

slack months when it should have been high enough to prevent the market from being demoralized, are unavoidable. But what made the contortions of the Indian money market so obnoxious was the circumstance that the seasonal fluctuations in the discount rate were so abnormal.*

The explanation for such a market phenomenon is to be sought in the irregularity of the money supply of the country. In order that money may be had at a uniform price, its supply should be regulated according to the variations in the demand for it. It is well to recognize that the demand for money is never fixed. But it will avail nothing until it is realized that the changes in the demand for money which take place from year to year with the growth of population, trade, etc., belong essentially to a different category from the fluctuations in the demand for money which occur within the course of a year owing to seasonal influences. In any well-regulated currency it is necessary to distinguish these two categories of changes in monetary demand, the one requiring steadiness and expansibility and the other elasticity. On a comparative view it seems more than plausible that a metallic money is as especially adapted to furnish this element of steadiness and stability as paper money is to furnish that of elasticity. Indeed, so appropriate seem to be their respective functions that it has been insisted† that in an ideal system, these two forms of money cannot interchange their functions without making the currency burdensome or dangerous. The proof of the soundness of this view, it may be said, is found in the fact that, excluding the small transactions which take place by direct barter, the purchasing medium of any commercially advanced country is always a compound of money and credit.

*The rate of discount of the Bank of Bengal for private paper running thirty days and after was altered—

In 1876 16 times, with 6½ per cent, as minimum and 13½ per cent. as maximum.

"	1877	21	"	"	7½	"	"	"	14½	"	"
"	1878	10	"	"	5½	"	"	"	11½	"	"
"	1879	15	"	"	6½	"	"	"	11½	"	"
"	1880	8	"	"	5½	"	"	"	9½	"	"
"	1881	9	"	"	5½	"	"	"	10½	"	"
"	1882	9	"	"	6½	"	"	"	12½	"	"
"	1883	14	"	"	7½	"	"	"	10½	"	"

(Van Den Berg, *loc. cit.*)

†Cf. Prof. R. P. Falkner in *A Discussion of the Interrogatories of the Monetary Commission of the Indianapolis Convention*, 1898, Publications of the University of Pennsylvania in Political Economy and Public Law, No. 13, pp. 25-26.

On the face of it, the Indian currency is also a compound of money and credit, and as such it may be supposed that it contained provisions for expansibility as well as elasticity. But when we come to analyse it we find that it makes no provision whatever for elasticity. Far from allowing the credit part of it to expand and contract with the seasonal demands, the Paper Currency Act placed a rigid limit upon the volume of its issue regardless of any changes in the volume of the demand. Here, then, is to be found one of the causes for the “convulsions” in the discount rates prevalent in the Indian money market. As was pointed out by Mr. Van Den Berg :—

“The paper currency established by the Indian legislator fully answers the purpose, so far as business requires an easier means of exchange than gold or silver coin ; but no connection whatever exists between the issue of the fiduciary currency and the wants of the public to have their bills or other commodities converted into a current medium of exchange..... and this is the sole cause of the unexpected convulsions and sudden transitions in the money market so utterly detrimental to business to which the British Indian trade is constantly exposed.”*

It may, however, be objected that such a view is only superficial. The Indian Paper Currency Act is a replica of the English Bank Act of 1844 in all its essentials. Like the English Bank Act, it set a definite limit to the fiduciary issue of notes. Like it, it separated the Issue Business from the Banking Business,† and if it made the banks in India mere banks of discount, it is because it copied the Bank Charter Act, which deprived banks in England, including the Bank of England, from being banks of issue. And yet, it cannot be said that the English money market is affected by such “convulsions and sudden transitions” as has been the case with the Indian money market.

* Op. cit., p. 7.

† The Indian Paper Currency Act carried the principle of separation further than did the English Bank Charter Act. It not only prevented the Issue Department being conducted under the aegis of a Banking Department, but also disallowed the two being housed under the same roof. Such an ideal of separation was held out by Sir Charles Wood during the debate on the Bank Charter Act. Cf. *Hansard Parliamentary Debates*, Vol. LXXIV, p. 1363. Though he was then disappointed he did not fail to realize his ideal when he became the Secretary of State for India.

On the other hand, it was the considered opinion of Jevons* that “the Bank of England and bankers generally have just the same latitude in increasing or diminishing their advances now (i.e. under the Act of 1884) as they would have under a [n un] restricted system”; for, as he elsewhere argued, if the limitation on fiduciary issue is arbitrary, and if people want more money, “it is always open to them to use metallic money instead. The limitation is imposed not upon money itself, but upon the representative part.”† What, then, is the reason that the Indian Paper Currency Act should produce the evils which its English prototype did not? *A priori* there need be no such convulsions in a money market subject to such law. The Act, by limiting the issue of notes, did seem to leave no choice but to use metallic money even for seasonal demand. This would be true if notes were the only form in which credit could be used. As a matter of fact, this is not so. Credit could take the form of a promise to pay, issued by a bank, as well as it could take the form of an order on the bank to pay, without making any difference to the social economy of the people who used them. Consequently, if under the provisions of the Act banks are restricted from issuing promises to pay, it does not follow that the only way open to them is a resort “to use metallic money instead,” for they are equally free to consent to honour as many orders to pay as they like. Indeed, the success or failure of the Act depends upon which of the two alternatives the banks adopt. It is obvious that those who will submit to the ruling of the Act and resort to metallic money will have to bear the “convulsions,” and those who will circumvent the Act by utilizing other forms of credit will escape them. The chief reason, then, why the Act has worked so well in England and so badly in India, is due to the fact that, whereas English banks have succeeded in implanting the order or cheque system of using credit in place of the note system, Indian banks have unfortunately failed. That they should have failed was however, inevitable. A cheque system presupposes a literate population, and a banking system which conducts its business in the vernacular of the people. Neither of these two conditions obtains in India. The

*Cf. his Essay on the “Frequent Autumnal Pressure in the Money Market and the Action of the Bank of England,” *Investigations in Currency and Finance* (ed. Foxwell), 1884, p. 179. Italics by Jevons. There is, however, an apparent misprint in the original, which at the close of the quotation reads “as they would have under a restricted system.”

† *Money and the Mechanism of Exchange*, Kegan Paul, London, 1890, p. 225.

population is mostly illiterate, and even were it otherwise it could not have availed itself of the cheque system, because Indian banks refuse to conduct their business in any other medium but English. Besides, the growth of the cheque system presupposes a widespread network of banks, a condition which is far from being fulfilled in India. In the absence of banking, a cheque is the worst instrument that could be handled. If not presented within a certain time, a cheque may become stale and valueless, and is therefore inferior to a note as a store of wealth. In such circumstances as these, it is no wonder that in India cheques did not come into being on a sufficiently large scale to amend the inelasticity of the notes.

