

The 63 Year Silver Deficit (1942-2004)

Part 2

Preface

“Because of the long-term structural deficit in silver, stretching back to World War II, we have consumed inventories for more than 60 years.

-Ted Butler, "The Coming Silver Bubble"

This essay will seek to prove what Mr. Butler and other silver bulls have been confidently asserting for so long, that is, the claim that silver has experienced a supply/demand deficit which stretches back all the way to 1942.

The Silver Deficit

One problem with documenting the silver deficit is that world consumption rates are almost non-existent prior to 1955, at least according to my research. If this data is available, please bring it to my attention.

But despite the lack of official figures, one can know to a fairly accurate degree how much ‘deficit’ has accumulated worldwide in the years prior to 1955 through the use of some comparative math.

In order to accomplish this, we must first obtain US silver consumption data. Then, in order to determine the total world consumption of silver, we simply find what percentage of the world’s consumption the US represented. Luckily, there happens to be a small amount of data pertaining to this subject hidden within the [Minerals Yearbook](#) dated 1932-1933.

From the Minerals Yearbook 1932-1933 (pg. 18) we discover that total world industrial and arts consumption of silver was 91.4 million ounces in 1930 and 70.1 million ounces in 1931, whereas US industrial and arts consumption of silver was 36.4 and 33.7 million ounces respectively. Thus, US industrial and arts consumption (not including coinage) amounted to 40.1% and 48.1% of the world’s total consumption respectively, or an average of 44.1%. But since these years coincided with the beginnings of the “Great Depression” I thought it would be wise to evaluate this ratio once more at the next earliest point in time where the appropriate data is available in order to formulate a more certain comparison.

By looking at US industrial and arts consumption from 1956-1960, we find that on average the US consumed 96.8 million ounces while the world consumed 211.7 million ounces. Thus, the US represented 45.7% of industrial consumption during this period. Furthermore, from Minerals Yearbook 1958 we read, “the United States Continued to account for virtually half [let’s assume 49%] of the free-world consumption of silver (excluding coinage).” This agrees very closely with

data obtained from the years 1930-1931. I will therefore be using a median figure of 45% (note that the actual average between the 4 data points -- 40.1%, 48.1%, 45.7%, and 49%-- is 45.55%). I have weighted the average slightly lower for the simple reason that the US appears to have consumed less of the world's total silver supply the further back one goes into the 20th century. Since we are concerned with the years prior to 1955, this makes good sense.

What this 45% figure means is that I will assume US industrial and arts consumption of silver represented 45% of the world's total in all the years where only US consumption data is known, namely 1901-1954. We can then find the estimated total world industrial consumption during these years by dividing the US consumption numbers by .45 (or 45%).

Finding the total world consumption including coinage also presented a problem due to lack of data between 1901 and 1954. I would like to think I estimated to a fairly accurate degree, but if in fact I have not, I nevertheless remain fairly unconcerned because this value will be shown in Part 3 to be of only minor significance in the quest to obtain the true silver deficit.

Some Important Notes Concerning the Table Shown Below*

*The importance of this information may become more apparent in Part 3 of this series when the total amount of silver consumed by industry is calculated using several methods to account for some of the ambiguity within the Minerals Yearbooks.

1901-1954: It is somewhat ambiguous whether or not world industrial and arts consumption given in the Minerals Yearbooks during this period is a measure of net consumption (i.e. demand – recycled scrap) or simply total consumption regardless of scrap supply. In the years prior to 1955 it seems clear that at least the US numbers do represent net consumption, and using this data I have approximated net world consumption using the 45% US to World ratio obtained above*. Net industrial demand in the words of the Minerals Yearbooks is “silver issued for industrial use minus silver returned from industrial use.” Following 1955, US numbers still seem to describe net consumption/demand, but at the same time world consumption numbers are not at all clear. Regarding these issues of misunderstanding, representatives of the United States Geological Survey (USGS) were unable to answer my questions. Therefore, I will evaluate the total silver deficit in Part 3 from several different angles, making use of various combinations of the data sets.

*Approximations were only necessary through the year 1954. In all the years following, with one exception (1994), world demand is known without having to calculate estimates based upon US consumption numbers.

