*The Fall of Silver in Mexico, 1870–1910, and Its Effect on American Investments**

SINCE the end of World War II Americans interested in international economic affairs have faced a painful dilemma. Almost every set of international policies advanced during this period has called for the widespread use of American capital to assist in the development of underdeveloped areas in Latin America, Asia, and Africa. The United States government has furnished much of this capital during the last decade, but private capital has borne a share of the effort in the past and may well be called upon for a larger share in the future. Unfortunately, in a period of frequent small wars, revolutions, and expropriations, American investors naturally hesitate to send their capital abroad if they can invest it profitably at home. One of the most vexing problems in modern international economic relations is that of predicting or assuring regular returns from American investments abroad.

In this situation the economist may profitably consult the historian for an account of the successes and failures of nineteenth-century American capital, as it ventured forth to build railroads and bridges, dig mines, and lay out plantations in other parts of the Western Hemisphere. There is no better case study for observation than Mexico, which received the first wave of American foreign investment after the Civil War. From the beginning of the nineteenth century publicists had touted Mexican silver, and in the 1860's and 1870's a new generation of promoters rediscovered the Spanish mines. The contruction of two through railroads from the Rio Grande to Mexico City after 1880 started a flood of concessions that continued into the new century, until by 1910 Americans controlled or held an interest in so many Mexican railroads, mines, land projects, public utilities, and oil wells that no one has ever produced anything like a complete list of the holdings. From a few million dollars in 1870 American investments in Mexico grew until in 1902 they were estimated to total $503,000,000, and in 1911, $1,044,600,000. Of the latter figure, railroad stocks and bonds accounted for about $644,300,000.[1]

A considerable part of these investments shrank, withdrew, or dis-

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[1] Cleona Lewis, *America's Stake in International Investments* (Washington: The Brookings Institution, 1938), pp. 613–14.

appeared before the blasts of Mexican revolutions and civil wars during the decade after 1910. In the hubbub over revolutionary destruction and the confiscation of oil holdings one fact about these investments sometimes escapes attention. With surprisingly few exceptions, mainly mining companies, American capital invested in Mexico did not yield regular, satisfactory dividends for long periods of time before 1910. The major American railroad lines in Mexico paid no dividends at all during most of the early period, and by 1903 their financial structure had become so wobbly that the Mexican government feared lest Edward H. Harriman or some other American "monopolist" swallow them. During the next six years Mexico bought up a controlling interest in these major lines, but Americans continued to hold large investments in them long after the fall of Díaz.

Why did American companies in Mexico belie the rosy expectations of their promoters? Political instability was not an important factor before 1910, but there were many other explanations for the ill success of American investments. The most obvious factors were overcapitalization, mismanagement, unfamiliarity with Mexican labor and markets, and anti-American prejudice. One possible cause, seldom taken into consideration, was the disastrous fall in the world price of silver and the related decline in the value of the Mexican silver peso, the bulwark of the national currency.[2] In the United States, even with its balanced economy, the silver crisis of the 1890's and the "battle of the standards" brought social and political upheaval. One might logically expect that in Mexico, which had a ramshackle, immature economy tied to the export of silver, the falling prices would shake the country to its foundations. It is the purpose of this article to describe and, as far as possible, isolate the effects of the fall of silver upon the partly developed Mexican economy and especially upon American investments in Mexico.

I

In 1870 few Mexican silver miners worried about the world silver market, for a decade earlier the discovery of gold in California and Australia had raised silver prices to record heights, and as yet the effect of later silver strikes was not widely felt. However, the miners had

[2] One of the few works in English to consider this factor is Edwin W. Kemmerer, *Modern Currency Reforms* (New York: The Macmillan Co., 1916), pp. 465–552. Kemmerer's principal interest is the currency reform law of 1905 rather than the effects of the preceding inflation.

much else to worry about, for between 1857 and 1867 ten years of civil war and the French intervention seemed to have wiped out the advances made by the mining industry since Mexican independence. Mining technology was still primitive and inefficient; new equipment was expensive and hard to install in the mountains; and coal deposits were insufficient to replace the dwindling forests. In many a rich mineral district Indian labor painstakingly chipped out the richest ore, loaded it on mules, and took it over the hills to a crude stamping mill, leaving behind half the wealth of the deposit. State and Federal governments made matters worse by piling excessive taxes upon the few active mineowners. Many mines lay completely idle, for their owners were afraid to make money, lest, in bandit raids, they lose it and perhaps their lives.[3]

In 1868 a mining council delivered a pessimistic report on these dismal conditions and urged action, but the Federal government, hampered by constitutional restrictions, did nothing for nearly two decades. Finally awakened to the need for foreign capital, the government obtained a constitutional amendment and in 1884 passed a comprehensive reform law which abandoned the traditional government title to nonmetallic deposits (including coal and petroleum) and lowered or abolished mining taxes. Two other mining laws, in 1887 and 1892, further liberalized mining concessions and taxes. As a result of these laws and the inflow of foreign capital, exports of silver increased in value over fifteen times in a single decade.[4]

From the beginning of its history the Mexican system of currency has been closely tied to the nation's mining industry. At the time when Spain lost her empire in the New World, the Spanish-Mexican peso (*peso fuerte* or "piece of eight") served as a quasi official coin for nearly half of the world's population. From the Mexican mint, which the noted German geographer Baron von Humboldt considered the greatest on earth, the "columnar" or "Caroline" peso went out to neighboring parts of the Spanish and British empires, the United States, the Philippines, much of the Far East, and even Europe. In

[3] Julius Skilton to Thomas H. Nelson, Mexico City, August 9, 1869. United States Department of State, Dispatches, Mexico, XXXVI; Edward Lee Plumb to William H. Seward, Mexico City, June 24, 1868, No. 149, *ibid.*, XXXIII; Plumb to Seward, August 4, 1868, No. 167, *ibid.*, XXXIV.

[4] Eduardo Martínez Baca, *Historical Review of Mining Legislation in Mexico*, translated by J. L. Harrison (no publication data), pp. 48–52; Marvin D. Bernstein, "The History and Economic Organization of the Mexican Mining Industry, 1890–1940" (unpublished doctoral dissertation, 2 vols., University of Texas, 1951), I, 307–9.

the United States it was not completely displaced as a unit of currency until the middle of the nineteenth century. Joaquín Casasús later called China and the East Indies "bottomless abysses in which precious metals are forever lost," for Chinese merchants, lacking a satisfactory currency of their own, imported shiploads of Mexican coins, weighed them, stamped them with their private "hash marks," and dispatched them into circulation.[5] Thus, ever since Mexicans could remember, their precious metals had filled the confusing dual role of trade commodity and unit of value, and they found it hard to separate the two functions.