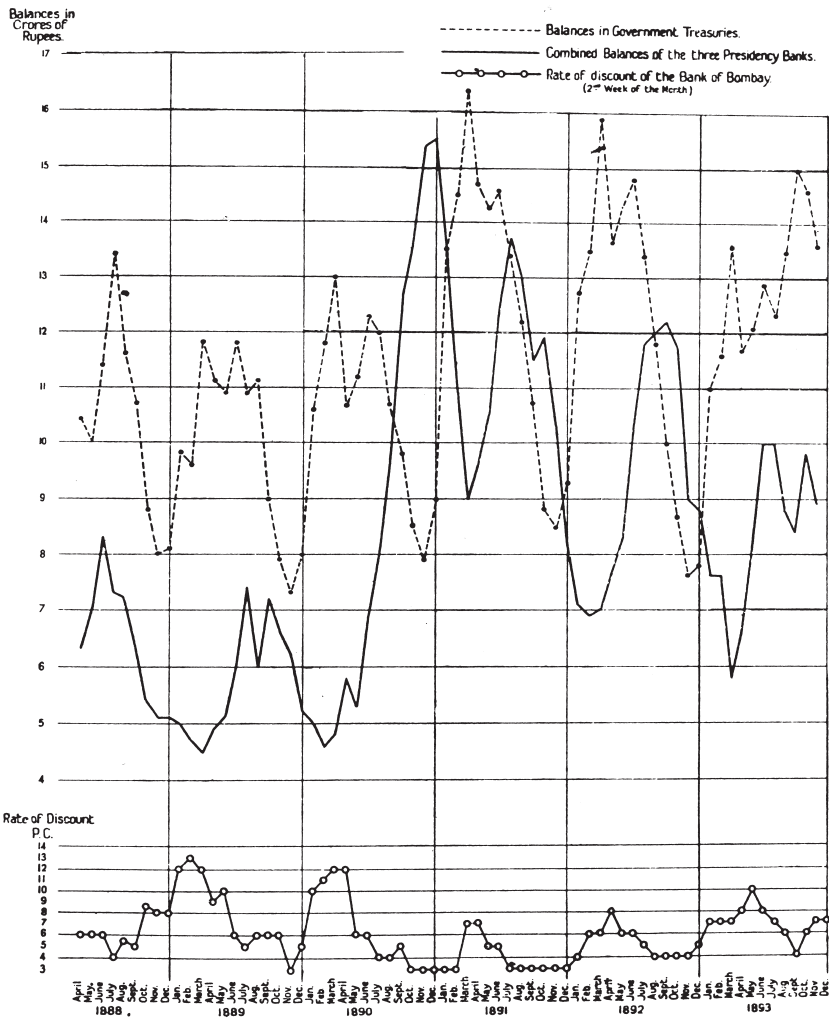
But even if Indian banks had succeeded in making use of credit in a form other than that of notes, they could not have eased the money market to the same extent as the English banks have been able to do. One of the incidents of banking consists in the liability of banks to pay cash on demand. If all their deposits were received in cash this liability would involve no risk. As a matter of fact, a larger part of their deposits consists of bills which they make it their business to undertake to pay in cash. One of the first things, therefore, that a banker has to look to is the proportion which his cash deposits bear to his credit deposits. Now, this proportion may be adversely affected either by an increase in his credit deposits or by diminution in his cash deposits. In either case his ability to pay cash is *pro tanto* weakened by lowering the ratio of his total cash to his total liabilities. Against an undue expansion of credit a banker may effectually guard himself. But, notwithstanding the development of the cheque system, there is always lurking the possibility of withdrawal of some cash at some time or other. A banker must, therefore, provide by keeping on hand a certain minimum reserve. How large should be the reserve depends upon what the possibilities for the withdrawal of cash are. The point is that to the extent of the reserve the power of the bank to grant credit is curtailed. If the reserve of the bank is already at the minimum it must stop discounting or must strengthen its position by recovering the cash withdrawn from its coffers. Now, it is obvious that if the amount of money withdrawn is kept in the current of business where the banks can get at it, they of course can strengthen their position again immediately, and not only always keep themselves well away from the danger line of minimum reserve, but be always prepared to meet the needs

of the money market. What was the position of the Indian banks from this point of view? Owing to the absence of a cheque system the possibilities for the withdrawal of cash are great, and the reserve was required to be large in consequence thereof. A large part of their funds being thus held for a reserve, their resources for discounting were small. But there was a further weakening of their position as lenders by reason of the fact that the cash withdrawn did not speedily return to them. The result was that the Indian banks were obliged to curtail their discounts to a far greater extent than were the English banks, in order to preserve a due proportion between their cash and their credits. The absence of branch banking was an important desideratum in this regard. But, even if there were branch banks, the money withdrawn could not have returned, for it was not left in the current channels of business. It was locked up in Government treasuries, whose operations were independent of the banking transactions of the country. Of course, there could be nothing inherently wrong in the maintenance by a Government of an Independent Treasury, and if its operations were to have a resultant connection with the operations of the business community no harm need arise. But the operations of the Indian Treasury ran counter to the needs of business. It locked up when it should have released its hoards, and released its hoards when it should have locked them up.

The causes that “convulsed” the Indian money market had therefore been the inelasticity of the credit media and the working of the Independent Treasury System in so far as they were the prime factors affecting the money supply of the country (see Chart I). The evil effects of such convulsions of the discount rate can hardly be exaggerated.* In an economy in which almost every business man must rely, at certain seasons, if not all the year round, on borrowed capital, the margin of profit may be wiped out by a sudden rise or augmented by a sudden fall in the rate of discount leading to under-trading or over-trading. Such fluctuations increase business risks, lead to higher business expenses and a greater cost to the consumer. They bring about swings in prices, promote speculation, and prepare

*For American experience, cf. E. W. Kemmerer, “Seasonal Variations in the New York Money Market,” in *The American Economic Review*, March 1911.

CHART I DISCOUNT RATES IN INDIA



for panics. Evils such as these would have in any other country compelled the authorities to take proper steps to deal with them. But it is a curious fact that in India no serious attempts were made to alleviate the sufferings they inflicted upon the trading community. A reform of the paper currency or the abolition of the Independent Treasury System would have eased the situation, though a reform of both would have been better. The general community, however, was not desirous for a change of the paper currency,* but was anxious for the abolition of the Independent Treasury. The Government, on the other hand, refused to do away with its Independent Treasury System,† and repudiated even its moral obligation to help the business

* Cf. *India in 1880*, by Sir Richard Temple, p. 469 ; Sir Charles Wood's *Administration of Indian Affairs*, p. 89 ; also *The Indian Statesman*, January 15 (1884).

†It should, however, be noted that between 1862 and 1876, at some centres comprising the head offices and branch offices of the Presidency banks, the Independent Treasury System was suspended. By way of compensation for the loss of their right of note issue, the Presidency banks were given certain concession by the Government under agreements entered into in accordance with Act XXIV of 1861. Among the concessions one was the use by the banks of Government balances. The first agreement, that of 1862, conceded to the banks the following privileges in regard to the Government balances : (1) The unrestricted use for banking purposes " of all moneys and balances which but for the agreement would have been received or held at the General Treasury " up to the limit of 70 lakhs in the case of the Bank of Bengal, 40 lakhs in the case of the Bank of Bombay, and 15 lakhs in the case of the Bank of Madras. (2) The option of setting aside the excess over these sums in a separate strong room for production when demanded, or of investing it in Government paper or other authorized securities, the power of investment being subject to the condition that the banks should be "at all times answerable and accountable to Government for the surplus cash balance for the time being." (3) The right to interest from Government on the difference between the actual balance and 50 lakhs in the case of the Bank of Bengal, 30 lakhs in the case of the Bank of Bombay, and 10 lakhs in the case of the Bank of Madras, whenever the balances at these banks fell below these minima. (4) Permission to the banks to use the Government balances at their branches on similar terms, suitable limits being fixed in each case, as in the head office agreements.