1955-1984: World Consumption totals are free-world only, and are therefore underreported by an estimated 30-60+ million ounces per year based upon an annual production from communist countries of 35-55 million ounces during this period (see the year 1985 in the chart below for reference). This is important because during this same period total world production *adds* the estimated production from communist countries into the total, thus explaining why in some years there appears to be no deficit at all when in reality the deficit continued (e.g. 1955 and 1981-1985).

1955-1994: As was alluded to above, total world industrial and arts consumption numbers and total world consumption numbers during this period are somewhat ambiguous, again because they could be representative of either net demand or simply total demand. While the US consumption totals are

usually identified as ‘net demand’ within the Minerals Yearbooks, it is not clear if world demand/consumption totals are meant to mean the same thing, even while the US and world totals are at times described with the *exact same wording*.

- ‘e.’ stands for estimated
- All years in **RED** are years in which there was a worldwide supply/demand deficit (1942-2004).
- Industrial and arts consumption stands for total silver demand (i.e. photography, jewelry, electronics, etc.) minus coinage demand.
- Many years have two quoted values for various calculations, one net (i.e. total demand - scrap) and the other total (i.e. not factoring in scrap supply).

Lastly, **I highly recommend you read the quoted material inserted between the yearly data within the following chart.** Many gems are enclosed, I assure you of this. One such entry mentions that the US military alone was using silver in over 5,000 different items in the year 1971!

Total World Silver Consumption (1901-2004)

(Reported in millions of ounces, with the exception of the totals)

Source: [Minerals Yearbook](#) (1901-1994)

Source: [The Silver Institute](#) (1995-2004)

Year(s)	World Production	US Industrial and Arts Consumption/Demand	World Industrial and Arts Consumption/Demand	Total World Consumption/Demand (w/coinage)
1901-1924 average	217.2 e.	28.0 Net 21.1 [1]	62.3 e. Net 46.9 e.	100.0 e.
1925-1929 average	261.3	39.1 Net 28.8	86.9 e. Net 64.0 e.	125.0 e.
1930	220.0 e.	36.3 Net 26.9	80.7 e. Net 59.8 e.	91.4
1931	195.6	33.7 Net 24.3	65.0 e. Net 54.0 e.	70.1
1932-1941 average	234.4	49.0 Net 27.1	108.9 e. Net 60.2 e.	121.7 e.

Pg. 59 Minerals Yearbook 1941, “The utilization of silver in the arts and industries has shown a phenomenal increase during the past few years. Consumption has leaped from 5 million fine ounces in 1935 to some 72 million fine ounces in 1941 ...Naturally, much of this increased demand is due directly or indirectly to the war program.”

Pg. 61 Minerals Yearbook 1941, "The stockpile [of silver] once considered to be too large, is disappearing at a rapid rate, and the metal [silver] is speedily taking its place with numerous other metals whose nonessential uses are being seriously curtailed or prohibited; not often has a commodity readjusted its position in commerce so abruptly."

1942	249.6	121.0 Net 101.4	268.9 e. Net 225.3 e.	280.0 e.
1943	217.0	159.0 Net 118.0	353.3 e. Net 262.2 e.	370.0 e.
1944	186.2	Net 120.1	Net 266.9 e.	285.0 e.
1945	157.0	Net 126.3	Net 280.7 e.	300.0 e.

Pg. 85 Minerals Yearbook 1945 "Owing to restrictions on the international movement of gold and silver and the measures taken by governments to stabilize the exchange value of currencies, gold and silver lost much of their monetary significance. The eagerness of individuals to acquire the metals, however, appears to have increased, particularly where the monetary regulations were the most arbitrary."

Pg. 105-106 Minerals Yearbook 1945 "Monetary use has claimed by far the largest part of the gold and silver output through the years, but this use to a large extent takes the form of stock-piling in government or private hoards which are available to industry and the arts without smelter or refinery preparation. In contrast, the gold and silver entering industry and the arts are consumed much as other metals, any return of secondary metal requiring the usual channels of collection, smelting, and refining. The consumption of gold and silver antedates written history, but industrial use of these two metals is a recent development."

