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1926

THE THEORY OF  
INTERNATIONAL PRICES

*History, Criticism and Restatement*

BY

JAMES W. ANGELL, PH. D.

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To

**J. H. G.**

## PREFACE

THE World War and its aftermath have given the problems of international trade and finance a greater importance in the United States than they have enjoyed since the middle of the last century. The urgent needs of the war itself, and the almost equally urgent needs of the first phase of reconstruction, created an enormous foreign demand for the products of American farms and factories. The total inadequacy of the world's mercantile marine similarly led to a dramatic boom in American shipping. Finally, the collapse of European commerce enabled the United States to secure for a time an unequalled place in the world markets. In the last three or four years, however, the tide has begun to set the other way. The recovery of Europe is steadily increasing the severity of the competition that American producers encounter abroad, the shipping boom disappeared almost over night, and the future of our foreign trade does not seem as glowing as it did in 1919. On the other hand, the United States, for almost a century a heavy borrower from the older countries, has now become Europe's investment banker. Such marked changes in the world's commercial and financial situation have inevitably drawn an increasing amount of general attention to international exchange, and to the conditions that govern its terms.

The present study is directed to one aspect of these conditions. It reviews the history of the doctrines and investigations dealing with international price relationships, in various European countries and in the United States, and then seeks to combine the conclusions reached into a general theory of international prices themselves. The study was conducted under the direction of Professors F. W. Taussig and Allyn

A. Young, of Harvard University. It was originally undertaken at the suggestion of Professor Taussig, but later seemed to fall particularly within the province of Professor Young, to whom I am indebted for detailed suggestions and criticisms at every point. To both Professor Taussig and Professor Young I acknowledge the profound and happy obligation which springs from the cherished relations of student to teacher.

I am also indebted for assistance of various sorts to Professors Charles Rist and Bertrand Nogaro, of the University of Paris, and to Professor F. Sauvaire-Jourdain, of the University of Aix-en-Provence; to Professors Luigi Einaudi and Pascale Jannacone, of the Royal University of Turin; to Professor Joseph Redlich, of the University of Vienna, and to Dr. Ludwig von Mises, of the Vienna Chamber of Commerce and Industry. The charts and diagrams were drawn by Mrs. Alice F. Stryker.

My wife has given me the benefit of her criticisms on many debated questions, and has read the proofs.

JAMES W. ANGELL

NEW YORK CITY

*November 25, 1925*

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## APPENDICES

## APPENDIX A

### THE BANK RESTRICTION PERIOD IN ENGLAND, 1797-1821

1. Recent studies of the Bank Restriction period in English financial history, especially those of Professor Silberling, have made it possible to form a much more complete picture than before of the essential facts in the situation.<sup>1</sup> These facts, in so far as they are relevant to the problems involved in the theory of international prices, are presented in the tables and charts that follow. They cast new light on the doctrines that were advanced in the course of the Bullion Controversy, and make necessary a considerable revision of the older view of their merits.

The principal conclusions to which the new facts lead may well be presented in advance of the somewhat laborious data themselves. The reasoning on which these conclusions rest will then be explained in more detail by an examination of certain selected groups of facts, brought together in the form of a series of charts and accompanying notes. Finally, the basic data themselves are given in tables at the end of this Appendix. The conclusions are as follows:

First, the course of the foreign exchanges, and of the premium on silver, were intimately governed by the balance of international payments, but — directly at least — by little else. The dominant factor in the exchange market was the imperative need of the British government for making continued remittances to the Continent: remittances to support the British armies, for direct or indirect subsidies to other countries allied against France, and for all the other expenditures involved in carrying on a war abroad. To this constant pressure was also added the occasional strain of abnormal grain imports, in times of harvest dearth at home. The close relationship between these extraordinary and primarily military remittances, the exchanges, and the specie premium is indicated in Chart VIII.<sup>2</sup> The *inverse* relationship

<sup>1</sup> N. J. Silberling, *Financial and Monetary Policy of Great Britain during the Napoleonic Wars* (38 *Quarterly Journal of Economics*, February and May, 1924); *British Prices and Business Cycles, 1770-1850* (*Review of Economic Statistics*, October, 1923, Supplement). On the development of contemporary opinion, see ch. iii, above.

<sup>2</sup> Also see Chart XIII, for a study of the causal connection between the remittances and the exchanges.

between the remittances and the reserves of the Bank of England — the latter showing a distinct lag — is indicated in Chart IX. England made every effort to keep up her foreign exchanges by exporting specie, and the specie, directly or indirectly, was largely taken from the Bank.

Second, there was a very general and loose relationship between the premium and the exchanges on the one hand, and the course of general prices on the other. But the relationship is far too uncertain to permit the assertion that either set of changes *caused* the other set, or to permit of their being attributed directly to a common cause. This is shown in Chart X. So far as there was any common cause at all, it is to be found in the exigencies of government war-time finance. To anticipate somewhat, the government's need for means of making foreign remittances led to exchange depreciation; and its need for domestic funds contributed, through the advances made by the Bank, to currency inflation and to the rise in domestic prices. But between the foreign exchanges and domestic inflation, between internal and external "depreciation," there was no direct short-time connection at all. The general fact that the exchanges actually were depreciated, and stayed so for over twenty years, is of course in part explainable by the existence of inflation. But all of the critical *fluctuations* in the exchanges are traceable to the balance of payments, not to changes in the quantity of money.