A year after the agreements were executed, difficulties arose with the Bank of Bengal, which had locked up the funds to such an extent that it was unable to meet the demands of the Government on the public balances it held. Negotiations were therefore opened in 1863 for the revision of the agreements, and the revised agreements came into force on January 2, 1866. They contained the following provisions regarding the public balances : (1) Undertaking by Government to maintain in the hands of the banks at their head offices an "average cash balance" of 70 lakhs at the Bank of Bengal, 40 lakhs at the Bank of Bombay, and 25 lakhs at the Bank of Madras, "so far as the same may conveniently be done." (2) Permission to the banks to use the whole balances for the time being deposited with them for banking purposes. (3) The right to interest from Government when the Government balance at the head offices of the Bank of Bengal, Bank of Bombay, and Bank of Madras fell below the minima of 45 lakhs, 25 lakhs, and 20 lakhs respectively. (4) Permission to employ "the whole of the balances (at branches) however large for the time being "for banking purposes, subject to the condition that each branch should "at all times be ready to meet the drafts of the Government" to the extent of the Government balances at the branch.

community on the somewhat pedantic plea that in locking up currency it did not lock up capital.* Nor is it possible to say, since it was not called upon to enunciate a policy, how far it would have gone to modify the Paper Currency Act so as to relieve the situation. Before, however, this controversy could end in a satisfactory solution for imparting to the currency system that element of elasticity which it needed, there developed another and a greater evil, which affected its metallic counterpart in a degree sufficient to destroy its most vital element of steadiness and stability of value, which it was its virtue to furnish. So enormous did the evil grow, and so pervasive were its effects, that it absorbed all attention to the exclusion of everything else.

These revised agreements were to remain in force till March, 1, 1874. In 1874 the question of the revision of the charters of the Presidency banks was under consideration, and it was the aim of the Government to continue to the banks the right to use the whole Government balances. Just at this time (1874) difficulties occurred with the Bank of Bombay and the government could not draw upon their balances. This led to a reconsideration of the policy of merging the Government balances with the bank balances and leaving them in the custody of the banks. After a somewhat lengthy discussion the Government of India reverted to the system of Independent Treasury by instituting what were called Reserve Treasuries at the headquarters of the Presidencies which held the Government balances previously held by the Presidency banks. For a history of this episode see House of Commons Returns 109 and 505 of 1864; also J. B. Brunyate, *An Account of the Presidency Banks*, Chap. VII.

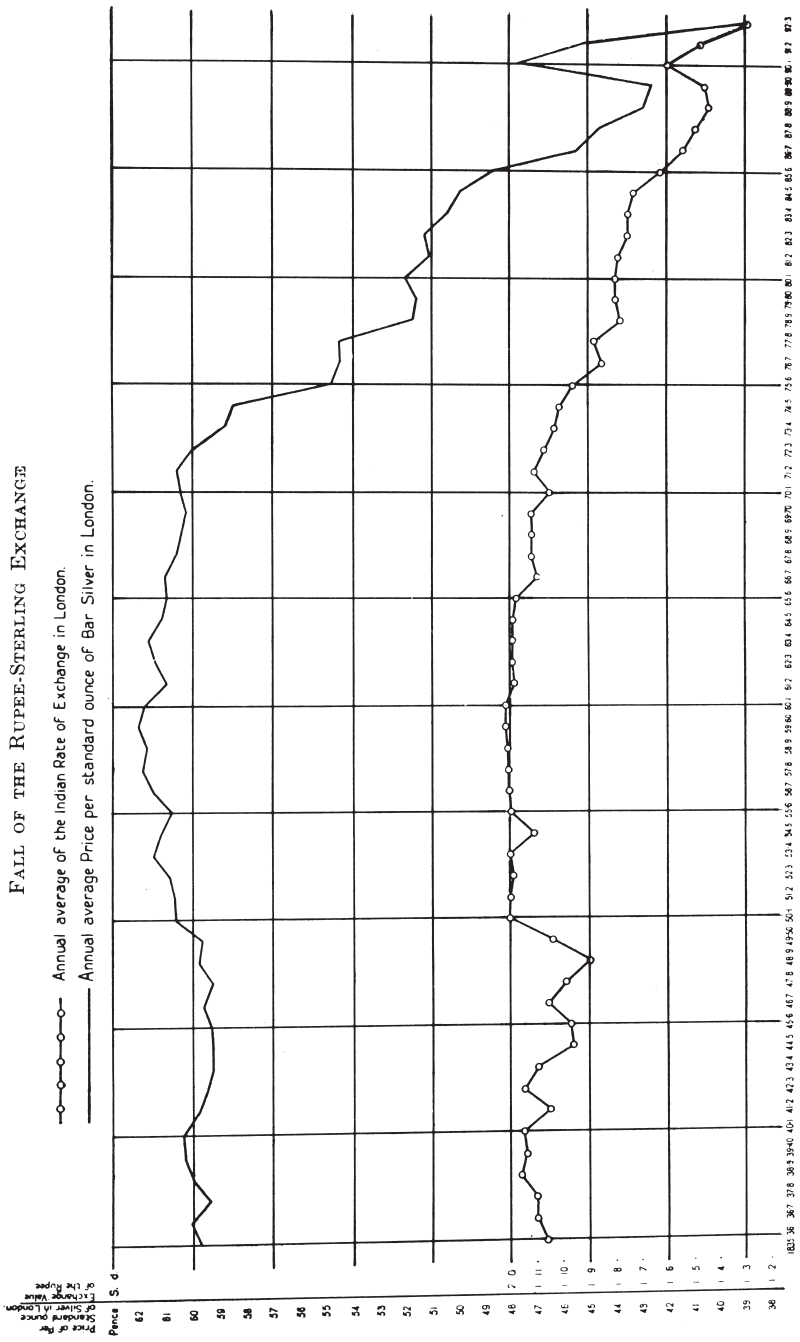
*In the despatch of May 6, 1875, sanctioning the re-establishment of the Independent Treasury System, the banks were admonished by the Secretary of State thus: "Capital supplied by Government, and not representing the savings of the community, is a resource on whose permanence no reliance can be placed, and which therefore tends to lead traders into dangerous commitments. It gives ease for a time, and produces prosperity which is at the mercy of an accident. A political exigency suddenly withdraws the adventitious resources, and the commerce which trusted to it finds itself pledged beyond what its own resources can make good." Under the arrangements of 1876 leading to the establishment of the Reserve Treasuries, the Government agreed as before to pay interest to the banks when their balances at the banks fell below certain minima. The Government entered into no formal undertaking as regards maxima, and gave the banks to understand "that the Government will ordinarily not leave with the headquarters of the banks, otherwise than temporarily, more than the following sums; Bank of Bengal 100 lakhs, Bank of Madras 30 lakhs, and Bank of Bombay 50 lakhs. But this condition will not be inserted in the contract, which will impose no obligation upon the Government to leave any balances whatever with the banks..... The Government will not undertake to give to the banks the exclusive custody of all the public balances where the Government banks with the banks." The question of the amount of balances which the Government would have with the banks in the *ordinary* course being thus settled, the only way left open to give help to the banks to meet seasonal demands was to grant loans to the Presidency banks for its balances held in the Reserve Treasuries. After 1900 it agreed to make such loans of a limited amount at the bank rate. Up to 1913 only six loans were made, which shows that the terms of such loans were rather onerous. The Chamberlain Commission of 1913 recommended loans rather than the abolition of the Independent Treasury system. The war, however, hastened the course of events. It proved the necessity of co-operation between the Presidency banks and the Government, and also the need of a large and powerful Banking Institution. This was accomplished by the amalgamation of the Presidency banks into an Imperial Bank of India (Act XLVII of 1920), with the inauguration of which the Independent Treasury system is again in the process of abolition. For a history of episodes of the Independent Treasury after 1876, see Appendices to the *Interim Report of the Chamberlain Commission*, Vol. I, Cd. 7070 of 1913, Nos. I and II.