Mexico sometimes treated its peso with amazing carelessness. Instead of operating the mints itself, the Treasury farmed them out to private capitalists on terms grossly unfavorable to the government.[6] Underrating the high prestige of the currency in the Orient, the early national government debased the Caroline peso by as much as 22 per cent, and later during the French intervention, Maximilian exported an entirely new coin. Neither action deceived the Chinese, who simply discounted any pieces which they suspected. The Mexican government also levied high taxes on circulation and export of coins, thereby adding to the already heavy expense of armed *conductas* to escort coin shipments through the bandit-infested country to the coast.[7]

Thus in 1870 internal disorder, mismanagement, and high taxation had weakened both the Mexican mining industry and the Mexican currency. Other forces were already in movement which would rack and twist the currency and indeed the whole Mexican economy for more than a generation to come. First of all, world silver production was rising from 9,348,000 kilograms in the decade 1851–1860 to 31,-251,175 kilograms in the decade 1881–1890, while at the same time world gold production for the same decades fell from 1,908,314 kilo-

[5] The Chinese also used the pesos for ornaments and sometimes paid a premium of 50 per cent for them. Eugène Viollet, *Le problème de l'argent et l'étalon d'or au Mexique* (Paris, 1907), pp. 44–45, 48–49; Werner Hegemann, *Mexikos Übergang zur Goldwährung. Münchener Volkswirtschaftliche Studien,* No. 86 (Stuttgart and Berlin: J. G. Cotta'sche Buchhandlung Nachfolger, 1908), chap. ii. Enrique Martínez Sobral, *La reforma monetaria. La sociedad anónima: Memorias presentadas al IV Congreso científico* (México: Tip de la Oficina impresora de estampillas, 1909), pp. 43–44; Dickson H. Leavens, *Silver Money,* Cowles Commission for Research in Economics, Monograph No. 4 (Bloomington, Indiana: Principia Press, 1939), pp. 95–97.

[6] Alberto F. Pradeau, *The Mexican Mints of Alamos and Hermosillo. Numismatic Notes and Monographs,* No. 63 (New York: The American Numismatic Society, 1934), pp. 54–61. This abuse ended in the 1890's. Carlos Díaz Dufoo, *Les finances du Mexique, 1892–1911; Limantour, l'homme et l'oeuvre* (Paris: F. Alcan, 1926), pp. 70–71.

[7] Viollet, *Le problème de l'argent,* pp. 49–50; Plumb to Seward, Mexico City, August 4, 1868, No. 167, State Department, Dispatches, Mexico, XXXIV; Hegemann, *Mexikos Übergang,* p. 4.

grams to 1,617,358 kilograms.[8] The United States furnished the most dramatic example of this trend, for here silver production rose almost steadily from a few thousand ounces in 1860 to four million ounces annually in the early 1890's, but after 1884, the Mexican mining industry also expanded. In the thirty years between 1878 and 1908, Mexico poured 40,255,278 kilograms of silver on the market.[9]

Ominously, while silver production increased, one of the principal markets for silver shrank, as the gold standard began to replace bimetallism in many parts of the world. Upon receiving her five-billion-franc indemnity from France after the Franco-Prussian War, Germany seized the opportunity to unify her currencies on a gold basis, and the Scandinavian nations, Australia, Canada, Egypt, and Brazil soon followed suit. The Latin Union, led by France, also reduced or stopped coining silver in order to protect dwindling gold reserves. For several years after 1873 the United States left her almost useless silver dollar off the coinage lists (the "Crime of '73"), although in 1878 (under the Bland-Allison Act) the American government began to purchase silver for coinage again. During the 1870's and 1880's, the Indian silver market began to disappear, for Britain gradually replaced her bullion and coin shipments to India with machinery and manufactured goods. In 1893 the world silver market sustained three heavy blows almost simultaneously: a business panic, the repeal of the American silver purchase law (the Sherman Act), and the British announcement that the mints of India would no longer receive silver for coinage.[10]

At the same time, as if expanded production and gold standards were not enough, the Mexican peso began to lose its monopoly in the Far East. During the 1870's Japan produced a silver yen, of about the same weight and fineness as the peso, and the United States minted a "trade dollar" specifically for export to China and the East Indies. Eventually France issued a similar coin for Indo-China, and Britain for Hong Kong and the Straits Settlements. In 1889, to the consternation of the Mexicans, the Chinese government imported machinery and announced that a large new mint at Canton would produce still another dollar coin, to replace the "crude" peso, which counterfeiters were finding easy to imitate. Meanwhile, Spain had also shut the Mexican peso out of the

[8] *The Mineral Industry, Its Statistics, Technology and Trade* (New York: The Scientific Publishing Co., 1893–), XLIII (1934), 189.

[9] *Bulletin of the Pan-American Union*, XXVIII (Feb. 1909), 345.

[10] Viollet, *Le problème de l'argent*, pp. 6–10; Miguel A. Quintana, *Los ensayos monetarios como consecuencia de la baja de la plata* (México: Imp. Galas, 1931), pp. 30–43.

Philippines, and after the Spanish-American War the United States placed the islands on the gold standard and began to coin a peso similar to the Mexican but valued at only fifty cents. By 1905 the Mexican peso had largely lost "its ancient and honorable place in the daily commerce of hundreds of millions of human beings."[11]

The cumulative effect of these three trends was a continuous decline of the value of silver in terms of gold and of the value of the peso in terms of the American dollar, the British pound, and other standard units of measure. Using the value of silver in 1873 as a base of 100, Eugène Viollet computed indices, showing that average annual silver values fell to 44.50 by 1902. Similarly, the index of the value of the peso fell from 101.16 in 1873 to 44.65 in 1902.[12] Expressed in another manner,

Year	Silver Index	Peso Index	Year	Silver Index	Peso Index
1873	100.0	101.16	1888	72.25	72.97
1874	98.5	99.48	1889	72.18	73.32
1875	95.7	96.54	1890	80.5	...
1876	90.0	93.15	1891	76.2	...
1877	92.7	95.14	1892	67.25	66.52
1878	89.0	...	1893	60.25	60.28
1879	86.7	87.42	1894	48.90	50.23
1880	88.25	89.06	1895	50.50	52.53
1881	87.5	87.98	1896	52.15	51.41
1882	87.6	87.96	1897	46.50	47.47
1883	85.4	85.75	1898	45.60	45.97
1884	85.7	86.34	1899	46.30	46.97
1885	82.2	...	1900	47.90	48.51
1886	76.6	77.52	1901	46.00	46.67
1887	75.5	75.69	1902	44.50	44.65

Sources: Viollet, *Le problème de l'argent*, p. 52. A table of the average price of an ounce of silver for each month in the period 1873–92 can be found in Joaquín Casasús, *La question de l'argent au Mexique* (Paris: Impr. Chaix, 1892), p. 36.

the average price of an ounce of silver in United States dollars fell from $1.30 in 1873 to $.53 in 1902, and gold was nearly driven from circulation.[13] After 1902 conditions improved slightly, and in 1905 the Mexican government gave up its effort to maintain bimettalism and went on the gold standard. Nevertheless, Mexico continued to feel some effects of the silver crisis for years after that time.

[11] Viollet, *Le problème de l'argent*, pp. 50–54; *The Mexican Financier*, June 15, 1889, pp. 268–69; W. R. Lawson, "Is the Mexican Dollar Played Out?" *Bankers' Magazine*, LXVI (1903), 15–23.

