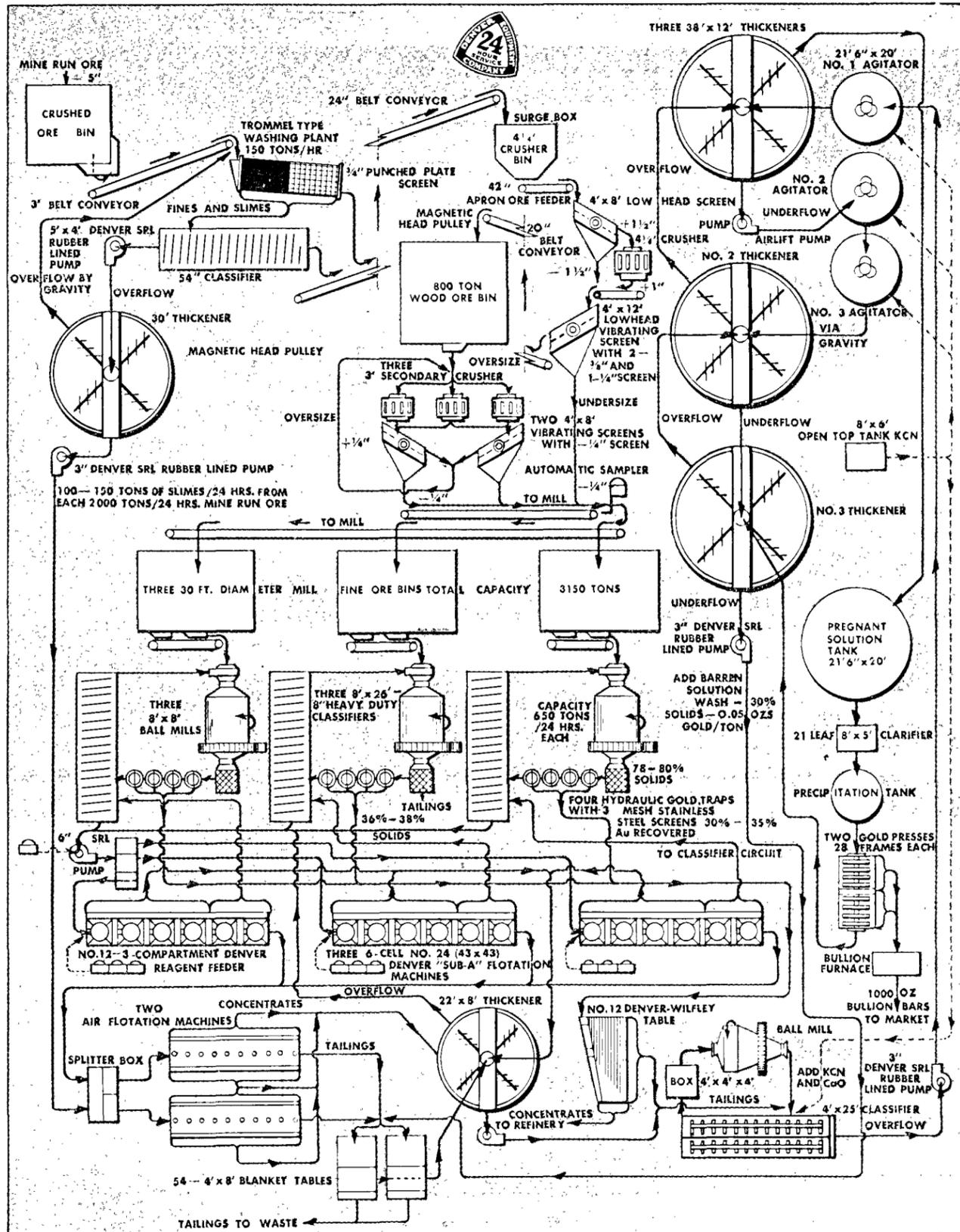
Mining	\$1.17/ton milled
Milling	0.86/ton milled
General expense	0.44/ton milled
Taxes	0.15/ton milled
Total	2.62/ton

Crushing and conveying	\$0.26 per ton milled
Grinding and classification	0.02 per ton milled
Concentrate and regrinding	0.07 per ton milled
Flotation	0.17 per ton milled
Agitation and thickening	0.02 per ton milled
Clarification & precipitation	0.01 per ton milled
Tailings disposal	0.02 per ton milled
Regrinding	0.02 per ton milled
Sampling & assaying	0.01 per ton milled
Blanket plant	0.86 per ton milled
Total milling	0.906 lbs.
Aero-Brand Cyanide	0.691 lbs.
Grinding Ball 3"	0.015 lbs.
Zinc dust	0.016 lbs.
Lime	0.006 lbs.
Filter cell	0.003 lbs.
Lead acetate	0.003 lbs.

LA LUZ MINES, LIMITED



GENERAL MILL SITE, Crushing Plant, mill, headframe and part of townsite looking north. 2,000 tons per twenty-four hours; and mill personnel—left to right, front row, T. N. Slaughter, general manager; H. S. McGowan, president; middle row, Jim Kennedy, R. J. Webber, I. S. Fredrickson, G. B. Edwards; back row, Daniel McKenzie and D. J. Daley.



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Location

The La Luz Mines Limited is located in the north-east part of Nicaragua, 90 miles west of Puerto Cabezas, and 150 miles northeast of Managua, the capital of Nicaragua. The topography of the area surrounding the property is very rugged.

History and Growth

Investigations by Ventures Limited of Canada who became interested in the property in 1937, disclosed the existence of a large body, (over 5,000,000 tons) of 0.16 oz. gold ore. This ore body extended from the surface downward for 500 feet, was 100 to 200 feet wide and about 1200 feet in length.

The property was purchased from the La Luz and Los Angeles Mining Company in 1938 and the new company, La Luz Mines Limited constructed a modern 600 ton mill, which was placed in operation in 1939. As depth was obtained, the ore reserves were increased and it became evident that milling of greater tonnages would be necessary.

Power is furnished by a hydroelectric plant, 18 miles east of the property on Yy river, and a stand-by diesel plant at the property. Hydroelectric cost is \$0.004 for Kwh, while diesel power costs \$0.025 per Kwh.

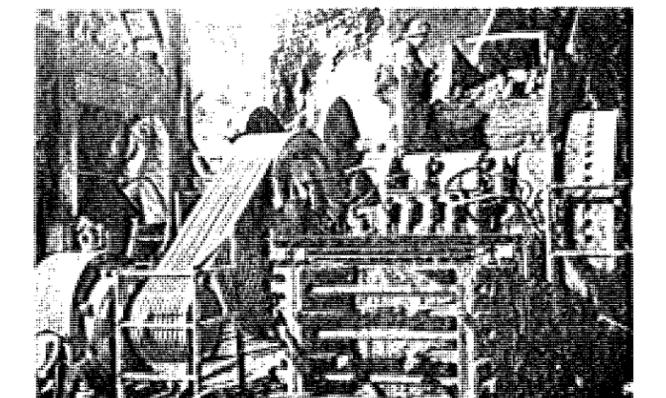
Through courtesy of H. S. McGowan, president, and T. N. Slaughter, general manager, La Luz Mines, Limited.

Geology of La Luz Mines Limited

The La Luz Mine located in the mountainous area of northeastern Nicaragua is situated in an elliptically shaped "window" of sediments belonging to the Lower Cretaceous. These sediments are generally overlain by Tertiary volcanics.

Mining operations are confined to the "Mine Series" sediments, which is that part of the Lower Cretaceous in which distortion, alteration and mineralization have affected the sediments both physically and chemically. The "Mine Series" sediments, consisting mainly of greywacke, shale and lava beds, are separated from the remainder of the Lower Cretaceous series by the ande-

Norman Kentish, assistant mine superintendent, standing beside the 36"x42" jaw crusher on the 1110' level. This crusher crushes ore to -5".



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DECO TREFOIL, MARCH-APRIL, 1956

GOLD

C O P Y

AMERICAN SMELTING AND REFINING COMPANY
Mining Department
120 Broadway, New York 5

August 1, 1951

AIR MAIL

Mr. D. J. Pope, General Manager
American Smelting and Refining Co.
Western Mining Department
600 Pacific National Life Building
Salt Lake City 1, Utah

File

W. R. L.
AUG 8 1951

FEATHERVILLE PLACER PROJECT
NEAR FEATHERVILLE
ELMORE COUNTY, IDAHO

Dear Mr. Pope:

I have your letter of July 27th with attached memorandum from Mr. Hart dated July 25th. Referring to the point of yourself and Mr. Hart concerning the policy of the Company at this time on gold deposits of a marginal nature, I would say that if a property of substantial tonnage in the case of a mine, or yardage in the case of a placer deposit, now marginal but profitable at say \$50 gold, could be put on ice, then the Company would be interested in its acquisition. Obviously, each property presents a problem in that it would have to be acquired under outright purchase at a modest price or tied up for at least ten years with no real commitments as to work obligations, advance royalties, and the like. Coupled with this there would have to be an option price on the property.

An ideal example would be the Big Bell Mine in Western Australia. At \$35 gold and current operating costs, Big Bell is barely breaking even. With an increase in the price of gold to \$50 per ounce, Big Bell would be a bonanza, and would have a life of many years based on present indicated ore reserve and prospective additional ore. If a property of this nature could be acquired under general conditions outlined above, it would be attractive to us. Unfortunately, in the case of Big Bell we cannot put it on ice, and must struggle along as best we can.

The whole question of interest in gold mines of a marginal nature has been under consideration for some time. When final decision is reached, I shall pass the conclusions on to you.

Coming back to the Featherville Placer project, even if gold did go to \$50 (I am simply pulling the figure of \$50 out of the air, because there is no real basis to estimate what a new price would be), it would not appear to be too attractive. If it is marginal at the present price of gold, the additional profit at a \$50 price is not too great. Furthermore, it is complicated by the question of advance royalties, etc., and on balance prospects at the higher price of gold do not appear to be attractive enough to warrant trying to negotiate a more favorable setup so that it could be put on ice.

cc: J.F.Lord - Lima
Copied SLC 8-7-51 for
D.J.Pope
L.H.Hart
W.R.Landwehr ✓

Yours very truly,

/s/ R. F. Goodwin

Solicitor General Philip Perlman told the Committee that the U. S. Government opposed handing control to the coastal States over the oil and other resources in return for a grant to the U. S. of the first opportunity to buy back the resources in a national emergency.

Spokesmen for several States scored "misleading propaganda" from Government officials as to the tidelands issue. They charged that Federal ownership proposals were a move toward concentration of all Governmental power in Washington.

State officials cited historical records to show that the coastal tidelands were properties of the States.

No action is expected to be taken on tidelands legislation at this session. Meanwhile, the U. S. Supreme Court today refused to dismiss two suits by which the Federal Government seeks to establish its paramount right to tidelands off the Texas and Louisiana coasts. The court last May had granted the Justice Department permission to sue the two States, which it did, and the States replied with requests that the suits be dismissed. Today's action by the court also requires the States to file answers to the Government's suits within 30 days.

TRADE AGREEMENTS: On October 10, the U. S. State Department announced a new series of trade agreements with 10 countries as a result of the recent Ancey, France, negotiating conference. The countries with which pacts were concluded are: Italy, Sweden, Denmark, Finland, Greece, Uruguay, Nicaragua, Haiti, the Dominican Republic, and Liberia.

A long list of tariff concessions by the United States was made public today. The majority of the items on this list are agricultural commodities, chemicals, oils, earthen and glassware, wood and wood products and a long list of iron and steel products. Mineral products affected were talc, steatite or soapstone, and french chalk, which were reduced from 1¢ a pound to $\frac{1}{2}$ ¢ a pound; and ferrochrome or ferrochromium containing less than 3% of carbon which was reduced from 25¢ to 12 $\frac{1}{2}$ ¢.

The new rates are expected to be put into effect gradually during the first half of next year. Concessions made by the U. S., on the basis of 1948 trade, are estimated to apply to about \$250 million worth of goods imported from abroad.

GOLD: At a recent press conference Treasury Secretary Snyder again denied rumors that he will increase the price of gold or that the U. S. will return to the gold standard. His denial was issued after reporters had queried him about rumors as to a possible gold price change as the result of the devaluation of foreign currencies.

Prompted by the press conference questioning, the Treasury Department issued a formal statement concerning the legal authority to change the gold content of the dollar and the Treasury's price for gold. The statement declared: (1) only an Act of Congress can now alter the statutory gold content of the dollar; (2) the authority of the President to change the gold content of the dollar by executive proclamation expired June 30, 1943; (3) while the Secretary of the Treasury has authority to purchase and sell gold at such rates and upon such terms as he may consider most advantageous to the public interest, his authority in this respect is limited by U. S. obligations as a member of the Monetary Fund and the Bretton Woods agreement. The statement explained that no official of the United States can propose any change in the par value of the U. S. dollar to the Fund unless Congress authorizes such action by law.

MUNITIONS BOARD PERSONNEL: Lieutenant General LeRoy Lutes has been appointed Commanding General of the Fourth Army and has left his post as Staff Director of the National Munitions Board to take over his new assignment.

Lutes has been succeeded by Major General Patrick W. Timberlake. General Timberlake had formerly been a deputy to General Lutes.

ATOMIC ENERGY COMMISSION: Jesse C. Johnson has been named Deputy Manager of the Atomic Energy Commission's Raw Materials Operations Office. Johnson has been with the Commission since January 1948.

Johnson will serve as an assistant to John K. Gustafson in administering the entire AEC program for the acquisition and production of all raw materials used in the atomic energy program.

A FREE MARKET IN GOLD

From Mr. Bonnell.

THE ISSUE

Identical bills have been introduced in both houses of Congress giving the gold miner the right to sell his gold to the government at \$35 an ounce, to take it to a better market if he can find one, to keep the gold in its natural or refined form, to do anything else with it that his mood or interest might suggest. It is a right which he always enjoyed in this country until 1933. It never crossed the mind of any citizen outside an institution that the exercise of this right was or could be incompatible with the public interest.

Under the Emergency Banking Act of March 9, 1933, introduced, debated and passed by Congress within a single day, the Secretary of the Treasury was given the power to call in all gold; the penalty—the forfeit of the gold involved plus an additional amount twice the value of the gold.

By Executive Order of April 20, 1933, all traffic in gold was forbidden under severe penalties—\$10,000 fine, ten years in prison, or both.

The Gold Standard Act of 1934 reaffirms the main provisions of the Banking Act and Executive Order. It further includes extravagant precautions lest any gold miner or ordinary citizen should defy the wishes of Washington—provisions strongly reminiscent of the constitutional attempt to keep all our citizens sober by law.

The proposed return to monetary sanity and honesty is opposed by the Federal Reserve Board, the Treasury, and the Monetary Fund. The latter has taken the extreme step of barring the facilities of the Fund to a member power, France, which has seen fit to restore an open market in gold.

In bed with the foregoing official bodies on this issue is the spokesman of the Economists' National Committee on Monetary Policy. They all agree (1) that the country is now on the gold standard and (2) that the restoration of the right to own, trade and hoard gold—a right now enjoyed by the Mexican peon, the French peasant and the Chinese coolie—would “undermine exchange stability and cause gold to flow into private hoards.”¹ “We would be joining, and sharing the chaos and miseries of all those countries afflicted with irredeemable paper money.”²

It is charged that this is “a case of the gold mine interests versus the people of the United States.”³

The issue transcends the stakes of the gold mining bloc, the vested interests of planners, or the prepossessions of pundits. That the gold miner is the only producer forced to sell his product at a fixed price, regardless of costs, to a single buyer; that, unlike utilities and transportation, no administrative body is obliged to assure compensatory rates; that he was forced to shut down his plant during the war while sorely-needed facilities were used to produce the best gold mining equipment for Russia—gratis; all this is irrelevant.

The question: Is the resumption of a free market in gold compatible with the public interest?

The issue: Is the right to own gold—the correlative right to pass judgment on our own currency and the credit conduct of our government—an essential part of that freedom for which we profess to be fighting or is freedom a selective concept containing merely that residue of individual rights which government has not yet seen fit to seize?

¹ Federal Reserve Bank of New York, *International Traffic in Gold*, Circular No. 3238, July 21, 1947.

² Walter E. Spahr, *The Question of a Free Gold Market*, *The Commercial and Financial Chronicle*, January 20, 1949.

³ *Idem*.

THE ARGUMENT

This struggle for freedom again dominates the day as it did 175 years ago. History has described a complete cycle. On the offensive are the "liberals" who believe that every social and economic ailment will respond to a simple formula: "Give the government more power." In this struggle the "liberals" have already achieved strategic victories which contain the seeds of ultimate, complete tyranny. The most important of these is the control of the purse and the complete mastery of a subtle technique of inflation which gives government—apparently—the power of infinite expenditure. The key to this power is the absence of a free market for gold and the ability, so far unchallenged, to place government securities not absorbed by the open market in the portfolios of our banks.

It is not the purpose of this story to explore the precise hazards which confront the banking system or suggest the methods by which the sovereign can use it in assuring his ability to expand the public debt indefinitely.

The restraints which will check an abuse of the currency function are twofold. The first is a clear-cut public disapproval of infinite currency emissions and the second the restoration of the gold standard.

WHAT IS A GOLD STANDARD?

Before testing the restraining influence of the gold standard let's define it. A country is on the gold standard when the unit of value is defined as a prescribed quantity of gold of specific fineness. In fact most currencies had their origin in a definite weight of some metal. The pound sterling at the time of the Norman invasion was actually a pound of silver 92.5 per cent fine. The American dollar up to the time of the Roosevelt Administration was defined by statute as 25.8 grains of gold nine-tenths fine.

It is necessary to emphasize the fact that the monetary standard, in order to be gold, must be a specific weight of gold, and that it is this quantity of gold and not some pale, remote claim upon the metal which constitutes the gold standard.

"The first rule of the gold standard," said the late Benjamin M. Anderson, "is to pay out gold on demand."⁴ This is precisely what the Gold Standard Act of 1934 forbids. Under Section 6 the Act states categorically: "no currency of the United States shall be redeemed in gold."

⁴ Benjamin M. Anderson, *The Chase Economic Bulletin*, November 20, 1931, p. 14.

This applies without exception to any citizen of the United States. Should he be so misguided as to contrive in some fashion to convert a part of his folding money into gold he could be punished under one prescribed penalty by the loss of all the gold involved plus an added amount equal to twice this value. Under another penalty he might suffer a fine of \$10,000 and ten years' imprisonment.

Professor Kemmerer, probably the foremost authority on the gold standard and until the time of his death active in the affairs of the Economists' National Committee on Monetary Policy, had this to say about the gold standard: "Although there are many types of the gold standard, the gold standard may be said to exist in any country in which prices of goods and the obligations of debtors are usually expressed in terms of the value of a monetary unit consisting of a fixed quantity of gold in a free market. The gold standard exists whenever the value of gold in a free market is the actual standard, regardless of the machinery by which the standard is maintained and regardless of whether this machinery operates automatically or is managed."⁵

In other words, the test of the gold standard is the ability of the individual unconditionally and without penalty to convert his currency into gold and then do anything with that gold he chooses, i. e., take it out of the country, hoard it, convert it into ornaments, or chuck it into the sea.

IMPORTANCE OF A FREE MARKET

Twice during Kemmerer's definition of a gold standard he made the validity of his definition rest upon the presence of a free gold market. Without such a free market the definition is meaningless.

The citizen with paper money must have the constant, unconditional right to convert this into gold. As the holder of the yellow metal he has the option of exchanging it for food, shelter and pleasure, converting it into ornaments or using it as a medium for his savings. A valid gold standard must safeguard this constant competition between monetary and non-monetary uses of the yellow metal, its present use by expenditure, and deferred use by saving. *A gold standard without a free market is no more possible than a game of football without a gridiron.* A free

⁵ E. W. Kemmerer, *Currency Stabilization in Latin America*. Fourth Pan American Commercial Conference, p. 2, October 6, 1931.

market is the field within which it demonstrates its value and its alternative functions.

This vital role of the free market is thoroughly understood by the technical echelons of the F. R. B., the Fund, and the Treasury. They recognize in such a free market the necessary prior step by which an honest currency, again fulfilling its definition as a stipulated quantity of gold, may be restored. They oppose such a free market not because they fear the fancied chaos which might result but because they know that it will jeopardize their power as the managers of our currency.

Yet it may seem to some students that a gold position that amounts to only 13.8 per cent of total deposit and currency liabilities hardly affords a safe margin for a return to gold. In fact, a President of the United States, justifying the abrogation of the gold clause in a radio speech on May 7, 1933, pointed out that the government

or absence of conditions which might induce an exhaustion of American gold. For this purpose the following table is helpful. It shows total gold stocks at ten year intervals for the last half century, the relation of those gold stocks to total immediate liabilities payable in gold, and the portion of world gold stocks held in the United States. It is obvious from this table that our gold supplies in relation to potential claims are greater than they have been at any time in the past excepting only the years immediately following the higher valuation of gold in 1934. Our share of the world's gold is at a record level.

REAL FEAR

The fear for our gold stocks in the event of specie resumption is real. Since the hazards to which they would be exposed are partly psychological, it would be rash to say that they could withstand the unconditional access which a gold standard would entail.

MONETARY GOLD STOCKS TO LIABILITIES AND TOTAL WORLD STOCKS

(In Millions of Dollars)

Year	Total (1) Currency	Total Bank Deposits (2)	Monetary Gold Stock	Ratio Gold Stock To Total Money Supply (3)	World Monetary Gold	Ratio American to World Gold
1898.....	1,180	5,688	862	12.6%	4,485	19.2%
1908.....	2,466	12,785	1,618	10.6	6,552	24.7
1918.....	4,195	27,716	3,163	9.9	9,280	34.1
1928.....	4,510	53,245	4,109	7.1	11,100	37.0
1938.....	6,461	51,961	12,963	22.2	24,240	53.5
1948.....	28,329	146,860	24,166	13.8	34,400	70.3

(1) Does not include gold coin.

(2) All banks—U. S. excluding inter-bank deposits.