What fixity of value between the different units of its currency is to the internal transactions of a country, a par of exchange is to its internal transactions. A par of exchange between any two countries expresses the relative exchange values of their respective currencies in terms of each other. It is obvious from this that the par of exchange between any two countries will be stable if they employ the same metal functioning as their standard money, freely convertible into and exportable as bullion, for in that case they would have as a measure of value a common medium, the value of which could not differ, given freedom of commerce, in the two countries by more than the cost of its transshipment, i.e., within specie points. On the other hand, there can be no fixed par of exchange between two countries, having different metals as their currency standards of value. In that case, their exchange is governed by the relative values of gold and silver, and must necessarily fluctuate with changes in their value relation. The limit to the exchange fluctuations between them will be as wide or as narrow as the limit to fluctuations in the relative values of the two metals may happen to be. When, therefore, two countries such as England and India are separated by differences in their metallic standards, theoretically there could be no possibility for a stable par of exchange between them. But, as a matter of fact, notwithstanding the difference in their metallic standards, the rate of exchange between England and India seldom deviated* from the normal† rate of 1 s. 10½ d. for R. 1. So steady was the rate up to 1873 that few people were conscious of the fact that the two countries had different currency standards. After 1873, however, the rupee-sterling exchange suddenly broke loose from this normal parity, and the dislocation it caused was so great and so disorderly (Chart II) that no one knew where it would stop.

*It appears, however, from the chart that the rupee-sterling exchange before 1873 was not quite stable. But the fluctuations in it are to be attributed to quite a different set of factors. It should be noted that the rates of exchange used for reducing the Indian moneys into sterling during the time of the East India Company had been various : moreover, they had so little relation to the intrinsic value of the coins exchanged that the actual rates officially given were far from the actual market rates. As having a bearing on this interesting subject, consult H. of C. Sessional Papers 735 II of 1931-32 ; Appendix No. 20, *Correspondence, etc., relating to the rates of exchange at which the currencies of India are converted into sterling* ; also Tucker, H. St. George, *Remarks on the Plans of Finance, 1821*, passim, and *Memorials of Indian Government*, 1853, by the same, pp. 382-85.

†Normal only if 15½ to 1 be taken as the normal ratio between gold and silver, which was the case for nearly seventy years.

CHART II FALL OF THE RUPEE-STERLING EXCHANGE



The rupee-sterling exchange was in reality a reflection of the gold-silver exchange. When, therefore, it is said that the rupee-sterling before 1873 was stable at 1s. 10½ *d.*, it merely meant that the gold-silver exchange before 1873 was stable at the ratio of 1 to 15½ ; and that the rupee-sterling exchange was dislocated after 1873 meant that the gold-silver exchange lost its old moorings. The question which therefore arises is why was the ratio of exchange between gold and silver disturbed after 1873, as it never was before that year? Two factors have been appealed to as affording a sufficient explanation of what then appeared as a strange phenomenon. One was the demonetization of silver as the standard money medium by the principal countries of the world. This movement in favour of demonetization of silver was the outcome of an innocent agitation for uniformity of weights, measures, and coinages. In so far as the agitation was aimed at such uniformity, it was in every way beneficial. But it also exemplifies how the pursuit of good sometimes leaves behind a legacy of evils. At the Great Exhibition held in London in 1851 the great difficulty of comparing the different exhibits, owing to the differences of weights, measures, and coinages as between the countries of their origin and other countries, was amply demonstrated to the representatives of the different nations assembled at that exhibition.* The question of international uniformity in weights, measures, and coins was discussed by the various scientific assemblies gathered at this exhibition, and although nothing tangible came out of it, the question was not allowed to be dropped : it was taken up at the Brussels International Statistical Congress held two years after. Opinion had so far advanced that the next Statistical Congress, held at Paris, issued a declaration, which was confirmed by the Vienna Statistical Congress of 1859, strongly urging the necessity of bringing about the desired uniformity in the weights, measures, and coinages of different countries.† Encouraged by the action of England, which had made in 1862 the metric system of weights and measures optional, the 1863 International Statistical Congress of Berlin resolved to invite the different Governments “ to send to a special Congress delegates authorized to consider

* *Report of the Royal Commission on International Coinage*, 1868, p. v.

† Cf. Russell, H. B., *International Monetary Conferences*, 1998, pp. 18-25.

and report what should be the relative weights in the.....gold and silver coins, and to arrange the details by which the monetary systems of the different countries might be fixed, upon a single unit decimally subdivided.”* The significance of this Congress can hardly be overlooked. It made a departure. At the former Congresses the question debated was largely one of uniformity in weights and measures. But at this Congress “that phase of it was subordinated to uniform coinage and was well-nigh laid aside.”† Though the resolution was a departure, it should not have been fraught with serious consequences if the reform had been confined to the question of uniformity of coinage. But there occurred a circumstance which extended its application to the question of currency. When this agitation for uniform coinage grew apace, the French quite naturally wished that their coinage system, which had already been extended over the area comprised by the Latin Union, should be taken as a model to be copied by other countries outside the Union in the interest of uniformity. With this end in view the French Government approached the British Government of the time, but was told in reply that the British Government could not consider the suggestion until France adopted the single gold standard.‡ Far from being taken aback, the French Government, then so anxious to cultivate the goodwill of England, proved so complacent that it felt no compunction in conceding to the British the pre-requisite it demanded, and indeed went so far out of the way, when the Conference met in Paris in 1867, that it actually manoeuvred§ the Assembly into passing a resolution “that for uniform international coinage it was necessary that gold alone should be the principal currency of the world.” So much importance was attached to the question of uniformity of coinage that those who passed the resolution seemed not to have noticed what sacrifice they were called upon to make for its achievement. Perhaps it would be more correct to say that they did not know that they were affecting by their decision the currency system of the world. All they thought they were doing at the time was to promote uniformity of coinage and nothing

*Quoted by Russell, *op. cit.*, p. 25.