1946	129.0	Net 87.0	Net 193.3 e.	220.0 e.
1947	156.8	Net 98.5	Net 218.9 e.	250.0 e.
1948	173.2	Net 105.8	Net 235.1 e.	260.0 e.
1949	173.8	Net 88.0	Net 195.6 e.	230.0 e.
1950	203.0	Net 110.0	Net 244.4 e.	275.0 e.
1951	199.1	Net 105.0	Net 233.3 e.	270.0 e.

Pg. 634 Minerals Yearbook 1951 "The industrial uses of silver have grown greatly during the war and continue to absorb much silver thereafter..."

1952	216.8	Net 96.5	Net 214.4 e.	260.0 e.
1953	216.4	Net 106.0	Net 235.6 e.	270.0 e.
1954	214.2	Net 86.0	Net 191.1 e.	230.0 e.
1955*	223.4	Net 101.4	174.6	217.4 free-world

*In case of doubt, there was indeed a deficit in this year, and the 1955 Minerals Yearbook itself states very clearly that world consumption continued to exceed world production (see below). I strongly suspect that the apparent discrepancy arose because the world consumption numbers reported in the years 1939-1989 only include data from the free-world and do not estimate consumption in communist controlled countries, whereas reported world production numbers do include such estimates.

Pg. 1003 Minerals Yearbook 1955, "World silver consumption, including coinage, continued to exceed world production."

Pg. 1013 Minerals Yearbook 1955, "Silver consumption in the United States since 1941 has exceeded any annual output ever achieved by domestic mines."

1956	222.4	Net 100.0	204.3	260.4
1957	231.1	Net 95.4	212.6	296.8
1958	239.0	Net 85.5	190.5	270.0
1959	221.9	Net 101.0	214.9	301.3
1960	240.2	Net 102.0	226.1	325.4
1961	231.8	Net 105.5	238.1	352.4
1962	242.4	Net 110.4	239.7	365.9
1963	250.8	Net 110.0	252.2	409.2
1964	249.5	Net 123.0	285.9	550.4

Pg. 951 Minerals Yearbook 1964 "The worldwide imbalance between new production and consumption of silver created much concern about the future supply and prompted much buying for speculation and inventory."

1965	251.0	Net 137.0	333.6	708.3
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Pg. 840 Minerals Yearbook 1965, "The continued availability of Treasury silver through the redemption of silver certificates again provided an effective price ceiling at the monetary price."

1966	253.1	Net 183.7	355.1	484.6
1967	266.7	Net 171.0	346.8	452.1
1968	275.3	Net 145.3	349.6	438.9
1969	290.5	Net 141.5	364.4	420.1
1970	301.7	Net 128.4	357.6	397.9
1971	294.7	Net 129.1	351.4	379.7

Pg.1076 Minerals Yearbook 1971, "Silver is used in more than 5,000 different items by the Defense Department."

1972	301.5	Net 151.7	388.8	427.2
1973	308.0	Net 196.4	472.0	495.7
1974	294.9	Net 176.0	426.9	459.9
1975	294.3	Net 157.7	355.0	390.0
1976	316.4	Net 171.9	437.5	467.2
1977	340.3	Net 153.7	433.6	457.0
1978	344.4	Net 160.1	442.6	478.9
1979	346.0	Net 157.3	419.8	447.6
1980	341.4	Net 124.7	340.2	355.9
1981	361.6	Net 116.8	344.0	353.0

1982	383.0	Net 120.7	351.8	364.4
1983	392.0	Net 118.6	349.6	369.2
1984	415.2	Net 117.5	362.9	370.7

Beyond any reasonable doubt there was indeed a deficit in the years 1981-1984. This is because of the fact that the reported total world consumption is exclusive of the communist world while the total production is inclusive of the communist world. The true totals would probably reveal only a mild deficit, but it would be a deficit nonetheless.