[12] Index of Silver and Peso, 1873–1902

[13] Oswaldo Gurria Urgell, *Consideraciones acerca de los males que ha tenido el abandono de la plata en sus usos monetarios* (México: Impr. de la Secretaría de relaciones exteriores, 1934), anexo num. 3, pp. 18–21; Martínez Sobral, *La reforma monetaria*, pp. 52–53; Hegemann, *Mexikos Übergang*, pp. 10–12. Kemmerer calculates that in 1903 between 100,000,000 and

If the decline had been absolutely steady between 1873 and 1902, matters would have been serious enough for Mexico, but in ten out of thirty years either the average annual silver index or the peso index or both of these rose (eight points, for example, in 1890). Also during five years out of the period the price of silver fluctuated more than 20 per cent within a year.[14] Thus the crisis combined the features of depreciation, inflation, and uncertainty.

II

No two observers entirely agreed on the benefits or harm done to the Mexican economy by the fall of silver. *The Mexican Financier,* an English-language newspaper representing foreign opinion, welcomed a moderate decline in silver prices because dear silver tended to encourage mining too much and to make the economy lopsided.[15] In 1892 and 1893 Lionel Carden, a British consul, prepared a careful statistical report on the fall of silver and concluded that, in the long run, it might benefit Mexico greatly by encouraging the expansion of agriculture and industries.[16] Shallow-minded observers were inclined to attribute the amazing expansion of late-nineteenth-century Mexican industry to cheap silver with arguments that sound today much like *post hoc, ergo propter hoc,* but others, less impressed, called attention to the more solid benefits of peace, order, and railroads.[17] Some American tourists opened their eyes greedily when they received nearly two pesos for every dollar at the border and learned that in the interior of Mexico prices were largely unchanged.[18] However, in 1896, when two Chicago reporters spent several weeks in Mexico to gather arguments for or against the Bryan silver crusade, they returned home

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120,000,000 pesos of silver money and about 86,000,000 pesos of bank notes were circulating in Mexico. Kemmerer, *Modern Currency Reforms,* pp. 472–73. For the development of the Mexican banking system see United States, 61st Congress, 2d Session, *Senate Document 493:* Charles A. Conant, *The Banking System of Mexico* (Washington: Government Printing Office, 1910).

14 Viollet, *Le problème de l'argent,* pp. 52, 91–92. In one month, June 1893, the fluctuation was actually 21.3 per cent. Kemmerer, *Modern Currency Reforms,* p. 479.

15 *The Mexican Financier,* September 27, 1890, p. 16.

16 [Lionel E. C. Carden], *Report on the Effect of Depreciation of Silver on Mexico.* Great Britain, Foreign Office, *Miscellaneous Series* No. 302 (London, 1893), pp. 15–16, 19–20, 22.

17 [Alberto García Granados], *El crédito agrícola y la reforma monetaria* (México: Tipografía Vázquez é hijos, 1903), p. 4; Jaime Gurza, *Apuntes sobre la cuestión de la plata en México* (Durango: Impr. de S Dorador y hno., 1902), pp. 21, ff.

18 Walter Clark, "Mexico in Midwinter," *The Arena,* LXXVII (1896), 580–85.

in part disagreeing with each other but convinced that Mexico had both gained and lost as a result of the fall of silver.[19]

The most obvious benefits from the silver inflation accrued to export agriculture and all other industries which paid most of their expenses at home in silver pesos and sold abroad in dollars or pounds. Carden predicted the rapid and profitable development of coffee, sugar, tobacco, henequen, and ixtle (the last two being fiber plants native to Mexico). "Tropical agriculture in Mexico," he declared, "offers to investors a better return for their money than any other industry." The figures for henequen, at least, seemed to bear out Carden's prediction, for from 1882–1883 to 1901–1902 exports of that commodity rose from 28,763,307 kilograms to 91,944,355 kilograms, while the price in gold rose 45 per cent and the price in silver fully 200 per cent. Small wonder that henequen plantations expanded in Yucatán, and henequen planters urged the government to do nothing about the silver problem! Some other export crops, such as coffee, tobacco, and hides, also benefited, although the production of vanilla in the state of Veracruz fell off sharply as a result of competition from the East Indies.[20] Despite the apparent prosperity of tropical agriculture, many Mexican leaders came to believe later that this export of raw materials drained Mexico of her resources for the benefit of foreigners, since the inflation of the peso reduced the real value of imports received in return.[21]

In a similarly irregular fashion the effects of inflation were spread over some nonagricultural export industries. In 1893 an anonymous Mexican writer listed breweries, hardware factories, and textile mills as already feeling the stimulus to produce and export, and he declared that as result of cheap pesos, Mexico would soon be exporting shiploads of textiles to the Pacific coast of South America in exchange for British pounds.[22] Cheap pesos and a favorable exchange rate, however, could not conjure skilled labor or capital out of thin air, and the growth of manufacturing industries was bound to be a slow process. Furthermore, if a manufacturer had to import coal or raw materials, he lost a great part of his advantage. In 1896 William E. Curtis and Trumbull

19 William E. Curtis and Trumbull White, *Free Silver in Mexico* ([Chicago], 1897), pp. 127–35, *et passim.*

20 [Carden], *Report on the Effect of Depreciation*, pp. 19–20, Viollet, *Le problème de l'argent*, pp. 58–61; Casasús, *La question de l'argent*, pp. 58–60. Using figures for a period of seventeen years, Kemmerer has calculated a high degree of inverse correlation (—.867) between exports in general and the gold value of the peso. Kemmerer, *Modern Currency Reforms*, pp. 490–91.

21 This point is well developed in Kemmerer, *Modern Currency Reforms*, pp. 479–83.

22 *Algunas ideas sobre la baja de la plata y su reación con el Erario mexicano, la agricultura, la industria, la minería y el comercio en México* (no publication place, 1893), pp. 4–7.

White, the Chicago reporters, described many flourishing small-scale and semicraft industries but concluded that even operating under full blast, the factories of all Mexico employed fewer persons than those of Chicago in the midst of a depression.[23] It is true that between 1898 and 1902 the number of Mexican cotton mills rose 31 per cent, perhaps as a result of the sharp fall in silver values during this period. In 1902, however, sales fell off 15 per cent, either because of overproduction or because silver began to rise again slightly.[24]

By a wide margin the most important Mexican industry was mining and metallurgy, especially the mining of silver ores. During the 1870's and 1880's foreign observers freely predicted that falling silver prices would bankrupt miners and thereby ruin the Mexican economy.[25] That this did not happen was due to several factors. In the first place, the government cushioned mineowners against shocks by buying up silver for coinage at a fixed price, somewhat as the United States did for a time under the Bland-Allison and Sherman Acts. The free coinage of silver enabled mineowners to pay wages and buy local supplies with cheap pesos, and since Mexican wages were already low, they could hire an ordinary laborer for perhaps fifty cents a day as compared to three or four dollars paid by the silver mines of Nevada.[26] Second, the government sought to attract foreign capital by liberalizing mining and corporation laws and reducing taxes. Partly because of this favorable legislation, and partly because Americans and the British had capital to export, foreign mining companies brought into Mexico new methods and machinery which, when wisely used, reduced expenses, brought new low-grade deposits into exploitation, and raised output.

