
The Impact of Mid-Nineteenth Century Gold Depreciation Upon Western Monetary Standards

David A. Martin

State University of New York
College at Geneseo

I

Commencing in the mid-1840's the annual world output of gold began to increase and the market price of gold, in terms of silver, began to decline. The bonanzas from California and Australia caused silver to appreciate rapidly, and in accord with Gresham's Law, it disappeared from specie circulation first in the United States and then in much of Western Europe.

The U.S. reacted to the domestic consequences of the world gold depreciation by effectively terminating bimetallicism. The historic standard had persisted for over six decades due primarily to two factors: the purposeful overvaluation of foreign silver legal tender coins which insulated a large portion of the silver money supply from treatment as bullion; and, the tenacious grip of theoretical metallism which pervaded the monetary theory of the era.¹ Because it was generally believed that a good could not function as money without commodity value equivalent to its stated denomination, extraordinary circumstances were required to sanction money of nominal worth. The necessary conditions were provided by the relative decline in the price of gold after 1848 below the mint ratio deliberately fixed by the Jacksonian metallists in order to overvalue gold.² When silver became sufficiently undervalued as money, it vanished from

¹ DAVID A. MARTIN, *Bimetallicism in the United States Before 1850*, *Journal of Political Economy*, 76 (April, 1968), pp. 428-442.

² DAVID A. MARTIN, *Metallism, Small Notes, and Jackson's War With the B.U.S.*, *Explorations in Economic History*, 11 (Spring, 1974), pp. 227-248.

circulation and the United States adopted a pragmatic compromise of a subsidiary silver coinage adjunct to a *de facto* gold standard.³

The "fall" of gold also caused major changes in the specie circulation of many European nations. Prior to 1849 silver composed nearly the entire circulating metallic currency of Europe, despite the existence of monometallic standards only in England, Portugal, Russia, and Holland. As the price of silver appreciated it was exported eastward and gold was substituted as the major component of the specie money supply.⁴ Jevons noted that Asia became the "great reservoir and sink of the precious metals".⁵

On both sides of the Atlantic the flight of silver set off a controversy concerning the causes and proper remedies. Elaborate efforts were made to ascertain whether gold was falling, or silver rising, and whether the level of commodity prices was being inflated. Considerable intellectual energies were also devoted to reforming national monetary standards. In view of the significance of the mid-nineteenth century gold depreciation on world metallic currencies, this paper will examine the causes and outcome in both the U.S. and Western Europe.

II

The mid-nineteenth century gold depreciation was precipitated by a dramatic increase in the world supply of gold in the 1840's. TABLE I shows a number of estimates of precious metal production in the first half of the nineteenth century.

The accuracy of these estimates cannot be verified satisfactorily because the classic European sources, such as Sootbeer, Jacob, and Humboldt, did not provide detailed documentation which allowed careful reconstruction of their figures.⁶ The data for world gold production in TABLE I were originally drawn from Sootbeer.⁷ In view of the existence

³ DAVID A. MARTIN, 1853: *The End of Bimetallism in the United States*, *Journal of Economic History*, XXXIII (December, 1973), pp. 825-844.

⁴ UNITED STATES SENATE, *Report of the United States Monetary Commission, 1876* (Washington: Government Printing Office, 1877), p. 80.

⁵ W. STANLEY JEVONS, *Investigations in Currency and Finance* (London: MacMillan and Co., 1884), p. 60.

⁶ See J. D. MAGEE, *The World's Production of Gold and Silver From 1493 to 1905*, *Journal of Political Economy*, 18 (January, 1910), pp. 50-2; AUGUSTUS SAUERBECK, *Prices of Commodities and the Precious Metals*, *Journal of the Statistical Society*, XLIX (1886) reprinted in E. M. CARUS-WILSON, *Essays in Economic History*, III (N.Y.: St. Martin's Press, 1966), pp. 68-70.

⁷ ADOLF VON SOOTBEER, *Materialien zur Erläuterung und Beurteilung der wirtschaftlichen Edelmetallverhältnisse und der Währungsfrage* (Berlin: Zweite vervollständigte Ausgabe, 1886). pp. 1-3.

TABLE I
ESTIMATES OF PRECIOUS METAL PRODUCTION, 1792-1860

	World Gold Production (Thousands of Dollars)	World Silver Production (Thousands of Dollars)	Russian Gold Production (Dollars)	Australian Gold Production (Dollars) ³	Official U.S. Gold Production (Dollars)	Martin Estimates of U.S. Pre- Californian Gold Production ⁴ (Dollars)
1792-1800	106,407	328,860				
1801-1810	118,152	371,677			2,617,650	
1811-1820	76,063	224,786			2,617,650	
1821-1830	94,479	191,444	22,518,200 ²		2,908,500	3,048,000 ⁵
1831-1840	134,841	247,930	47,117,720		6,361,880	18,228,650
1841	36,393 ¹	32,440 ¹	7,037,143		620,100	1,084,234
1842	36,393 ¹	32,440 ¹	9,897,072		888,810	1,554,194
1843	36,393 ¹	32,440 ¹	13,514,712		1,198,860	2,090,890
1844	36,393 ¹	32,440 ¹	13,933,849		1,132,964	1,934,400
1845	36,393 ¹	32,440 ¹	14,231,055		1,008,327	2,016,654
1846	36,393 ¹	32,440 ¹	17,544,957		1,139,357	2,278,714
1847	36,393 ¹	32,440 ¹	19,130,057		889,085	1,778,170
1848	36,393 ¹	32,440 ¹	18,340,773		10,000,000	
1849	37,000	39,000	17,278,234		40,000,000	
1850	44,450	39,000	15,827,041	4,113,411	50,000,000	
1851	67,600	40,000	16,044,774	43,431,863	55,000,000	
1852	132,750	40,600	14,878,812	47,708,058	60,000,000	
1853	155,450	40,600	15,933,730	47,031,880	65,000,000	
1854	127,450	40,650	17,382,746	50,738,333	60,000,000	
1855	135,075	40,600	17,955,385	57,512,627	55,000,000	
1856	147,600	40,650	18,022,882	52,322,872	55,000,000	
1857	133,275	40,650	18,873,131	52,739,134	55,000,000	
1858	124,650	40,650	18,622,737	53,760,868	50,000,000	
1859	124,850	40,750	16,752,408	47,043,913	50,000,000	
1860	119,250	40,800	16,236,380	50,411,851	46,000,000	

¹ Annual average for period 1841-1848.