(3) Currency Plus Deposits.

had thirty billions of debts and currency payable in gold, private corporations another sixty or seventy billions in securities and mortgages likewise payable in gold, and "that all of the gold in all of the world amounted to only about eleven billions."⁶

Is it not wiser to defer a free market for gold until the government is ready to resume specie payments on the basis of \$35 an ounce? It is a question asked by many sincere students who believe that a free gold market today might be premature, who apprehend an exhausting drain on the government's gold stocks, vast as they are, if specie payments are resumed.

Before considering this question it is well to note the size of our gold stocks and the presence

There is also no blinking the fact that a great deal of economic water has gone over the dam since gold was fixed at \$35 an ounce in January 1934. At that time hogs were worth \$5 a hundred, corn 40 cents a bushel, cotton 12 cents a pound, and timber \$25 a thousand. A good mechanic could be hired for 75 cents an hour. Since then, with the exception of aluminum and electric power, almost everything has gone up in price—even the President's expense allowance. In the interval a great war has added \$230 billion to the public debt. Our bank deposits have gained \$110 billion, a rise of 300 per cent, and our currency in the hands of the public \$23 billion, a gain of 410 per cent. If similar upheavals in the past are any guide it is most unlikely that money will recover the general purchasing power which it had fifteen years ago.

⁶ Franklin D. Roosevelt, *On Our Way*, p. 78.

Under the circumstances no one can know what a proper basis for a return to the gold standard should be. There is a sound practical way to find out. Repeal the silly penalties on the possession of gold. Permit all gold currently produced or imported to be traded in an open market. Let buyers and sellers, casting their free votes in the form of bids and offers in an authentic economic town meeting, determine the value of the yellow metal.

If after a probationary period of some years the price of gold revolves about a \$35 axis, then it will obviously be safe for the government to open the doors of its mints and redeem at the statutory rate whatever paper currency is offered.

If, on the other hand, the price of gold in such an open market tends to fluctuate above and below a \$50 line, it would obviously be foolhardy to try specie resumption on a \$35 basis. Pending such an experiment, the government can retain its gold stocks.

PRECEDENT

There is persuasive precedent for this action. England abandoned the gold standard in August 1914. It returned to gold on April 28, 1925 and was again forced off the standard on September 21, 1931. The experience was unhappy. It was unhappy because in the interval between the end of the First World War and the return to gold England had the benefit of a free gold market whose verdict for reasons of national pride it chose to ignore.

The pound at that time had a statutory gold content of 123.27447 grains of gold eleven-twelfths fine. This was 4.86656 times the gold content of the American dollar, a ratio which was therefore the par of exchange between the two currencies. When sterling was unpegged in the fall of 1919 gold immediately rose to a premium, reaching a peak of almost fifty per cent for the month of February 1920. The average premium for gold that year was 33.2 per cent. In 1924, the year prior to resumption, gold traded at an average premium of 10.1 per cent, indicating strongly that a return to the old par would overvalue the pound and undervalue gold.

This advice of the free market England's leaders chose to ignore. As a result her export industries were placed at an immediate disadvantage. With her domestic prices unchanged it meant the foreign buyer of English goods had to pay approximately ten per cent more in his own currency than he did in the preceding year.

The only possible way to compensate for this was through an increase in English productive efficiency or a decline in English wages, neither of which proved possible.

ENGLAND'S PLIGHT

Had England heeded the clear verdict of her free market in gold she would have returned to some lower parity with the dollar possibly \$4.25 instead of the prewar level. Her failure to do so left the Bank of England struggling to protect her gold reserves and induced chronic unemployment in her export industries. An eminent English authority, Professor T. E. Gregory, describes England's plight.

"The first effect of the rise in the value of sterling naturally was to cause staple exports to fall off in value and volume, thereby creating unemployment in those industries, and as time went on, to cause the level of wages in these trades to fall substantially below the general level. . . . Great Britain's exporting capacity was prejudiced, partly by the fact that her predominant pre-War export industries were being subjected to special difficulties and partly by the rise in the external value of sterling, which not only accentuated the pressure on these particular industries but hampered the possibilities of expansion of the other exporting industries."⁷

The end of this stubborn refusal to accept the instruction of a free market was a dramatic confession of insolvency on September 21, 1931.

Would "a higher price for gold . . . impair our monetary standard"? The precise reverse occurred in Great Britain. It was a lower price for gold than the free market indicated which was the cause of England's financial humiliation.

It is asserted that any break in the fixed link between gold and paper money, assuming that such a link is currently real in the United States, would cause gold to rise and paper money to decline in value. "This is simply because paper is paper and gold is gold. . . . It matters not what the size of the unit may be; if a paper money, linked directly or indirectly with gold, at a fixed rate, is cut loose from gold at that rate the price of gold will rise."

An apparition of continuous progressive inflation is conjured up should we permit a free gold market to guide us to the proper basis for specie resumption. Nothing of the kind happened in England. Actually gold was worth less in 1924,

⁷T. E. Gregory, *The Gold Standard and Its Future*, E. P. Dutton & Co., New York, 1935, pp. 42-43.

the year before resumption, than in 1920, the first full year after the pegs had been removed. The average annual premium on gold in 1920 was 33.2 per cent and in 1924 10.1 per cent. England did not suffer because she had a free gold market but rather because having such a market she ignored its judgment.

THE GREENBACK EXPERIENCE

Another lesson with a similar meaning but a happier result is provided by the Greenback period of 1862-78. Like many other governments before and since, Congress, confronted by the mounting costs of war, was unable to collect the revenue or borrow the money with which to pay the urgent bills of a nation fighting for its life. It authorized the issue of an irredeemable paper currency and promptly abandoned the gold standard.

There immediately developed in New York an open market in gold. The discount of the greenbacks and the rising premium on gold proved disconcerting to our legislators and particularly to the Secretary of the Treasury, Salmon P. Chase. The premium, it was believed, was due to speculation and speculation in turn to treason.

The story of this experience is told in one of the classics of economic literature, *A History of the Greenbacks*, by Wesley C. Mitchell, with which

every student of money is familiar. Speaking of the various attempts to cure the premium on gold and their failure, Mitchell says the reason is clear. "They were based on the assumption that speculators had increased the value of gold—while the fact was rather that the government's notes had fallen in common esteem."⁸

When Congress reluctantly considered a bill to close the gold market, Senator Colamer remarked: "Gold does not fluctuate in price . . . because they gamble in it; but they gamble in it because it fluctuates. . . . But the fluctuation is not in the gold; the fluctuation is in the currency, and it is a fluctuation utterly beyond the control of individuals."⁹

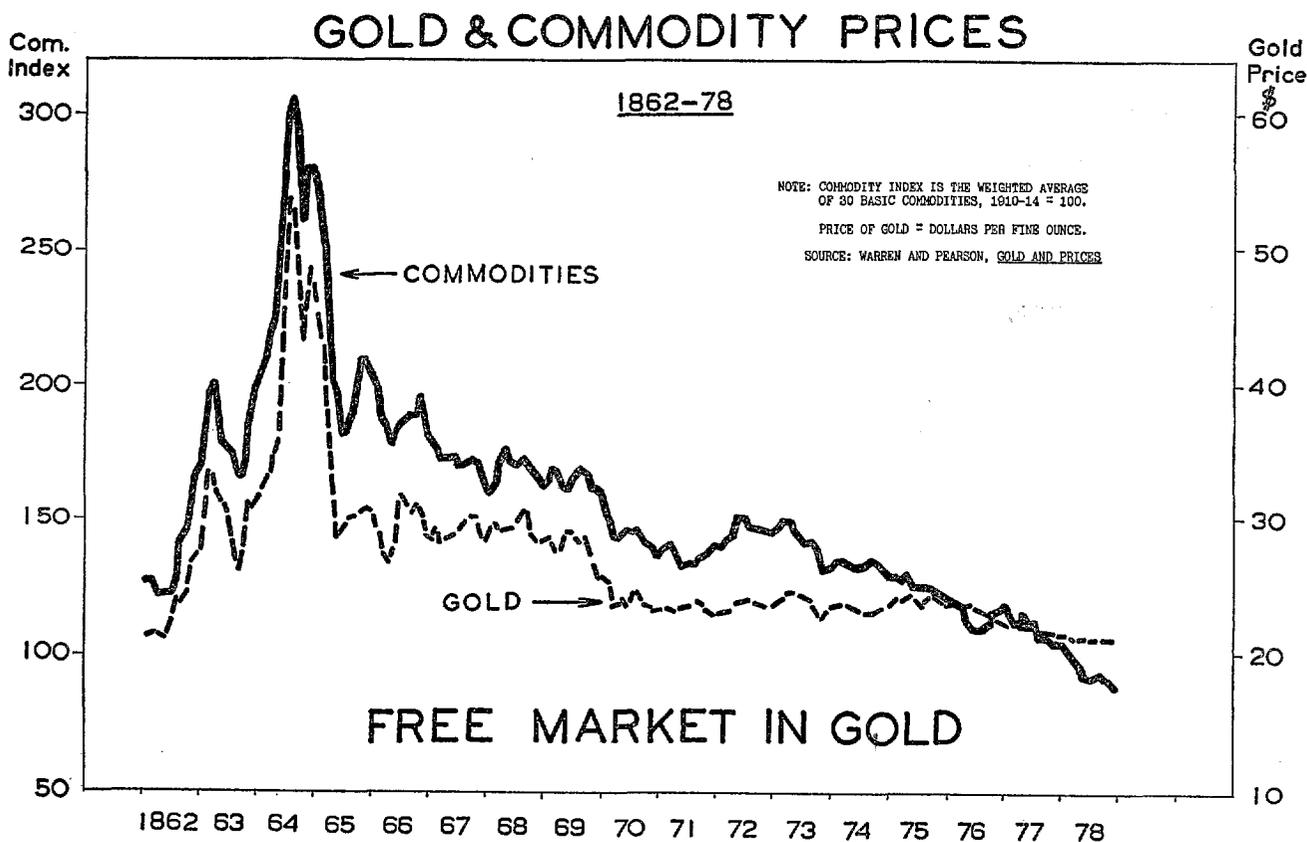
These are observations which should be noted in appraising the prediction of monetary catastrophe if a free gold market should now be authorized, i. e., "Chaos in prices, production, and foreign exchange rates would be the natural results."

With much misgiving Congress passed a bill to close the Gold Exchange to take effect on June 21, 1864. Mitchell refers to the passage of this bill as "the gold bill blunder."¹⁰ The closing of

⁸ Wesley C. Mitchell, *A History of the Greenbacks*, University of Chicago Press, Chicago, 1903, p. 228.

⁹ *Ibid* pp. 229-30.

¹⁰ *Ibid* p. 232.



the gold room paralyzed trade and created an immediate demand for the repeal of the bill. Rather than admit the consequences of his folly Chase resigned. The bill for repeal was passed on July 1st without debate and the gold room was reopened for business on the 5th of July.

How serious were the gyrations of gold during this greenback period? The accompanying chart shows the premium on gold and an index of 30 basic commodities. It will be seen that the price of gold merely reflected, as so many members of the Civil War Congress suspected, the changing purchasing power of the paper dollar. The price of gold faithfully mirrors all the major and most of the minor fluctuations in prices with identical timing.

In view of all that has happened since 1934 a free gold market is the necessary prelude to an honest gold standard. It is the only practical way to restore such a standard without running the risk of a grave miscalculation such as England committed in 1925. *Those who through a blind economic fundamentalism resist this procedure are effectually barring the return of gold.*

CAUSES OF DEVALUATION

The experience of England in the period 1919-25 and this country during 1862-79 proves conclusively that the presence of a free gold market does not lead to the progressive deterioration of the monetary unit. The fear that such a market will set the stage for a succession of devaluations is without foundation.

This country has had one experience in devaluation. It occurred immediately after the advent of the Roosevelt administration and was conscious in purpose and deliberate in procedure. The gold content of the dollar was reduced from 25.8 grains of gold nine-tenths fine to 15 5/21 grains of similar fineness. *This devaluation had no relation whatsoever to a free gold market. In fact throughout this period an open market in gold was prohibited under severe penalties, a situation which has prevailed ever since.*

Devaluation on this occasion, as has been pointed out in other *Letters*, was the result of a theory that prices could be controlled by varying the gold content of the dollar. The country in 1933 was still struggling with an intractable depression and the new administration felt that drastic, even unorthodox remedies must be given a trial. *It was the absence of a free market in gold which facilitated the consummation of monetary heresy.*

Will a free market for gold constitute a "fever chart" calling public attention to the course of inflation and thus aggravate it? It is reasonably certain that a free market will show a substantial premium for gold. In the Toronto market gold coins are freely traded. An American double eagle, a trifle less than an ounce of pure gold, has a bid and asked range of \$45-52.

Incidentally, the Canadian government has tolerated such a market without going into a financial tailspin.

In New York under Section 19 of the Treasury's *Provisional Regulations* under the *Gold Reserve Act of 1934*, trading is permitted in natural gold. This is unsmelted, unrefined gold in the form of nuggets, flakes and dust. The firm of Bache & Co. provides a market which deals in contracts of 100 ounces on an 85 per cent fine basis. Such gold is trading at \$39-\$40 an ounce. On a 100 per cent fine basis this represents a price of approximately \$45 an ounce.

At the end of the year gold in Zurich was selling for \$43 an ounce, in Lisbon and Stockholm at \$45; in Mexico City at \$53; in Paris at \$57; in Berlin at \$62; in Buenos Aires at \$68.50; in Cairo at \$72; in Bombay at \$92; and in Chungking at \$100.

Certainly a free market for gold will be a fluctuating market as are the markets for everything else that is not nailed down by government ukase. Even when the government applies the full force of its authority as it did under the OPA, any marked difference between official and natural values leads to so-called black markets.

Price fluctuation in a free market is the delicate and automatic mechanism by which supply and demand are equated to permit the actual transfer of the units offered for sale. There is no question but that a free market for gold will mean a fluctuating market.

However, as long as gold remains the standard which a country professes for its currency, an official value or buying price places a supporting level under the price of gold. In the United States this price is now \$35.00 an ounce. This base is similar in its function to the buying price for gold which prevailed in England during the period 1919-1925 and in this country during the period 1862-1879. The presence of such a base permits the free market to compare its own value for gold with the value which the government places upon the yellow metal. It is helpful in the determination of a final, tenable, practical price for gold.

During the past decade that dollar has undergone great changes in purchasing power measured on scores of "fever charts." Many of these charts are maintained by the government itself as a valuable service for the information of business and the general public. The monthly *Federal Reserve Bulletin*, the *Survey of Current Business*, to mention only two, are virtually solid compendiums of fever charts, almost all of which have a direct or indirect bearing on the value of the dollar.

AN ORDERLY WORLD MARKET IN GOLD

Actually all these yardsticks of changing value promote that effective art of living which is defined as an adjustment to the probable. In fact it is in the areas in which no markets or only poor markets prevail that price changes are most violent and least predictable.

An open market in gold in this country, operating with legal sanction, would be the focus for the trading of vast quantities of gold. It would tend to reduce the great disparities which now prevail between Bombay and Paris, Buenos Aires and Karachi, natural gold, gold coins and pure gold.

It would do more. It would provide a forum in which the conglomerate currencies of the world would find a valid common denominator of value. It would explode effectively the fantastic fiction that currency relationships can be maintained at the approximate levels prevailing on July 1, 1944.

A RECORD

Let those who fear that a free gold market might be inflationary consider the record of the past ten years. *There was no free gold market during that period.* The price of food between January 1939 and the end of June 1948 rose 116.9 per cent; clothing 56.2 per cent; housefurnishings 56.1 per cent; construction costs 107 per cent; wages 104 per cent.

The purchasing power of the dollar in terms of living costs fell 42 per cent in this period; in terms of wholesale prices 54 per cent; in terms of wages 53 per cent. It must be apparent even to those who are not professional economists that inflation is the result of forces that have little to do with a free gold market.

Actually a free gold market in addition to its moral value in restoring a vital portion of its stolen freedom to the American public and its economic value in permitting the honest evaluation of currencies in a competent open forum will *tend* to check the forces of inflation, *promote* stability and

facilitate the management of the public debt. This is a qualified statement. A free gold market will not eliminate inflation, will not guarantee stability, will not remove the problem presented by a huge public debt. Its influence cannot be absolute.

TREASURY PURCHASE OF GOLD INFLATIONARY

Consider the effect of the present procedures in the acquisition of gold by the Treasury. During the calendar year 1948 the gold stocks of the United States increased by \$1,490 million, of which approximately 5 per cent or \$75 million was accounted for by domestic production. The gold which found its way into our Treasury exceeded the total world production for the period by 102 per cent.

As this gold enters the Treasury the Federal Reserve Bank is credited with the proceeds in special accounts established under Section 16 of the *Federal Reserve Act*. "Balances in such accounts shall be payable in gold certificates." These gold certificates constitute thereafter a part of the nation's basic reserve.

Under the law the Federal Reserve Banks may expand their liabilities in the form of notes and deposits up to four times this basic reserve. In other words, the sale of the gold to the Treasury permits a *potential* expansion of the central bank's credit equal to 400 per cent of gold involved. The credit of the central bank in turn when used by the member banks has a *potential* expansion ratio of approximately six times.

This means that the sale of a million dollars of gold to the Treasury creates a *potential* expansion 24 times as great in the commercial banking system. It is beside the point to argue that the Treasury and the Federal Reserve Banks will not utilize this highly combustible inflation base in the manner outlined. *The truth is that they can if they wish to.*

COMPENSATORY MEASURES

In fact the Federal Reserve Banks are forced at once to take measures to offset the inflationary impact of this gold purchase. The American producer who has sold a million dollars worth of gold to the Treasury is paid with a Treasury draft which he deposits in his own bank. The bank in turn sends it into the nearest Federal Reserve Bank where its reserve account is credited with the million dollars.

That bank has received a net addition to its reserve account against which it may make loans and increase its own deposits. The present rule

of thumb expansion ratio is sixfold. In order to offset this possible credit expansion, the Reserve Bank dips into its portfolio of government securities and sells an equivalent amount.

The checks which the buyers offer for these securities are drawn against commercial banks and when cleared through the Federal Reserve Bank are charged against the reserve balances of the commercial banks, thus reducing them back to the point where they were before the gold producer sold his million of gold to the Treasury.

HOARDED PAPER MONEY

A free gold market would serve public policy, particularly central bank and Treasury policy, in another way. During the ten year period ending in December 1948 the total of coins and paper money in circulation increased approximately four-fold. In that same period large denomination currency, i.e., \$50 and over, increased five-fold. Large denomination currency outstanding at the end of the year amounted to \$8,697 million. This is more than twice the total amount of all currency outstanding at the end of 1920. Large denominations account for almost a third of our total currency.

It is obvious that much of this is hoarding on the part of individuals who may confuse liquidity with security or simply hold cash for want of a better haven. When more than \$700 million of thousand dollar notes and more than \$5,000 million of hundred dollar notes are in the hands of the public, we may be sure that they are not being used in the settlement of business transactions. It is a striking index of fear.

If a free market in gold were restored it is probable that much of this hoarded currency would be exchanged for the yellow metal. This currency would then find its way back to the central bank where it could be retired and thereby reduce a part of the total money supply. Furthermore, to the extent that other money of smaller denominations is used for the purchase of gold and retired,

the total circulating media would shrink. If the quantity theory of money has any validity this decline in the amount of currency would tend to increase the purchasing power of the remaining money and tend to check a rise in prices.

Much of the gold coming into such a free market would unquestionably come from abroad. During the past year 95 per cent of the Treasury purchases consisted of foreign gold sold by governments desperately in need of dollars. If a free market is organized this gold will be sold to private buyers. To the extent that the price paid exceeds \$35 an ounce the sellers will have that much more in dollar credits. The excess will come out of private purses voluntarily and constitute a contribution to world recovery not financed by the general funds of the Treasury and underwritten by the taxpayers of this country. Is this not a sounder provision of aid than appropriations by Congress?

Thus, a free market for gold, in addition to being a horse sense first step to the return of an honest gold standard, carries definite advantages in the form of a common denominator for world currencies as an inflation deterrent, and as a stimulant to foreign economies not underwritten by Uncle Sam. It will correct a gross injustice to the gold producer. It will restore to the American an essential right, a right that should never have been taken from him.

In a free market the individual records his choice. Whether a buyer or seller, he expresses a valuation made in the light of circumstances that affect his own interest.

Particularly is this true of gold. The man who buys gold and hoards it is saying in effect: "I trust the value of gold more than the promises of my government." It protects the workers' savings against the chicanery of Finance Ministers, the designs of planners, the infirmity of governments.

Joseph Stagg Lawrence
Vice President, Empire Trust Company

April 13, 1949

The Colorado School of Mines will hold its fifteenth annual Engineers' Day on April 22 and 23. J. R. Medaris, Chairman, urges members of the Association to attend this event and enjoy the fine program which has been arranged.

The annual convention of the Idaho Mining Association will be held at Sun Valley, Idaho, June 13, 14, and 15.

University of Denver Day. The second annual Exposition of the University of Denver Collegiate Chamber of Commerce will be held on the campus in Denver on April 20 and 21. The State Mineral Resources Board will put on display its very fine exhibit showing the mineral resources of the state and statistics appertaining thereto.

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Anyone familiar with the location of a mill capable of grinding free milling ore to 60% minus 200 mesh using straight cyanide method should contact Gordon Jones, Suite 801, 330 Bay Street, Toronto 1, Canada.

* * * * *

G O L D.

South Africa, like France, has broken through the ceiling placed by the American Government on the price of gold and sold 100,000 oz. of fine gold in London at \$38.20 per oz. of 22 carat metal, or the equivalent of \$31.67 per fine oz. Apparently this 22-carat provision was put in as a sop to the International Monetary Fund, to make it appear that it was metal for coinage or industrial use. The Paris agreement has been extended to all French overseas territories, which will be allowed to sell half their gold in the Paris free market, and the other half abroad. Brazil is discussing the free sale of gold and Belgium is going to sell 40 percent of its gold on the free market, while South Africa's action will probably fortify Australia in its demand for similar action. It will be interesting to see if the economists of the International Monetary Fund will prove correct in the view they have consistently espoused, that the gold-selling countries would find the free-market demand was of very limited proportions, or whether a large business will be done. It has been felt the I.M.F. spokesmen didn't believe their own assertions or they would have told the clamoring sellers to go ahead and get it over with.