1985	417.9	Net 118.6	372.9 free-world 446.9 whole-world	382.6 free-world 455.9 whole-world
1986	418.0	182.2	495.1	512.0
1987	445.1	128.2	496.5	526.5
1988	460.8	133.2	536.0	561.7
1989	474.5	163.5	546.6	578.7
1990	485.7	128.8	544.7	570.2
1991	503.9	123.2	602.9	630.6
1992	473.8	130.4	620.4	649.8
1993	453.0	104.7	636.3	674.2
1994	446.9	N/A	600.0 e.	650.0 e.
1995	483.0	“	742.5 Net 579.6	768.6
1996	491.0	“	771.6 Net 613.3	796.8
1997	520.7	“	812.5 Net 643.2	842.9
1998	544.0	“	801.3 Net 607.4	829.1
1999	548.5	“	838.7 Net 657.5	867.9
2000	587.3	“	871.9 Net 691.5	904.0
2001	611.8	“	836.5 Net 654.1	867.0
2002	607.4	“	807.1 Net 620.0	838.7
2003	611.2	“	817.6 Net 634.0	853.4
2004	634.4	“	795.6 Net 614.5	836.7

	30.7144	27.0043 billion ounces	
Total	billion	[1]	34.1866 billion ounces
	ounces	30.1215 billion ounces	
		[2]	

[1] **Estimated net consumption 1901-1954 and real net consumption 1995-2004.** For the period 1955-1994 it is unclear whether or not these world totals represent net consumption (total – scrap) or total consumption. I will assume the latter and incorporate recycling rates into Part 3 of this series. (True world totals 1985-2004—i.e. inclusive of the communist world)

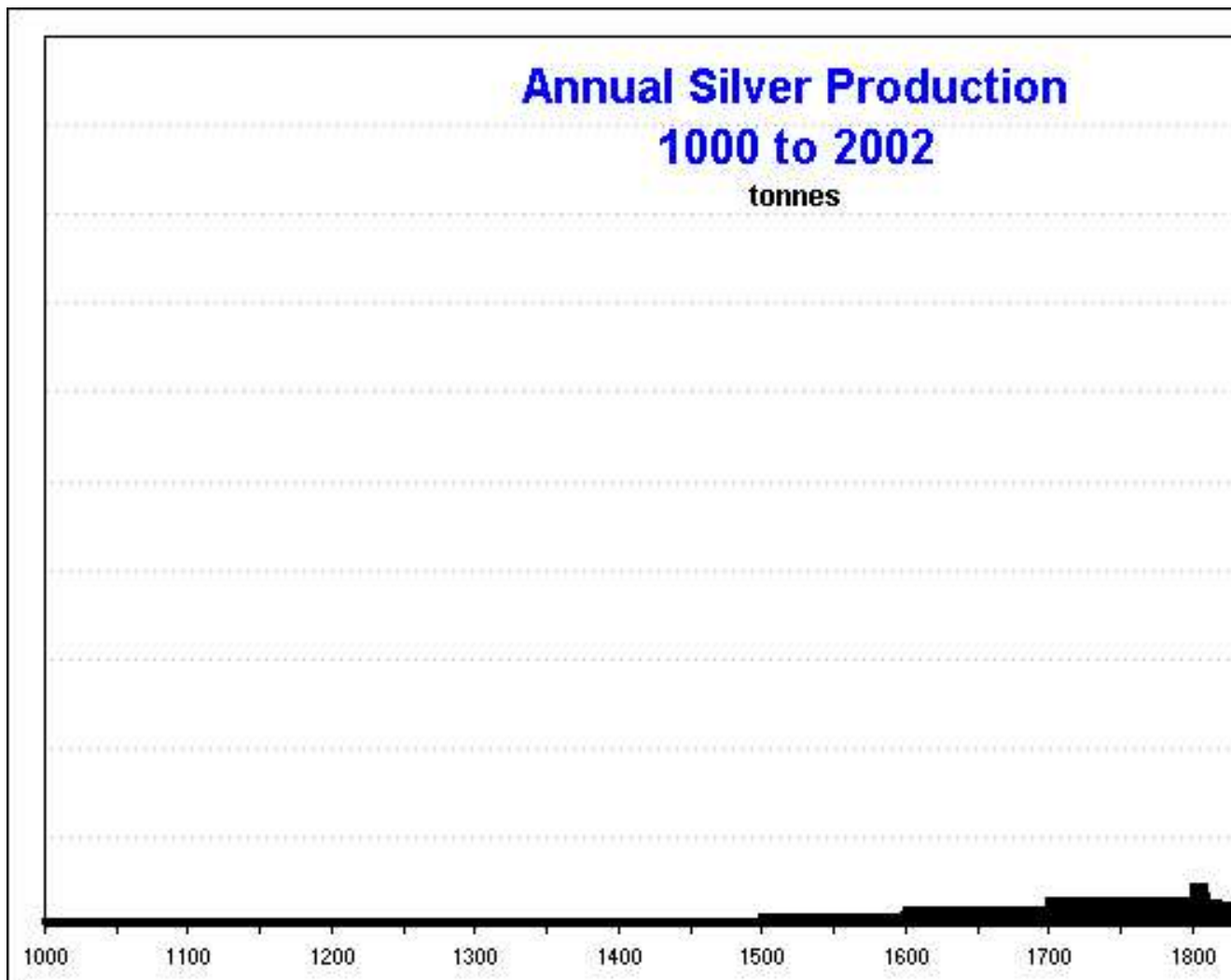
[2] **Estimated total consumption 1901-1954 and real total consumption 1995-2004.** For the period 1955-1994 it is unclear whether or not these world totals represent net consumption (total – scrap) or total consumption. I will assume the latter and incorporate recycling rates into Part 3 of this series. (True world totals 1985-2004—i.e. inclusive of the communist world)