² 1822-1830.

³ Converted from kilograms by the author, not including output of New Zealand and Tasmania.

⁴ See DAVID A. MARTIN, *U.S. Gold Production Prior of the California Gold Rush*, Explorations in Economic History, 13 (October, 1976), 446-7.

⁵ 1792-1830.

Sources: U.S. Senate, Committee on Finance, *Coinage Laws of the United States, 1792 to 1894* (Washington: Government Printing Office, 1894), 102-3; *Proceedings of the International Monetary Conference, 1881* (Washington: Government Printing Office, 1887), 56-60; U.S. Treasury Dept., *Annual Report of the Director of the Mint, 1884* (Washington: Government Printing Office, 1884), 85; U.S. Treasury Dept., *Annual Report of the Director of the Mint, 1886* (Washington: Government Printing Office, 1886), 181.

of contradictory estimates of unknown reliability,⁸ Sootbeer's figures will be employed as illustrative of the general trend. Although annual world gold production data are lacking for the 1840's, the series on Russian output

⁸ For example, see *The Bankers' Magazine and Statistical Register*, VIII (January, 1859), p. 531; XIII (December, 1863), pp. 409-11; WYNNARD HOPPER, *The Recent Gold Production of the World*, Journal of the Royal Statistical Society, LXIV (September, 1901), pp. 415-16.

and the author's estimates of pre-Californian gold production indicate that it was rising in this decade. Consequently the new discoveries in California and Australia added dramatically to an already rising trend.⁹

The discovery of gold in California was recognized immediately as a portentous event. Commensurate with the first deposit of this gold at the mint on December 8, 1848 a New York literary periodical reported an "extraordinary story" of "the new mistress - Gold" and *Hunt's Merchants Magazine* stated that: "A new remarkable element has also made its appearance, to excite speculation, and stimulate that desire for enterprise which has long lain dormant".¹⁰ The excitement spread to Europe soon thereafter.¹¹ It seemed evident to contemporaries that the massive increase in current output, compared to the existing stock, would cause a decline in the price of gold, at least in comparison to silver.¹² For example, sandwiched between a discussion of the future development of the British Museum and the pressing financial needs of Kew Gardens, *The Athenaeum* speculated upon "the important practical question" of the extent of the "depreciation" of gold to be expected "by the considerable annual additions to its mass now in progress of being made".¹³

These expectations also included a general rise in commodity prices "similar to that which took place three centuries ago on the discovery of the mines of Mexico and Peru".¹⁴ A British writer claimed in 1852 that "the fact that prices have greatly and universally advanced... is notorious and it is difficult to see what other explanation can be given of

⁹ The annual output data for California and Australia is also subject to varying reports. For example, see *The Bankers' Magazine and Statistical Register*, VIII (December, 1858), pp. 480-81; IX (November, 1859), pp. 329-331; EDWARD S. MEADE, *The Production of Gold Since 1850*, *Journal of Political Economy*, 6 (December, 1897), pp. 1-26, esp. 4-5.

¹⁰ *The Literary World*, 3 (December 16, 1848), 1; *Hunt's Merchants Magazine*, XX (January, 1849), 79. See also, ALFRED H. GUERNSEY, «Australia and Its Gold», *Harper's New Monthly Magazine*, 6 (December, 1852), pp. 16-32.

¹¹ For example, see *Eclectic Magazine*, 32 (August, 1852), pp. 468-82; ANDRE COCHUT, «Influence De L'Or Australien Et Californien sur Le Marché d'Europe», *Revue Des Deux Mondes*, February, 15, 1854, pp. 804-7; *North British Review*, 21 (August, 1854), pp. 278-281.

¹² Graphic estimates of the growth in world stocks of precious metals for the period 1600 to 1920 are given in L. C. WILCOXEN, *World Prices and the Precious Metals*, *Journal of the American Statistical Association*, XXVII (June, 1932), pp. 130-1; see also SAUERBECK, *Prices of Commodities and Precious Metals*, pp. 71-2.

¹³ *The Athenaeum*, May 15, 1852, p. 544. This article drew upon an 1850 work of Chevalier who was recognized as perhaps the leading authority on precious metals production. See MICHEL CHEVALIER, *Des Mines D'Argent Et D'Or*, *Revue Des Deux Mondes*, 16 (December 1, 1846), pp. 980-1035.

¹⁴ «The Currency Extension Act of Nature», *Blackwood's Edinburgh Magazine*, LXIX (January, 1851), 9.

it than the increased supply of . . . gold (which) became slowly depreciated".¹⁵ Similar observations were made in U.S. and France.¹⁶

Moreover there is considerable evidence that the anticipated price inflation did indeed occur. As Brugmans pointed out: "Between 1809 and 1850 the overall trend was falling; the price rise . . . began in the middle of the century "and was" stimulated by the discoveries of gold in California and Australia which led to a rise in the general price level".¹⁷ While a satisfactory measure of changes in the world price level is lacking, the extent of the inflationary spiral can be inferred from the set of commodity price indexes shown in TABLE II.