In addition, both foreign and native miners benefited from the amazing variety of Mexican ores. Even the richest silver deposits usually contained small amounts of gold, lead, copper, or zinc, which could be sold abroad at a profit and sometimes paid for all the necessary imports of fuel, dynamite, and even machinery. During the early 1880's, for

23 Curtis and White, *Free Silver in Mexico*, pp. 73, 75–76, 82–83, 123–26. Although industry was expanding, Curtis and White concluded that the factories still produced very inferior goods: "The people of the United States would never tolerate for a moment what the people of Mexico accept with gratitude."

24 Viollet, *Le problème de l'argent*, pp. 72–73. Viollet attributed the fact that the wool industry had expanded its production by 70 per cent in ten years largely to the fall of silver.

25 [Carden], *Report on the Effect of Depreciation*, pp. 16–17. Silver lost some of its predominance in Mexican exports during this period; in 1884/85 it accounted for 75 per cent of all exports, and in 1901/2 only 35 per cent. Viollet, *Le problème de l'argent*, pp. 127–28.

26 Bernstein, "Mexican Mining Industry," I, 344–45; Curtis and White, *Free Silver in Mexico*, pp. 113–14. Wages are quoted in silver money.

example, the Real del Monte Company spent 2,000,000 pesos a year inside Mexico and only 70,000 pesos abroad for imports, while averaging $500,000 a year from gold production alone.[27] Those who handled large amounts of gold, lead, copper, and zinc ores enjoyed nearly the same advantages as the henequen planter, for they could meet most expenses with pesos and sell abroad for gold. So could the drillers of oil wells when they began to operate in Mexico after 1900.

The decline in silver had different effects on various groups. From the foreigner's point of view, as represented, for example, by Consul Carden, the fall of silver seemed a benign stimulus that might make Mexico a major producer of raw materials for the United States and Europe. Certain other interests in Mexico, and some foreigners as well, suffered directly or indirectly from the fall of silver and of the peso. In particular, the silver crisis brought trouble to the import trade, subsistence agriculture, labor, the railroads, and the government itself.

Like a tariff wall, the rising exchange rate[28] made imports more expensive. Some Mexicans hoped that this would encourage domestic industries, and Carden argued that the upper classes could afford to pay higher silver prices for foreign luxuries, since many of them were making more money through their own sales abroad. These lines of reasoning, however, ignored certain flaws in the Mexican economy. Mexican tariff duties were already enormous, over 200 per cent ad valorem in some cases, and internal duties such as the notorious *alcabala* added further to the retail prices of imported goods. Millionaires could pay these prices, but white-collar workers and the vast proletariat of peons had to do without imports. Lastly, far from protecting sturdy "infant industries," the tariff and the exchange rate created a domestic monopoly for embryonic craft workshops and for completely nonexistent industries.[29]

Domestic producers might approve the fact that imports were expensive, but no one could ever prove that any good resulted from the

27 [Carden], *Report on the Effect of Depreciation,* pp. 17–19; Gurza, *Apuntes sobre la cuestión de la plata,* pp. 7–8. Enrique C. Creel estimated that labor constituted fully 85 per cent of the cost of production in silver mining. Viollet, *Le problème de l'argent,* p. 121.

28 The term "rising exchange rate" is often used in this sense. It presumes a Mexican viewpoint rather than a foreign one and refers to the number of pesos required to purchase a given sum in pounds sterling or dollars.

29 An excellent statement on Mexican tariff conditions is found in John W. Foster to Carlisle Mason, Mexico City, October 9, 1878. United States Department of State, *Papers Relating to the Foreign Relations of the United States* (Washington: Government Printing Office, 1861–), 1877–78, pp. 641–47. Casasús has prepared tables of Latin American imports from Britain, France, and the United States during the decade 1881–91, in order to show the close connection between the falling peso and decreases in Latin American imports. Casasús, *La question de l'argent,* pp. 70–75.

unpredictable fluctuations in the value of silver and of the peso. Like other Latin Americans, Mexican merchants commonly bought and sold on long-term credit, and if the exchange rate rose appreciably before an ordered shipment was paid for, an importer might face ruin. Conversely, during the brief periods when silver rose in value and the exchange rate fell, as in 1890, domestic manufacturers had to cut prices, and importers hastened to pay their debts.[30] Under these uncertain circumstances, importers customarily jacked up their prices a notch or two to provide against unforeseen changes, and some of the smaller operators quietly withdrew from business. During periods of especially rapid fluctuations imports were severely restricted to immediate needs. Similarly, Curtis and White found that bankers charged an extra 3 per cent interest to cover fluctuations.[31]

The hindrances which the rising exchange rate placed in the way of the import trade retarded progress in those backward areas of the Mexican economy which needed new tools, new machines, and new ideas from the outside world. Mexican subsistence agriculture (the production of food products for local consumption) wallowed in a chronic depression during most of the nineteenth century and needed every possible improvement: higher prices for farm produce, more and better trained farmers, machinery, blooded livestock, irrigation, transportation to market, capital for expansion, and even land itself for the small farmer. It seems clear that farm prices rose fairly steadily from 1870 to 1910, but any judgment as to the exact amount is subject to the vagaries of Mexican statistics, and the credit must be shared by many other factors than currency inflation, including the suppression of disorder and the building of railroads.[32] It is equally clear that land values rose along with farm prices, and, since the government's land

30 United States Department of State, *Reports from the Consuls of the United States on the Commerce, Manufactures, etc., of Their Consular Districts* (Washington: Government Printing Office, 1881–), No. 122 (November 1890), pp. 541–43.

31 Viollet, *Le problème de l'argent*, pp. 90–109; Pablo Macedo, *La evolución mercantil. Comunicaciones y obras públicas. La Hacienda pública. Tres monografías que dan idea de una parte de la evolución económica de México* (México: J. Ballescá y cª. sucesores, 1905), pp. 121–24; [Carden], *Report on the Effect of Depreciation*, pp. 10–12; Curtis and White, *Free Silver in Mexico*, pp. 121–22. In 1894 a St. Louis merchant returned from a visit to Mexico and reported that $7,000,000 worth of orders had been canceled during the last three months because of currency fluctuations. Samuel Leavitt, "India Silver, Wheat and Cotton," *The Arena*, X (1894), 197–98.