The I.M.F. has reexamined the South African idea, and strongly disapproves, and Premier Havenga says it is entirely consistent with the I.M.F. agreement and that South Africa will carry out its intentions. Oscar Hobson of the "News Chronicle" says the transaction in which he names Mocatta & Goldschmid as the principal brokers was on behalf of American buyers.

However, A. F. Southard, executive director of the I.M.F. said at a hearing by the Senate Finance Committee on March 8, no more sales would be made after this 100,000 oz. transaction is over. He said the South African officials affirmed that the transaction was properly safeguarded for use in non-monetary channels, but the Fund officials disagreed. Senator Owen Brewster of Maine strongly supported the I.M.F. and protested against the transaction, and said the fund should show more "steel and backbone" in enforcing the agreement to stabilize currencies and monetary values. Senator Eugene D. Millikin of Colorado suggested that the present official parities of exchange fixed for most nations in 1946 were unrealistic. Naturally Mr. Southard indignantly denied it. Senator Millikin stated as his opinion that the I.M.F. and trade agreements were "putting leg irons and handcuffs upon our international trade"; which seems a singularly sensible observation to us. As a matter of another opinion the "Financial Times" of London says the \$35 gold rate agreement goes back to 1944 and asserts that false rates of exchange are causing more damage to world reconstruction than is generally supposed. It is apparently the London view that with increasing signs of an economic recession the I.M.F. must overhaul this matter of unbalanced currencies.

Representative Daniel A. Reed (Republican, New York) has introduced a bill "to restore the rights of American citizens to own gold and gold coins," and in general to restore the gold standard (introduced March 7).

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"The bill is aimed at providing restitution for gold mine owners and operators who were victims of an unjust wartime order", Senator McCarran explained. "The WPB Limitation was the only Government order closing a productive industry during the war. Issuance of the order was an Administrative error based upon a statistical misconception that many men would be released for other war work. Actually the amount of manpower freed for essential industries was negligible. There is even some doubt as to the legality of the Order. Finally the economic loss to the gold mining industry has been great and in some cases the damage may be irreparable", the Senator concluded.

PREMIUM GOLD SALES: The Directors of the International Monetary Fund on Feb. 27 issued a statement declaring that the Fund is not satisfied with the safeguards set up by South Africa to assure that the 22-carat gold it sold at premium prices will be used only for industrial, professional and artistic purposes (Bull.#6,p.5). The Fund also decided that South Africa should not enter into any new contracts to sell semi-processed gold at premium prices unless it consults with the fund in advance and gets its approval.

The Directors charged that international sales of gold at premium prices "involve a loss to monetary reserves, since much of the gold goes into private hoards rather than into central holdings."

The Directors also reiterated their stand that the Fund will adhere to the \$35 an ounce gold price established by the U. S. Government and approved by the Fund. They objected strongly to a recent statement by South African Finance Minister Havenga, in which he said, "It has become increasingly clear that the elaborate attempt to keep up behind tremendous facades of exchange controls the fiction that gold is worth only \$35 an ounce, cannot endure much longer. This is an international problem and will soon be the touchstone of the success or failure of the International Monetary Fund."

ALASKA STATEHOOD: The Alaska Miners Association and the Alaska Salmon Industry have asked a House Public Lands subcommittee to postpone for 30 days from March 3, the scheduled hearings on Delegate Bartlett's bill (H.R. 331) to confer statehood on Alaska. These organizations told the committee that the time element involved makes it impracticable for those interested to appear on March 3.

They pointed out that the proposed measure presented no opportunity for the establishment of an economy sufficient to support the State Government, as only 200,000 acres of the 350,000,000 in Alaska would immediately vest in the State, and that the minerals in the new State lands would be reserved from sale and be subject only to lease. They also stressed that National Forests, cover the entire South-eastern Alaska region and all of the timbered area of Western Alaska. The bill also proposes, they said, to transfer control of the fisheries to the State, thus clashing directly with the Supreme Court's findings with respect to California tide-lands and shrimp fisheries off South Carolina, and leaving Alaska's fishing industry "in a state of chaos and confusion and subject to divided regulatory authority."

UMW-NLRB RULING: UMWA attorneys today filed a formal exception to findings of an NLRB trial examiner that the 1948 Bituminous Coal Wage Agreement violates the Taft-Hartley Act.

NLRB trial examiner William R. Ringer had ruled on Jan. 19 (Bull.#4,p.8) that the union shop provision of the coal contract was illegal because a majority of the workers affected had not authorized it through a government-conducted election as required by the Act. The UMWA had to file a formal exception to keep this finding from becoming a final NLRB order.

The union contended that even without a formal election on the union shop, the UMW membership had established a national policy committee authorized to negotiate an agreement. Under that authority, the committee had accepted the agreement containing the union shop provision, the union attorneys stated. They declared that this was "In fact, a discharge of the mandate of and from the Union's membership

From

FRANCIS H. BROWNELL

Mr. W. R. Sandweh

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NOT TO BE RELEASED UNTIL MORNING OF FEBRUARY 2, 1949

Address by Joseph Stagg Lawrence,
Vice President, Empire Trust Company,
New York, before the Colorado Mining
Association, Denver, Colorado, Tuesday,
February 1, 1949.

GOLD AND RECOVERY

One of the major problems confronting the government and the people of this country in the post war period has been inflation. Since 1939 the cost of food has gone up 147.3%, wages 182.2%, wholesale prices 112.4%, and transportation, as measured by railroad freight rates, 52%. This rise in prices has pervaded almost every field in our economy, with the single exception of gold. Even the President's salary and his expense account reflect the changing value of the American dollar.

I need hardly mention to this audience that the decline in the value of the dollar has presented us with one of the most acute political issues of the post war period. On three separate occasions, in his capacity as President of the United States, Mr. Truman has asked Congress for extraordinary powers to deal with this problem. Throughout the recent campaign he taxed the 80th Congress with inflation responsibility for its failure to continue the OPA and grant him the necessary authority to keep prices at reasonable levels.

In his analysis of the problem, the President has accused, at various times, the grain speculator, the high profits of corporations, the conspiratorial monopolies of big business and the alleged failure of our banks to keep credit within bounds.

At no time and on no occasion did he place his finger on the single valid cause of the distressing rise in prices from which this country has suffered. That cause, as every monetary economist has long since pointed out, is the excessive issue of currency and the enormous expansion of bank credit necessitated by the fiscal practices of the federal government itself.

Nor has the President, or any of his advisors, pointed out that the only effective check on prices which all the experience of history has ever demonstrated has been the check which an honest gold standard provides.

As we move from the President to the Federal Reserve authorities, we find a similar concern for inflation. Here, again, remedies are periodically proposed to correct this pervading ailment. In the 1945 annual report of the Federal Reserve Board, Mr. Eccles suggests that the Board be granted authority to impose any reserves upon the banks of the country which it might deem desirable. It also asks for the right to determine the character of a bank's bond portfolio. It asks for further qualitative credit controls similar to the limits on borrowing for security purchases and the regulation of consumer credit. Here is an official body charged particularly by law to operate the American central banking system in a fashion that will promote a sound banking structure and an honest currency. It has ample funds for research and is able to employ outstanding experts in the field. Yet, in spite of this peculiarly responsible and competent position, the board has failed in the last fifteen years to call attention to the one condition which alone will serve to check the infinite expansion of bank credit and the unlimited issue of folding money - namely, an honest gold standard.

What is the reason for this startling failure? Why is it that the administration and the executive agencies capable of diagnosing our price problem and prescribing authentic remedies have meticulously avoided the only possible sound prescription? The answer is to be found in a seductive ideological importation known as a managed currency.

This theory, like so many others that have confused and bedeviled the American people in recent years, has come from England. Probably the chief exponent of a managed currency in the last generation has been the late Lord Keynes. Immediately after the First World War, John Maynard Keynes was one of the stoutest supporters of an honest gold standard. In fact, some of the most eloquent encomiums ever penned on behalf of the yellow metal have come from the hand of Lord Keynes himself.

However, during the period of the early 30's, particularly after Great Britain was forced off the gold standard in 1931, the views of Mr. Keynes changed. He not only believed it best for a government to control credit and currency to regulate the price level, but that it was a solemn duty for every government to do so. Because of their great importance, this injunction applied particularly to Great Britain and the United States.

Under his skillful exposition Mr. Keynes found converts both in England and this country. As corollaries of a managed currency, he added the theories of pump priming and government control of the bond market. He was frankly committed to a program of continuous inflation. Only in this way could England find relief from the succession of crises which had plagued that country during the 30's and the continuation of which he apprehended after the Second World War.

As a result of this thinking, the early discussions of the Bretton Woods agreements revealed a strong objection on the part of the English to any use of gold or even to any reference to it in the agreement. It was argued by them that gold was an anachronism, a relic of barbaric usage which had no validity as a monetary factor in the modern world.

They argued that the production of gold was an actual social waste. It involved the laborious abstraction of the yellow metal from the mines of Utah and South Dakota, the placers of California and Alaska, and the re-burial of this same gold in the bowels of the earth in Kentucky.

Repeatedly they pointed out what to them seemed a self-evident truth. If by design or through some natural calamity, the gold at Fort Knox were to disappear without the knowledge of the American people, it would make not the slightest difference in the acceptance of the American dollar or in the value of that dollar.

This bland sophistry has made such headway in American thinking that the authorities, wrestling today with the problem of inflation, fail even to mention gold as a possible check on the evaporating value of the dollar. In spite of an official conspiracy of silence which shrouds this subject, we know that the American people, like all other people, have a deep-seated longing for the security which a gold unit of exchange affords.

Elsewhere in the world men are eagerly bidding for the precious metal. In Mexico the peon, in France the peasant, in China the coolie all seek this tried and tested haven for their savings.

It is a shocking comment on the deterioration in the American concept of freedom that this country leads the way in denying to the individual the right of refuge in gold which is still enjoyed by people in

other parts of the world.

I do not mean to imply that gold will automatically stabilize the price level and establish a permanent and invulnerable value for the dollar. Fortunately, wherever gold is used as a base for a currency, it affords considerable breathing space for price levels and business fluctuations.

The competent advocates of gold have never argued that it prevents price fluctuations or eliminates the peaks and the valleys of the business cycle. However, it does place definite limitations on the range of price fluctuations. It does so because it acts as a check upon the infinite expansion of currency and credit. It makes impossible the type of extreme price behavior which is now taking place in other parts of the world, price behavior whose ultimate correction can come only in the form of currency confiscation or repudiation by the government.

With this limited but vital function in mind, what can we do in this country to return to a solid currency basis? Many students who understand the operation of a gold standard and who believe that monetary salvation can be found only in a return to gold, fear the resumption of specie payments by our government. They argue that any attempt to redeem currency at \$35 an ounce of gold might result in a rush on the American Mint which would denude the Treasury of its gold stock.

This fear is probably well founded. Bear in mind that the price of gold was fixed in 1934 at \$35 an ounce and that since then the wholesale price index has gone up 125%, hourly wages 154% and fuel 88%. Only gold retains a nominal value of \$35 an ounce.

Economists know that supply and demand at any time depend upon

price and that a fair price is that which equates supply and demand. If, as a result of arbitrary price fixing, a commodity is set at a price that is too high, supplies become redundant. This was illustrated by the pre-war accumulations of cotton and grain by our government.

On the other hand, if prices are fixed at too low a level, we have scarcities and grey markets. The illustration of that is the present situation in steel and automobiles. Scarcity here is due entirely to a price that is too low.

Let us assume now that our government were to offer wheat at 95 cents a bushel, hogs at \$5.00 a hundred and cotton at 12 cents a pound. These are the prices that prevailed in 1934. I am sure, in spite of the growing supplies of these commodities at the present time, they would prove unable to satisfy demand at these price levels.

Even though we have approximately two-thirds of the known gold stocks of the world, even though we have 5.6 times as much gold as we had in 1929, even though the ratio of gold stocks to total demand deposits and currency is more favorable today than it was during the 20's or the period prior to the First world war, an unrealistic price of \$35, if maintained in an open market, would probably cause a disastrous drain on our gold stocks.

It is in the light of this possibility that we suggest an intermediate step. Let the government change the provisions of the Gold Reserve Act of 1934 and permit a free open market in gold. There is no reason in equity, morals, or good economic sense why the miner should not be permitted to take his gold to the mint, accept 35 paper dollars for it, or receive it back in properly certified form and sell it in the best market he can find.

After all, every other producer, whether of services or of tangible

goods has precisely this same right. It is a right which every one takes for granted in a free economy, a right which is enjoyed by people elsewhere who presumably do not have the advantages that we possess.

In such a market where bidders are free to pay any price they choose and where sellers can offer their supplies, a fair value would be developed. If, in the light of this value ascertained over a period of time, it seems that the government could resume specie payments at \$35 an ounce, then certainly it would be safe for it to do so without incurring the danger of a disastrous drain of gold stocks.

On the other hand, if such a market should demonstrate over a period of time a value at some higher level - say \$45 to \$50 - then, obviously, it would be unrealistic for our government ever to attempt to return to a \$35 an ounce basis.

Here is a sound test of the possible return to a gold standard, a practical test of the value for gold on which such a return could be effected. The men who argue that a free gold market will tend to confuse the public and create chaos are simply afraid to submit to this on a fair, practical basis.

ADDRESS DELIVERED BY HON. PAT MCCARRAN, U.S. SENATOR
(NEVADA), BEFORE THE COLORADO MINING ASSOCIATION'S
MEETING AT DENVER, COLORADO, ON JANUARY 31, 1949.

LATEST INFORMATION ON GOLD *Fib*

Did you ever hear of an industry laying off men and reducing production at a time when the commodity which it produces is in the greatest demand in history, when the people not only of this country, but of nearly every nation in the world, are clamoring for it?

Let me tell you of such an industry.

The commodity which this industry produces is still under price control, in spite of the fact that the OPA and the WPB have long since passed into the realm of alphabetical memory. People want this commodity, and in order to get it are willing to pay a substantial premium over the Government fixed price; but the right to buy, and even the right to possess this commodity is denied to the people by law and regulation.

For every other commodity this Nation produces, it has long since been recognized that substantial output cannot continue with rising costs and a fixed selling price for the product. But the industry I am talking about apparently is expected to go on producing at a loss, inside the straitjacket of rigid government control. Not one voice in government has been raised in behalf of any form of assistance to this industry, in spite of its truly desperate situation and the fact that its product is vital to the well-being of this nation.

I am referring to the gold mining industry of the United States. Demand for its product was never greater, both at home and abroad. Yet production has reached as low a level as we have experienced for many years. Price and wage levels nearly three times those of 1934, when the price of gold was fixed at \$35 per fine ounce, have forced many operators of gold mines to close their operations. Once closed, many of these mines can never be reopened, because of the excessive costs which would be involved. Most of the properties that have closed have been small operations. Many words have been spoken about the plight of the small businessman today. Yet we have done nothing to enable the small producer of gold to stay in business. He is not asking for a subsidy; he asks only the right to be allowed to sell his product at whatever price the public is willing to pay for it. Could any request be more reasonable?

During the last three months unemployment in this country has increased, largely because of seasonal declines in employment that normally accompany severe weather. However, this small decline in employment, together with declining prices of agricultural commodities, has made many serious students of the business situation pause to consider the economic prospects of 1949. We are now in a period of business uncertainty, such as prevailed in early 1946 and early 1947.

A period of business uncertainty, with seasonally decreased employment, is no time to force layoffs or curtailment of the output of any commodity for which a large unsatisfied demand exists. It is not good sense to pay men unemployment compensation benefits and relief payments when the public would eagerly buy the product of their labor in the mines.

A federal law that was passed fifteen years ago, when conditions were very different from today, prohibited the private possession of gold except under license from the Treasury. It fixed the price at which all domestically-mined gold must be sold to the Treasury. Except for small sales for industrial uses, the Treasury has sold gold chiefly to nationals of friendly foreign countries, also in limited amounts.

The citizens of this country have no objection to price-fixing in time of war. When the national safety is at stake, complete cooperation is given by all responsible citizens. But after the close of hostilities, in response to public sentiment, we quickly abandoned price controls. We found that they actually curtailed production of useful goods and services. But price fixing for gold was not abandoned. It was continued in the same form as we have it today. There are some who hold that complete price fixing should have been continued for a longer period after the war. This controversy I will not now discuss, but I do want to point out

that in the case of the gold mining industry, removal of the price controls that influence costs of operation, while continuing the controls on the selling price of the finished product--gold--was an injustice that has been defended by any responsible group.

Sometimes it requires a jolt to the economy, in the form of decreasing employment and falling prices, to make us realize the necessity of correcting some inequities of long standing, which escape the attention of the public in times of full employment and rising prices.

On January fifth of this year I introduced in the Senate of the United States a bill (S. 13) to permit the sale of gold within the United States, its territories and possessions, including Alaska, and for other purposes. This bill would permit individuals legally to hold and own gold in any form, without licenses, and to buy or sell, import or export gold, without restriction. It would not require the Treasury to redeem United States paper currency in gold, just as our Treasury now is not required to redeem this currency in gold. The bill would require no positive action by our Government. It would impose no administrative burdens. It would create no additional bureaucracy, and would require no appropriation.

In effect, the bill would allow producers of gold to sell their product for whatever the public was willing to pay for it. It would enable small mines to be operated so as to cover out-of-pocket costs. It would encourage the miner to stand on his own feet and operate his own business without discrimination from his Government.

Since the war years we have forced our domestic mine owners to sell their product at a fixed price, while most foreign countries have given direct or indirect subsidies to their gold mining industry in order that the gold may be sold to the United States for dollars. Once more we are curtailing an important industry in the United States while other countries are expanding their own similar industries. The International Monetary Fund on several occasions has objected to direct subsidies to gold producers, but has not been able to stop the use of indirect benefits. The miners of the United States never have asked for a subsidy; but they do believe that the average citizen of the United States should be allowed to set whatever premium in dollars he is willing to pay for the current output of the mines.

One contribution to falling employment has been the decline in foreign trade, which reached its peak in 1947. Foreign nations do not have enough dollars, which they require for the purchase of goods in the United States. They, therefore, encourage gold production in their own countries. In the absence of an unrestricted gold market this imported gold must be sold to the United States Treasury, and immediately enters the money supply of this country.

Gold sold to the Treasury represents high-powered dollars, since it adds to the bank reserves of this country and permits banks as a group to expand deposits and loans by about six dollars for every added dollar of bank reserves. This gold increases bank reserves at a time when the Board of Governors of the Federal Reserve System has been trying to obtain control of the supply of bank reserves. Gold sent to this country by foreign governments expands our money supply, and usually results in increasing deposits in the hands of the public to six times the gold receipts. This takes place at a time when we are faced neither with inflation nor with deflation, but it comes at a time when we do not need a larger money supply. The supply of money in the United States was large enough at the end of the war, without having foreign gold producers and United States bankers cooperating to expand it to unreasonable levels.

Operation of an unrestricted market for gold would keep the high-powered dollars, generated by imports of gold and new domestic production, out of the monetary system of the United States.

Under my bill gold would be sold for dollars already in circulation, and would not be used to create new money.

My bill would permit the Board of Governors of the Federal Reserve System once more to control the supply of bank reserves, and through this mechanism the entire money supply of the United States. This was the function which the Federal Reserve System was intended to exercise when it was established in 1914. It was to be the function of the Board to mitigate booms and busts--by "sitting on" the boom or bulge, the only way in which inflationary expansions of credit can be controlled.

Most of you have been reading the newspapers. You know that federal government expenditures are going to be higher this year and higher still next year. The economy must be kept active, but inflation must not be allowed to get out of control.

Private ownership of gold is a great smoother of inflation and deflation. When facilities are available during times of inflation people choose more lasting values and prefer to purchase gold, thereby contracting the inflationary forces of enlarged bank reserves. If deflation threatens, with its attendant unemployment, gold will be sold on the public market and the basis then will be laid for an expanding money supply for the country. This action has been observed in many countries. For example, from India in the depressed thirties came one and one-half billion dollars in gold--from a country traditionally known as "the sink of the precious metals". In the United States, people do not have an opportunity to legally purchase and hold gold, nor the legal right to sell what they have.

Some commentators have advocated a proposal that the Treasury be required to redeem United States currency in gold, at \$35 per fine ounce. Such a requirement might easily set in motion a serious deflation. It would contribute nothing to employment or the reopening of closed gold mines. Any substantial amount of redemption of currency in gold would require the Treasury and Federal Reserve Banks to abandon their policy of supporting the prices of United States Government bonds at approximately par. This might undermine public confidence in the financial structure of this country, since banks, insurance companies, and all of our institutions of individual savings and money supply are based upon the continued value of United States Government obligations. The President of the Federal Reserve Bank of New York commented recently that some people said that the way to resume gold redemption was to resume. He added that some people said that the way to let go of a bear by the tail is to let it go; that the situation would then be resolved. You no longer have a bear by the tail, but the results are likely to be very disagreeable. To discontinue support of the Government bond market would bring about disastrous results. Furthermore, I can see no particular purpose that will be served by reinstating redemption of the currency in gold at this time.

The point that I wish to stress is that in a time of business uncertainty we must not do anything to start either a deflation or an inflation. We must use our good sense to keep employment at a maximum. We must allow our own citizens to possess a store of value in the form of gold--if they want it. But we must not require the Treasury to sell gold to anyone, at any time, at any fixed price. Public confidence in our money and in our financial institutions is of the utmost importance at all times, and especially when a seasonal let-down in employment may make people apprehensive as to the future of prices and income.