The recently resurrected purchasing-power-parity doctrine hence cannot explain the situation, at least so far as the fluctuations in English prices are concerned (data on Continental prices are not obtainable). Nor can the opposed doctrine, which proceeds from the balance of payments and the exchanges *to* internal prices, and the volume of currency, be convincingly applied.

Third, the most probable explanation of the actual fluctuations in prices turns on the fluctuations in the volume of domestic currency and credit. To 1806-1807, the explanation is difficult to make, because of the lack of statistics. The only data obtainable, those for the Bank of England, can at best be made to account for a third of the rise. We are compelled to fall back on general inferences as to the character of the missing elements. Of these the uncontrolled inflation of country note issues and credits seems, on the basis of the known data of later years, to be in all probability the most important. The price peak of 1801, however, was due to agricultural dearth rather than to strictly monetary conditions. After 1806, the explanation is simpler, if the calculations here presented are correct, and if the interpretation placed upon

them is justified. The fluctuations in prices correspond, on the whole very closely, to the deviations of the combined country and Bank of England note circulations as measured from an estimated norm of growth. The corresponding data, original and computed, are set forth in Charts XI and XII respectively.

Fourth, the principal causes of the increase in the note circulation itself were two-fold: the action of the country banks, and the needs of the government. The innumerable and weed-like country banks were virtually free from any sort of control, either by governmental examination or by an effective requirement of convertibility, even into Bank of England notes. The consequence was extravagant expansion just before and during prosperity, and ruinous contraction before and during crises. The numerically larger part of the banking system had thus become essentially speculative. The other source of increase was the action of the government, which was constantly in need of domestic funds to supply the domestic needs of war. These funds, directly or indirectly, it obtained very largely from the Bank; and the Bank, compelled to grant larger and larger credits in the face of all its sound misgivings, became the apparent agent of inflation. Yet there is little evidence that the Bank inflated *private* credit. Rather, its private advances were kept moderate in times of rising prices, and expanded when prices fell. As far as its own deliberate and intended policy went, it should be exonerated from virtually all blame.

Fifth, these last conclusions place the Bullionist writers, and especially the authors of the Bullion Report, in a new light. Far from being the inspired expounders of sound monetary analysis and policy, they were at least two thirds wrong, and probably more — some from pecuniary interest, the majority from simple ignorance of the facts. The "high price of bullion" had no direct connection at all with the operations of the Bank. The high price of things in general — inflation — was due to the policies of government financiers (uncriticized by the Bullionists), and to the exonerated country banks. Inflation, though unavoidable in any event, was greatly and needlessly exaggerated by the country banks. And it took place not because of, but in spite of, the voluntary operations of the Bank of England. The Bank alone remained the refuge of sound policy. At least one writer has well remarked that, had the recommendations of the Bullion Committee been put into effect, there would probably be no British Empire to-day. Contraction, by paralyzing government financing, would have lost the war.

Finally, there remains the question of why the exchanges returned to a substantial parity after 1816, and why prices fell to a permanently lower level. It is not easy to answer this question in quantitative terms. The return of the exchanges was in the first instance due to the removal of the chief disturbing cause, abnormal governmental payments abroad. (See Chart VIII.) Ultimately, however, the psychological effect of the stabilization of British finances must have exerted a strong influence. The fall of prices was similarly related in part to the financial situation of the government, but also to the general condition of private credit. That is, prices were a direct function of the current volume of credit as a whole, both private and governmental. The reduction and ultimate cessation of the pressure of government borrowing, especially short-time, and the gradual correction of the inflationary tendencies of the country banks, combined to bring about the reduction of prices to a very much lower level after 1814. This is shown clearly in Chart XII.

2. The conclusions just presented are based on the character of the relationships that exist between various measurable factors in the situation. These relationships it is now proposed to examine in more detail, by graphic methods. No statistical refinements, however, will be attempted. So far as the data available permit such refinements at all, they have in large part been made already in those studies by Professor Silberling which have been referred to above.

#### I. EXTRAORDINARY FOREIGN PAYMENTS, THE EXCHANGES, AND THE SILVER PREMIUM

These data are presented in Chart VIII. The curves are plotted from columns 1, 2, and 3 of the Statistical Tables. The foreign exchange quotations are those on Hamburg. The Paris quotations are substantially the same in their movements (except 1804-1805, and 1815-1816), but they are less complete and less sensitive.