32 Fernando González Roa has prepared an elaborate table of price rises between 1887 and 1911 in foods of prime importance. Fernando González Roa, *El problema ferrocarrilero y la Compañía de los Ferrocarriles Nacionales de México* (México: Carranza e Hijos, 1915), table opposite p. 84. However, he attributed the rise primarily to the new railroads. See especially, pp. 82–88, *et passim*. See also Hegemann, *Mexikos Übergang*, pp. 65, ff. For food prices in 1896 in Mexico City and Durango see Curtis and White, *Free Silver in Mexico*, pp. 28–29.

policy worked against the small farmer throughout this period, he must have found it more difficult than ever to prosper and increase his acreage.[33]

As for the other needs of agriculture, inflationary conditions may have helped to attract foreign capital for irrigation, railroads, and large-scale operations, but these benefited few small farmers. Instead, the rising prices of foreign machinery confirmed them in their backward and wasteful methods: in the twentieth century the typical Mexican peon was still scratching away at his land with a wooden plow, utterly dependent upon the local corn harvest and only a stone's throw from famine.[34] It has been estimated that in 1910 the Mexican people needed an annual corn supply of 50,000,000 hectoliters (about 142,000,000 bushels), and although they produced 60,000,000 hectoliters in a normal year, they had to import in abnormal years.[35] Like any other import, this foreign corn had to be paid for in gold currencies, and despite the railroads, it was rarely distributed speedily enough to prevent suffering.

If anything, the urban proletariat gained less from the fall of silver than the small farmer. Long before 1870 the stinking misery of the poorer *barrios* of Mexico City rivaled any slum in Europe, and only the inadequacy of available statistics hid from the Mexicans the unhappy truth about drunkenness, prostitution, and crime in their capital and other large cities. Repeatedly nineteenth-century travelers observed that neither Chinese nor Japanese would settle in Mexico because the low native standard of living made it impossible for them to compete. Thus one cannot blame starvation and slums upon the fall of silver. Indeed, the inflationary conditions raised some wages, especially in areas where mining operations suddenly expanded, or where railroad construction exhausted the local labor supply. As a result, during the depression years after 1893 Curtis and White found that many Ameri-

33 The average value of uncultivated lands rose 38 per cent from 1863 to 1893. There were similar rises in urban rentals. Viollet, *Le problème de l'argent,* pp. 63–64. For a discussion of the connection between railroads and land prices see González Roa, *El problema ferrocarrilero,* pp. 58–63, 70–78, *et passim.* The repressive Díaz land policy and its effects are amply described in George McCutchen McBride, *The Land Systems of Mexico* (New York: American Geographical Society, 1923); Helen Phipps, *Some Aspects of the Agrarian Question in Mexico: A Historical Study* (Austin, Texas: University of Texas Press, 1925); and Nathan L. Whetten, *Rural Mexico* (Chicago: University of Chicago Press, 1948).

34 Whetten, *Rural Mexico,* p. 245. As late as 1940, after three decades of revolution and agrarian reform, 65.7 per cent of small farmers in Mexico (with holdings of less than five hectares) used wooden plows.

35 Doheny Research Foundation, "Mexico, an Impartial Study," undated typewritten manuscript, Los Angeles Public Library, II, 2–23.

cans, especially railroadmen, crossed the border to work in Mexico at the relatively high wages offered to foreigners (but not to Mexicans), hoping to save enough of the cheap pesos to overcome the unfavorable rate of exchange when they eventually returned home. Few intended to live in Mexico permanently.[36]

If foreign laborers occasionally profited from the rising wages, the Mexican Indian usually did not. It was true, as Mexican apologists put it, that the Indians had few wants and almost never purchased imported goods, which had shown the greatest rise in prices.[37] The real injustice to native labor, however, lay in the postponement of *potential* advances, for a higher standard of living presumed a greater consumption of a greater variety of articles, including imports, and this, in turn, presumed a great general rise in real wages. One of the Chicago reporters hit the nail on the head when he wrote:

> Being paid for with foreign money, this increase [in export] naturally has added to the wealth of the country. That wealth has been divided between the owners of the land, the middlemen, the commission houses and the banks. The laborer has received none of it. It has made the rich richer, and the poor poorer by comparison, for there are only those two classes in Mexico, and the gulf that divides them is becoming wider every day. The capitalist pays the same wages to the laborer that he paid ten years ago, but he sells the results produced by that laborer for twice as much as he received for them.[38]

This, then, was the true answer to claims made by Carden and other foreigners concerning the inflationary stimulus to foreign trade. If labor and other undernourished parts of the economy and the society could wait, benefits might trickle down to them. But could they wait long enough without giving way to social revolution?

The foreign-owned railroad companies were also forced to wait for future benefits at the expense of present hardships, although their position was not so desperate as that of the half-starved Indian. They received nothing but silver from their customers, but although they

[36] Interview of Hubert Howe Bancroft in San Francisco *Chronicle,* March 22, 1884; Curtis and White, *Free Silver in Mexico,* pp. 6–7, 28, 35, 37, 81. These interviews also pointed out that Mexican laborers were always anxious to work for Americans or in the United States.

[37] A good example of the official point of view is Matías Romero, *Mexico and the United States: A Study of Subjects Affecting Their Political, Commercial, and Social Relations, Made with a View to Their Promotion* (New York: Putnam, 1898), pp. 528–31, 538–39.

[38] Curtis and White, *Free Silver in Mexico,* p. 129. Many wage increases were due to a temporary rise in the demand for labor, and the average wage increase in mining, 27 per cent, was well below the rise in exchange. Viollet, *Le problème de l'argent,* pp. 86–87. In the end the government recognized these conditions, as is shown in the report of the monetary commission of 1903. Kemmerer, *Modern Currency Reforms,* pp. 500–1.

could use this silver to pay wages and buy local supplies, they had to purchase foreign exchange in order to buy rails, rolling stock, and even fuel, for Mexico lacked first-rate coal. Worst of all, many of their securities specified payment in gold-based currencies. Carden argued consistently that the railroads would eventually profit from the increasing traffic in sugar, coffee, copper, lead, and other exports, but the companies had to meet their immediate needs with higher rates, and the steady draining away of foreign exchange nearly bled them white.[39]

The plight of the government was not unlike that of the railroads, for it collected taxes in silver while servicing many of its foreign debts in gold currencies, and it suffered from further complications. For one thing, it entered the crisis period with a huge foreign debt, amounting to over 75,000,000 pesos in 1873.[40] Then it had to purchase enough of the nation's silver output to keep the mining industry going and to maintain two sets of pesos, for internal and external payments. Also, as the irregularities of the import trade affected customs receipts, and as railroad subsidies and other new expenses increased, the government continued to borrow money abroad. In 1902 the foreign debt equalled 238,960,000 pesos, payable in gold and bearing 5 per cent interest.[41]

Carden assured the officials that in the long run the natural progress of the country, reinforced by rapidly expanding export agriculture, must inevitably increase imports and customs receipts and pay off the debt.[42] Unfortunately for a debt-laden government, the short run was all-important. Between 1890 and 1894 a sharp rise in the exchange rate and the world-wide depression forced the government to the very brink of repudiation and bankruptcy.[43] Piloted by a new finance minister, José Y. Limantour, the government managed to ride out the storm, but only by practicing strict economy and finding ways to tax nearly everyone who had any money. High tariffs continued, and in 1902, as a special precaution, the government placed customs duties on a sliding scale, to rise and fall with the exchange rate.[44]

39 Viollet, *Le problème de l'argent*, pp. 78–83; Jaime Gurza, *La política ferrocarrilera del gobierno* (México: Tip de la Oficina impresora de estampillas, 1911), pp. 42–56; [Carden], *Report on the Effect of Depreciation*, pp. 13–16.