TABLE II
WHOLESALE PRICE INDEXES, 1840-1860

Year	United States (1850-59=100)	England ¹ (1782=100)	France (1820=100)	Belgium (1913=100)	Germany (1913=100)	Spain (1726-50=100)	Sweden ² (1914=100)
1840	94.9	87	135	91	80	81	68
1841	92.7	85	134	92	78	78	69
1842	80.8	75	131	89	78	82	70
1843	75.1	71	121	82	77.5	70	66
1844	78.0	69	118	77	76	76	62
1845	81.8	74	121	79	82	73	65
1846	82.5	74	129	87	88	83	67
1847	92.5	78	136	96	97	92	69
1848	78.4	68	112	80	76	89	67
1849	81.5	64	111	77	70	75	66
1850	90.6	64	111	83	71	76	66
1851	86.5	66	110	80	75	80	67
1852	87.6	65	119	75	82	78	69
1852	95.9	74	139	89	92	73	72
1854	102.7	83	148	97	100	79	77
1855	109.6	80	154	100	105	86	82
1856	109.5	82	156	101	105	96	91
1857	118.5	85	151	99	101	98	91
1858	98.2	76	137	97	91	83	81
1859	101.3	77	137	91	89	97	77
1860	99.6	79	144	94	94	95	80

¹ Index of 40 Commodity Prices.

² Cost of Living Index.

Sources: Joint Economic Committee, *Historical and Comparative Rates of Production, Productivity, and Prices - Part II* (Washington: U.S. Government Printing Office, 1959), pp. 394-7; W. STANLEY JEVONS, *Investigations in Currency and Finance* (London: MacMillan and Co., 1884), pp. 142-50; BRIAN R. MITCHEL, *European Historical Statistics 1750-1970* (N.Y.: Columbia University Press, 1975), pp. 136-42.

¹⁵ « Gold Discoveries », *The Quarterly Review*, XCI (September, 1852), pp. 535, 539.

¹⁶ « Gold », *The Bankers' Magazine and Statistical Register*, II (April, 1853), p. 767; LEON FAUCHER, *De La Production Et De La Démonétisation De L'Or*, *Revue Des Deux Mondes* (August 15, 1852), pp. 708-760.

¹⁷ I. J. BRUGMANS, *Economic Fluctuations in the Netherlands in the Nineteenth Century*, in F. CROUZET, et al., eds., « Essays in European Economic History 1789-1914

The price indexes shown in TABLE II indicate that commodity prices rose in the early 1850's by a fairly modest amount which was probably less than what contemporaries expected. Jevons calculated that London commodity prices in 1854 were about twenty percent above the average in the period 1845-50. In 1857 they reached a decade peak of 128.8 percent of the 1845-50 level.¹⁸ Alternatively, he calculated that by 1857 they reached 132 percent of the level prevailing in March, 1849.¹⁹ A recent American study shows that U.S. prices rose about seventeen percent between 1851 and the decade peak in 1857.²⁰

The price inflation also took place on the Continent although the general outcome is less certain due to the absence of comprehensive price indexes for most countries. However, in addition to the modern indexes shown in TABLE II, there is also available a large amount of information on some commodity prices in other countries which shows the same pattern. In Copenhagen, the price of rye increased from 141 in 1841-50 (1819-30=100) to 194 in 1851-60. During the same periods, the price of barley increased from an average of 150 to 218, and oats from 145 to 208. In Hamburg, the price of wheat increased from 129 in 1846-50 (1826-30=100) to 143 in 1851-55 and 152 in 1855-60. During the same periods, the price of rye changed from an average of 131 to 168 to 167, the price of barley from 135 to 163 to 184, and the price of oats from 138 to 144 to 176. In Königsberg, the price of wheat and rye more than doubled between the mid-1840's and mid-1850's. In Udine, the price of maize was sixteen percent higher in 1851-60 than in 1841-50. In Berne, the price of common bread was forty percent higher in the mid-1850's than in the mid-1840's.²¹ A modern study of wheat prices in Holland shows about a fifty percent increase between 1850 and the

(N.Y.: St. Martin's Press, 1969), pp. 131, 133. This view is also supported by WALTER B. SMITH and ARTHUR H. COLE, *Fluctuations in American Business, 1790-1860* (Cambridge: Harvard University Press, 1935), p. 90. The long decline in British prices from the end of the Napoleonic Wars to 1850 is reviewed in M. W. FLINN, «Trends in Real Wages, 1750-1850», *Economic History Review*, XXVII (August, 1974), pp. 400, 403.

¹⁸ JEVONS, *Investigations in Currency and Finance*, 47, pp. 144-9.

¹⁹ JEVONS, *Investigations in Currency and Finance*, 153, 155. The U.S. Monetary Commission reported that: «In the twenty-five years between 1850 and 1876 the money stock of the world was more than doubled and yet at no time during this period was the general level of prices raised more than eighteen percent above the general level of 1848». *Report of the U.S. Monetary Commission*, 1876, 51.

²⁰ PHILIP COELHO and JAMES SHEPHERD, *Differences in Regional Prices: The United States, 1851-1880*, *Journal of Economic History*, XXIV (September, 1974), p. 569.

²¹ *Proceedings of the International Monetary Conference, 1881* (Washington: Government Printing Office, 1887), 62-5. The price data provided have been converted to an index basis by the author. MICHAEL G. MULHALL, *The Dictionary of Statistics* (London: George Routledge & Sons, Ltd., 1899), pp. 483-7.

mid-decade, with a decline to the 1850 level by 1860.²² Another recent study indicates that a price index of twenty-three groups of goods and services in France rose from 115.2 in 1835-44 (1905-13=100) to 119.0 in 1845-54 and 127.0 in 1855-64.²³ An allied piece of corroborative evidence is supplied by the approximate fifty percent increase in Egyptian cotton prices at Alexandria between the average of 1845-50 and the decade peak in 1856.²⁴

If the impact of rapidly increasing gold production raised the general price level, it also reduced the real value of both precious metals as money. But under bimetallism the precious metals were also commodities and an increase in the supply of gold relative to silver caused the market price ratio of silver to gold to fall precipitously from the 1840's onwards. This decline is shown in Chart I.