† Russell, *loc. cit.*

‡ Cf. evidence of Prof. Foxwell, Q. 23,876, Royal Commission on Agricultural Depression in England, 1892.

§ For which cf. Russell, *op.*, p. 46.

more.* But whatever the extenuating circumstances, the result was disastrous, for when the resolution came to be acted upon by the different countries assembled, the real end of the Conference, namely uniformity of coinage, was completely lost sight of, and the proposed means eventually became the virtual end.

The ball once set rolling, the work of demonetizing silver began to grow apace. First in the field was Germany. Having vanquished France in the war of 1870, she utilized the war indemnity in the reform of her chaotic currency† by hastening to adopt a gold currency for the United Empire of Germany. The law of December 4, 1871, authorized the change, with the mark as the unit of currency. Silver was demonetized by this enactment; but the existing silver coins continued to be legal tender though their further coinage was stopped, along with the new gold coins at the legal ratio of 15 to $\frac{1}{2}$ to 1. This full legal-tender power of the silver coins was taken away from them by the law of June, 9, 1873, which reduced them to the position of a subsidiary currency.‡ This policy was immediately copied by other countries of Germanic culture.§ In 1872 Norway, Sweden, and Denmark formed a Scandinavian Monetary Union, analogous to the Latin Monetary Union, by which they agreed to demonetize silver as was done by Germany. This treaty, which established a gold standard and reduced the existing silver currency to a subsidiary status, was ratified by Sweden and Denmark in 1873 and by Norway in 1875. Holland also followed the same course. Till 1872 she had a pure silver standard. In that year she closed her Mint to the free coinage of silver, although the old silver money continued to be legal tender to any amount. In 1875 she went a step further and opened her Mints to the free coinage of gold. Her policy differed from that of the Germanic countries in that she only suspended the free coinage of silver, while the latter had demonetized it. Even the Latin Union was unable to resist this tide against silver. As a consequence of this exclusion of silver, the Latin Union,

*An honourable exception must be made in the case of Dr. Mees, the representative of Holland, who drew attention to the harm likely to result from this resolution.

† For a history of the movement for the unification of German currency prior to 1870, cf. H.P. Willis, "The Vienna Monetary Treaty of 1857," in the *Journal of Political Economy*, Vol. IV, p. 187 *et seq.*

‡ For the text of the Laws, see Appendix to *History of Bimetallism*, by Prof. J. L. Laughlin, New York, 1886.

§ Cf. *Report of the Committee on the Depreciation of Silver*, 1876, p. xxix.

enlarged as it was by additional members, naturally desired to take precautionary measures against being flooded by the influx of this depreciated silver. Nor was this fear unfounded, for the silver tendered for coinage at the Belgian Mint in 1873 was three times greater than what was tendered in 1871. Rather than be embarrassed, Belgium, by the law of December 8, 1873, suspended the free coinage of her silver five-franc pieces. This action of Belgium forced the hands of the other members of the Union to adopt similar measures. The delegates of the Union met in Paris in January, 1874, and

“agreed to a treaty supplementary to that originally framed in 1865, and determined on withdrawing from individuals the full power of free coinage by limiting to a moderate sum the silver five-franc pieces which should be coined by each State of the Union during the year 1874.*

The respective quotas fixed for 1874 were slightly increased in 1875, but were reduced in 1876.† But the actual coinage did not even reach these small quotas. So greatly was the Union perturbed by the silver situation that during 1877 the coinage of silver five-franc pieces was, with the exception of Italy,‡ entirely suspended. This action was, however, only a preliminary to the treaty of November 5, 1878, by which the Latin Union agreed to close its Mints to the free coinage of silver till further action. Though at first *sine die*, the closure proved in the end perpetual.§ Simultaneously with the precautionary measures of the Latin Union, Russia suspended, in 1876, the free coinage

* Laughlin, op. cit., p. 155.

† The quotas fixed at the Conferences for the several members of the Union were :—

<i>In Millions of Francs.</i>					
			1874	1875	1876
France	...	...	60	75	54
Belgium	...	...	12	50	36
Italy	...	...	40	15	10
Switzerland	...	...	8	10	7
Greece	...	...	...	...	...
			<hr/> 120	<hr/> 150	<hr/> 110

In 1874 Italy was allotted an extra 20 million francs. *Ibid.*, p. 155.

‡She was allowed to coin 10 millions of them.

§ *Ibid.*, p. 158.

of silver except to such an amount as was necessary for the purposes of her trade with China,* and the Imperial Decree of November 22, 1878, directed that all customs duties above 5 roubles and 15 copecks should be payable in gold.† Austria in like manner suspended the free coinage of silver in 1879.‡

On the other side of the Atlantic, an important event had taken place in the United States. In 1870 that Government resolved to consolidate the Mint laws, which had not been revised since 1837, in a comprehensive statute. Since the legislation of 1853, the silver dollar was the only coin which the United States Mints coined freely. But in the new consolidated Mint Statute of 1873, the silver dollar was deleted from the list of coins to be issued from the Mint, so that it virtually amounted to suspension of the free coinage of silver in the United States.§ The silver dollars previously coined continued to circulate as full legal tender, but that power was taken away by the law of June, 1874, which declared that "the silver coins of the United States shall be a legal tender at their nominal value for any amount not exceeding five dollars in any one payment."

The other factor appealed to in explanation of the dislocation of the relative values of gold and silver was the great increase in the production of silver as compared to gold.

TABLE IX
RELATIVE PRODUCTION OF GOLD AND SILVER
(Ounces)

Period	Total	Production	Annual Average Production		Index Number for Average Annual Production	
	Gold	Silver	Gold	Silver	Gold	Silver
1493-1600	24,266,320	734,125,960	224,693	6,797,463	100	100
1601-1700	29,330,445	1,197,073,100	293,304	11,970,731	130.5	176.1
1701-1800	61,088,215	1,833,672,035	610,882	18,336,720	271.8	269.7
1801-1840	20,488,552	801,155,495	512,217	20,028,887	227.9	293.1
1841-1870	143,186,224	931,091,326	4,772,876	31,038,378	2,124.1	456.6
1871-1890	106,950,802	1,715,039,955	5,347,545	85,751,998	2,375.4	1,261.5

**Report of the Directors of the Mint*, Washington, 1893, p. 23.

† Cf. P. Willis, "Monetary Reform in Russia," in the *Journal of Political Economy*, Vol. V, p. 291.

‡ Cf. F. Wieser, "Resumption of Specie Payment in Austria-Hungary," in *Journal of Political Economy*, Vol. 1, pp. 380-7.

§ This measure was the subject of a strange controversy. The gold men argued that it was deliberately adopted, while the silver men decried it as a surreptitious act due to a "combination of rascally contrivance and rascally connivance." Prof. Laughlin has well cleared the mystery surrounding this Act. He shows by reference to debates in Congress on the legislation of 1853 that Congress knew that by refusing to alter the ratio between gold and silver it was placing the country on a gold standard. Too much consideration, he thinks, has been wasted on the Act of 1873, which merely took legal notice of the consequences of the Act of 1853. Cf. his *History of Bimetallism*, pp. 80 and 93-95.