40 The Treasury announced the figure of 76,451,163.19 pesos in 1873, but this did not include an issue of government bonds sold in the United States. Edgar Turlington, *Mexico and Her Foreign Creditors* (New York: Columbia University Press, 1930), p. 187.

41 Bernstein, "Mexican Mining Industry," I, 344–49; Kemmerer, *Modern Currency Reforms*, p. 474.

42 [Carden], *Report on the Effect of Depreciation*, pp. 4–10.

43 In the Treasury accounts the figures for "premiums and other expenses," including foreign exchange, rose from $2,300,000 in 1890/91 to $4,500,000 in 1893/94. Hegemann, *Mexikos Übergang*, p. 96.

44 Díaz Dufoo, *Les finances du Mexique*, pp. 63–64 ff.; Hegemann, *Mexikos Übergang*, pp. 98–99. Kemmerer, *Modern Currency Reforms*, p. 476.

III

Clearly the silver crisis affected each part of the Mexican economy differently, and immediate and long-run consequences were seldom the same. Where American direct investments were concerned, at least two distinguishable types of effects might be expected from the fall of silver and of the peso. In all cases where dividends or interest had to be paid abroad in dollars or pounds, the rising exchange rate would probably subtract from the eventual payments. However, in certain fields, such as real estate, grazing, tropical agriculture, mining, and petroleum, this adverse effect would be wholly or partly offset by the benefits of paying for local expenses in silver and selling abroad for gold. Thus in these fields, accounting for about 28.8 per cent of all American investments in Mexico in 1911, the net effect of the silver crisis would often be favorable. On the other hand, in the case of railroads, which alone constituted almost 61.7 per cent of all American investments in 1911, the net effect might be expected to be unfavorable, without any mitigating circumstances. As for the remaining fraction, either the effect of the silver crisis was doubtful or the amount involved was negligible.[45]

An examination of some of the principal American petroleum, mining, and railroad investments is in order, to see if existing evidence confirms the expected effects. The most dramatic and best-known American "success story" in twentieth-century Mexico is that of Edward L. Doheny, the oil promotor. In 1900, after making a fortune out of oil fields in southern California, Doheny, with his partner C. A. Canfield,

[45] American investments in Mexico, 1911 [a]

Government bonds	$ 52.0 million
Railways	644.3
Mining and smelting	249.5
Real estate	12.2
Livestock	9.0
Manufacturing	11.4
Banks	30.6
Stores	4.5
Petroleum	15.0
Rubber industry	15.0
Public utilities	0.8
Theaters and hotels	0.3
Total	$1,044.6 million

[a] Figures do not include small additional amounts for houses, personal property, professional, insurance, and institutions. Source: William H. Seamon's estimate in Lewis, *America's Stake in International Investments,* p. 614.

turned to Mexico. Four barren years nearly bankrupted the two, but in 1904 and 1907 gushers proved the accuracy of their prospecting, and from 1907 to 1910 their Mexican Petroleum Company paid dividends totaling 27 per cent on a capital of over $30,000,000.[46] Perhaps it might be objected that this and other oil companies cannot serve as valid examples of success during the silver crisis, since the Mexican government had adopted a single gold standard in 1905, before the industry was well established. Nevertheless, the Mexican Petroleum Company and its imitators prospered far beyond their original expectations even during the tumultuous period after 1910, when currency conditions were as undependable as before 1905 and political conditions far more so. In the end, the only factors that halted prosperity in the oil industry were failing oil wells and the threat of government expropriation.

Turning from petroleum to various types of mining, one finds an occasional example of success but few spectacular strikes, since the revived Mexican mining industry concentrated on widespread deposits of low-grade ores. Undoubtedly the most consistently successful American mining venture was the great chain of mines and smelters controlled by the family of Meyer Guggenheim, beginning about 1890, and finally organized as the American Smelting and Refining Company ("ASARCO"). By 1911 ASARCO and its affiliates were firmly entrenched in Mexico, and their smelters blanketed the northern states, so that they could often dictate smelting rates to all but the largest mining companies. One of their mines alone, the Esperanza in Michoacán, was yielding dividends of 160 per cent three years after its acquisition in 1903. As for ASARCO's total returns, it is nearly impossible to divide the profits by country, since the company operated across several national boundaries, but there is no doubt that Mexican interests contributed heavily to these profits down to 1912. In 1914 the company reported that since 1900 it had paid out dividends totaling $104,322,169.67.[47]

A number of other American mining companies also made substantial returns on somewhat smaller capital. In several states of northern Mexico Robert S. Towne built up a combination of profitable mines, smelters, and short railroads, and when he died in 1916, he left an

46 Fritz L. Hoffmann, "Edward L. Doheny and the Beginnings of Petroleum Development in Mexico," *Mid-America*, XXIV (new series, XIII) (Apr. 1942), 94–108. *The Mexican Year Book, a Financial and Commercial Handbook, Compiled from Official and Other Returns*, 1912 (México, 1912), p. 164.

47 Bernstein, "Mexican Mining Industry," I, 389–401, 435–52. American Smelting and Refining Company, Inc., *Sixteenth Annual Report* (1914), p. 8.

estate of almost $2,500,000. In Sonora the Moctezuma Copper Company, a subsidiary of Phelps, Dodge and Company, distributed dividends totaling 153 per cent on a capital of $2,600,000 between 1902 and 1910. Likewise, between 1903 and 1910 the Mines Company of America, controlling several rich subsidiaries, issued dividends of $3,500,000 on its capital of $2,000,000. From 1906 to 1910 the Guanajuato Development Company paid 30 per cent on preferred stock.[48] During the early years of the new century the grandiloquent publicity of Colonel William C. Greene made it seem almost as if the millennium had arrived in Sonora, and indeed from 1901 to 1907 his Greene Consolidated Copper Company declared dividends which totaled 71 per cent, but his other business methods did not keep pace with his advertising, and impending bankruptcy forced him to sell out. However, there is no evidence that the fall of silver contributed to his troubles.[49]

The dividends of these few American mining companies in Mexico are the only large ones listed by two standard business handbooks of the period, *Moody's Manual of Railroads and Corporate Securities* and *The Mexican Year Book*. There cannot have been many more. On the other hand, since a successful business often attracts more attention than a failure, we shall probably never have even an approximate idea of how many American mining companies quietly succumbed. Outside of mining, almost no American corporations are listed as declaring regular dividends before Mexico went on the gold standard in 1905. Of these companies only one, the Mexican Telegraph Company, would compare favorably with the richest mining companies. It declared dividends totaling 355 per cent of its capital of $3,589,400 between 1882 and 1910.[50]

[48] *Mexican Year Book,* 1912, pp. 161, 165–66. Bernstein, "Mexican Mining Industry," I, 472–79. An even greater return was that of the Compañía Minera de Peñoles, which for a time issued dividends of 100,000 pesos per month of a capital of 250,000 pesos. Eventually the capital was increased by stages to 4,000,000 pesos, but the dividends continued high until 1911. See Bernstein, I, 502–4.