During the war years we shut down the gold mines of the United States, although most foreign countries, including our allies, continued active operation of their gold mines. This curtailment, under War Production Limitation Order L-208, was intended to divert the use of manpower and critical materials into war industries. We now realize that this order was a mistake, and a serious inequity to the miner. In order to correct a part of the injustice occasioned by this order, on January fifth, I introduced a bill (S.45) for the relief of the owners and operators of certain gold mines which were closed, or the operation of which was curtailed by War Production Limitation Order L-208. This legislation has a great deal of merit and I very much hope to have the complete and enthusiastic cooperation of the gold mining industry on this bill, as well as S. 13, in an effort to enact them into law during the 81st Congress.

I shall do everything I can to achieve that objective; but I say to you plainly, if you want these bills enacted, you will have to fight for them; and you will have to get your Senators and your Congressmen to fight for them. As for myself, I am in this fight with both feet, and I am going to stay in it. This is one Irishman who will stand hitched for the long haul.

* * * * *

File separately under "Gold"

WEDNESDAY, JUNE 16

CANADIAN GOLD BONUS: In view of the wide interest in what Canada is doing to aid its gold mining industry, the following item in this morning's Wall Street Journal is reproduced verbatim. The full text of the regulations referred to is not available at this writing.

"Subsidies for Canada's gold mine industry went into effect yesterday with publication of regulations under which the system will operate. The official announcement was published in an extra issue of the Canada Gazette.

"To help gold mines caught between advancing cost of production and the fixed price of \$35 an ounce at which they must sell their product, the act provides that the dominion will assist them to the extent of 50% of the cost of production in excess of \$18 an ounce. The assistance is retroactive to last January 1.

"The regulations define what the mines may include as charges against the cost of producing an ounce of gold. They are:

"Operations costs.

"Pre-production costs and costs of depreciation on plant equipment and the like up to 15% per annum under the same terms as the mines make similar deductions in their income tax return.

"New mines, which pay no income tax for the first three years of production, are allowed to let their depreciation deductions pile up and be applied when they start paying income taxes. For the assistance, however, they are allowed to add the depreciation to the cost of producing gold in their current returns. The depreciation cannot exceed 15% of the value of the plant and equipment. The same applies to pre-production expenses that may be added to production costs.

"Also there may be added to the cost of producing gold the exploration and development expenses required to maintain ore reserves up to three years at the current rate of withdrawal in the case of mines whose ore reserves were below this level at the beginning of 1948.

"In the case of mines whose reserves were greater than three years withdrawal, development and exploration costs will be allowed up to the amount required to maintain reserves. The reserves, however, must be at the same ratio as existed at the beginning of 1948.

"No mine shall receive assistance payments unless it keeps suitable books and produces more than 50 troy ounces of gold annually which gold must represent 70% or more of the total value of the products of the mine. This would exclude mines whose chief product is base metal and gold only a by-product.

"Capital exploration and development costs which the mines may add to their costs of production are defined to include expenditures on shafts, stations, underground crusher and pumping stations, main haulage ways, ore and waste pockets and other development work designed for continuing use. Such work must be capitalized and the expenditures amortized generally at the rate of 15% per annum.

"Provisions are made for assisting mines that suspended operations when suspension was beyond the control of the operator.

"Advance payment of assistance on a quarterly basis is provided up to 80% of the estimated amount the mine would be entitled to receive."

AMERICAN SMELTING AND REFINING COMPANY

120 BROADWAY

NEW YORK 5, N. Y.

January 19, 1948

FRANCIS H. BROWNELL
CHAIRMAN OF FINANCE COMMITTEE

Honorable Charles W. Tobey, Chairman
Committee on Banking and Currency
United States Senate, Washington, D. C.

and

Honorable Jesse P. Wolcott, Chairman
Committee on Banking and Currency
United States House of Representatives, Washington, D. C.

OPEN LETTER

Crold

Gentlemen:

GOLD AND INFLATION

A little known but highly important event of 1947 was the increase in gold stocks of the United States of over \$2 billion.

Although the United States stood ready to buy all gold offered at \$35 per ounce, United States gold holdings for some years had remained fairly stationary, as is shown by the "Daily Statement of the United States Treasury":

<u>As of</u>	<u>Ounces</u>	<u>Dollars</u>
January 1, 1944	626,785,964.7	\$21,937,508,765.15
January 1, 1945	589,106,766.0	20,618,736,810.04
January 2, 1946	573,281,235.4	20,064,843,237.30
January 2, 1947	586,538,499.1	20,528,847,466.97
December 31, 1947	650,107,101.4	22,753,748,547.47
Increase in 1947	63,568,602.3	2,224,901,080.50

CAUSE

The cause of the increase in 1947 was the greater demand for dollars plus the new and potent factor of compliance with the request early in 1947 of the International Monetary Fund that member nations should prevent as far as possible the sale of gold at above the \$35 level. This automatically diverted to the United States Treasury, gold which otherwise would have been sold elsewhere.

Previously, the demand for gold outside the United States was so great as to absorb, at prices well above \$35, all gold offered and very little came to the United States Treasury, except United States production, which by law must be sold to the Mint. The outside demand still remains.

INFLATIONARY EFFECT

All purchases of gold are ultimately cleared through the Federal Reserve Bank, which receives payment from the Treasury in the form of a gold certificate. This gold certificate is not placed in circulation. It is more of the nature of a warehouse receipt than money. But it is counted as money in the sense that the Federal Reserve Bank credits the Treasury with the amount as if it were a deposit. The physical gold is stored by the Treasury, but its value is turned into bank credit money.

The seller of gold deposits the check he receives in payment in his own commercial bank, which in turn forwards it to the Federal Reserve. In payment of that check, the Federal Reserve simply gives the forwarding commercial bank a deposit credit on its books of the appropriate amount, which increases accordingly the reserve of the commercial bank. In central reserve cities, a \$2 billion

increase in reserves permits an increase of bank credit through loans or discounts to the extent of five times such reserve, or \$10 billion. Some of this amount has been used. The potential increase of money due to the purchase of \$2 billion of gold in 1947 may thus be said to be a total of \$12 billion.

In his statement to Congress of November 25, 1947, Mr. Eccles, Chairman of the Federal Reserve Board, said:

"Over the next year, the gold inflow is estimated at from 2 to 3 billion dollars. Multiplied by six, this would permit an expansion of bank credit of from 12 to 18 billions."

UNITED STATES GOLD HOLDINGS

The United States now owns about 60%, or 3/5ths, of the world's monetary gold.

The world mine production, excluding Russia's (which is unknown), of gold in 1946 was about 21½ million ounces, worth at \$35 per ounce over \$750 million. The \$2 billion gold bought in 1947 was roughly equivalent to over 2½ years world mine production of gold, excluding that of Russia. Total world monetary stocks (excluding Russian) are about \$35 billion, of which the rest of the world owns about \$13 billion, and the United States over \$22 billion.

In 1947, the United States purchased (in addition to the equivalent of all current mine production) approximately 10% of the \$13 billion of previously mined gold in the outside world. If it should continue to buy at the rate of \$2 billion per year and new mine production remains as in 1946, the United States would purchase all the monetary gold in the world, outside Russia, in approximately ten years.

Even present holdings of 60% of the world's monetary gold would make it difficult for other nations to return to some form of a gold standard unless the United States is prepared to redistribute its holdings to some extent. Certainly it is important that further accumulation by the United States be lessened as much as possible, both for this reason and because of its inflationary effect.

ONE REMEDY

Amend the United States laws so as to--

- (1) Rescind the prohibition of ownership of gold by United States citizens,
- (2) Permit a free market, both in the United States and elsewhere, for all gold, including United States mine production, and
- (3) Leave the present gold policy otherwise unchanged, continuing the obligation of the Treasury to buy gold offered at \$35 per ounce.

The demand for gold is such that much, if not all, newly mined or other gold offered for sale would be absorbed by others than the United States Treasury, just as it was between 1944 and 1947. This automatically cures the inflationary effects of purchasing and will result in more gold being placed in other countries and among the citizens of the United States.

The International Monetary Fund may oppose such a programme, but after the experience of 1947 it may reasonably be expected not to do so. However that may be, lessening further accumulation of gold by the United States and stopping present inflationary effects of purchases is much more important ultimately than following the Fund's proposal, which, in effect, is rapidly throwing into the United States Treasury not only the equivalent of all newly mined gold but also even greater quantities of gold previously mined.

Respectfully yours,

FRANCIS H. BROWNELL

GOLD - ITS PAST AND FUTURE

By Merrill E. Shoup*

It is easier to review the past history of gold than to predict its future course. The 1938 gold production of the United States was 5,106,109 fine ounces, with a value based upon \$35.00 per fine ounce of \$178,713,815. The 1937 gold production was 4,834,062 fine ounces, with a value of \$169,192,182. The increased production in 1938 over 1937 was accounted for chiefly by Alaska, California, Idaho, Nevada, Oregon, South Dakota, South Carolina, Washington and the Philippine Islands, which alone increased its production from 716,967 ounces in 1937 to 862,397 ounces in 1938.

Based upon present available estimates, the gold production of the United States for 1939 will exceed 1938 by at least the same amount as 1938 exceeded 1937. The world outlook for 1939, insofar as production of gold is concerned, points to the same upward trend which has risen steadily from 19,317,961 ounces in 1929 to 37,109,391 ounces in 1938.

The immediate future of gold, both world-wide and in the United States, insofar as its value and continued use as a medium of exchange is concerned, and the maintenance by the Treasury of the United States of the \$35.00 per ounce price, is more difficult to predict. Since the \$35.00 price was made effective by the Treasury our gold holdings have increased to the point where we now have more than one-half of the world's known supply. Since 1934 more than \$7,000,000,000 has been added to our gold stock. As our gold holdings have increased those of other nations have correspondingly decreased.

The heavy additions to the United States gold stock, both from newly mined sources and importations during the past few years have created considerable fear in the minds of economists and gold producers that the rest of the world might go completely off the gold standard and leave the United States as practically the only large nation remaining on it. This possibility has led to the advancement by economists and other well informed persons of various proposals relative to some form of legislative or executive action which Congress or the President of the United States, or both, should take to preserve and perpetuate the use of gold as the monetary standard of our nation.

Propositions which seem to have gathered considerable support are that the President or Congress, or both, should either take the steps necessary to again return into circulation the vast hoard of gold held in safekeeping by the United States Treasury, or else issue gold certificates in payment for newly mined gold produced in the United States and its territories.

In 1914 practically all nations of the world were on the gold standard, and had managed to stay on it for several decades. The use of gold as a medium of exchange had become common throughout practically the entire civilized world, due to the fact that gold possessed qualities desirable for a monetary medium in a larger measure than any other known commodity.

* President, Golden Cycle Corporation

Presented Annual Metal Mining Convention, Western Division, The American Mining Congress, Salt Lake City, Utah, August 28-31, 1939

Throughout the ages men had tried various commodities to facilitate and expedite the process of exchange. In the very early stages barter was used. In later stages, among numerous articles used as a medium of exchange were shells, beads, furs, grain and various precious metals. Gold finally became the generally accepted medium of exchange due to the fact that it possessed more than any other commodity the necessary requisites for a satisfactory medium.

The chief requisities are a commodity in unfailing demand with wide acceptability existing in sufficiently large quantities to meet exchange needs, yet not so abundant as to lose its desirability; so durable that it will not lose its exchange power through decay or deterioration; can be divided into small units and used in transactions involving small or large amounts; is homogeneous and all parts or units have a uniform value and can be equally divided; is portable and possesses cognizability; has stability of value so that when contracts are made which involve the future payment of money both parties can have reasonable assurance that payments made in the future in gold will have the same absolute and relative position at the end of the contract as at the beginning. Gold possessed, and still possesses, more completely than any other commodity these characteristics and throughout the decades no other medium has been found which so fully satisfies these standards.

The above requisites were based on the proposition that gold would circulate freely, would pass readily from hand to hand, and never upon any idea that gold would be sterilized, buried in the ground, or used as a basis for managed currency. Gold has, in addition to its use as a medium of exchange, value in connection with use in the arts. Therefore, all of the above factors combine to make it the most all around satisfactory medium of exchange and it has been accepted by mankind as the result of decades of experience.

Today we hear considerable discussion about a return to the old days of absolute barter, particularly by such nations as Germany, etc., or the substitution of some other medium of exchange in the place of gold. Most of this talk comes from the leaders of the so-called "have not" nations. If they possessed enough gold to continue upon the gold basis little barter talk would be heard. It is hard to believe that a medium which has been in use for more than twenty-six hundred years will ever be entirely replaced by some other medium of exchange. The long history of man's search for a satisfactory medium substantiates this.

The present world chaotic conditions cannot continue indefinitely. Sooner or later order and stability will return and the other nations which have or had been on gold standard so many hundreds of years and may temporarily have abandoned it will return to the use of gold. The gold standard, when in force, is the strongest basis for international goodwill and trade and the world must and will ultimately return to it.

It has been estimated that since 1492 there has been produced in the world more than 1,190,000,000 fine ounces of gold weighing approximately 41,000 tons, worth on the \$35.00 an ounce basis, approximately \$41,600,000,000; this huge stock has been accumulated through the ages because men believed in gold, based upon centuries of satisfactory experience, and had found it the most satisfactory medium of exchange.

Much of the gold which has come to the United States, particularly since 1934, has been sent in, either by individuals or foreign nations, to be kept in safekeeping until the present world chaos has disappeared and become history. This gold will flow out of the United States to these nations when order and confidence have been restored and the world gold distribution which existed prior to 1934 among

nations will again be re-established on some new basis and gold again become the accepted world-wide medium of exchange.

As far as the immediate future of gold is concerned, insofar as its continued value and use as a medium of exchange, complex problems are presented which can produce a series of different answers. Probably no one in the world today can foretell what will happen and one person's guess is as good as another's. It seems generally agreed that insofar as the United States is concerned the return of gold into circulation as an actual medium of exchange is a desirable thing. Just how this is to be accomplished and with what methods is the problem to be determined.

The immediate future price of gold is something which no one can forecast with any assurance. One thing is certain, however, gold's value may change, but its acceptability will remain. Gold possesses all the desirable factors which a medium of exchange should possess, and will return to its proper place in the world's affairs as the most desirable and acceptable medium of exchange yet devised by man to carry on the nation's and the world's business.

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Permission to reprint will gladly be given. Please inquire of American Mining Congress as to publication date - Booth 421.

THE FUTURE OF GOLD *

By: Donald H. McLaughlin,
President,
Homestake Mining Co.

The stability of gold. Acceptance of gold as a token of inherent value is so common a characteristic of all manner of men that there is scarcely any part of the world in which an individual possessing gold would not be able to exchange it advantageously for the goods or services he desired. This is not theory; it is simply an observation of a human trait that comes as near to being a law as anything can in the social sciences. Consequently, gold is trusted as a basis of exchange and as a measure of the value of currencies to a degree that is not even approached by any other means. Confidence in gold far exceeds confidence in governments, and possession of gold is rightly regarded as a better security for wealth than the holding of promissory notes.

When not restricted by arbitrary political controls and limitations on trade, the purchasing power of gold is stable over wide regions. It may be temporarily altered by artificial devices and it is subject to slow changes in response to the available supply and to the demands upon it, but by and large the value of gold possesses a momentum that carries it along a regular course with a steadiness that forces other units of value to adjust themselves to it on its own terms.

The profound dislocations in the world's economic order that lead to wild fluctuation in the value of paper currencies and to the excesses of the printing press are not the fault of gold, nor can they be corrected by gold alone. In the post-war periods, it was not gold but paper currencies that lost their virtue. Surely it was no reflection on gold that its value in German marks went to a fantastic figure; or today its value in Hungarian pengos. No rigid standard can protect a people from the disasters resulting from losses in war, from dislocated trade, and from their own economic follies, but the existence of gold as an international measure of value, even though at times it may be somewhat in the background, exerts a restraining and stabilizing influence that in the end tends to restore financial sanity after the most drastic disturbances.

Besides its historical and undeniable appeal to the human race, which insures its present acceptance wherever men trade, gold possesses certain qualities that make it far superior as a medium of exchange to any other that has been proposed. Its weight, color, resistance to corrosion, and malleability endow it with outstanding distinction and beauty among the metals. Gold is sufficiently scarce in the crust of the earth to make its recovery possible only at a cost commensurate with its value; and yet the ores in which it occurs are so wide-spread that most of the nations have deposits within their own

* Presented at the 1946 Metal Mining Convention and Exposition, Western Division, The American Mining Congress, Denver, Colo., September 9-12.

borders from which some gold can be derived. The annual output from the world's mines is fairly steady yet it is responsive to economic conditions that determine the value of gold in terms of goods and services. Gold mining operations, however, are far from simple and the investments in plant required to enlarge the production of a mine or to bring in a new mine are so large that expansion in output in response to some temporarily favorable factor is deliberate and not disturbing. Furthermore, the stock of gold already available above ground is of such magnitude that the annual increment is not out of line with the percentage growth that is needed to meet the enlarging commercial activities of the world.

No other metal or commodity possesses such qualifications. And no promissory note of any government can command the same wide-spread acceptance or even deserve the same degree of confidence.

In comparison with artificial units, such as the commodity dollar or other strange creations based on economic indices of one sort or another, gold has the supreme virtue of tangible existence and traditional value that make it resistant to political manipulation and not exclusively dependent on definitions and agreements that are apt to become scraps of paper when they run counter to national expediencies.

The gold miners these days may have their troubles, but in my judgment they need have no fears about the steady persistence of demand for their product. The world will continue to want it and over the years will undoubtedly continue to pay enough for it to keep gold mining active and attractive for new ventures as well as profitable for established and stable operations.

Gold supply and price. In the late 1920's, much concern was expressed over the possible failure of the gold supply to grow at a rate commensurate with the expansion of money needed for the rapidly increasing industrial and commercial activities of the world. Decreasing grade and rising costs with deeper mining in the Witwatersrand were beginning to create doubt about the maintenance of the output of this leading gold field, and the new gold from Canada's growing mines seemed hardly enough to offset the expected decline in the older fields. In conjunction with these conditions came the sudden enlargement of debts during the first world war, the dislocation of certain of the dominant currencies, the fluctuation of the business cycle on an intemperate scale, and above all the blind insistence of the major creditor of the world, the United States, to maintain a so-called favorable balance of trade. From our present point of view, an adjustment of the currencies of that period to the realities of gold in the face of these disturbances now appears to have been unavoidable. The old gold standard, though admirably suited to meet the needs of closely balanced multilateral trade in the well ordered world that preceded the war, simply could not correct the excesses of the new times; and the function of gold had to be redefined in less rigid terms.

The fixing of the price of gold at \$35 per oz. by the United States government in January 1934 proved to be a fortunate level though I am inclined to think that more luck than wisdom was involved in the selection of this particular figure. At the time, it was apparently expected that the cheapening of the dollar in terms of gold would bring about a greatly desired increase in domestic prices but as is now well known the change had little or no influence on them. On the other hand, the effect on international exchange and prices in foreign trade was prompt and drastic.

The output of gold had already been stimulated in countries other than the United States by the higher prices paid in pounds sterling but our action brought further benefits to the gold miners abroad, as well as help to them at home, among which the stabilization of the price at the new level was not one of the least. On the Witwatersrand, though the immediate result was a slight decline in ounces of gold produced in 1935 due to utilization of existing plant capacity for lower grade ores that were made commercial by the advance in price, the quantity of gold as well as its total value soon started to climb as mills were enlarged and as new mines were brought into production. By 1941, the record year, production in ounces was over 30% greater than the 1934 output. New and speculative ventures were undertaken, such as the tracing of the gold-bearing reefs for over fifty miles to the southwest beneath unconformable cover, and even bolder exploration for blind occurrences at greater distances met with brilliant success. The confidence with which British mining groups put vast sums of money into these costly developments was and still is a most reassuring sign of their faith in the persistent value of gold.

In the United States, where gold mining is rather over-shadowed by our other immense industries, the real magnitude of the operations on the Rand is not always appreciated. In value of its gross output, it is easily the first mining region of the world, but even when measured by other indices it is still outstanding. In 1940, 66,000,000 tons of ore were mined, a quantity that is matched only by the Mesabi range in its peak years. In depths of shafts, in miles of workings, in consumption of explosives and steel, in abundance of mining machinery and capacity of plants, the Rand may well be regarded as the major mining district of the world. And all for gold. It is further enlightening to note that it maintained this place throughout the war and there are no signs today of any loss of enthusiasm for its prospects on the part of the hard-headed men who control it.

New districts and new mines were also developed in many widely separated parts of the Canadian shield, and the older gold producing regions there, as in the United States, Australia and elsewhere, showed new life. Not even the socialistic economy of the Soviets could resist the grant of increased power to gold, and the exploitation of both placers and lode mines in Siberia was so energetically pushed that Russia was soon competing for second place as a gold producer.

In response to these wide-spread efforts, world production rose from about 20,900,000 oz. in 1930, to close to 41,000,000 oz. in 1940. This increase was indeed spectacular and probably would have been adequate to meet the peculiar demands of the times if it had not been for the still more profound disturbances and inflations resulting from the second war.

The spread between the price of gold and the cost of mining and recovering it from its ores that prevailed in the period between 1934 and 1941 was enough to attract money into new ventures and to promote exploration and mine development throughout the world on a scale that removed all danger of shortage of ore for some decades, yet created no threat to the value of gold through over production. The increased output seemed about in balance with the world needs until the vast increase in paper money, the shortages of goods, and the drop in gold production resulting from the closing of mines in the United States and from lack of labor and materials in other fields, as well as the restrictions

on sale of gold; exchange controls and abnormal trade conditions in nearly every country during the second world war, again disturbed the equilibrium and raised new doubts as to the ultimate value of the world's paper currencies. There now seems abundant indication that gold is preferred even to dollars at the present Treasury price, and that unless there is marked change in the factors listed above, even the strongest paper currencies may be forced eventually to recognize a higher price for gold.

Movement of gold to and from the United States. An even more spectacular result of the increase in the price of gold in 1934, however, was the effect on international exchange. Through it, more dollars could be purchased for a unit of foreign gold, and, as domestic prices had not risen, our goods and services were at bargain levels in foreign currencies. Gold immediately commenced to flow to the United States at an accelerated rate and continued to do so until checked by lend-lease agreements which postponed and effectively wrote off whatever settlements might normally have been expected.