Shown below are two methods of calculating Communist demand of industrial use silver for the period 1939-1984:

- By estimating an additional demand of 40 million ounces per year for this 46 year period and adding it to the total we arrive at 30.1215 billion ounces + 1.84 billion ounces = **31.9615 billion ounces**
- By estimating an additional demand of 60 million ounces per year for this 46 year period and adding it to the total we arrive at 30.1215 billion ounces + 2.76 billion ounces = **32.8815 billion ounces**

By adding the coinage demand during the years 1901-2004 (an estimated 4.0651 billion ounces) to the previous total of 32.8815 billion ounces we arrive at a **grand total demand for silver of 36.9466 billion ounces since the turn of the 20th century.**

And there you have it folks. Despite the phenomenal increase in mine production since 1800 (see below), every year since 1942 the world has demanded more silver than has been produced. **Therefore, silver has experienced a phenomenal 63 year long supply/demand deficit as of year-end 2004.**



Above: www.sharelynx.com

With a total production of 30.7144 billion ounces and a total demand of perhaps 36.9466 billion ounces, an amazing supply/demand deficit of 6.2322 billion ounces has accumulated since 1901.

However, if one begins at the pivot year of 1942, then the total supply/demand deficit is actually the staggering figure of **10.6567 billion ounces, the necessary result of a 63 year supply/demand deficit.** The difference between this number and the 6.2332 billion ounce deficit quoted above is due entirely to the mine supply surplus years of 1901-1941.

Corrections to [Part 1](#) of this Series

1. A few mathematical errors were made while tabulating the world's cumulative silver production, and all together these have the effect of raising the average total up from 44.542 billion ounces to 45.552 billion ounces (a 2.3% increase). This also slightly changes the gold to silver ratio of cumulative production, from 1:10.5 up to 1:10.7 (a 1.9% increase).

2. Two very minor mistakes were also made in tabulating the world's cumulative gold production,

but even added together they changed the average world total by less than 0.001%.

3. I wrote: Most would agree that neither gold nor silver is undervalued in terms of the dollar, so the only way to look at this situation is to say that silver is undervalued in terms of the dollar and gold. This means that I expect silver to far outperform any gains seen in the price of gold, even if gold doubles or triples in price within these next 2 years.

This should have read, “most readers would agree that both gold and silver are undervalued in terms of the dollar”. In other words, the dollar is overvalued in terms of gold and silver.

Part 1 – The World’s Cumulative Silver and Gold Production. Documenting the total amount of silver and gold produced since recorded history.

***Part 2 –The Silver Deficit.** Documenting the silver supply/demand deficit since 1942.

Part 3 – The Real Silver Deficit. Answering the questions of “How much silver has been consumed by industry?” and “In what potentially marketable accessible forms does it remain?”

Part 4 – The Illogical Performance of the Gold to Silver ratio Since 1848. A look at silver and gold’s comparative production growth since 1848.

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