[49] *Moody's Manual of Railroads and Corporate Securities,* 1912 (New York: Moody Manual Co., 1912), pp. 4001–2; Marvin D. Bernstein, "Colonel William C. Greene and the Cananea Copper Bubble," *Bulletin of the Business Historical Society,* XXVI (Dec. 1952), 179–98.

[50] Other American companies, not mentioned above, which yielded considerable dividends: Guanajuato Power and Electric Company, 37.5 per cent (1909–1910); German-American Coffee Company, 10 per cent (1905); Intercontinental Rubber Company, 20.95 per cent (1907–10); International Lumber and Development Company, 59 per cent (1905–10); Mexican Telephone and Telegraph Company, 45 per cent (1906–10); and United States and Mexican Trust Company, 36.75 per cent (1906–10). Of these only the Intercontinental Rubber Company was capitalized at more than $10,000,000. *Mexican Year Book,* 1912, *passim.* These entries cannot be relied on for complete or exact information, both because considerable American capital may have been invested in foreign-controlled companies, and because there is no way of checking the accuracy of the figures.

Three northern railroads which connected the United States with central Mexico: the Mexican Central, the Mexican National, and the Mexican International, might be taken as examples of transportation. Before Doheny "brought in" his gushers, these three lines were the principal monuments to American capital in Mexico. Organized in the 1880's, the first two companies both ran short of funds in 1885 and 1886, and the economist David A. Wells branded them as failures.[51] The Mexican National Railroad confirmed his judgment by undergoing two reorganizations in 1887 and 1902, but the third management had more success than its predecessors, and between 1906 and 1908 the company declared dividends totaling 4 per cent.[52] The Mexican Central Railroad remained under its original management, closely affiliated with the Atchison, Topeka and Santa Fe Railroad in the United States, but its annual reports over a period of more than twenty years do not mention the word "dividend." Exploiting the Coahuila coalfields through subsidiaries and carrying coal and cotton, the Mexican International Railroad earned small annual profits around the turn of the century, but here again there is no evidence that the company declared any dividends.[53]

No sensible person would try to blame the feeble record of these northern railroads on one set of causes alone. Doubtless the many difficulties of operating in a semitropical country, badly chosen routes, and perhaps also unwise management did their share to reduce profits. But certainly one of the most insidious handicaps was the rising exchange rate, for the railroads had constantly to convert pesos into dollars or pounds in order to buy supplies abroad, repay debts, or issue dividends. In 1891, just before Carden predicted a rosy future for the railroads, the Mexican National and the Mexican Central paid out 64,745 pesos and 446,841 pesos respectively for foreign exchange. In 1900 the figures stood at 2,021,262 pesos and 2,901,371 pesos, and by 1902 the Mexican Central was paying 4,138,749 pesos. Expressed in silver money, the net profits of the Mexican Central rose from 2,961,267 pesos in 1892 to 5,961,606 in 1902, but expressed in dollars at the current exchange rate, the profits rose only from $2,021,515 to $2,513,384.[54]

After 1902 the anemic railroads succumbed to the rising force of

[51] *The New York Times,* January 27, 1886.

[52] Fred W. Powell, *The Railroads of Mexico* (Boston: The Stratford Co., 1921), pp. 134–35; *Moody's Manual,* 1908, p. 512.

[53] British lines did not have a much better record except for the Mexican Railway, whose history is briefly summarized in Hegemann, *Mexikos Übergang,* pp. 120–29.

[54] Gurza, *La política ferrocarrilera,* pp. 42–47.

Mexican nationalism. Throughout the preceding decade the Mexican government had shown an increasing disposition to intervene and regulate railroad affairs. In 1902, alarmed at the trend toward monopoly in the United States, Limantour decided to act in order to prevent an American merger. The financial weakness of the northern lines and of the British-controlled Mexican Interoceanic Railroad gave him the needed opening, and between 1903 and 1906, by a series of shrewd deals, the government bought up controlling shares of stock in the Interoceanic, the National, and finally the Central. Three years later the government announced the formation of a unified system, the National Railways of Mexico, to be operated by a private company in which the government owned a little over half of the 460,000,000 pesos of stock issued. Soon this company took over the Mexican International Railroad as well.[55] During the first three years of operation the first preferred stock of this company earned dividends of from about 2 to 4 per cent, but as a result of revolutionary damage and mismanagement after 1914 it built up a towering deficit.[56]

Other American-owned railroads did not suffer so obviously from the expense of foreign exchange. Indeed, the Mexican Northern Railroad actually paid dividends of from 2 to 6 per cent from 1881 to 1910 and after, but it was a part of Robert S. Towne's mining syndicate and thus enjoyed a guaranteed traffic and perhaps also friendly bookkeping.[57] On the west coast the Southern Pacific Railroad gained control over an unprofitable short line in Sonora and between 1900 and 1910 extended it down the coast as the Southern Pacific of Mexico. For a few years after its incorporation in 1909 it earned small profits, but like the National Railways it was ruined by the revolutions of 1911–1920.[58]

IV

Thus between 1870 and the opening years of the twentieth century the fall of silver and of the peso would seem to have played at times a

[55] Gurza, *La política ferrocarrilera*, pp. 62–86, 115 ff., *et passim;* González Roa, *El problema ferrocarrilero*, pp. 123 ff.

[56] Osgood Hardy, "The Revolution and the Railroads of Mexico," *The Pacific Historical Review*, III (Sept. 1934), pp. 258–60.

[57] *Moody's Analyses of Railroad Investments, Containing in Detailed Form an Expert Comparative Analysis of Each of the Railroad Systems of the United States*, 1912 (New York: Analyses Publishing Co., 1912), p. 595; Bernstein, "Mexican Mining Industry," I, 476–79.

[58] David M. Pletcher, "The Development of Railroads in Sonora," *Inter-American Economic Affairs*, I (Mar. 1948), 28–35, 38–39; Hardy, "The Revolution and the Railroads of Mexico," pp. 254–55.

decisive role in determining the prosperity of various parts of the Mexican economy and the returns on the principal American investments in Mexico. The Mexican government finally took several measures in an attempt to arrest the fall of the peso and to peg it to an unwavering exchange rate.

For a long time after the beginning of the silver crisis the Mexican government hesitated, unwilling to act. In 1883 President Manuel González tried to improve the minor coinage by replacing the battered copper pieces with new ones struck from a copper-nickel alloy by concessionaires. Unfortunately the Treasury dumped too many of the new coins on the market at once. A ruinous inflation followed, which bore especially heavily on the poor, and late in the year a Mexico City mob stoned the National Palace. President González faced the rioters bravely, but he recognized the making of a revolution, and a few days later he began to withdraw the despised coins.[59] Having burned his fingers on centavos, González let pesos alone for the rest of his term of office.