The fall in the market price ratio of silver to gold from a high of 15.92 in 1843 to a low of 15.19 in 1858 upset the various national bimetallic mint ratios which reflected the earlier higher price of gold. This placed great pressure on the bimetallic countries to alter their standard or allow cheaper gold to displace dearer silver from specie circulation. This flaw in bimetallism was well known and therefore the influx of gold prompted an international debate upon proper policy.

III

In the United States, the rapid increase in the supply of gold quickly resulted in a premium on silver coin which vanished from circulation. Most observers agreed with Robert Hare, M.D. and Professor of Chemistry in the University of Pennsylvania, that "gold... has fallen, silver has risen".²⁵ However, while Hare favoured issuing undenominated "metallic tokens" to replace bimetallism, two other solutions were usually

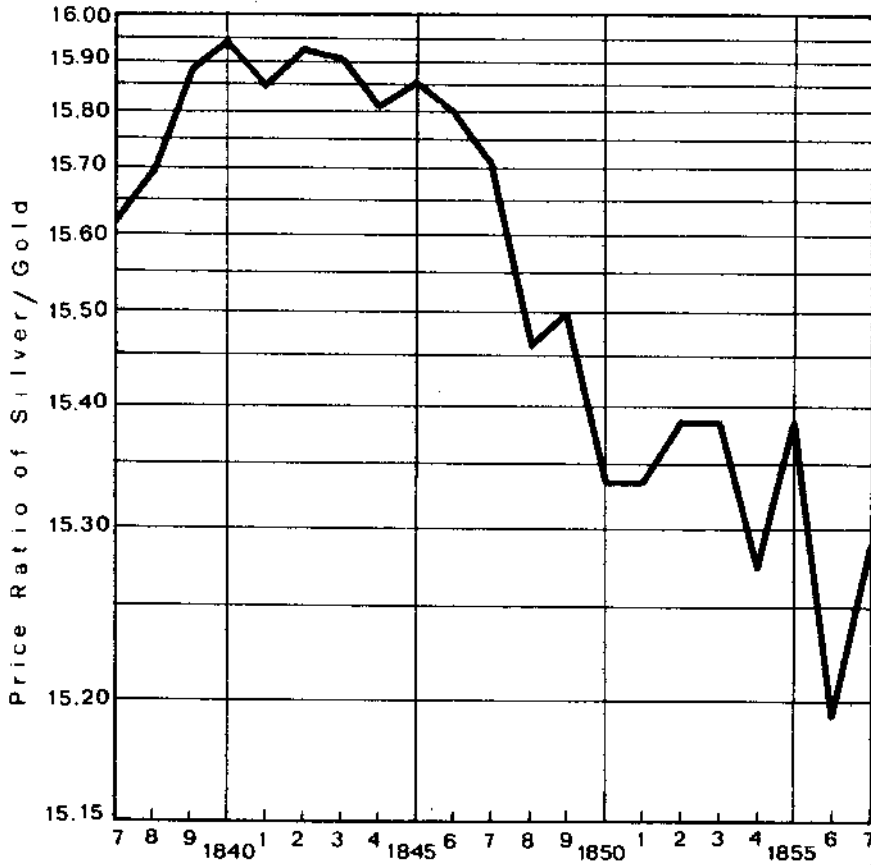
²² BRUGMANS, *Economic Fluctuations*, pp. 146-7.

²³ TIHOMIR J. MARKOVITCH, *Les secteurs dominants de l'industrie Française, Analyse et Prevision*, I, 1966, pp. 161-175 reprinted in RONDO CAMERON, ed., *Essays in French Economic History* (Homewood, Ill.: Irwin, 1970), p. 244. Similar trends are shown in LENNART JÖRBERG, *A History of Prices in Sweden, 1732-1914*, I (Lund: C.W.K. Gleerup, 1972); J. SARDA, *Spanish Prices in the Nineteenth Century*, *Quarterly Journal of Economics*, 62 (November, 1957), pp. 143-59.

²⁴ MAHMOUD EL DARWISH, *Note on the Movement of Prices of Egyptian Cotton, 1820-1899*, *L'Egypte contemporaine*, XXXII (1931) reprinted in CHARLES ISSAWI, ed., *The Economic History of the Middle East 1800-1914* (Chicago: University of Chicago Press, 1966), p. 448.

²⁵ *Hunts' Merchants Magazine*, XXVII (July, 1852), p. 65.

LONDON MARKET PRICE RATIO OF SILVER TO GOLD



Sources: U.S. Senate, Committee on Finance, *Coinage Laws of the United States, 1792 to 1894* (Washington: Government Printing Office, 1894), p. 108.

advocated: silver monometallism or a gold standard with subsidiary silver coins. In general, proponents of the former, such as economist George Tucker, argued that gold had fallen and that silver was the historic currency while the gold standards claimed that silver should be used only in fiduciary status and that the U.S. should adopt the English monetary standard. The American debate took place in the early 1850's centred primarily upon altering the bimetallic standard, and was little concerned

at this time with the relationship of the money supply to output and price levels.²⁶

In France, Michel Chevalier led the argument throughout the 1850's that the increased supply of gold had expanded commerce but would also eventually result in a rise in prices. According to Chevalier, the "fall" of gold had been delayed by the "parachute" effect of the French bimetallic law by which "gold is imported into France in mass, and takes the place in circulation formerly filled by silver, which disappears, because it is profitable to come from abroad to barter gold for silver". Consequently the world demand for gold as money had grown in accord with the increased supply. But the total money supply had not grown rapidly because silver had been displaced from circulation to commodity status. Although Chevalier was a silver monometallist, he opted for an expedient solution to the flight of silver similar to the plan advanced by Dr. Hare.²⁷