The history of the production of the precious metals in modern times begins from the year 1493, a date which marks the discovery of the American continent. Reviewing the results of the production from 1493 to 1893, a period in all of 400 years, we find that during the first hundred years the production of gold and silver rises at a uniform rate of progression. Assuming the annual average production of each during the first century (1493-1600) in the modern history of their production to be 100, it will be seen that in the next century (1601-1700) the index number for the production of gold rises to 130 and that of silver to 176. This rate of progression is also kept up in the succeeding century (1700-1800), during which the figure for both gold and silver approximates to 270, and continues without much disturbance up to 1840, when the respective index numbers stood at 228 for gold and 293 for silver. From this point onwards, the relative production of the two metals underwent a complete revolution. During the next thirty years (1841-70) the production of gold reached unprecedented heights, while that of silver lagged behind, relatively speaking. The index number for silver production advanced only to 450, but that for gold went up to 2,124. This revolution was followed by a counter-revolution, as a result of which the position as it stood at the end of 1870 was well-nigh reversed. The production of gold received a sudden check, and though it had increased enormously between 1840-70 it remained stationary between 1870-93. On the other hand, the production of silver, which was steady between 1841-70, increased threefold between 1870-93, so that the index number for its average annual production during the latter period stood at 1,260.

In the controversy which arose over the reasons, which brought about this dislocation and decline in the value of silver in terms of gold, there were parties to whom one of these two factors was a sufficient cause. One side argued that had suspension or demonetization of silver not taken place, its value could never have fallen. This position was vehemently challenged by the other side, which believed in the over-supply of silver as the primary cause of its depreciation. Now, was the

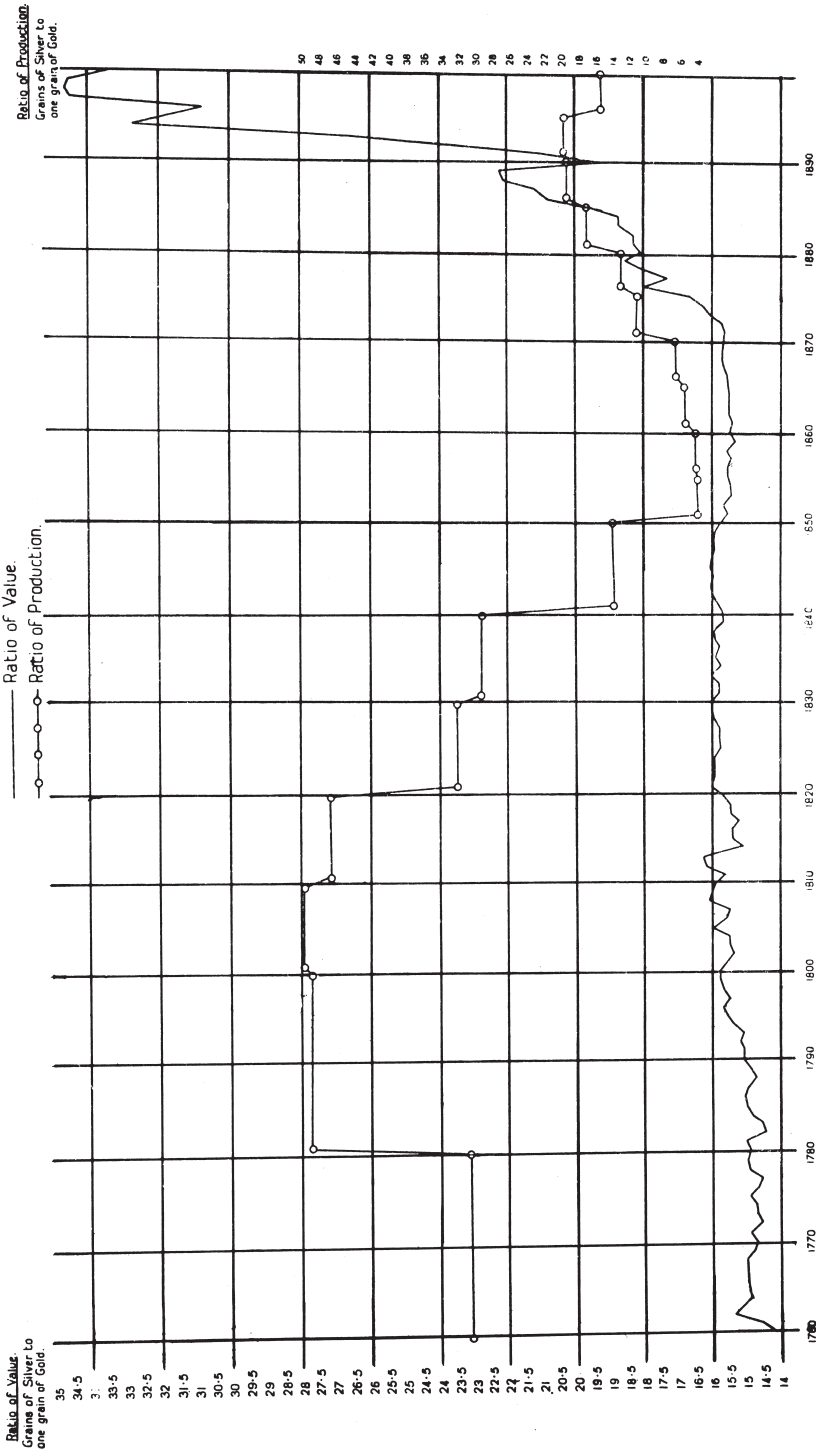
argument from relative over-supply sufficient to account for the fall in the gold value of silver? On the face of it, the explanation has the plausibility of a simple proposition. It is one of the elementary theorems of political economy that the value of a thing varies inversely with its supply, and if the supply of silver had largely increased, what could be more natural than that its value in terms of gold should fall? The following were the relevant facts which formed the basis of the argument:—

TABLE X
GOLD AND SILVER*
RELATIVE PRODUCTION AND RELATIVE VALUE

Period	Ratio of Production (by Weight) of Gold to Silver As 1 Grain to:	Ratio of value of Gold to Silver As 1 Grain to	Index Number for the Ratio of Production	Index Number for the Ratio of Value	Correlation between Relative Production and Relative Value	
					Relative Production of Silver Falls — Rises+	Relative Value of Silver Falls — Rises+
1681-1700	31.8	14.95	100	100	...	...
1701-1720	27.7	15.21	87	101.7	-13	-1.7
1721-1740	22.6	15.10	71	101	- 29	-1.0
1741-1760	21.7	14.70	67	98.3	-33	+1.7
1761-1780	31.5	14.40	99	96.3	- 1	+3.7
1781-1800	49.4	15.08	155.6	100.8	+55.6	-.8
1801-1810	50.3	15.67	158.0	104.8	+58.0	-4.8
1811-1820	47.2	15.68	148.0	104.9	+48.0	-4.9
1821-1830	32.4	15.82	101.9	105.8	+1.9	-5.8
1831-1840	29.4	15.77	92.4	105.4	-7.6	-5.4
1841-1850	14.2	15.81	44.6	105.8	-55.4	-5.8
1851-1855	4.4	15.45	13.8	103.3	-86.2	-3.3
1856-1860	4.5	15.28	14.0	102.2	-86.0	-2.2
1861-1865	5.9	15.42	18.55	103.1	-81.5	-3.1
1866-1870	6.9	15.52	21.7	103.8	-78.3	-3.8
1871-1875	11.3	16.10	35.5	107.6	-64.5	-7.6
1876-1880	13.2	17.79	41.5	119.0	-58.5	-19.0
1881-1886	17.3	18.81	54.4	125.8	-45.6	- 25.8
1886-1890	19.9	20.98	62.6	140.3	-37.4	-40.3
1891-1895	20.0	26.75	62.9	178.9	-37.1	-78.9