During the next twenty years Mexico's perennial dictator, Porfirio Díaz, and his finance ministers twisted and turned like Laocoön in their efforts to break away from the coils of depreciation without giving up bimetallism. For a time they hoped in vain that Britain and the United States would agree on an international bimetallic system, but in the 1890's it became increasingly clear that Mexico would have to choose between bimetallism and gold and simply endure whatever hardships the chosen system imposed. Furthermore, the defeat of Bryan in 1896 and the American Currency Act of 1900 indicated what must be her choice. During 1903 Mexico and China made a last effort to persuade the American government to join in fixing a common stable ratio between gold and silver. At about the same time most of Mexico's monetary experts gathered together for a full-dress conference and very reluctantly decided that Mexico must adopt the gold standard. Members objected that the expense would bankrupt the government, and that a sudden change would ruin heavily mortgaged henequen planters, but most of the delegates seem to have been more impressed by the dangers of staying on a dual standard: the heavy burden on the budget, the draining away of Mexican resources, and the fear lest inflation drive away foreign capital.[60]

[59] Salvador Quevedo y Zubieta, *Manuel González y su gobierno en México, Anticipo a la historia de un presidente mexicano* (3d ed.: Madrid: Espasa-Calpe, S.A., 1928), pp. 231–48; José C. Valadés, *El porfirmismo, historia de un régimen: El nacimiento, 1876–1884* (México: José Porrua e Hijos, 1941), pp. 109–15.

[60] Kemmerer, *Modern Currency Reforms,* pp. 487–88, 495–518.

Consequently the conference ended by authorizing Finance Minister Limantour to make the change at any time he deemed best. Late in 1904 he took advantage of a temporary rise in silver to send a reform bill to Congress, fixing the value of the standard silver peso at 75 centigrams of pure gold or half as much as the American dollar. Early in the following year when the law went into effect, both gold and silver pesos were made legal tender, and a special committee was set up to supervise the change and issue new fractional currency based on gold.[61]

The immediate consequences of the currency reform seemed to fulfill all Mexican hopes. Most observers agreed that the definition of silver values in terms of gold, together with the strict limitation of silver coinage to actual needs, benefited Mexico by preventing the former wild fluctuations in the foreign exchange rate, although the price of silver fell again after 1905. It was expected that the abandonment of the silver standard would produce a temporary depression in the silver industry, but happily this did not materialize. For two years, until the depression of 1907, more capital than ever flowed into Mexico from the United States and Europe. Charles E. Pepper, a commercial expert, surveying Mexican trade conditions for the American government in 1906, praised the newly gained financial stability and even suggested that the currency reform might soon lead to increased wages and buying power for the lower classes.[62]

To be sure, a few skeptics blinked unbelievingly at the spectacle of order arising out of monetary confusion. Mexican critics complained that the law concentrated too much power in the hands of the special committee, which ordered large amounts of gold coins from abroad and also melted down many of the old pesos to make fractional currency. Somewhat later a prominent American banker, Walter F. McCaleb, called the gold standard law a blunder. He pointed out that in order to maintain a parity between the peso and the dollar, Limantour needed large balances in New York. These could be obtained

[61] Walter Flavius McCaleb, *The Public Finances of Mexico* (New York: Harper & Brothers, 1921), pp. 175–76; Díaz Dufoo, *Les finances du Mexique,* pp. 142–57. Martínez Sobral, *La reforma monetaria,* pp. 122–31; *Opiniones sobre la cuestión monetaria presentadas a la junta directiva de la Sociedad agricola mexicana por algunos de sus miembros* (México, [1903]), *passim.* For the text of the law see Manuel Dublán and José María Lozano, eds., *Legislación mexicana o Colección legislativa completa de las disposiciones legislativas expedidas desde la independencia de la República* (50 vols.: México, 1876–1912), XXXVII, Part I, pp. 348–55.

[62] Quintana, *Los ensayos monetarios,* pp. 93–100; México, Comisión de cambios y moneda, *Memoria de la Comisión de cambios y moneda que comprende el período trascurrido de 1.º de mayo de 1905 a 30 de junio de 1909* (México: Tip. de Müller hnos., 1909), pp. 9–10, 12–20; United States, 59th Congress, 1st Session, *Senate Document 246:* Charles M. Pepper, *Report on Trade Conditions in Mexico* (Washington: Government Printing Office, 1906), pp. 9–12.

only by grants of credit which, in turn, depended on public confidence in Mexican stability. Since stability had been one of the main goals of the original measure, Limantour had really erected a huge circular structure of causes and effects which would topple with the first political shock. Finally, added McCaleb, "the flight of silver from circulation left the masses in worse condition than before. It was better to have a peso with a fluctuating purchasing power than to have no peso at all." [63] However, most Americans welcomed the 1905 law.

After only about six years under the new law, Limantour saw the results of his work dashed to earth by a political revolution that overthrew Porfirio Díaz and became a far-reaching social cataclysm. Beginning in 1911, the value of the peso spiraled downward again, while civil war wrecked the tidy economy which Limantour had created.[64] More than fifty years after the gold standard law of 1905, about all one can say of its effects is that the law came too late to safeguard the Porfirian regime, if indeed that was at all possible. On the other hand, it seems quite clear that the fall of silver and of the peso before 1905 contributed to the social imbalance that magnified the eventual revolutionary violence. To be sure, peonage, starvation wages, and most other maladjustments of nineteenth-century Mexico antedated the fall of silver, but insofar as the silver crisis rewarded large-scale miners and planters, while helping to perpetuate the poverty and squalor of the peon, it intensified suffering under the Díaz regime. At the same time it helped to attract foreign capital, build railroads, and create new industries, which revealed to the peon perhaps for the first time what he was missing and gave him a more vivid incentive to revolt.

As for American and other foreign capital, the fall of silver and of the peso created a kind of trap that promoters and a few friendly Mexicans unwittingly camouflaged with brochures and enthusiastic magazine articles.[65] During the 1880's and 1890's the cheap peso, the low wages, and the generally expanding Mexican economy offered tempting investment conditions, but although the sale abroad of raw materials such as petroleum and metals sometimes outweighed the

[63] Martínez Sobral, *La reforma monetaria*, pp. 199–200; McCaleb, *The Public Finances of Mexico*, pp. 176–83.

[64] The best account of Mexican inflation after 1911 is Edwin W. Kemmerer, *Inflation and Revolution: Mexico's Experience of 1912–1917* (London: H. Milford, Oxford University Press, 1940).

[65] As late as the 1900's, for example, such a railroad promoter as Arthur E. Stilwell was predicting that cheap Mexican labor would make profits for his Mexican railroad, although the dividend records of the Mexican Central and Mexican National Railroads furnished clear evidence of the two-edged effects of the currency inflation.

high operating costs and a rising exchange rate, investors in railroads, who held the largest block of American capital in Mexico, had reason to regret ever having heard of the country. Worst of all, the uneven distribution of the rewards of inflation increased Mexican social tension and helped to bring on the destructive revolutions which Americans should have feared above all other possible disasters.

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