In Britain, the anti-deductive economists such as Tooke and Newmarch, were attempting to prove by adducing empirical data that silver had not fallen relative to gold and that the price level had not risen. They argued that the increase in gold had been absorbed through increased demand for money as a result of the "vast and extraordinary increase... in every branch of industry" and "retail and local trade". Newmarch claimed that "the augmentation of circulation has followed and not occasioned the increase of trade, wages, and prices".²⁸

However, the assertion that a huge increase in gold money would not result in an inflation seemed preposterous to the orthodox British

²⁶ A continuing dialogue on coinage reform was published in *Hunt's Merchants Magazine*. See Editorial, XXVI (May, 1852), pp. 600-3; GEORGE TUCKER, *California Gold: With Reference to the Relative Value of Gold and Silver*, XXIV (January, 1851), pp. 20-22; GEORGE TUCKER, *Our Metallic Currency*, XXVII (August, 1852), p. 178; STEPHEN COLWELL, *Money of Account - Its Nature and Functions*, Pt. II, XXVI (May, 1852), pp. 555-6; *The Currency - Gold and Silver*, XXV (March, 1852), p. 32; RICHARD SULLEY, *Money and the Measure of Value*, XXIX (November, 1853), p. 581. The impact of the expanded supply of gold upon the level of economic activity attracted American attention after a debate began abroad. See JOSEPH S. CRAWLEY, *The Theory of Financial Expansions*, «The Bankers' Magazine and Statistical Registrar», IX (November, 1859), pp. 334-344; *Credit Currency and Precious Metals*, IX (December, 1859), pp. 417-424.

²⁷ MICHAEL CHEVALIER, *On the Probable Fall in the Value of Gold* (1859) (N.Y.: Greenwood Press, 1968), 74, 75, 62, 151, 169. This book was a series of essays which were published in the «Revue Des Deux Mondes» (October 1, 1857), (October 15, 1857), and (November 1, 1857).

²⁸ W. NEWMARCH, *London Morning Chronicle*, July 1853, reprinted in «The Bankers' Magazine and Statistical Register», III (November, 1853), p. 384. This view was subsequently defended by L.C. HUNTER, *Mill and Cairnes on the Rate of Interest*, Oxford Economic Papers, II (February, 1959), p. 80.

economists. In the late 1850's John E. Cairnes used classical monetary theory to claim that the new gold supplies explained the subsequent rise in prices and fall in the value of money.²⁹ Jevons, in several pioneering works in economic statistics published in the early 1860's, concluded that "the prices of materials of manufacture, and most other articles had been continually falling... from 1820... to 1850" because "the supply of the precious metals did not keep pace with the demand". But after California "they turned upwards in a sudden and decided manner... He who allows prices to have risen since 1850, but denies it to the effect of the gold discoveries, must point out something else in the progress of industry since 1850 entirely different and contrary to the progress before". Jevons also concluded in 1865 that silver prices had risen less than general commodity prices and therefore silver had also "fallen" (by about six percent) versus about twenty percent for gold.³⁰ While Jevons' analysis remains impressive, Bezanson has pointed out that cyclical economic factors and military adventures also influenced commodity prices in this period.³¹

IV

In retrospect the influx of gold did not have the impact upon prices which contemporaries anticipated based upon the experience of Spanish American silver. This is mildly surprising given the huge increase in gold production during this period. Sootbeer estimated that the ratio of silver to gold metallic money in circulation in 1850 was 2.9 whereas in 1860 it was only 1.1.³² The reasons why gold did not depreciate further are closely related to the core of the Chevalier - Newmarch - Jevons debate.

As the supply of gold increased, there was also an increase in the demand. The rise in the market price of silver resulted in an increase in the monetary demand for gold in the bimetallic countries. The demand for gold also increased on both sides of the Atlantic due to the higher levels of economic activity which ensued. Consequently the price of gold did not collapse as the supply expanded rapidly. Moreover the rise in the

²⁹ The debate between Tooke-Newmarch and Cairnes over the impact of gold discoveries is reviewed by MICHAEL D. BORDO, *John E. Cairnes on the Effects of the Australian Gold Discoveries 1851-73: An Application of the Methodology of Positive Economics*, «History of Political Economy», 7 (Fall, 1975), pp. 339, 355-7.

³⁰ JEVONS, *Investigations* 46, 59-61, 109-11, 138. This conclusion was later confirmed by Sauerbeck, see E. S. MEADE, *Gold and Silver in Terms of Commodities*, «Journal of Political Economy», 5 (March, 1897), p. 247.

³¹ ANNE G. BEZANSON, et. al., *Wholesale Prices in Philadelphia, 1784-1861*, I (Philadelphia: University of Pennsylvania Press, 1936), 9, p. 238.

³² SAUERBECK, *Prices of Commodities and Precious Metals*, p. 72.

market price of silver was restrained by the conversion of monetary silver to commodity status.

Thus on balance, the market price of silver rose modestly and gold did not depreciate to the extent expected by contemporaries. The actual outcome was well described by Savuerbeck:

The enormous supply... added considerably to the existing stock of gold, and many people therefore expressed the opinion that the value of silver would rise... The effect was in the end just the reverse to that expected. Prices of commodities had risen owing to gold production, general trade had expanded enormously, and the consequence was a great addition to the wealth of the world. With greater wealth and higher prices, gold forms a more convenient medium of exchange, and as it seemed that there was enough gold in the world a tendency arose in many countries to substitute a gold currency for silver.³³

But the depreciation of gold did result in the commodization of silver in the countries on bimetallic standards. As a premium appeared on silver money it disappeared from circulation and a silver coin shortage arose.