At its peak in 1941, our gold stock amounted to about 650,000,000 ounces, upon which a value of 22.8 billion dollars was placed. In this immense sum was included the original value of the gold held in 1933 plus a profit of \$2,800,000,000 from the write-up, as well as the profit on the gold collected from private holdings for which the Treasury paid \$20.67 per ounce but entered on its books at \$35. (Whatever 'benefits' the gold miners received in the first years after the devaluation of the dollar were surely small in comparison with the 'profits' the Treasury took into account!) In addition to this, however, gold amounting to about \$14 billion was acquired between 1934 and 1941. Some \$1,200,000,000 was obtained from domestic mines, but the rest came from abroad, of which \$4,917,000,000 was in settlement for the excess of exports over imports during these years. Most of the balance prior to the war was refugee money, which for the most part could be regarded as claims against our wealth in one form or another. As war purchases increased, however, these foreign claims were reduced and eventually the bulk of the bullion from abroad could properly be regarded as a measure of the value of the tangible assets - machinery, metals, oil, cotton, foods and other real property - with which we had actually parted.

In many ways, this was truly the most fabulous investment in history. As a measure of its magnitude, it is worth noting that 22.8 billion dollars is comparable to the gross value of the entire output of metals from all the mining districts of the west. In a sense, this great store of gold might be regarded as a reserve for the depletion that our mineral deposits have sustained to date.

As an investment, it makes sense only if the gold eventually will be accepted for goods and services comparable in value to those we gave up to acquire it. Obviously, it is vital to us to preserve the power of gold to restore the wealth for which it stands.

After the lend-lease agreements reduced war-time settlements to relatively low levels, our large purchases of metals and other strategic materials principally from Latin American countries created claims against us for which gold at \$35 per oz. was accepted without question, and I am inclined to think even with enthusiasm. Some 2.5 billions of our gold was used in this way, which appears to be the chief reason why our total stock declined from a high of \$22.8 billions in 1941 to about \$20.2 billions at present.

The recent decrease in our gold holdings is even more pronounced when considered in relation to the world's total stock. Since the beginning of the war, the mines of the world have produced about 240,000,000 ounces of gold, worth \$8,400,000,000 at \$35 per oz. Of this quantity of gold, the nations outside the United States appear to have absorbed \$5.8 billions in addition to the \$2.5 billions in addition to the \$2.5 billions released from our stocks, a total amounting to \$8.3 billions at the valuation we place on it. At its high point in 1941, the Treasury's holdings amounted to around 68% of the total reserves of the world. This has now dropped to about 42%, which is a shift of real magnitude. The willingness of others to accept this quantity of gold, probably in part at a higher price than the standing bid of the United States Treasury, is an unmistakable sign of the strength of gold in terms of the paper currencies.

In the long run, the value of our gold will be best protected by allowing it to function as a medium of exchange instead of a means of storing inactive wealth. If we follow the same policies that prevailed after the first world war - and to date they seem much the same - we shall have the choice of parting with our goods for paper, or making an even more outright gift of them, or accepting gold at some price that makes our goods reasonably competitive in the world's markets. Carried to an extreme, such a procedure results in impoverishment or on a naive dependence on storage of wealth in gold. It is no indication of lack of confidence in gold to feel that excessive accumulation through one sided trade inhibits its true function. A situation of this sort tends to promote devices such as the restricted trade agreements and barter promoted by the Nazis and now by their successors, the Soviets. Although this would probably do no harm to the ultimate value of gold, it might during a critical period seriously lessen the effectiveness of our gold. The only safe solution is preservation and strengthening of truly multilateral trade.

For a creditor nation, such as we have been for more than a quarter century, the only policy that makes sense, as the British so well demonstrated in the same decades that preceded the first world war, is to import goods or to employ services of greater value than those we export or perform for others. The adjustment of tariffs to accomplish this will be difficult both economically and politically, but if such adjustments are not made, the results will certainly be more painful in the end. We should recognize what the country needs from abroad and take steps to increase the flow of such goods to the United States. The building up of large stock piles of minerals and metals from foreign sources would be one excellent way to accomplish this end. It would tend to check excessive gold imports and would be of mutual benefit to all participants in trade. Such stock piles, regarded as a reserve, would not constitute a drain on the resources of the country but on the contrary would be a means of restoring our wealth, which would be wiser than placing complete reliance upon storage of gold, which could become precarious when it becomes too largely concentrated in one place. Such stock piles from foreign sources, on a scale far greater than provided in the recent bill, would do much to stabilize trade, and, if carefully held off our domestic market except in times of urgent need, would in no way constitute a threat to our domestic mining enterprises.

A renewal of the heavy flow of gold to the United States, however, is unlikely in the immediate future simply because we are lending or otherwise providing the necessary dollars. When we have again grown tired of accepting

paper promises in payment for our goods and are once more disinclined to give our resources away for nothing, we shall again have the alternative of accepting what foreign nations have to sell us or acquiring gold. If we maintain tariffs that restrict imports and still insist on maintaining our exports at a high level, the answer will be simple. We must take gold; and if purchasers abroad are to be found, paper dollars will have to be valued in gold at a price that puts our goods within competitive range.

The current state of gold mining. As gold producers, we are, of course, primarily concerned with the spread between the price we receive for our metal and the cost of mining and extracting it from the ores. Traditionally, the spread is greatest and profits are best in times of depression, when labor is plentiful and most efficient, and the cost of supplies and equipment required for the operations is low; and the present difficulties of the gold miners are in line with the reverse of this pattern. Inevitably, profits throughout the entire industry decline and marginal producers suffer so acutely in times like the present that consideration of measures for relief is properly called for.

Means of improving the state of the industry range from action of purely domestic character, entirely within the control of our own government, to adjustments of currencies to the value of gold that inevitably involve foreign exchange and international trade in ways that are now too vital to other nations to permit us to move with complete independence, especially since the commitments of Bretton Woods.

Steps that might be taken domestically include (1) technical improvements to reduce costs, and to improve recoveries; (2) a premium price for gold produced from our own mines; and (3) relief from excessive tax burdens.

Advice to the gold miners to cut their costs by economies and by technical improvements is likely to be regarded as gratuitous under the circumstances that prevail. Naturally, all such means of survival will be sought, and it is surely a time when a wise manager must emphasize to all on his staff the need for greater efficiency and reduction of costs.

A premium price could undoubtedly be paid for gold from domestic mines without influencing the value of the dollar, either in foreign exchange or in terms of prices within the country. If paid only to marginal producers, its sole effect would be to keep many small mines alive until such time that lower costs or a general increase in price of gold in paper dollars again made them profitable. Action of this sort was taken in Australia to assist gold miners during their lean years in the twenties, which led to the preservation of many small operations that became profitable producers and tax payers in the thirties during the opposite swing in the economic cycle, when it proved decidedly beneficial to the country to have such mines in full production.

In mentioning that relief of this sort might be considered, however, I cannot refrain from observing that payment of premium prices for any metal seems basically wrong in a free economy such as most of us would like to have restored in America. With such privileges, inevitably go restrictions and administrative controls that in the end leave the miner not nearly as well off as he would have been if normal prices had been allowed to prevail. But, since the plan of payment of premiums has been adopted temporarily to relieve hardships imposed by fixed prices of other metals, the gold miner might properly ask for

comparable aid to enable him to survive during a period of extreme difficulty. Mines left too long inactive are in danger of being lost forever, and their preservation through appropriate assistance at this time would undoubtedly be advantageous to the general economy in the long run.

An even stronger case can be made for relief for gold mining enterprises through adjustment of the tax burdens that are now so excessive on an industry based on a wasting asset. The federal income tax law now recognizes the principle of depletion but its provisions for depletion deductions are on the meager side and are so restricted by intricate departmental rulings that their benefits are actually denied under some circumstances when they are most seriously needed. Furthermore, with the double taxation of profits, first by the tax paid by the corporation on its income and secondly by the tax paid by the stockholders on the dividends they receive from the same income, the final return is so reduced that the ultimate income from few mining investments today is enough to provide for restoration of the capital within the estimated life of the ore reserves and for interest at a rate commensurate with the risk involved. Under such conditions, what incentive is there to put money into development of new mines? Correction of these two matters - viz., (1) revision of the regulations to remove certain highly technical restrictions on the calculation of depletion allowances and (2) elimination of double taxation, would go far toward keeping our gold mining industry in a healthy condition.

Possible means of relief for the gold miners of the country that would inevitably involve international relations are (1) an increase in the price in paper dollars paid for gold by the U.S. Treasury, (2) coinage of gold at some stated price with permission to citizens to acquire and to hold it, and (3) granting of permits for exportation of gold, or of currently produced gold, for sale abroad at whatever price above the Treasury price it would command.

Various aspects bearing on the first question, i.e., an increase in the Treasury price of gold, have been already considered. Such a step at present would be regarded as inflationary by most officials and economists, and, although it would probably have no more effect on domestic prices than did the change from \$20.67 per oz. to \$35.00 in 1934, it seems highly improbable that such a move would be given serious consideration under the domestic conditions that now prevail. When the change was made before, it should be remembered that prices were low and the administration greatly desired that they should rise. Furthermore, the need for stimulating our exports through cheapening the dollar is still remote and not likely to become acute until foreign credits become depleted or our goods for export become far more abundant. When these conditions do arise, an increase in price of gold in paper dollars may well occur, but that does not seem to me to be likely in the near future.

Circulation of gold in coins would be a most interesting experiment, for it would promptly reveal where paper currencies stood in relation to gold. Gold at present is sufficiently plentiful to permit a substantial part of it to be coined without hardship. If issued at a fair price in terms of paper currencies, it should remain in circulation; and, if hoarded, it should be regarded as fair warning of the weakness of the paper and a sign of the need to correct the basic factors that create such weaknesses. Gold coins usually command a higher price than gold in bars in most foreign markets, as the Bank of Mexico with its usual foresight seems to understand. A premium on gold dollars

in foreign exchange would not be unlikely, if the gold in the new coins were priced at \$35.00; and it is probable that even the diminished \$20.00 gold pieces (which would be only slightly larger than our old \$10.00 coins at the same fineness) would tend to be hoarded.

Perhaps a better scheme would be to coin gold in new units with no fixed rating in dollars. An ounce of gold in such form might be called a Franklin or a Morgenthau unless some other name could be found that would be more generally acceptable. If such coins were made available at whatever higher price than current official rates they might command, and if free interchange between countries were allowed, the relative levels of the worlds paper currencies should become apparent. Such an adjustment by reference to a common standard would promote a base upon which a satisfactory degree of stabilization might be achieved, if effective disciplines in international trade and finance were then agreed upon and put into practice by the major nations. Possibly few governments today would dare face such an honest challenge, but efforts to hold paper currencies at present ratios without reference to some widely trusted and impartial standard seem to me to be as futile as efforts to stabilize the finances of a weak country by loans that do not correct the basic troubles of the times. Free circulation of gold coins might well provide just the frame of reference that is needed for determining equitable levels to which foreign exchanges could be adjusted by appropriate means. Indeed the coinage and circulation of gold for such beneficial ends as well as for the psychological value of having gold seen and handled again in human transaction has much to commend it.

Sale of gold abroad. Gold outside the United States, either as coin or bullion, appears to command a price today that is effectively higher than the U.S. Treasury price of \$35.00 per oz. and even with the restrictions imposed by duties, by exchange controls, and by the quantities that could be absorbed as well as export - import policies in most countries, American producers could possibly obtain some benefits if they were allowed to export their gold and sell it abroad.

License for the export of gold from the United States may be obtained today only if the gold is to be used for industrial purposes. The purchaser must be known and submit a statement from an American consul with regard to the use that is to be made of the gold. Furthermore, the seller must guarantee that the purchaser will use the metal only for the stated purposes. The sales are at the Treasury price and the volume is small.

Sixteen countries today permit private gold holdings and gold trade within their borders. Transactions in gold by individuals across international boundaries, however, is illegal in all countries, and where a Government or a central bank does not retain a monopoly over gold import and export, industrial users may import only under a strict license.

The following countries have a domestic market in gold, which might be called open though subject in most cases to some restrictions:

British India	Palestine	China
Egypt	Syria	Argentina
Iran	Tran Jordan	Brazil
Iraq	Turkey	Chile
Lebanon	Greece	Cuba
		Mexico

Prices paid for gold in the currency of these countries are far beyond the United States level of \$35.00 per oz. at the official rates of exchange for dollars. Many of these Governments have endeavored to convert the large funds of paper money in the hands of the people into gold at some offered rate. In Greece gold recently was worth \$110 per ounce (based on the sale in Grecian paper money valued in paper dollars at the official rate of exchange); in Lebanon \$65 to \$75; in India, the price has been as high as \$88.77 per oz. but there, as elsewhere, a recession has taken place and more recent quotations are around \$72.71. In Alexandria the price dropped from \$74.23 on July 5th to \$72.50 on July 15th.

The drop in price of gold was occasioned by sales by the Bank of Mexico, which currently is the world's largest seller of gold, at a price equivalent to \$40.53 per oz. Only purchasers abroad who are able to acquire the necessary foreign exchange can avail themselves of this opportunity, but the offerings had the effect of depressing the price of gold in the free markets of Bombay and Alexandria.

The gold producer in Mexico, however, does not benefit by this price for he must sell to the Bank of Mexico at the equivalent of \$35.00 per oz. He, as well as others, could then purchase gold for \$40.53 per oz. for domestic hoarding or for export to a market where it might command a still higher price, but the bank takes the first profit on the transaction. (Clearly these days the miner is in the wrong business, when it comes to making a little extra profit from his own metals!)

In most cases, an American gold producer, even if the Government granted special permits to sell abroad, would be unable to obtain dollars by such a transaction, on account of the foreign exchange restrictions that prevail and the shortage of dollars in most countries where gold might be purchased. The seller might indeed obtain a high price for his gold in the local currency, but would then be faced with the difficulties of converting it into dollars. About the only way this could be accomplished is through the purchase of goods abroad and their sale to purchasers in the United States. In a rather round about way, it would serve as a means of stimulating the movement of foreign goods to the United States and of increasing the dollars available for foreign exchange, both of which would be desirable objectives at the present time.

Just how much gold foreign markets would absorb in this way is difficult to predict. The present sales by the Bank of Mexico, which has available not only the output of Mexican mines but the ear-marked gold to its credit in the United States, will afford very interesting data on this and other questions related to the world price of gold.

Conclusion. Although gold miners today may feel more confident than ever about the long range future value of gold, both in relation to paper currencies and in terms of commodities and services that it will command, they also realize all too keenly that the times immediately ahead are certain to be hard. Pinched between rising costs and a price fixed by more rigid controls than even the O.P.A. can impose, the immediate future is inevitably difficult and will remain so until the next depression, unless relief of some special sort is obtained.

An increase in the price of gold is not likely to appeal to many in power while inflation is being fought on the domestic front, nor is it probable as long as ample foreign credits are available through loans or more or less concealed gifts, for through them enough paper will be available to settle the excess of exports over imports. This situation, however, is not one that can persist indefinitely, and changes favorable to the gold miner should eventually result. With elimination of the present extravagances of government, with an approach toward a balanced budget, with restoration of multilateral trade, reduction of tariffs and removal of the multitude of war-time restrictions, and with sane financial policies among the major powers, inflation at home and even abroad may be beaten. Under such circumstances, the gold miner would benefit by stabilization of costs at a level that should allow him adequate profit.

In the world as it appears today, however, such a rational solution seems almost too much to expect. The present troubles arising from expanding paper currencies, tariff barriers, and nationalistic restrictions of one sort or another are likely to persist, at least to some degree, and devaluations of currencies in terms of gold are by no means unlikely. Under these circumstances, the gold miners must be alert to obtain their proper share of the apparent profits resulting from such transactions, not for their own selfish ends but for the preservation of their industry at a time when maintenance of a steady output of gold will be of critical importance. The manipulations by which profits from an increase in gold price might be turned entirely to national treasuries or to central banks are all too simple through arbitrary sales requirements, restrictions on ownership or on the right to export, or through charges for seigniorage or special taxes. Unfortunately some bad examples exist, and the industry should be aware of the sound counter arguments and positive steps that it could take to resist them.

By far the best solution both for the country and the gold miners would be the avoidance of inflation through economies without tampering with the value of paper currencies in terms of gold. But even if this is not achieved, the value of gold is certain to remain as a stable and persistent standard against which shifting currencies are measured.

The gold miners in the long run will be best served by the solution that most effectively promotes multilateral international trade and stable world conditions under which spread between the price of gold and the cost of recovering it from its ores is likely to be maintained that will insure the steady annual increment from the mines that is necessary to enable gold to function smoothly in its traditional way.

COLORADO MINING ASSOCIATION RELEASE,
From Mining Congress, Denver Convention.

THE FUTURE OF GOLD

By: Donald H. McLaughlin, President
Homestake Mining Company

The stability of gold. Acceptance of gold as a token of inherent value is so common a characteristic of all manner of men that there is scarcely any part of the world in which an individual possessing gold would not be able to exchange it advantageously for the goods or services he desired. This is not theory; it is simply an observation of a human trait that comes as near to being a law as anything can in the social sciences. Consequently, gold is trusted as a basis of exchange and as a measure of the value of currencies to a degree that is not even approached by any other means. Confidence in gold far exceeds confidence in governments, and possession of gold is rightly regarded as a better security for wealth than the holding of promissory notes.

When not restricted by arbitrary political controls and limitations on trade, the purchasing power of gold is stable over wide regions. It may be temporarily altered by artificial devices and it is subject to slow changes in response to the available supply and to the demands upon it, but by and large the value of gold possesses a momentum that carries it along a regular course with a steadiness that forces other units of value to adjust themselves to it on its own terms.

The profound dislocations in the world's economic order that lead to wild fluctuation in the value of paper currencies and to the excesses of the printing press are not the fault of gold, nor can they be corrected by gold alone. In the post-war periods, it was not gold but paper currencies that lost their virtue. Surely it was no reflection on gold that its value in German marks went to a fantastic figure; or today its value in Hungarian pengos. No rigid standard can protect a people from the disasters resulting from losses in war, from dislocated trade, and from their own economic follies, but the existence of gold as an international measure of value, even though at times it may be somewhat in the background, exerts a restraining and stabilizing influence that in the end tends to restore financial sanity after the most drastic disturbances.

Besides its historical and undeniable appeal to the human race, which insures its present acceptance wherever men trade, gold possesses certain qualities that make it far superior as a medium of exchange to any other than has been proposed. Its weight, color, resistance to corrosion, and malleability endow it with outstanding distinction and beauty among the metals. Gold is sufficiently scarce in the crust of the earth to make its recovery possible only at a cost commensurate with its value; and yet the ores in which it occurs are so wide-spread that most of the nations have deposits within their own borders from which some gold can be derived. The annual output from the world's mines is fairly steady yet it is responsive to economic conditions that determine the value of gold in terms of goods and services. Gold mining operations, however, are far from simple and the investments in plant required to enlarge the production of a mine or to bring in a new mine are so large that expansion in output in response to some temporarily favorable factor is deliberate and not disturbing. Furthermore, the stock of gold already available above ground is of such magnitude that the annual increment is not out of line with the percentage growth that is needed to meet the enlarging commercial activities of the world.

No other metal or commodity possesses such qualifications. And no promissory note of any government can command the same wide-spread acceptance or even deserve the same degree of confidence.

In comparison with artificial units, such as the commodity dollar or other strange creations based on economic indices of one sort or another, gold has the supreme virtue of tangible existence and traditional value that make it resistant to political manipulation and not exclusively dependent on definitions and agreements that are apt to become scraps of paper when they run counter to national expedencies.

The gold miners these days may have their troubles, but in my judgment they need have no fears about the steady persistence of demand for their product. The world will continue to want it and over the years will undoubtedly continue to pay enough for it to keep gold mining active and attractive for new ventures as well as profitable for established and stable operations.

Gold supply and price. In the late 1920's, much concern was expressed over the possible failure of the gold supply to grow at a rate commensurate with the expansion of money needed for the rapidly increasing industrial and commercial activities of the world. Decreasing grade and rising costs with deeper mining in the Witwatersrand were beginning to create doubt about the maintenance of the output of this leading gold field, and the new gold from Canada's growing mines seemed hardly enough to offset the expected decline in the older fields. In conjunction with these conditions came the sudden enlargement of debts during the first world war, the dislocation of certain of the dominant currencies, the fluctuation of the business cycle on an intemperate scale, and above all the blind insistence of the major creditor of the world, the United States, to maintain a so-called favorable balance of trade. From our present point of view, an adjustment of the currencies of that period to the realities of gold in the face of these disturbances now appears to have been unavoidable. The old gold standard, though admirably suited to meet the needs of closely balanced multilateral trade in the well ordered world that preceded the war, simply could not correct the excesses of the new times; and the function of gold had to be redefined in less rigid terms.

The fixing of the price of gold at \$35 per oz. by the United States government in January 1934 proved to be a fortunate level though I am inclined to think that more luck than wisdom was involved in the selection of this particular figure. At the time, it was apparently expected that the cheapening of the dollar in terms of gold would bring about a greatly desired increase in domestic prices but as is now well known the change had little or no influence on them. On the other hand, the effect on international exchange and prices in foreign trade was prompt and drastic.

The output of gold had already been stimulated in countries other than the United States by the higher prices paid in pounds sterling but our action brought further benefits to the gold miners abroad, as well as help to them at home, among which the stabilization of the price at the new level was not one of the least. On the Witwatersrand, though the immediate result was a slight decline in ounces of gold produced in 1935 due to utilization of existing plant capacity for lower grade ores that were made commercial by the advance in price, the quantity of gold as well as its total value soon started to climb as mills were enlarged and as new mines were brought into production. By 1941, the record year, production in ounces was over 30% greater than the 1934 output. New and speculative ventures were undertaken, such as the tracing of the gold-bearing reefs for over fifty miles to the southwest beneath unconformable cover, and even bolder exploration for blind occurrences at greater distances met with brilliant success. The confidence with which British mining groups put vast sums of money into these costly developments was and still is a most reassuring sign of their faith in the persistent value of gold.