* The table is based on figures of M. de Foville of the French Mint, as given by Mr. F. B. Forbes in *The Bimetallist* of July, 1897, pp. 125-28.

CHART III
RELATIVE VALUES AND RELATIVE PRODUCTION OF GOLD AND SILVER



The facts thus presented led to two conclusions. The first is that the supposed enormous increase in the relative production of silver was an assumption which had no foundation in reality. On the contrary, a glance at the figures for relative production discloses the curious fact that since the beginning of the eighteenth century silver, instead of rising, has been falling in proportion. With the exception of the first quarter of the nineteenth century, silver had formed, throughout the two centuries covered by the table, a diminishing proportion as compared with gold.* Indeed, never was the proportion of silver so low as it was in the latter half of the nineteenth century, and even when after 1873 it began to grow it did not reach half the magnitude it had reached in the beginning of the eighteenth century. The second conclusion which these facts were claimed to sustain was that the value of silver in terms of gold did not move in sympathy with its supply relative to that of gold. According to theory, the value of silver should have been rising because the relative volume of its production had been diminishing. On the other hand, a closer examination of the figures of relative values and relative productions, as given in the foregoing table, instead of showing any close correlation (*see* Chart III) between them, pointed to the contrary. Instead of supply and value being inverse in proportion, it showed that as its supply was falling there was also a fall in its value. Such being the facts of history, it was contended that they gave no support to those who rested their case on over-supply rather than on demonetization as a sufficient explanation for the depreciation of silver.

Apart from such minor points, the issue was considerably narrowed by the peculiarity of the events of the twenty years preceding and following the year 1873.† Compare, it was said, the period commencing with 1848 and ending with the year 1870 with the period following 1870, and there emerges the arresting fact that these two periods, though they have been the opposite

* In view of this, it is a matter of some surprise that such an eminent economist as Prof. W. Lexis should have ceased to be bimetallist on the ground that the enormous increase of silver militated against the establishment of a permanently high ratio with gold. Cf. his essay on "The Present Monetary Situation," in the *Economic Studies of the American Economic Association*, 1896, Vol. I, No. 4, pp. 273-77. The habit of measuring the production of silver in terms of value is no doubt largely responsible for this quite unfounded notion.

† Cf. H. S. Foxwell, "Bimetallism: Its Meaning and Aims," in *The (Oxford) Economic Review* (1893), Vol. III, p. 302.

of each other with reference to the relative values of the two metals, were alike with reference to the changes in their relative supply. The period between 1870 and 1893 on the side of relative production was marked by the preponderance of silver. The period between 1848 and 1870 is an exact parallel to the above period with respect to changes in the relative supply of the two precious metals, only in this case it was gold that had increased in volume. Now, if it is over-supply that governed the value relations of the two metals in the second period (1870-93) the same should be true of their value relations in the first period (1848-70). Was there, then, a disturbance in the relative values of the two metals in the first period anything like what took place in the second period? It was insisted that the disturbance in the ratios of production of the two metals in the first period was enormously greater than that which occurred in the second period. Indeed, comparatively speaking, the disturbance in the second period was nothing to speak of. And yet their relative value during the first period was well-nigh constant at the ratio of 1 to $15\frac{1}{2}$, while in the second it fluctuated between 16.10 and 26.75. Those, who argued that the value of silver fell after 1873 because of its over-supply, were thus faced with the problem as to why the value of gold did not fall when its supply had become so abundant before 1873. The whole controversy was therefore centred into the question as to what could have made this difference in the two situations? If the colossal increase in the production of gold in the first period did not raise the value of silver by more than 2 per cent., how was it that a comparatively insignificant rise in the relative production of silver in the second period led to such an enormous rise in the price of gold? What was the controlling influence present in the one case which was absent in the other? Those who held that it was demonetization of silver that was responsible for its depreciation argued that, though alike in every way, the two periods differed in one important particular. What distinguished them was the fact that in the former it was a common practice to define the standard money of a country as a certain quantity of gold *or* a certain quantity of silver. Prior to 1803 the two metals were rated differently in different countries,*but since that date the rating of 1 to $15\frac{1}{2}$ became more uniform, with the result that the monetary standard throughout that period was either 1 gr. of gold *or* $15\frac{1}{2}$ grs. of

* For these ratios, see Appendix, Table B, to *A Colloquy on Currency*, by H. H. Gibbs.

silver. On the other hand, during the second period, the “or” which characterized the first period was deleted by the silver-demonetizing and suspending decrees. In other words, the first period was characterized by the prevalence of bimetallism under which the two metals could be used inter-changeably at a fixed given ratio. In the second period they could not be so used owing to the fact that the fixed ratio necessary for interchange had been abrogated. Now, could the existence or non-existence of a fixed ratio be said to be such a powerful influence as to make the whole difference that set the two periods in such marked contrast? That this was the factor which made the whole difference was the view of the bimetallists. It was said that, by virtue of the monetary system prevalent during the first period, gold and silver were rendered substitutes and were regarded as “one commodity of two different strengths.” So related, the conditions of supply had no effect upon their ratio of exchange, as would have been the case in respect of a commodity without a substitute. In the case of commodities which are substitutes, the relative scarcity of one can give it no greater value in terms of the other than that defined by their ratio of exchange, because by reason of the freedom of substitution the scarcity can be made good by the abundance of the other. On the other hand, the relative abundance of one cannot depreciate its value in terms of the other below the ratio of exchange, because its superfluity can be absorbed by the void created in consequence of a paucity of the other. So long as they remain substitutes with a fixed ratio of substitution, nothing originating in demand or supply could disturb their ratio. The two being one commodity, whatever changes take place in the demand or supply of either system beyond the needs of commerce express themselves in the price level exactly as though one of them alone was the money medium; but their ratio of exchange will be preserved intact in any case.