In the United States silver had flowed into the country on a fairly regular net basis until 1847. Thereafter silver exports exceeded imports until the coinage laws were altered in 1853.³⁴ The net export demand for silver from the U.S. was accentuated by a number of additional factors coincidental with the depreciation of gold. As price inflation became a reality in Europe for the first time in a generation, silver began to be hoarded as a hedge. Several European nations were also attempting to amass it for military needs in Western Asia. Yet another demand came from some smaller countries which demonetized gold and adopted silver monometallism. Moreover, at the same time the output of Mexican silver declined.

The demand for export silver began to attract attention near the end of 1848. *Hunt's Merchants Magazine* reported that "the demand for specie, silver more particularly, for the continent of Europe is large". In early 1850 it reported large exports of silver to London *en route* to the Continent.³⁵ During 1850 silver exports to India also became important.³⁶ In June, 1850 *Hunt's* noted that: "Considerable amounts of silver are

³³ SAUERBECK, *Prices of Commodities and Precious Metals*, p. 69.

³⁴ U.S. Treasury Dept., *Annual Report of the Director of the Mint*, 1896 (Washington: Government Printing Office, 1897), pp. 282, 284.

³⁵ *Hunt's Merchants Magazine*, XX (February, 1849), p. 194; XXII (February, 185), p. 202.

³⁶ THOMAS S. BERRY, *Western Prices Before 1861* (Cambridge: Harvard University Press, 1943), p. 489.

coming in from the West and the South. The demand for silver for France is firm, but the supply more than meets it". As the year wore on, larger exports were recorded.³⁷ Two years later it was reported "that silver coin has become scarce" due to "increased demand for the export of specie to Europe" because "some changes in the relative value of the two metals created a demand upon the Continent for silver, at the expense of gold".³⁸ By the end of 1852 silver coin, domestic or foreign, had virtually disappeared from circulation under a market premium on larger prices which exceeded four percent. After a protracted discussion of the causes of this outcome, a subsidiary silver coinage was adopted in February, 1853 which terminated *de facto* bimetallism in the U.S. However the amount of silver which went into circulation under the new law was greatly enlarged.³⁹

The circumstances in Europe were quite different. The bimetallic law of France served, in Chevalier's felicitous term, as a "parachute" which retarded the fall in the market price of gold. The coin ratio in France was established at 15.5 to 1 in 1803 but due to seigniorage charges the mint ratio was 15.69 from 1803 to 1835, 15.626 from 1853 to 1850, and 15.586 from 1850 to 1854.⁴⁰ Since gold was overvalued as money, in the first half of the nineteenth century France had a circulating specie medium of exchange composed almost exclusively of silver. However by November, 1850 the world price of gold had fallen below the French mint price and silver specie became available only at a premium. It thereafter became cheaper to discharge debts in France in gold and to pay silver to cover foreign balances.⁴¹ Since France was the most important bimetallic nation, it undoubtedly served to maintain the value of gold which became a net import after 1848, while concurrently channeling silver to markets of higher value.⁴² As late 1848 gold coin in circulation was virtually nonexistent in France. The coinage of gold in the period 1845-49 was only fourteen percent of silver. However during the next five years, gold

³⁷ *Hunt's Merchants Magazine*, XXII (June, 1850), p. 642; XXIII (September, 1850), p. 322; XXIII (October, 1850), p. 435.

³⁸ *Hunt's Merchants Magazine*, XXVII (October, 1852), p. 465.

³⁹ The causes and outcome of this process is described in detail in DAVID A. MARTIN, 1853: *The End of Bimetallism in the United States*, «*Journal of Economic History*».

⁴⁰ U.S. Senate, *Proceedings of the International Monetary Conference of 1878*, pp. 686-7.

⁴¹ CHEVALIER, *On the Probable Fall in the Value of Gold*, pp. 62-63; ANDRÉE COCHUT, *La Refonte Des Monnaies De Cuivre*, «*Revue Des Deux Mondes*» (May 1, 1852), p. 561.

⁴² JEVONS, *Investigations in Currency and Finance*, pp. 60, 304.

TABLE III
IMPORTS AND EXPORTS OF SPECIE TO AND FROM FRANCE, 1840-1860
(millions of francs)¹

Year	Gold							
	Exports			Imports			Imports	Excess of Exports
	Bullion	Coin	Total	Bullion	Coin	Total		
1840	10	49	59	1	9	10	49	
1841	4	11	15	7	13	20		5
1842	2	6	8	12	8	20		12
1843	3	7	10	26	25	51		41
1844	2	3	5	5	6	11		6
1845	3	2	5	13	6	19		14
1846	4	4	8	12	5	17		9
1847	5	16	21	9	25	34		13
1848	5	39	44	3	3	6	38	
1849	5	7	12	1	5	6	6	
1850	30	31	61	32	12	44	17	
1851	22	94	116	14	17	31	85	
1852	19	40	59	11	31	42	17	
1853	261	58	319	6	24	30	289	
1854	368	113	481	9	56	65	416	
1855	275	106	381	5	158	163	218	
1856	273	192	465	1	89	90	375	
1857	291	278	569	3	120	123	446	
1858	253	301	554	1	65	66	488	
1859	358	369	727	5	183	188	539	
1860	279	191	470	32	127	159	311	

¹ See also: United States Treasury Dept., *Annual Report of the Director of the Mint*, 1896 (Washington: Government Printing Office, 1896), pp. 290-291.

Source: HENRY PARKER WILLIS, *A History of the Latin Monetary Union* (Chicago: The University of Chicago Press, 1901), pp. 2-3.

coinage was 510 percent larger than silver.⁴³ Not since 1795 had less silver been coined than in 1854.⁴⁴ The cheaper gold displaced the dearer silver and resulted in its export. The "parachute" effect of the French bimetallic law is shown in TABLE III.