In the United States, where gold mining is rather over-shadowed by our other immense industries, the real magnitude of the operations on the Rand is not always appreciated. In value of its gross output, it is easily the first mining region of the world, but even when measured by other indices it is still outstanding. In 1940, 66,000,000 tons of ore were mined, a quantity that is matched only by the Mesabi range in its peak years. In depths of shafts, in miles of workings, in consumption of explosives and steel, in abundance of mining machinery and capacity of plants, the Rand may well be regarded as the major mining district of the world. And all for gold. It is further enlightening to note that it maintained this place throughout the war and there are no signs today of any loss of enthusiasm for its prospects on the part of the hard-headed men who control it.

New districts and new mines were also developed in many widely separated parts of the Canadian shield, and the older gold producing regions there, as in the United States, Australia and elsewhere, showed new life. Not even the socialistic economy of the Soviets could resist the grant of increased power to gold, and the exploitation of both placers and lode mines in Siberia was so energetically pushed that Russia was soon competing for second place as a gold producer.

In response to these wide-spread efforts, world production rose from about 20,900,000 oz. in 1930, to close to 41,000,000 oz. in 1940. This increase was indeed spectacular and probably would have been adequate to meet the peculiar demands of the times if it had not been for the still more profound disturbances and inflations resulting from the second war.

The spread between the price of gold and the cost of mining and recovering it from its ores that prevailed in the period between 1934 and 1941 was enough to attract money into new ventures and to promote exploration and mine development throughout the world on a scale that removed all danger of shortage of ore for some decades, yet created no threat to the value of gold through over production. The increased output seemed about in balance with the world needs until the vast increase in paper money, the shortages of goods, and the drop in gold production resulting from the closing of mines in the United States and from lack of labor and materials in other fields, as well as the restrictions on sale of gold, exchange controls and abnormal trade conditions in nearly every country during the second world war, again disturbed the equilibrium and raised new doubts as to the ultimate value of the world's paper currencies. There now seems abundant indication that gold is preferred even to dollars at the present Treasury price, and that unless there is marked change in the factors listed above, even the strongest paper currencies may be forced eventually to recognize a higher price for gold.

Movement of gold to and from the United States. An even more spectacular result of the increase in the price of gold in 1934, however, was the effect on international exchange. Through it, more dollars could be purchased for a unit of foreign gold, and, as domestic prices had not risen, our goods and services were at bargain levels in foreign currencies. Gold immediately commenced to flow to the United States at an accelerated rate and continued to do so until checked by lend-lease agreements which postponed and effectively wrote off whatever settlements might normally have been expected.

At its peak in 1941, our gold stock amounted to about 650,000,000 ounces, upon which a value of 22.8 billion dollars was placed. In this immense sum was included the original value of the gold held in 1933 plus a profit of \$2,800,000,000 from the write-up, as well as the profit on the gold collected from private holdings for which the Treasury paid \$20.67 per ounce but entered on its books at \$35. (Whatever 'benefits' the gold miners received in the first years after the devaluation of the dollar were surely small in comparison with the 'profits' the Treasury took into account!) In addition to this, however, gold amounting to about \$14 billion was acquired between 1934 and 1941. Some \$1,200,000,000 was obtained from domestic mines, but the rest came from abroad, of which \$4,917,000,000 was in settlement for the excess over imports during these years. Most of the balance prior to the war was refugee money, which for the most part could be regarded as claims against our wealth in one form or another. As war purchases increased, however, these foreign claims were reduced and eventually the bulk of the bullion from abroad could properly be regarded as a measure of the value of the tangible assets - machinery, metals, oil, cotton, foods and other real property - with which we had actually parted.

In many ways, this was truly the most fabulous investment in history. As a measure of its magnitude, it is worth noting that 22.8 billion dollars is comparable to the gross value of the entire output of metals from all the mining districts of the west. In a sense, this great store of gold might be regarded as a reserve for the depletion that our mineral deposits have sustained to date.

As an investment, it makes sense only if the gold eventually will be accepted for goods and services comparable in value to those we gave up to acquire it. Obviously, it is vital to us to preserve the power of gold to restore the wealth for which it stands.

After the lend-lease agreements reduced war-time settlements to relatively low levels, our large purchases of metals and other strategic materials principally from Latin American countries created claims against us for which gold at \$35 per oz. was accepted without question, and I am inclined to think even with enthusiasm. Some 2.5 billions of our gold was used in this way, which appears to be the chief reason why our total stock declined from a high of \$22.8 billions in 1941 to about \$20.2 billions at present.

The recent decrease in our gold holdings is even more pronounced when considered in relation to the world's total stock. Since the beginning of the war, the mines of the world have produced about 240,000,000 ounces of gold, worth \$8,400,000,000 at \$35 per oz. Of this quantity of gold, the nations outside the United States appear to have absorbed \$5.8 billions in addition to the \$2.5 released from our stocks, a total amounting to \$8.3 billions at the valuation we place on it. At its high point in 1941, the Treasury's holdings amounted to around 68% of the total reserves of the world. This has now dropped to about 42%, which is a shift of real magnitude. The willingness of others to accept this quantity of gold, probably in part at a higher price than the standing bid of the United States Treasury, is an unmistakable sign of the strength of gold in terms of the paper currencies.

In the long run, the value of our gold will be best protected by allowing it to function as a medium of exchange instead of a means of storing inactive wealth. If we follow the same policies that prevailed after the first world war - and to date they seem much the same - we shall have the choice of parting with our goods for paper, or making an even more outright gift of them, or accepting gold at some price that makes our goods reasonably competitive in the world's markets. Carried to an extreme, such a procedure results in impoverishment or on a naive dependence on storage of wealth in gold. It is no indication of lack of confidence in gold to feel that excessive accumulation through one sided trade inhibits its true function. A situation of this sort tends to promote devices such as the restricted trade agreements and barter promoted by the Nazis and now by their successors, the Soviets. Although this would probably do no harm to the ultimate value of gold, it might during a critical period seriously lessen the effectiveness of our gold. The only safe solution is preservation and strengthening of truly multilateral trade.

For a creditor nation, such as we have been for more than a quarter century, the only policy that makes sense, as the British so well demonstrated in the same decades that preceded the first world war, is to import goods or to employ services of greater value than those we export or perform for others. The adjustment of tariffs to accomplish this will be difficult both economically and politically, but if such adjustments are not made, the results will certainly be more painful in the end. We should recognize what the country needs from abroad and take steps to increase the flow of such goods to the United States. The building up of large stockpiles of minerals and metals from foreign sources would be one excellent way to accomplish this end. It would tend to check excessive gold imports and would be of mutual benefit to all participants in trade. Such stockpiles, regarded as a reserve, would not constitute a drain on the resources of the country but on the contrary would be a means of restoring our wealth, which would be wiser than placing complete reliance upon storage of gold, which could become precarious when it becomes too largely concentrated in one place. Such stockpiles from foreign sources, on a scale far greater than provided in the recent bill, would do much to stabilize trade, and, if carefully held off our domestic market except in times of urgent need, would in no way constitute a threat to our domestic mining enterprises.

A renewal of the heavy flow of gold to the United States, however, is unlikely in the immediate future simply because we are lending or otherwise providing the necessary dollars. When we have again grown tired of accepting paper promises in payment for our goods and are once more disinclined to give our resources away for nothing, we shall again have the alternative of accepting what foreign nations have to sell us or acquiring gold. If we maintain tariffs that restrict imports and still insist on maintaining our exports at a high level, the answer will be simple. We must take gold; and if purchasers abroad are to be found, paper dollars will have to be valued in gold at a price that puts our goods within competitive range.

The current state of gold mining. As gold producers, we are, of course, primarily concerned with the spread between the price we receive for our metal and the cost of mining and extracting it from the ores. Traditionally, the spread is greatest and profits are best in times of depression, when labor is plentiful and most efficient, and the cost of supplies and equipment required for the operations is low; and the present difficulties of the gold miners are in line with the reverse of this pattern. Inevitably, profits throughout the entire industry decline and marginal producers suffer so acutely in times like the present that consideration of measures for relief is properly called for.

Means of improving the state of the industry range from action of purely domestic character, entirely within the control of our own government, to adjustments of currencies to the value of gold that inevitably involve foreign exchange and international trade in ways that are now too vital to other nations to permit us to move with complete independence, especially since the commitments of Bretton Woods.

Steps that might be taken domestically include (1) technical improvements to reduce costs, and to improve recoveries; (2) a premium price for gold produced from our own mines; and (3) relief from excessive tax burdens.

Advice to the gold miners to cut their costs by economies and by technical improvements is likely to be regarded as gratuitous under the circumstances that prevail. Naturally, all such means of survival will be sought, and it is surely a time when a wise manager must emphasize to all on his staff the need for greater efficiency and reduction of costs.

A premium price could undoubtedly be paid for gold from domestic mines without influencing the value of the dollar, either in foreign exchange or in terms of prices within the country. If paid only to marginal producers, its sole effect would be to keep many small mines alive until such time that lower costs or a general increase in price of gold in paper dollars again made them profitable. Action of this sort was taken in Australia to assist gold miners during their lean years in the twenties, which led to the preservation of many small operations that became profitable producers and tax payers in the thirties during the opposite swing in the economic cycle, when it proved decidedly beneficial to the country to have such mines in full production.

In mentioning that relief of this sort might be considered, however, I cannot refrain from observing that payment of premium prices for any metal seems basically wrong in a free economy such as most of us would like to have restored in America. With such privileges, inevitably go restrictions and administrative controls that in the end leave the miner not nearly as well off as he would have been if normal prices had been allowed to prevail. But, since the plan of payment of premiums has been adopted temporarily to relieve hardships imposed by fixed prices of other metals, the gold miner might properly ask for comparable aid to enable him to survive during a period of extreme difficulty. Mines left too long inactive are in danger of being lost forever, and their preservation through appropriate assistance at this time would undoubtedly be advantageous to the general economy in the long run.

An even stronger case can be made for relief for gold mining enterprises through adjustment of the tax burdens that are now so excessive on an industry based on a wasting asset. The federal income tax law now recognizes the principle of depletion but its provisions for depletion deductions are on the meager side and are so restricted by intricate departmental rulings that their benefits are actually denied under some circumstances when they are most seriously needed. Furthermore, with the double taxation of profits, first by the tax paid by the corporation on its income and secondly by the tax paid by the stockholders on the dividends they receive from the same income, the final return is so reduced that the ultimate income from few mining investments today is enough to provide for restoration of the capital within the estimated life of the ore reserves and for interest at a rate commensurate with the risk involved. Under such conditions, what incentive is there to put money into development of new mines? Correction of these two matters - viz., (1) revision of the regulations to remove certain highly technical restrictions on the calculation of depletion allowances and (2) elimination of double taxation, would go far toward keeping our gold mining industry in a healthy condition.

Possible means of relief for the gold miners of the country that would inevitably involve international relations are (1) an increase in the price in paper dollars paid for gold by the U. S. Treasury, (2) coinage of gold at some stated price with permission to citizens to acquire and to hold it, and (3) granting of permits for exportation of gold, or of currently produced gold, for sale abroad at whatever price above the Treasury price it would command.

Various aspects bearing on the first question, i.e., an increase in the Treasury price of gold, have been already considered. Such a step at present would be regarded as inflationary by most officials and economists, and, although it would probably have no more effect on domestic prices than did the change from \$20.67 per oz. to \$35.00 in 1934, it seems highly improbable that such a move would be given serious consideration under the domestic conditions that now prevail. When the change was made before, it should be remembered that prices were low and the administration greatly desired that they should rise. Furthermore, the need for stimulating our exports through cheapening the dollar is still remote and not likely to become acute until foreign credits become depleted or our goods for export become far more abundant. When these conditions do arise, an increase in price of gold in paper dollars may well occur, but that does not seem to me to be likely in the near future.

Circulation of gold in coins would be a most interesting experiment, for it would promptly reveal where paper currencies stood in relation to gold. Gold at present is sufficiently plentiful to permit a substantial part of it to be coined without hardship. If issued at a fair price in terms of paper currencies, it should remain in circulation; and, if hoarded, it should be regarded as fair warning of the weakness of the paper and a sign of the need to correct the basic factors that create such weaknesses. Gold coins usually command a higher price than gold in bars in most foreign markets, as the Bank of Mexico with its usual foresight seems to understand. A premium on gold dollars

in foreign exchange would not be unlikely, if the gold in the new coins were priced at \$35.00; and it is probable that even the diminished \$20.00 gold pieces (which would be only slightly larger than our old \$10.00 coins at the same fineness) would tend to be hoarded.

Perhaps a better scheme would be to coin gold in new units with no fixed rating in dollars. An ounce of gold in such form might be called a Franklin or a Morgenthau unless some other name could be found that would be more generally acceptable. If such coins were made available at whatever higher price than current official rates they might command, and if free interchange between countries were allowed, the relative levels of the worlds paper currencies should become apparent. Such an adjustment by reference to a common standard would promote a base upon which a satisfactory degree of stabilization might be achieved, if effective disciplines in international trade and finance were then agreed upon and put into practice by the major nations. Possibly few governments today would dare face such an honest challenge, but efforts to hold paper currencies at present ratios without reference to some widely trusted and impartial standard seem to me to be as futile as efforts to stabilize the finances of a weak country by loans that do not correct the basic troubles of the times. Free circulation of gold coins might well provide just the frame of reference that is needed for determining equitable levels to which foreign exchanges could be adjusted by appropriate means. Indeed the coinage and circulation of gold for such beneficial ends as well as for the psychological value of having gold seen and handled again in human transaction has much to commend it.

Sale of gold abroad. Gold outside the United States, either as coin or bullion, appears to command a price today that is effectively higher than the U. S. Treasury price of \$35.00 per oz. and even with the restrictions imposed by duties, by exchange controls, and by the quantities that could be absorbed as well as export - import policies in most countries, American producers could possibly obtain some benefits if they were allowed to export their gold and sell it abroad.

License for the export of gold from the United States may be obtained today only if the gold is to be used for industrial purposes. The purchaser must be known and submit a statement from an American consul with regard to the use that is to be made of the gold. Furthermore, the seller must guarantee that the purchaser will use the metal only for the stated purposes. The sales are at the Treasury price and the volume is small.

Sixteen countries today permit private gold holdings and gold trade within their borders. Transactions in gold by individuals across international boundaries, however, is illegal in all countries, and where a Government or a central bank does not retain a monopoly over gold import and export, industrial users may import only under a strict license.

The following countries have a domestic market in gold, which might be called open though subject in most cases to some restrictions:

British India	Palestine	China
Egypt	Syria	Argentina
Iran	Tran Jordan	Brazil
Iraq	Turkey	Chile
Lebanon	Greece	Cuba
		Mexico

Prices paid for gold in the currency of these countries are far beyond the United States level of \$35.00 per oz. at the official rates of exchange for dollars. Many of these Governments have endeavored to convert the large funds of paper money in the hands of the people into gold at some offered rate. In Greece gold recently was worth \$110 per ounce (based on the sale in Grecian paper money valued in paper dollars at the official rate of exchange); in Lebanon \$65 to \$75; in India, the price has been as high as \$88.77 per oz. but there, as elsewhere, a recession has taken place and more recent quotations are around \$72.11. In Alexandria the price dropped from \$74.23 on July 5rg to \$72.50 on July 15th.

The drop in price of gold was occasioned by sales by the Bank of Mexico, which currently is the world's largest seller of gold, at a price equivalent to \$40.53 per oz. Only purchasers abroad who are able to acquire the necessary foreign exchange can avail themselves of this opportunity, but the offerings had the effect of depressing the price of gold in the free markets of Bombay and Alexandria.

The gold producer in Mexico, however, does not benefit by this price for he must sell to the Bank of Mexico at the equivalent of \$35.00 per oz. He, as well as others, could then purchase gold for \$40.53 per oz. for domestic hoarding or for export to a market where it might command a still higher price, but the bank takes the first profit on the transaction. (Clearly these days the miner is in the wrong business, when it comes to making a little extra profit from his own metals).

In most cases, an American gold producer, even if the Government granted special permits to sell abroad, would be unable to obtain dollars by such a transaction, on account of the foreign exchange restrictions that prevail and the shortage of dollars in most countries where gold might be purchased. The seller might indeed obtain a high price for his gold in the local currency, but would then be faced with the difficulties of converting it into dollars. About the only way this could be accomplished is through the purchase of goods abroad and their sale to purchasers in the United States. In a rather round about way, it would serve as a means of stimulating the movement of foreign goods to the United States and of increasing the dollars available for foreign exchange, both of which would be desirable objectives at the present time.

Just how much gold foreign markets would absorb in this way is difficult to predict. The present sales by the Bank of Mexico, which has available not only the output of Mexican mines but the ear-marked gold to its credit in the United States, will afford very interesting data on this and other questions related to the world price of gold.

Conclusion. Although gold miners today may feel more confident than ever about the long range future value of gold, both in relation to paper currencies and in terms of commodities and services that it will command, they also realize all too keenly that the times immediately ahead are certain to be hard. Pinched between rising costs and a price fixed by more rigid controls than even the O.P.A. can impose, the immediate future is inevitably difficult and will remain so until the next depression, unless relief of some special sort is obtained.

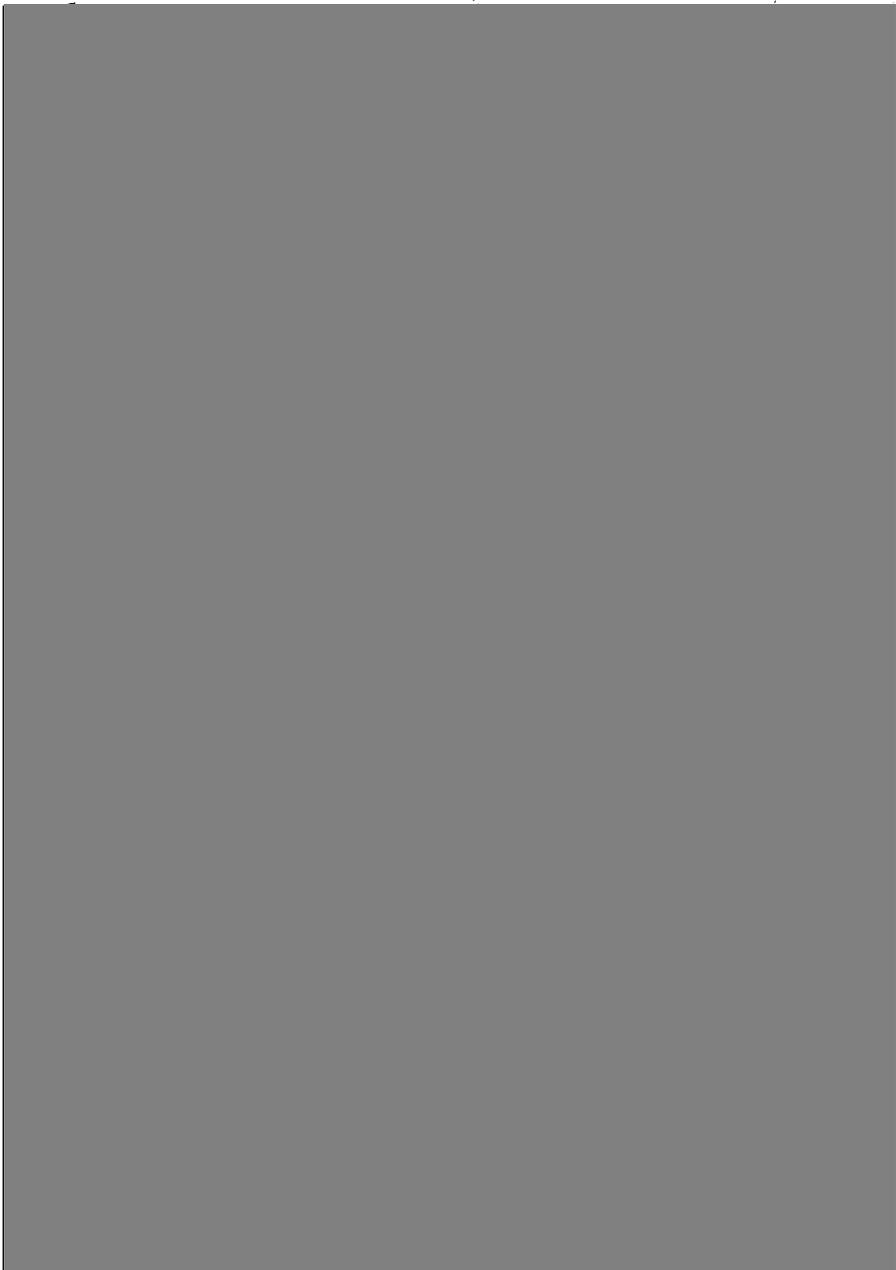
An increase in the price of gold is not likely to appeal to many in power while inflation is being fought on the domestic front, nor is it probable as long as ample foreign credits are available through loans or more or less concealed gifts, for through them enough paper will be available to settle the excess of exports over imports. This situation, however, is not one that can persist indefinitely, and changes favorable to the gold miner should eventually result. With elimination of the present extravagances of government, with an approach toward a balanced budget, with restoration of multilateral trade, reduction of tariffs and removal of the multitude of war-time restrictions, and with sane financial policies among the major powers, inflation at home and even abroad may be beaten. Under such circumstances, the gold miner would benefit by stabilization of costs at a level that should allow him adequate profit.

In the world as it appears today, however, such a rational solution seems almost too much to expect. The present troubles arising from expanding paper currencies, tariff barriers, and nationalistic restrictions of one sort or another are likely to persist, at least to some degree, and devaluations of currencies in terms of gold are by no means unlikely. Under these circumstances, the gold miners must be alert to obtain their proper share of the apparent profits resulting from such transactions, not for their own selfish ends but for the preservation of their industry at a time when maintenance of a steady output of gold will be of critical importance. The manipulations by which profits from an increase in gold price might be turned entirely to national treasuries or to central banks are all too simple through arbitrary sales requirements, restrictions on ownership or on the right to export, or through charges for seigniorage or special taxes. Unfortunately some bad examples exist, and the industry should be aware of the sound counter arguments and positive steps that it could take to resist them.