In support of this was cited the authority of Jevons, who said*:—

“ Whenever different commodities are thus applicable to the same purposes their conditions of demand and exchange are not independent. Their mutual ratio of exchange cannot vary much for it will be closely defined by the ratio of their utilities. Beef and mutton differ so slightly that people eat them almost indifferently. But the wholesale price of mutton, on

* *Theory of Political Economy*, 4th ed./, 1911, pp. 134-36.

an average, exceeds that of beef in the ratio of 9 to 8, and we must therefore conclude that people generally esteem mutton more than beef in this proportion, otherwise they would not buy the dear meat..... So long as the equation of utility holds true, the ratio of exchange between mutton and beef will not diverge from that of 8 to 9. If the supply of beef falls off people will not pay a higher price for it, but will eat more mutton ; and if the supply of mutton falls off, they will eat more beef..... We must, in fact, treat beef and mutton as one commodity of two different strengths—just as gold at 18 carats and gold at 20 carats are hardly considered as two but rather as one commodity, of which twenty parts of one are equivalent to eighteen of the other.

“It is upon this principle that we must explain, in harmony with Cairnes’ views, the extraordinary permanence of the ratio of exchange of gold and silver, which from the commencement of the eighteenth century up to recent years never diverged much from 15 to 1. That this fixedness of ratio did not depend entirely upon the amount or cost of production is proved by the very slight effect of the Australian and Californian gold discoveries, which never raised the gold price of silver more than about $4\frac{2}{3}$ per cent., and failed to have more than a permanent effect of $1\frac{1}{2}$ per cent. This permanence of relative values may have been partially due to the fact that gold and silver can be employed for exactly the same purposes, but that the superior brilliancy of gold occasions it to be preferred, unless it be about 15 or $15\frac{1}{2}$ times as costly as silver. Much more probably, however, the explanation of the fact is to be found in the fixed ratio of $15\frac{1}{2}$ to 1, according to which these metals are exchanged in the currency of France and some other continental countries. The French Currency Law of the year XI established an artificial* equation—

Utility of gold = $15\frac{1}{2}$ X utility of silver

* It is this artificiality of the bimetallic system which unfortunately befalls the minds of some people and prejudices those of others. Some do not understand why the price determination of two commodities used as money should be so different from the price determination of any other two commodities as to be governed by a ratio fixed by law. Others are puzzled as to why, if gold and silver are a pair of substitutes, should they require a legal ratio while other pairs of substitutes circulate without a legal ratio, merely on the basis of the ratio of their utility. These difficulties are well explained away by Prof. Fisher thus :

and it is probably not without some reason that Wolowski and other recent French economists attributed to this law of replacement an important effect in preventing disturbance in the relations of gold and silver.”

But granting that before 1873 the ratio was preserved owing to the compensatory action of the bimetallic law, can it be said that it would have been maintained after 1873 if the law had not been suspended? To give an uncompromising affirmative as the bimetallists did is to suppose that bimetallism can work under all conditions. As a matter of fact, though it is workable under certain conditions it is not workable under other conditions. These conditions are well described by Prof. Fisher.* The question under bimetallism is whether the market ratio

“.....two forms of money differ from a random pair of commodities in being substitutes. Two substitutes proper are regarded by the consumer as a single commodity. Thus lumping together of the two commodities reduces the number of demand conditions, but does not introduce any indeterminateness into the problem because the missing conditions are at once supplied by a *fixed ratio of substitution*. Thus if ten pounds of cane sugar serve the same purpose as eleven pounds of beet-root sugar, their fixed ratio of substitution is ten to eleven..... In these cases the fixed ratio is based on the relative capacities of the two commodities to fill a common need, and is quite antecedent to their prices..... The substitution ratio is fixed by nature, and in turn fixes the price ratio.

“In the single case of money, however, there is no fixed ratio of substitution..... We have here to deal not with relative sweetening power, nor relative nourishing power, nor with any other capacity to satisfy wants—no capacity inherent in the metals and independent of their prices. We have instead to deal only with relative *purchasing* power. We do not reckon a utility in the metal itself, but in the commodities it will buy. We assign their respective desirabilities or utilities to the sugars..... before we know their prices, but we must inquire the relative circulating value of gold and silver before we can know at what ratio we ourselves prize them. To us the ratio of substitution is incidentally the price ratio. The case of the two forms of money is unique. They are substitutes, but have no natural ratio of substitution, dependent on consumers’ preferences.

“The foregoing considerations..... are overlooked by those who imagine that a fixed legal ratio is merely superimposed upon a system of supply and demand already determinate, and who seek to prove thereby that such a ratio is foredoomed to failure..... the..... analogy..... is unsoundGold and silver are not completely analogous even to two substitutes because for two forms of money there is no consumers’ natural ratio of substitution. There seems, therefore, room for an artificial ratio.....”—*Purchasing Power of Money*, 1911, pp. 376-77

* *Elementary principles of Economics*, 1912, pp. 228-29. In the illustrations given by Prof. Fisher he appears, although he does not mean it, to make the success or failure of bimetallism hang upon the question whether or not the two metals are maintained in circulation. For in the illustration which he gives to show the failure of bimetallism—Fig. 14 (b)—his film *f* shows gold to be entirely thrown out of circulation; while in the illustration he gives to show the success of bimetallism—Fig. 15 (b)—his film *f* shows gold to be only partially thrown out of circulation. But there seems to be no reason to suppose that there cannot be a third possibility, namely, that while the position of the film is *f* is as in Fig. 14 (b)—a possibility in which bimetallism succeeds although one of the two metals is entirely pushed out of circulation. For the success of bimetallism it is not necessary that both the metals should remain in circulation. Its success depends upon whether or not the compensatory action succeeds in restoring the relative values of the two bullions to that legally established between the two coins. If it succeeds in achieving that, the ratio would be preserved even if the compensatory action drives one metal entirely out of circulation.

between gold and silver bullion will always be the same as the legal ratio between gold and silver coins freely minted and possessing unlimited legal-tender power. Now supposing the supply of silver bullion has increased relatively to that of gold bullion, the result will obviously be a divergence in the mint and the market ratio. Will the compensatory action of the bimetallic law restore the equilibrium? It may succeed in doing it or it may not. If the increase in the supply of silver bullion and the decrease in that of gold bullion are such that a decrease in that of silver caused by its inflow into the currency and an increase in that of gold caused by its outflow from currency can restore them to their old levels as bullion, bimetallism would succeed; in other words, the market ratio of the two bullions would tend to return to the mint ratio. But if the increase in the supply of silver bullion and the decrease in that of gold is such that the outflow of silver bullion into currency reduces the level of the silver bullion to the old level, but the outflow of gold bullion from currency does not suffice to raise the level of the gold bullion to the old level, or if the outflow of gold from currency raises the level of the gold bullion to the old level, but the inflow of silver into currency does not result in the reduction of the level of silver bullion to its old level, bimetallism must fall; in other words, the market ratio of the two bullions will remain diverted from the mint ratio legally established between their coins.

Under which of these two possibilities could the circumstances arising after 1873 have fallen? That is a question about which no one can say anything definitely. Even Jevons, who admitted the success of the bimetallic law in the earlier period, was not very sanguine about its success in the latter period. It was he who observed*

“ that the question of bimetallism is one which does not admit of any precise and simple answer. It is essentially an indeterminate problem. It involves several variable quantities and many constant quantities, the latter being either inaccurately known or, in many cases, altogether unknown.....”

* *Investigations*, etc. (ed. Foxwell), p. 317.