While France accepted de facto gold monometallism, other European nations reacted differently to the pressures upon their circulating specie money from the depreciation of gold. Portugal, which had raised its bimetallic mint ratio to 16.5 to 1 in 1847, adopted gold monometallism

⁴³ HENRY P. WILLIS, *A History of the Latin Monetary Union* (Chicago: University of Chicago Press, 1901), 4, pp. 301-306.

⁴⁴ H. PARKER WILLIS, *The Operation of Bimetallism in France*, «Journal of Political Economy», 3 (June, 1875), p. 361.

Year	Silver							
	Imports			Exports			Excess of	
	Bullion	Coin	Total	Bullion	Coin	Total	Imports	Exports
1840	21	139	160	27	37	64	96	
1841	19	151	170	16	37	53	117	
1842	29	109	138	11	35	46	92	
1843	39	118	157	9	45	54	103	
1844	44	107	151	18	51	69	82	
1845	46	113	159	14	55	69	90	
1846	26	81	107	14	46	60	47	
1847	49	89	138	17	68	85	53	
1848	39	194	233	1	18	19	214	
1849	62	229	291	3	44	47	244	
1850	25	130	155	10	72	82	73	
1851	21	158	179	33	68	101	78	
1852	22	158	180	28	155	183		3
1853	17	96	113	41	189	230		117
1854	12	88	100	73	191	264		164
1855	43	78	121	77	241	318		197
1856	12	98	110	139	255	394		284
1857	18	80	98	152	306	458		360
1858	15	146	161	98	78	176		15
1859	12	199	211	190	192	382		171
1860	12	119	131	146	142	288		157

in July, 1854.⁴⁵ Spain, which had lowered its bimetallic ratio to 15.77 to 1 in 1848, opted to retain bimetalism by lowering the ratio to 15.48 in 1854.⁴⁶ Switzerland, which had adopted the French silver Franc as the legal unit in 1850, extended legal tender to gold coins in 1860.⁴⁷ Holland had operated under bimetalism at 15.87 to 1 from 1816 to 1847 when it adopted a silver standard which subsequently resulted in a great decline the availability of specie.⁴⁸ Belgium employed a silver currency until March, 1847 when it adopted bimetalism at 15.83 to 1. Under pressure from the depreciation of gold it proclaimed a silver standard in December, 1850 and even demonitized Belgium gold coins in 1854. However, silver coinage was terminated in 1854 and Belgium, along with Holland, was reduced to a specie currency of underweight French silver coins.⁴⁹

⁴⁵ *Proceedings of the International Monetary Conference, 1881*, pp. 277-280.

⁴⁶ U.S. Treasury Dept., *Annual Report of the Director of the Mint, 1895* (Washington: Government Printing Office, 1895), p. 449.

⁴⁷ U.S. Senate, *Proceedings of the International Monetary Conference of 1878* (Washington: Government Printing Office, 1879), p. 190.

⁴⁸ U.S. Senate, *Proceedings of the International Conference of 1878*, p. 185.

⁴⁹ WILLIS, *History of the Latin Monetary Union*, pp. 15-21; VICTOR LANJANIUS, *Nouvelles Recherches Sur La Question De L'Or*, «Revue Des Deux Mondes» (July 1,

Some of the silver coin which disappeared from circulation in the United States and Western Europe moved eastward to the German states, Austria, and Russia where silver coinage remained high.⁵⁰ Silver also moved to England, which had adopted the gold standard with a subsidiary silver coinage in 1816. However, as shown in TABLE IV, silver tended to move through England to Asia.⁵¹

TABLE IV
VALUE OF NET IMPORTS OF GOLD AND SILVER INTO THE
PRESIDENCES OF BRITISH INDIA, 1835-1860¹

Year	Excess of Imports of Gold (pounds sterling)	Excess of Imports of Silver (pounds Sterling)
1835-1836	329,918	1,611,896
1836-1837	419,724	1,338,882
1837-1838	430,870	1,966,944
1838-1839	258,925	2,645,130
1839-1840	226,643	1,650,471
1840-1841	137,312	1,401,670
1841-1842	165,623	1,283,228
1842-1843	211,161	2,952,445
1843-1844	406,523	3,696,041
1844-1845	710,100	1,988,562
1845-1846	544,476	932,490
1846-1847	846,949	1,378,249
1847-1848	1,039,116	494,191
1848-1849	1,348,918	313,904
1849-1850	1,116,993	1,273,607
1850-1851	1,153,294	2,117,225
1851-1852	1,267,613	2,865,357
1852-1853	1,172,301	4,605,024
1853-1854	1,061,443	2,305,744
1854-1855	731,000	29,600
1855-1856	2,506,245	8,194,375
1856-1857	2,091,214	11,073,247
1857-1858	2,783,075	12,218,948
1858-1859	4,426,453	7,728,342
1859-1860	4,284,234	11,147,563

¹ These figures were obtained by the Consul General of the United States at Calcutta from the Government of India, Dept. of Finance and Commerce, on April 21, 1890; see also, estimates in W. STANLEY JEVONS, *Investigations in Currency and Finance* (London: MacMillan and Co., 1884), p. 141.

Sources: United States Treasury Dept., *Annual Report of the Director of the Mint*, 1880 (Washington: Government Printing Office, 1887), pp. 279-280.

1855), pp. 134-5. Annual coinage data for Belgium, 1832-1885, is given in U.S. Treasury Dept., « Annual Report of the Mint, 1886 », pp. 195-6.

⁵⁰ *Hunt's Merchants Magazine*, XXXIII (November, 1855), pp. 614-15.