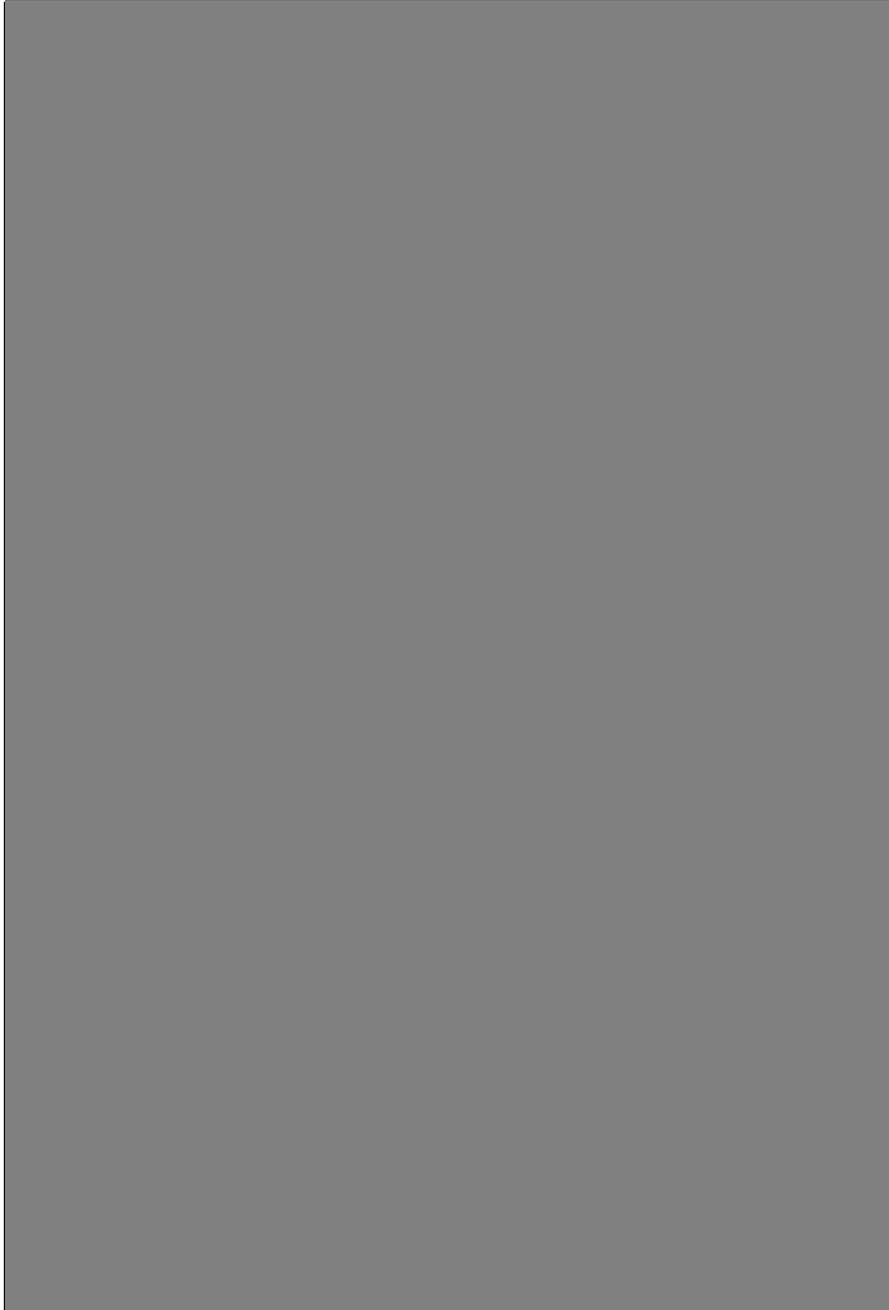
By far the best solution both for the country and the gold miners would be the avoidance of inflation through economies without tampering with the value of paper currencies in terms of gold. But even if this is not achieved, the value of gold is certain to remain as a stable and persistent standard against which shifting currencies are measured.

The gold miners in the long run will be best served by the solution that most effectively promotes multilateral international trade and stable world conditions under which spread between the price of gold and the cost of recovering it from its ores is likely to be maintained that will insure the steady annual increment from the mines that is necessary to enable gold to function smoothly in its traditional way.

Gold Mining









DENVER OFFICE

Gold

August 4, 1945.

Mr. R. F. Goodwin
American Smelting and Ref. Co.
New York City

Dear Sir:

With further reference to my letter of July 21, Mr. Bob Palmer of the Colorado Mining Association will attend the meeting at Helena, Mont. on August 7 in connection with equipment for gold mines.

A discussion here with officials of the Denver Equipment Company and Mine and Smelter Supply Company developed the point that there are no particular key items needed by gold mines but that, in general, they are short all around. Consequently little advantage would be gained by obtaining priorities on a few items.

I understand Mr. Shoup will be unable to go to Helena but we will be well represented by Mr. Palmer.

Yours very truly,

JPH:b

J. PAUL HARRISON.

cc-JBennan
EMel Tittmann
EWhorley
WJO'Connor
OWilliamson
HNaeburn
WLaerpabel
WLandwehr

Gold Mining
Mr. W. R. Landwehr-AIR MAIL ✓

July 31, 1945

AIR MAIL

Mr. E. McL. Tittmann, Manager
American Smelting and Refining Company
East Helena, Montana

Dear Sir:

Thanks for your letter of July 25th giving further details concerning the meeting which Senator Murray will conduct in Helena on August 7th, in connection with various mining subjects. As you state, the meeting appears to be more of a political sounding board than anything else.

However, in connection with the question of priorities for capital items of gold mining equipment, I suggest you point out to Mr. Porter in the line of argument which might have some effect:

1. - The War Production Board and others in Washington have announced that during the last half of the year unemployment due to cut backs will reach very substantial figures;
2. - The refusal to grant priorities for capital items in excess of \$500 will prevent any new gold mine or mill from being placed in operation, and will also handicap expansion of an operating gold mine;
3. - If priorities were available then it is possible that new gold enterprises would come into production - thus alleviating to some extent the problem of unemployment.

I have found that an approach of this nature sometimes has more effect than simply reciting the financial loss and inconvenience to operation of the mines themselves.

Practically I don't think my argument is worth much but theoretically it may be worthwhile.

Very truly yours,

ORIGINAL SIGNED BY
R. F. GOODWIN

cc- EWThornley
JesseSeaman
JPaulHarrison
WJO'Connor
EGWashburn
WHLoerpabel
WRLandwehr

CJWilliamson

Adl. Mung

DENVER OFFICE

July 31, 1945.

76

Mr. R. F. Goodwin
American Smelting and Ref. Co.
New York City

Dear Sir:

This is in reference to your letter of July 20 and the meeting to be held at Helena on August 7 in connection with purchases of capital equipment etc. for gold mines.

I have discussed this matter in a preliminary way with Mr. Tedrow and Mr. Bob Palmer of the Colorado Mining Association and it appears likely that Mr. Palmer and Mr. Sheep of the Golden Cycle will either attend the meeting or submit briefs. Mr. Palmer's present feeling is that little will be accomplished at the meeting but that it might be possible for an agreement to be reached regarding certain key items that will be most generally needed by gold mines and that perhaps specific priorities might be granted in this direction.

A special meeting of the Executive Committee of the Colorado Mining Association has been called by Mr. Tedrow for August 5 and after this meeting I will advise you what action will be taken.

Yours very truly,

JPH:b

J. PAUL HARRISON.

A/S R/S

- cc-Jensen,
- Edal Pittman
- Burnhaley
- WJD'Connor
- GWilliamson
- Howachburn
- WILcorpsel
- WRLandwehr ✓

FILED
 JUL 31 1945
 R.M.
 10

EAST HELENA PLANT

Lead Mining

East Helena, Montana

July 25

1945

AIR MAIL

Mr. R. F. Goodwin, Mgr. Mining Dept.,
New York, N. Y.

Dear Sir:

Referring to the meeting which Senator Murray expects to conduct in Helena August 7th, Mr. Trauerman has been working on this so that the matters which the Montana Mining Association feel are important will be aired. The Technical Advisor to the Committee, W. C. Broadgate, will be in Butte August 3rd to consult with Mr. Trauerman as to the agenda. Tentatively, Mr. Trauerman intends to have Mr. Porter, representing Porter Bros. gold dredges; Dr. Jay A. Carpenter of Reno; Senator Gatchell of Gatchell Mines, Nevada; Robert Palmer of Denver; Merrill Shoup of Colorado Springs; Guy H. Bjerge of Lead; Robert H. Scarle of San Francisco and Neil O'Donnell of Grass Valley, testify or submit briefs on the subject of priority for equipment, labor, etc.

Apparently from the letters Senator Murray and Mr. Broadgate have written, this meeting will be more of a political sounding board than anything else. Labor has been invited by Senator Murray to participate. The time will be limited to fifteen minutes or less for each individual.

I expect to attend the meeting and will report the proceedings to you in due course. If there is anything else that you wish done from this end please advise. For your information I am enclosing copies of letters by Senator Murray and Technical Consultant W. C. Broadgate.

Yours truly,

ORIGINAL SIGNED BY
E. McL. TITTMANN

E. McL. TITTMANN

ENC.

cc-Mr. Jesse Seaman
Mr. J. Paul Harrison
Mr. R. J. O'Connor
Mr. H. C. Washburn
Mr. W. H. Loerpabel
Mr. W. R. Landwehr ✓

cc: EGFittmann
 JPaul Harrison
 Ewthornley
 WJO'Connor
 CJWilliamson
 HGWashburn
 WHLoerpabel
 WRLandwehr

SELBY PLANT

SAN FRANCISCO, CALIFORNIA
 July 24, 1945

Mr. R. F. Goodwin
 American Smelting and Refining Company
 New York, New York

Dear Sir:

Your letter of July 20 regarding the revocation of order L-208 on July 1, 1945 is at hand, and as requested, I have destroyed the original and all copies of the note you addressed to me, dated July 2, and there is returned herewith, Mr. Thornley's note to you, dated June 27, 1945.

I have today discussed with Mr. Albert F. Knorp, secretary of the Gold Producers of California, the question of their having a representative present at Senator Murray's meeting in Helena, Montana, August 7, 1945. While Mr. Knorp is very pessimistic of any favorable results being obtained through said meeting, he has assured me that upon the return to San Francisco of Mr. Robert Searles within the next few days, he will arrange to have Mr. Searles draft as strong a brief as possible which will be submitted to the meeting through Mr. Carl Trauerman.

Mr. Knorp also stated he would endeavor to get in touch with Mr. John Bradley of the Bradley Mining Company, and in the event Mr. Bradley is at the Yellow Pine Mine, he will try to have him attend the meeting in the interest of local gold miners, but he does not think it practical to have anyone from the Gold Producers of California make the trip.

Mr. Knorp also stated that the results obtained through attending meetings in other states such as proposed by Senator Murray, have been practically nil, and that the best results they have obtained to date in connection with any of their difficulties, have been through Mr. Julian Conover.

I had occasion to visit the local office of the War Production Board today and talked with Mr. A. G. Keating regarding the question of capital equipment for gold mines, and he corrected his former statement to me to the extent that it was his belief that any application for capital equipment for a mine which had been operating would be approved providing the operator could satisfy the board that the equipment was necessary. However, he would not approve or accept an application for capital equipment costing in excess of \$500.00 for a mine which had not been operating, or a new mine which wanted to start operations. In view of Mr. Keating's statement to me today, it would appear that the observation made in my letter to you of June 14 is worthy of consideration in that the gold mines will have to make some applications and establish the fact that they have been disallowed before any degree of relief can be sought or obtained.

Yours very truly,

JS:MS

JESSE SEAMAN

Gold Mining - General

July 20, 1945

AIR MAIL

Mr. Jesse Seaman,
Mr. E. C. Tittmann,
Mr. J. Paul Harrison

Gentlemen:

It now has been definitely decided in Washington that there will be no priorities issued for gold mining capital equipment for items costing in excess of \$500. In effect, this nullifies in many cases the revocation of Order L-208 on July 1, 1945 because without certain items of new capital equipment many mines and mills cannot resume operations - Also, it would appear to make it impossible to plan on erecting a new gold mill.

This may have some affect on gold mines throughout the country which might ship to our smelters. It does, however, have a very definite unfavorable effect on our two foreign properties in Nicaragua and Arabia because the same ruling concerning capital equipment is now applied to foreign gold mines.

I am informed by Mr. Williamson that there will be a meeting, headed by Senator Murray, known as the sub-committee for Mining and Minerals. They will meet at Helena, Montana, August 7, 1945 and the hearing will be between the hours of 10 A.M. and 12:30 P.M. and 2 P.M. and 5 P.M. At this meeting, the question will be discussed as to what action can be taken to obtain deliveries of capital equipment or equipment costing more than \$500, to be used in connection with the operation of gold mines.

Mr. Carl J. Trauerman, Secretary and Treasurer of the Mining Association of Montana, 505 Montana Standard Building, Butte, Montana, is familiar with the purpose of this meeting.

No doubt Mr. Porter knows that this meeting is going to take place and in view of his interest in gold dredging plans to attend and do what he can to obtain a modification of the present priority situation. However, I would request that Mr. Tittmann see Mr. Porter and make certain that everything possible is done to place the position of the gold miners before the committee.

It would be desirable if Mr. Seaman and Mr. Harrison could arrange that representatives of the local California and Colorado Mining Associations attend this meeting, but if this is not possible then as strong a brief as possible should be prepared and sent to Mr. Trauerman for presentation to the meeting.

Air Mail

- 2 -

7/20/45

Mr. Jesse Seaman,
Mr. E. G. Tittmann,
Mr. J. Paul Harrison

In due course I would appreciate knowing what you have been able to arrange and I would also ask that if Mr. Tittmann obtains any information locally as to what transpires at the meeting, he pass it on to all of us.

Obviously, in anything that you may do along the above lines, there is no object in mentioning our own interest in foreign gold mines because as you know the favorable treatment accorded foreign gold mines, since Order L-208 has been in effect, has always been a source of irritation to the domestic gold miners.

cc-
EWThornley

WJO' Connor - AirMail

CJWilliamson

HCWashburn - AirMail
WHLoerpabel "
WRLandwehr "

*Gold Mining
Rescinded*

Salt Lake City, Utah
June 29, 1945

Mr. R. L. Jourdan, Mgr.
Ore Purchasing Department
American Smelting & Refining Co.
120 Broadway
New York 5, New York

Dear Sir:

Referring to your letter of May 16 relative to "Gold Mining Limitation Order L-208" in which you request the managers of the various smelters to determine what gold mines might open up and what tonnage might normally be expected in their districts after L-208 was rescinded.

This information would be of interest from an exploration standpoint and I therefore would like if possible to have copies of the letters from Mr. Harrison and Mr. Seaman.

Yours very truly

WRL:ES

W. R. LANDWEHR

Gold Mining
General

NEW YORK, May 25, 1945

Mr. W. J. O'Connor
Salt Lake City

Mr. E. McL. Pittmann
East Helena

Mr. Jesse Seaman
San Francisco

Mr. J. Paul Harrison
Denver

Mr. E. A. White
Tacoma

Mr. J. D. MacKenzie
San Francisco

Mr. R. D. Bradford
El Paso

GOLD MINING LIMITATION ORDER L-208

Gentlemen:

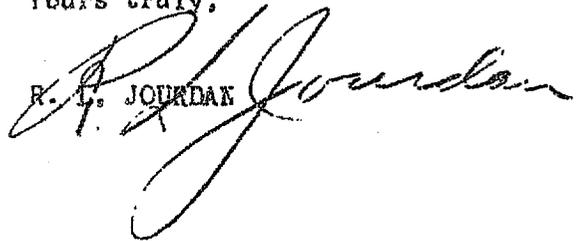
Yesterday while in Washington I saw Mr. Arthur S. Knoizen, Director of the Mining Equipment Division of the War Production Board, which is in charge of the administration of the Gold Mining Limitation Order.

Mr. Knoizen stated that at the present time there was no change in the Order but that consideration was now being given to its revocation. Apparently the Mining Equipment Division has recommended that the Order be revoked and the matter now is before Mr. Krug, Chairman of the War Production Board, who has discussed the question with President Truman.

Mr. Knoizen confidentially told me that an announcement would be made by Mr. Krug on the Gold Mining Limitation Order on June 15, 1945.

Yours truly,

R. L. JOURDAN



RLJ SW
CC RWStraus
HYWalker
RFMcElvenny
HAGuess
RFGoodwin
EWThornley

ENRiokard
WHLoerpabel
HGWashburn
WRLandwehr
JFJohnson

NEW YORK, May 22, 1945

Mr. W. H. Loerpabel
Mr. H. G. Washburn
Mr. W. R. Landwehr
Mr. J. F. Johnson

Gentlemen:

Attached is copy of letter with reference to the Gold Mining Limitation Order L-208, which I sent out to our various smelter managers. Mr. Goodwin asked that I send you four gentlemen a copy also.

Yours truly,

R. L. JOURDAN

RLJ SW

ENC. Copy of L-208 letter to each
of the above.

NEW YORK, May 16, 1945

Mr. W. J. O'Connor
Salt Lake City

Mr. Jesse Seaman
San Francisco

Mr. E. A. White
Tacoma

Mr. R. D. Bradford
El Paso

Mr. E. McL. Tittmann
East Helena

Mr. J. Paul Harrison
Denver

Mr. J. D. MacKenzie
San Francisco

GOLD MINING LIMITATION ORDER L-208

Gentlemen:

Prior to the closing down of the gold mines in the United States our various smelting plants received substantial quantities of gold-silver ores and concentrates and to a considerable extent most of our smelters relied upon gold ores for their necessary fluxing materials. Naturally, once restrictions on gold mining are removed, we will again want to secure at our various plants the maximum quantity of gold-silver ores and concentrates possible.

With the war in Europe over and the likelihood of considerable cut-backs in war industries, more manpower should be available sooner or later for the mining industry and no doubt there will be a drive by various gold mining companies to have the gold order revoked. Just when this will be accomplished, of course, is as yet uncertain but I will keep in touch with the War Production Board and endeavor to obtain their views. I feel that the Mining Division of WPB would like to get out from under and no doubt will consider revoking the order just as soon as the manpower situation warrants.

It, therefore, seems advisable that each plant manager make a survey of the various gold mines which formerly shipped to his particular plant and determine what the prospects are for those mines to re-open once they are permitted to do so. I would like to have your best estimate as to the tonnage of profitable smelting material, together with your estimate of the tonnage of low-grade fluxing material which might reasonably be expected from those gold mines which plan to open up.

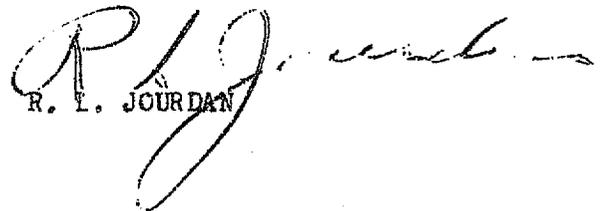
No doubt many of the mines which have been closed down for various periods of up to two to four years may find it difficult to start up. Undoubtedly, considerable amount of repair work will have to be done, equipment will have to be overhauled, or new equipment installed, and of course the matter of the mining company's finances will have a large bearing on whether or not they can resume operations. If you ascertain that any mine, which has formerly been a substantial shipper or a mine which you believe would be able to produce a fair amount of gold ore should they re-open, anticipates difficulty of one kind or another in re-opening, I will appreciate your advising this office full particulars as to the specific reasons why the mine in question cannot re-open. It may be that something can be done to help them work out of their difficulties.

This whole question of smelting tonnages to be secured from gold mines is of considerable importance to our company since regardless of how base metal production holds up, we, in general, have capacity for treating additional gold ores. Should

base metal tonnages decline for one reason or another, especially once the Premium Price Plan is no longer operative, additional smelting tonnage in the form of gold material will be needed.

If any of you have any particular thoughts on this matter, I will appreciate hearing from you, pending your study of the future possibilities of gold mining in your areas.

Yours truly,



R. I. JOURDAN

RIJ SW
CC RWStraus
HYWalker
RFMcElvenny
HAGuess
RFGoodwin
BNRickard

**THE
BULLION CONTROVERSY
IN 1947**

by

DR. LEWIS H. HANEY

Professor of Economics

**Graduate School of Business Administration
New York University**



Address Delivered at the

**FIFTIETH ANNUAL MINING MEETING
of the
COLORADO MINING ASSOCIATION**

Denver, Colorado

February 7, 1947

THE BULLION CONTROVERSY IN 1947.

WHY NOT MAKE THE DOLLAR AS GOOD AS GOLD?

by

DR. LEWIS H. HANEY
Professor of Economics

Graduate School of Business Administration,
New York University

The financial problem of the day lies in those Siamese twins, the vast public debt and a vast mass of inconvertible and depreciating currency. This is true in the United States as well as in the rest of the world. In most cases, neither the debt nor the currency means anything very definite, simply because neither is related in any definite way to reserves. In other words, there is no standard for the payment of debt, and no standard for the currency.

It is no mere chance that the two biggest increases in the Federal Reserve member bank statements are those in "investments" in government securities and in demand deposits. The investments are in government debt, and the deposit currency is based thereon.

The great underlying facts of the past decade have been, first, the wartime monetization of the public debt, and, second, the growth of the idea of "debt management". By the first of these two sinister developments, the governments of the world, as usual in wartime, were forced to abandon the gold standard, and to use their own IOUs in lieu of money. Bond-secured currencies, representing little more than government fiat, have become general. Thus *the larger the debt, the more currency we have!* We even go so far as to think that the more bonds (debt) the government issues the more security we have. According to the second development, there has arisen a school of thinkers who are turning from the older idea of a managed currency into the newer one of a managed debt. This is a logical development since it follows from the fact that the currency is now based on the debt.