⁵¹ Data for 1852-59 is given in FRANCIS JOURDAN, *The Effect of the Gold Supplies on the Foreign Exchanges Between the United Kingdom and Foreign Countries, and on*

Testimony to Parliament indicated that very large net amounts of silver were also shipped to China from Europe in the middle and late 1850's.⁵²

IV

The net export to Asia of precious metals, especially silver, was not unique to the 1850's. Jevons claimed that "in the middle ages it relieved Europe of the excess of Spanish American treasury".⁵³ A recent study shows that in the eighteenth century the drain of silver was a compensating payment off-setting the large trade surplus which was the result of the absolute difference in commodity price levels between Europe and Asia.⁵⁴ Sootbeer calculated that about forty percent of total gold and silver production for 1810-29 moved to India and China and British records show that more than £ 400 million (two-thirds in silver) drained to India from 1835 to 1890.⁵⁵ At the beginning of the twentieth century, the foreign concession areas of China still showed a large net import of specie, especially of silver.⁵⁶

But the quantity of silver exports to Asia did increase dramatically in the 1850's. Chevalier attributed the expansion "in great part" to the "fall of gold" but also to the "sudden demand for this metal for exportation to the remote East" due to the prohibition of opium imports into China, civil disturbances in India, and larger net imports of commodities into Europe.⁵⁷ In contrast, Jevons rejected the thesis of "some excellent writers" that the drain was due to an imbalance of trade and concluded that the depreciation of gold was "the cause of the Eastern drain".⁵⁸ This controversy could be settled conclusively if the price of

the Price of Silver, «The Bankers' Magazine and Statistical Register», X (August, 1861), p. 112.

⁵² J. LAWRENCE LAUGHLIN, *The History of Bimetallism in the United States* (N.Y.: D. Appleton Co., 1894), p. 252. According to H. MICHEL, *From 1850 to 1857 Europe sent east some £ 57,000,000 worth of silver, nearly twice as much as she received from the producing countries. The Gold Standard in the Nineteenth Century*, «Canadian Journal of Economics», 17 (August, 1951), p. 371.

⁵³ JEVONS, *Investigations in Currency and Finance*, p. 63.

⁵⁴ K. N. CHAUDHURI, *The Economic and Monetary Problem of European Trade with Asia During the Seventeenth and Eighteenth Centuries*, «Journal of European Economic History», 4 (Fall, 1975), pp. 326-7.

⁵⁵ MULHALL, *Dictionary of Statistics*, pp. 306-309.

⁵⁶ FRANCIS B. FORBES, *Some Statistical Problems Connected With the World's Stock of Gold*, «Journal of American Statistical Association», 77 (March, 1907), p. 229.

⁵⁷ CHEVALIER, *On the Probable Fall in the Value of Gold*, pp. 64-73.

⁵⁸ JEVONS, *Investigations in Currency and Finance*, 63. A similar issue concerning the U.S. for this period is also unresolved. See THOMAS D. WILLETT, *International Specie Flows and American Monetary Stability, 1834-1860*, «Journal of Economic History», XXVIII (March, 1968), pp. 47-9.

silver in both areas could be compared and sufficient evidence could be amassed to ascertain the East-West net balance of trade. Since that is not possible, other evidence must be considered.

The average annual London price of silver in sterling moved modestly upward in an irregular fashion from the late 1840's through 1859.⁵⁹ It is also known from bill of exchange data for Shanghai and Bombay in the 1860's and Calcutta for the period 1834 to 1862 that the percentage fluctuations in the annual rates were large compared to European exchanges. These wider fluctuations occurred because in this period prior to telegraphic communication bankers and merchants could not forecast well the need for silver in places "very remote from the centres where silver could be obtained in considerable quantities".⁶⁰ From this evidence the following scenario may be inferred.

As gold supplies increased, the world price of gold depreciated. The result in the bimetallic countries was the commodization of silver which disappeared from specie circulation. It moved eastward as a trade export to pay net foreign bills because it could be purchased with cheaper gold coin. The outcome was to raise price levels in Asia in the same manner that new gold raised commodity prices in the West. (In 1853 the British India government reacted to the fall in the value of gold by refusing to accept it for public payments).⁶¹ Because the changes in the price levels were not perfectly synchronized, specie flows to the East were enlarged in the 1850's and high and unstable rates of exchange prevailed between Europe and Asia. Since Europe undoubtedly had a net trade deficit which was enlarged by coincidental military and political circumstances in the East, rising and/or unstable bill rates of exchange should have resulted in expanded net exports of precious metals, especially silver which was undervalued as money in the West. In general, the evidence shows that the degree of fluctuations in bill rates of exchange varied inversely with bullion retained in Europe. Therefore it can be surmised that the special European needs for precious metals in Asia made exchange more expensive and resulted in specie exports, primarily in silver, which eventually caused the rate of exchange to subside.

V

It can now be seen that the circumstances which led to the demise of bimetallicism in the U.S. had a worldwide effect. The various national

⁵⁹ *Hunt's Merchants Magazine*, XLI (August, 1859), p. 371.

⁶⁰ J. BARR ROBERTSON, *Some Statistics Bearing Upon Bimetallism*, « *Journal of the Royal Statistical Society* », LVIII (September, 1859), pp. 443-4.

⁶¹ *Bankers' Magazine & Statistical Register*, II (April, 1853), pp. 765-66.

metallic standards proved sufficiently flexible and/or amenable to allow very large amounts of new gold to go into circulation primarily in England, France, and the United States and also to channel the redundant silver to other countries. Consequently a dramatic price inflation was averted and the impact of the enlarged money supply was substantially upon the level of output.

This somewhat unexpected outcome confused the issue concerning the viability of bimetallism. While most Classical economists were convinced at mid-century that bimetallism was unworkable and should be replaced by the gold standard, the ability of France to weather the gold bonanzas provided a historical example of the survival power of the double standard. When the circumstances were reversed in the last portion of the century and silver depreciated rapidly in terms of gold, the proponents of silver cited the French experience and recalled that the American conversion to subsidiary silver had preserved the legal bases of a bimetallic unit for restoring the double standard. The same issues were again discussed demonstrating further that the hold of metallist dogma should not be underestimated when seeking to understand nineteenth-century monetary standards. •