This idea of debt management is the last resort of all nationalists. First, they make the debt of the sovereign, that is, government notes and bonds, the currency; then in order to

compel the subjects to use the currency at its face value, they proceed to control the economy. Such was the procedure in the days of Louis XV and John Law which ended in the notorious Mississippi Bubble.

A. INTERNATIONAL ASPECT.

The problem of debt and currency today comes to a head in international rivalries and wars. This should remind us of the futility of all the talk about there being anything new in the proposals for a managed currency and managed debt. They are no newer than national wars!

In fact, the situation today is reminiscent of the dark days of Mercantilism, and the constant warfare which we associate with the 16th and 17th centuries. They are reminiscent of the suspension of specie payment by the Bank of England in the period of the Napoleonic wars. We don't have to remember far back, to recall the "shell game" overplayed by Dr. Schacht in Germany at the end of World War I, when he performed the miracle of creating purchasing power out of government spending and debt, by merely raising taxes and compelling the purchase of German government bonds, and thus forcing the people to give back the money as he spent it. And is there anyone whose memory does not extend to the period of World War II, in the United States, when the head of our own central banking system defended a similar procedure as carried out by the head of our government? They seized our gold, and withdrew it from circulation. They inflated the paper price of gold 68%, calling it "devaluation." They defaulted on the government's gold bonds. With this background, they borrowed through deficit financing, and scattered the money among the people through government spending. Then they took it back through progressive taxation and bond sales. They spent it again. If there is any better illustration of a "shell game" than that, I don't know of it.

These essentially identical procedures, down through the centuries, have developed when political values become more important than economic values; in other words, when politics drives out economics. The current international mess in economic and monetary matters is an outcome of this condition. Looking over the world today, we see in all countries masses of depreciating paper currency lying over the economic terrain like great glaciers. A part of the landscape is the mass of trade restrictions and financial controls which are required when there are no standard money and free exchange. We see the central banks each trying to regulate the economy of its nation for political and financial purposes. And we see the governments forced to control international trade and exchange, under the ancient and inefficient

system of barter. (How anyone can talk about the trend in monetary matters being in a "forward direction" when one reflects that barter is the device of the savage, is beyond me!)

And as we look over these masses of frozen paper currency and trade restrictions, we see everywhere little hot spots. These are the black markets in gold. (The existence of black markets in gold at various points in the world, is to my mind one of the strongest proofs of the goodness of gold.) In the days when there were black markets for meat in the land, I think that most of us appreciated the goodness of the thick steak or prime rib more acutely than at any other time. The black market in meat, which was universal and widespread, proved the goodness of meat—just as the speakeasy in the days of prohibition proved the goodness of liquor. Well, we could not keep the paper price of meat down; so now we will not be able to keep the paper price of gold down either. That is what the black markets in gold are telling us.

Consider the case of the Italian lira. True, the international fund or world bank, or whatever they call these Bretton Woods monstrosities has undertaken to name rates of exchange between the dollar and the various paper currencies of other countries. Doubtless the lira has its place in the list. Would anyone in his senses, however, care to trade lira for dollars on the basis of this rating? The conditions that determine the value of the paper lira are completely unpredictable. They are unknown and unknowable, depending as they do upon a highly unstable government and the fickle political arrangements that are to be made in the disposal of shipping, colonies, reparations, etc.

And who knows what the British pound is really worth? The radical labor government of Great Britain is trying desperately to keep the purchasing power of the pound up by holding prices down. Nobody knows just how the efforts will work. All we know is that some of us, like myself, are sure that they will fail, just as we ourselves failed in a somewhat similar attempt.

The plain fact is that the "parities" established among the various currencies mean little but political hopes. They represent opinions on the part of certain political authorities that the paper dollar should be pegged to the paper pound at the rate of about four to one, and so on down the list. Many of the exchange rates are unquestionably too high. And the dollar itself is but a piece of paper dependent for its purchasing power upon the policies and controls of good but limited men such as M. S. Eccles, John Snyder, and Harry Truman.

I hold that there is no way under the sun to tell what the lira or the pound is worth, under such circumstances. This you doubtless will believe, but don't you see that if this be true, it is also true that there is no way under the sun to tell what the dollar

is worth? We will never know in any generally acceptable and demonstrable way what the several currencies are worth in exchange for one another unless and until we make them definitely and precisely comparable with some one object with which they can be compared, and I know of no object which is so suitable for this purpose as is gold. Nobody would ever be convinced that the pound sterling is worth exactly \$4, just because the average price of cotton goods, pig iron, and potatoes in England might be one-quarter of what it is in this country. But show me, or anyone else, that I can get 54.8 grains of pure gold for a pound at the same time that I can get 13.7 grains of pure gold for a dollar, and I will admit that the two must exchange in the ratio of one to four, because I *know* it.

All this condition rests upon the big delusion, almost worldwide, that money is just a ticket or a sort of claim to goods—to anything a man wants. This idea underlaid German nationalism, with its notion that paper currency had a great superiority in binding the people of the nation together in a sort of mystic tie, not recognizable to the people of other nations. It lies back of the so-called economics of Lord Keynes, which is characterized by the notion that governments can give people purchasing power by borrowing from them and then making them work it out on the roads, thereby creating full employment! Our own Marriner S. Eccles, following in the path of another notorious Scotchman, John Law, has stood for the idea that money is nothing but a claim against what he called the “general assets of the nation”. I have always wondered just whose assets the general assets of a nation are. How does a nation get any assets at all? What is to assure the stability of my “claim”? Don’t my liabilities in the shape of heavy taxes and government debt more than offset my “claim” to any alleged national assets?

And don’t forget that all the time, as if it were boring from within, we find the average American college textbook in economics, presenting the idea that money is a nominal thing, a sort of ticket or warehouse receipt. At first, it may seem convincing to think of a dollar as a warehouse receipt which you present in the market and get your share of the goods; but when you stop to think, you realize that a warehouse receipt means that you have put something in a warehouse, and that the receipt gives you a claim to that specific thing. That, however, is not what the fiat-currency people mean. They think of the warehouse as containing those “general assets of the nation”. You put in 40 hours or so at whatever occupation you most enjoy, and receive certain claims, but claims to what? What have *you* put into the general warehouse? Who runs the warehouse? What is there to insure that what you do is going to contribute your full share to filling it?—but why push the matter further?

My point is that our minds have been all but poisoned by a continuous flow of vicious arguments and pronouncements, some of it from high places. These have been exposed, exploded, and disproven over and over again. Yet I predict that when the next great wars come, whether it be a generation or a hundred years from now, the same delusions will again arise. And I further predict that the next generation of New Dealers will again call it "something new", and therefore call it "progress".

One of the most persistent cases of such thought is the notion of the so-called "*commodity dollar*". You would think that a commodity-dollar man would be ripe for the idea of a gold standard, since he should be willing to take gold as the commodity to which he would tie the dollar. But no! What he does is to select some bill of goods, taking his favorite list of items, and proposes that in some way or other we should make the paper dollar always buy the same quantity of this bill of goods. But how? The commodity-dollar man always is forced to exercise some act of superior power and wisdom; that is, he imagines he can in some way, through political controls, manage a fiat currency so that it will have a constant purchasing power as judged by the prices of his list of goods.

One trouble is that no two of them can agree as to just what bill of goods should be taken as the basis for their proposed control. Another difficulty is that no two of them can agree precisely as to how the currency they would use should be managed.

The truth is that the "commodity dollars" means *no standard*. It means nothing but somebody's idea about what a dollar ought to buy; but provides no standard for determining its value. It is exactly like saying that the distance from Denver to Chicago can be determined by dividing that distance into 1,000 units. Of course, when you measure that way you will find that a unit is always 1/1,000 of the total distance!

So I come to the conclusion that the big underlying problem of our currency, internationally, is the problem of securing some definite and stable base, something that is not a mere claim depending either upon coercion or upon the intuitions of some dictator. This definite and stable base is necessary for the determination of foreign exchange, and for deciding the amount of credit to be extended in the case of foreign loans. Without such a base, exchange ratios are indeterminate. The amount of loans is unlimited.

This problem now centers on us and our dollar. You will have observed that the Bretton Woods arrangements for an international fund and a world bank all focus on the idea of some "scarce currency". Well, aside from Switzerland and one or two other cases, the American dollar is the one currency that is "scarce".

What does that mean? It means that the American dollar is the one means by which you can get American food and American machinery! The problem, then, is how to give Bolivians and Liberians their share of the scarce currency which enables them to get food and machinery from us.

There is only one way to do this fairly and without coercion. And that is to put that scarce currency, the United States dollar, on the basis of a gold standard. We are about the only nation, outside of Switzerland, which can have a gold standard. It is therefore my opinion that the United States should go on the gold standard at the earliest possible moment, so that other nations can be able to accept the United States dollar based on gold as a means of measuring their currencies. This I think is by far the most effective step that can be taken to restore international trade.

I would emphasize at this point that we stand at the same crossroads where England stood at the end of the Napoleonic Wars. England had abandoned the gold standard. The bullion controversy then raged. Following the ideas of the great classical economist, David Ricardo, England then made the right decision and returned to the gold standard, making the pound convertible into gold. This, along with the closely related policy of relative freedom of international trade, brought to England her great period of 19th century trade superiority.

Similarly today, the dollar is the only world currency. Similarly today, we have our bullion controversy, the issue being whether to back the dollar with gold, so as to make it as good as gold bullion. If we will take this step, with the responsibilities and difficulties that it involves, we may hope to become the unquestioned economic leader of the world for a century to come with all the chance for power, prosperity, and good influence that comes with such leadership.

B. DOMESTIC ASPECT.

This obviously brings us to the domestic or internal aspect of the problem.

When we consider the monetary problem as it confronts us at home we are driven to inquire just what is the meaning of a "standard" for our own money. I would emphasize that this means something more than a mathematical formula, or a banker's rule for finding out what a foreign currency will exchange for. It means a basis for determining what a day's work in the fields or mines is worth in exchange for our daily bread. It means a basis for determining what the savings that I leave to my children will be worth.

To begin with, note that we are not now on any standard. It is my carefully considered judgment that it is quite incorrect to describe our present arrangement as an "international gold bullion standard". Nor does the Treasury's fixed buying price for gold—at present 35 paper dollars an ounce—constitute being on a standard.

The general idea of a standard is that of an accepted rule. Accepted rules of conduct are "standard". Accepted rules for attaining beauty and art are standards, but note that when thus loosely defined, all sorts of degrees of standardization may exist. The basic meaning of the rule depends upon the nature and degree of its "acceptance". I hold that *the only true acceptance of rule is one which is voluntary and general among the individuals who are concerned. No real standard exists in any complete form unless (1) it is freely accepted without the coercion of government fiat, and unless (2) it is so generally accepted that it characterizes the action of the whole group involved.*

The latter point means that a standard must be objective. A subjective rule, that is, one that depends upon the whims, "wisdom", intuition, management, or planning of some sovereign, whether dictator or "leader", is not a standard. A standard must be consistent with democracy!

Accordingly, a standard requires no shifting, manipulation, or adjustment. It is *automatic* in its working, since it depends for its effectiveness upon the free choice of individuals who accept it.

A standard, then, is not determined; it determines.

Thus I would give as a practical definition of a monetary standard that it is *the thing which determines the value of the monetary unit*. Find out that upon which the value of the monetary unit depends, and you will find the standard. When the paper dollar depends for its value upon a certain quantity of a certain metal, such dependance being generally recognized because of complete two-way convertibility, we say that we are on the gold standard or the silver standard, as the case may be.

There is no pretense at the present time that we are on any objective standard as to the value of the dollar *at home*. How could there be, when so large a part of the government's activity is spent in "managing" the currency, and in attempting to fix prices? In any country in which there is no standard, the tendency is to hoard some commodities or real estate, thus showing the absence of a standard. The adoption of inflationary hedges is a confession that the currency is not on a standard. (It strikes me as being somewhat ludicrous that so many of our citizens sit and complain that we must fight inflation and hold prices down,

while at the same time assuming that we have some standard for our currency; and if the Treasury's so-called fixed price of gold means anything as to the purchasing power of the dollar in trade, why all the discussion about inflation and deflation?)

To my mind, the proof is conclusive, in that commodity prices remained practically unchanged during the years 1934 to 1939 while the quantity of gold in the gold dollar had been reduced nearly 50 per cent, and the price of gold was raised from \$20.67 paper dollars to 35 paper dollars per ounce, or about 70 per cent. Obviously, it would have been impossible that commodity prices other than that of gold could have remained unchanged while the gold dollar was cut in two, *if our prices had been measured in terms of gold dollars.*

Nor is it any truer that internationally we are on some sort of a gold standard. True, the government has bought gold. It has also, after due consideration, allowed gold to be shipped abroad. But this is only after all *political* angles have been considered. Exchange controls prevail. Financial and political arrangements govern the action of the authorities. There is hardly a trace of automatic action whereby the value of the dollar in exchange for other currencies would depend upon its convertibility into gold. Why do foreign traders think gold worth \$70 an ounce despite the so-called price of \$35 adopted by our Treasury?

As already pointed out, the scarcity of the dollar in international trade is entirely due to the scarcity of products in the hands of those who desire to trade for American goods.

Having faced the fact that we are on no standard in this country, and thus come to understand better what a standard is, the next step should be to decide what standard we should point toward. Without boring you with an extended discussion of this subject I will state my conclusion that only one standard has ever worked, namely the gold standard. I do not say that it is easy to attain and maintain any standard, whether in morals or literature or money. Where is there perfection in the world? But I do say that the nearest to perfection that has ever been attained in the way of a monetary standard, and the only one that has persisted in effect for long periods of time, has been one based on gold. Look into any alleged case in which fiat currency has worked for a time, and you will always find that its apparent success has been a belief or hope in its convertibility into gold or silver.

My conclusion is that we should point toward the gold standard, and my thought is that the first step is to find out what gold is worth in terms of the paper dollar, or if you please, to find out what the paper dollar is worth in terms of gold. (How can you do one thing without the other?)

The fundamentals of the situation are that we have outstanding a vast amount of currency. The total amount of demand deposits and money in circulation is in the neighborhood of 107 billion dollars. It is highly important to note that this currency is inelastic. In other words, there is no automatic retirement for it. One of the curses of inflation based on public debt is that claims in the form of bond secured notes and deposits must be faced.

This vast amount of inelastic currency is several times larger than it was in 1934, when all the shooting began. It has increased far out of proportion to any increase in the quantities of commodities and services for which it is designed to serve as a medium of exchange.

We do not dare to allow it to be used freely in exchange. The turnover of bank deposits is highly subnormal, showing only a faint trace of life, as it were. The large amount of money in circulation in one way or another represents hoarding or other abnormal retardants of circulation.

Thus we do not know what a paper dollar is really worth. By the same token, *we do not know what quantity of gold there should be in a gold dollar.* Incidentally, we do not know what quantity of paper may be issued, and must rely upon some indefinite feeling that already we have too much.

Under these circumstances, something in the way of a free gold market must be allowed. The citizens in this country should be allowed to possess gold, and to buy and sell it as they would any other reputable commodity. Our producers should be allowed to sell gold in the world markets. If a free gold market existed, we would soon be in little doubt as to the true value of the paper dollar, whether in exchange for Colorado potatoes or the pound sterling.

As it is, what do we find? We find ourselves fed with rumors and reports as to quotations for gold in foreign currencies which indicate that an ounce of gold may actually be worth anything between \$50 and \$80. Our Treasury sits there holding out a so-called price of gold which indicates that the paper dollar ought to be worth 1/35th of an ounce of gold. In the black markets, however, smart foreign traders in the Orient and elsewhere, register their judgment that the paper dollar is worth somewhere in the neighborhood of 1/70th of an ounce of gold. They are willing to bet that the American paper dollar is worth little if any more than half what the Treasury buying "price" holds it out to be. It is no wonder that across the borders of most countries today we find gold being smuggled for black market purposes. Gold pesos are being flown out of Mexico to enable

the citizens of China, Iran, and Argentina to use them for savings and legal tender. Recently an American airman was arrested for engaging in such traffic from our own shores.

I do not undertake to say just how provision for a free gold market should be made. But as an economist, and as an honest man who believes in freedom, I am absolutely sure that the time is near at hand when we should be able to find out in an objective way what the relative values of paper dollars and gold dollars are.

At this point, the big political and economic problem of liquidation and readjustment should be considered. How are we to liquidate the mass of paper currency including demand deposits? How are we to realize on the sterilized hoards of gold?

One way would be to call in the notes and scale down the deposits, thus reducing the total claims. This would be precisely what the OPA administration did when, having issued more red tokens than there were pounds of meat and butter, they cancelled a part of the excess issue of such tokens.

Another way is to allow the currency outstanding to remain in effect, merely allowing and facilitating an upward readjustment in prices to a level at which the currency would be used at the normal rate of turnover.

Back in the early part of the 19th century during the Napoleonic wars, the eminent economist, David Ricardo, argued that the excessive note issues should be scaled down to fit the bullion reserves of the Bank of England. I wonder if such an approach is feasible at the present time. Frankly I doubt it, if for no other reason than that so large a part of the claims now outstanding in the shape of notes and deposits are held by individuals. Not only are they held by individuals, but, to an appreciable extent, they are held by the common people. It has been one of the main objectives of the administration to compel the people to subscribe to its bonds and to engage in forced war savings. The result is that the people are not going to sit by and see the principals of their savings bonds and the number of dollars in their deposit accounts, reduced. Even if they were willing to do this, whom would they now trust to do it!

Under the circumstances of such large inelastic and widely held masses of currency, or "liquid savings" as they are sometimes called, it seems likely that the value of the dollar will have to be readjusted downward. The number of paper dollars is large in relation to the relatively fixed quantity of gold. Very well—there will probably have to be some further devaluation, which means a reduction in the quantity of gold in the gold dollar. This, I believe, would in part be the only way that we could both (1) return to the gold standard, and (2) retain anything like the num-

ber of dollars now existing in our circulation, in deposits, and in "liquid savings".

Note, furthermore, that it seems the more likely in that we have been led into an attempt to maintain a high exchange ratio for vast masses of foreign currencies in relation to our own. We have virtually agreed to a dilution of dollar exchange. The only alternative, a general scaling down of foreign currency issues, seems to be unlikely.

Moreover, it seems that paper dollars will have to decline in purchasing power with relation to goods; that is, to the general run of commodities and services. This, of course, would mean higher prices. Such a further depreciation in the purchasing power of the currency, based upon devalued gold dollars, would enable us to use the existing currency. As prices rise, it takes more dollars to do a given physical volume of business. Such a rise, I think, is one condition of the return to equilibrium in our economic life.

While a rise in prices of this sort, is properly referred to as inflation, you will note that it is an inflation of the currency that already exists. The rise in prices is but a yielding to unfavorable economic forces. And it would be prevented from running away, by keeping paper dollars convertible into gold.

Probably, such a rise will go too far, and the momentum of it carry beyond the point of equilibrium. A business recession with some decline in prices would doubtless follow in due course—say sometime between now and 1951 at the latest. But I do not think that prices will at any time recede to the pre-war levels, and I am sure that when the final equilibrium is restored, it will be at a permanently higher level.

Incidentally, this would probably keep the "secondary" war depression from being as great or as long as those following the Civil War and World War I.

A very important point to note in this connection is that the amount of gold in existence constitutes no objection to the use of gold as a monetary standard. Most emphatically, there is no lack of gold. Not only are the hoards of gold maintained at various points scattered over the world enormous, but there has been considerable addition to the production capacity in recent years. The notable additions have been those in the Orange Free State, South Africa, and in the Canadian Northwest territory. The Siberian gold resources are by no means fully exploited. It seems to me probable, however, that the main factor in supply is the tremendous quantity of old gold that has been driven underground. After England's abandonment of the gold standard in 1931, followed shortly by the New Deal performance, gold went

underground. So there is now not only the 20 billion hoard buried at Fort Knox, but also there is probably something like another 20 billions in private or government hoards scattered throughout the caves and cellars of the world. With the return to a gold standard the metal would emerge. As I have already indicated, one of the advantages of the gold standard would be the return to use of these now wasted gold resources.

In conclusion, it is important to consider the essentials of money. For over a decade now, we have been bombarded with arguments in favor of a "managed currency", and against a resort to any objective standard. It is not going to be easy to offset the effect of all this propaganda, without going through a terrible depression which would compel people to see the fallacies of Keynes and the Communists.

The function of money is not that conceived by the New Deal, namely to serve as a means of central control and social reform—one that can be used for the purpose of giving everybody in the world a bottle of milk a day. *The function of money is to measure objective or free market values.* These are the values upon which economic democracy depends.

In order that money may fulfill this function, there are certain definite requirements. The first and most obvious one is that the *money must itself have objective value.* You cannot measure distance without using a yardstick that has distance itself. Just so, you cannot measure value without using a monetary unit that also has value *in the same sense that the thing measured has value.*

It follows from this that the money unit must be desired, and must have scarcity. Any tyro in economic theory will tell you this. What then are the conditions of monetary desire and scarcity?

First, the thing used as money must be fit for the purpose. It must have "fitness value". It must be generally acceptable on account of its convenience, durability, advisability and portability. It must be stable in its value, so that it may serve as a basis for credit transactions and a standard for deferred payments.

The point of stability brings us to the supply side and the element of scarcity. Here note that it is most important that the quantity of the material to be used for money be limited by nature, but that the quantity available to man be variable according to the costs of production. In other words, the ideal money material must be producible, but costly. More than that, the cost must be pretty definitely ascertainable, not that of a mere by-product. In this respect, gold is ideal. In the present state of our knowledge, the total quantity of gold in the world is limited, but the quantity available for use can be increased, depending upon economic conditions, including freely-determined costs of production.

Thus the commodity, gold, being desirable and scarce in the same sense that most economic goods are desirable and scarce, is fitted to play its part as a medium of exchange. Its general acceptability and the stability of its value, make it one of the best-suited means for use as a standard of deferred payments.

Such is the case for a gold standard. If there be any other material that is more fit, let us choose it; only let us have some objective standard for our money that is as good as gold. This we must do unless we are prepared to surrender our individual freedom, and submit to the whims of the dictator in a managed economy with a managed currency.