The coincidence of these curves in the general direction of their movement is on the whole very close. The only important discrepancy is that between the peaks of 1811 and 1813. It is in general close enough to suggest very strongly a causal relationship, *from* the volume of foreign payments *to* the silver premium and the exchanges. To 1808 the exchanges followed the payments more closely than did the premium. This was presumably due to an actual scarcity of metallic currency in England, which forced the premium up independently of the situation of the exchange market: coins were drawn from circulation

by exportation, and to some extent by hoarding. Thereafter the premium followed the payments as closely as did the exchanges. The relatively high level of both exchanges and premium in 1811-1812 — with the exchanges showing a characteristic tendency to anticipate and exaggerate the movements of the payments — was due to the adverse trade balance with Northern Europe, caused largely by the blockade measures. (See N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, pp. 231-233.) The difference in the apparent levels of the exchanges and the volume of extraordinary payments is due, not only to the obvious explanation of a difference in the scales and methods of measurement, but to the fact that complete data on the volume of payments are lacking. The apparently excessive depreciation of the exchanges from 1808 to 1816 (that is, beyond what the volume of extraordinary payments seem to justify) was probably due — speculation apart — to a falling off in the total of *other* remittances payable abroad: the government remittances became relatively more important in the total of the payment operations. On this see Chart XIII.

It will be remembered that the quotation on gold, when obtainable, moved closely with that on silver. (See column 20, and note.)

Finally, it is evident that the removal of the pressure for governmental remittances was directly responsible, in the first instance at least, for the return of the exchanges to substantial parity after 1816.

## II. EXTRAORDINARY FOREIGN PAYMENTS AND BANK OF ENGLAND RESERVES

The data are presented in Chart IX. The curves are plotted from columns 1 and 6 of the Statistical Tables.

The relationship of the curves is clear. Each increase in the volume of extraordinary remittances led to a subsequent decline in the Bank's reserves, while every slackening of the pressure allowed them to be built up again. This shows conclusively the source from which England's war-time payments to the Continent were as far as possible taken. England was making every effort to pay her way abroad, and to keep up the exchanges by using specie directly, thus decreasing the pressure for drafts on London. (See N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, pp. 231-233.) The lag of fluctuations in the reserves behind fluctuations in the volume of payments, which appears to run as high as a year or more, would be much diminished had it been feasible to present the *quarterly* figures for reserves. In part, also, it is probably accounted for by the delay in the transmission of effects

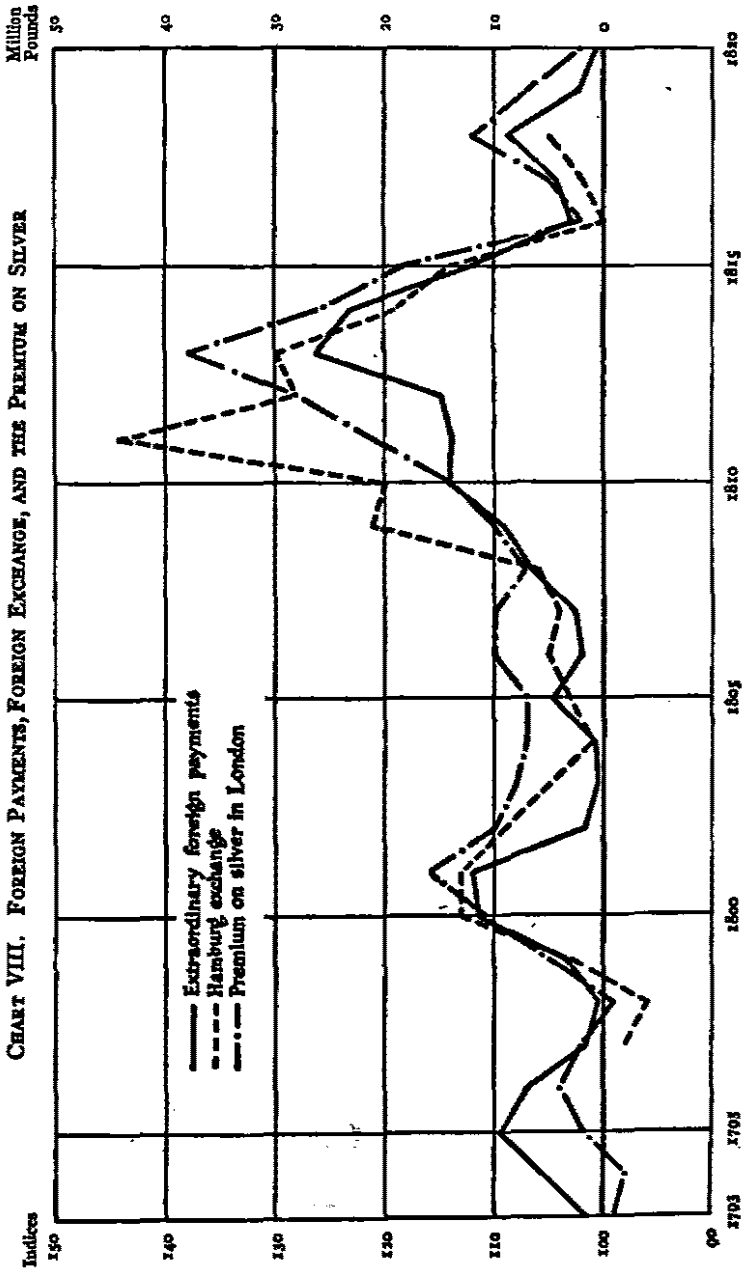
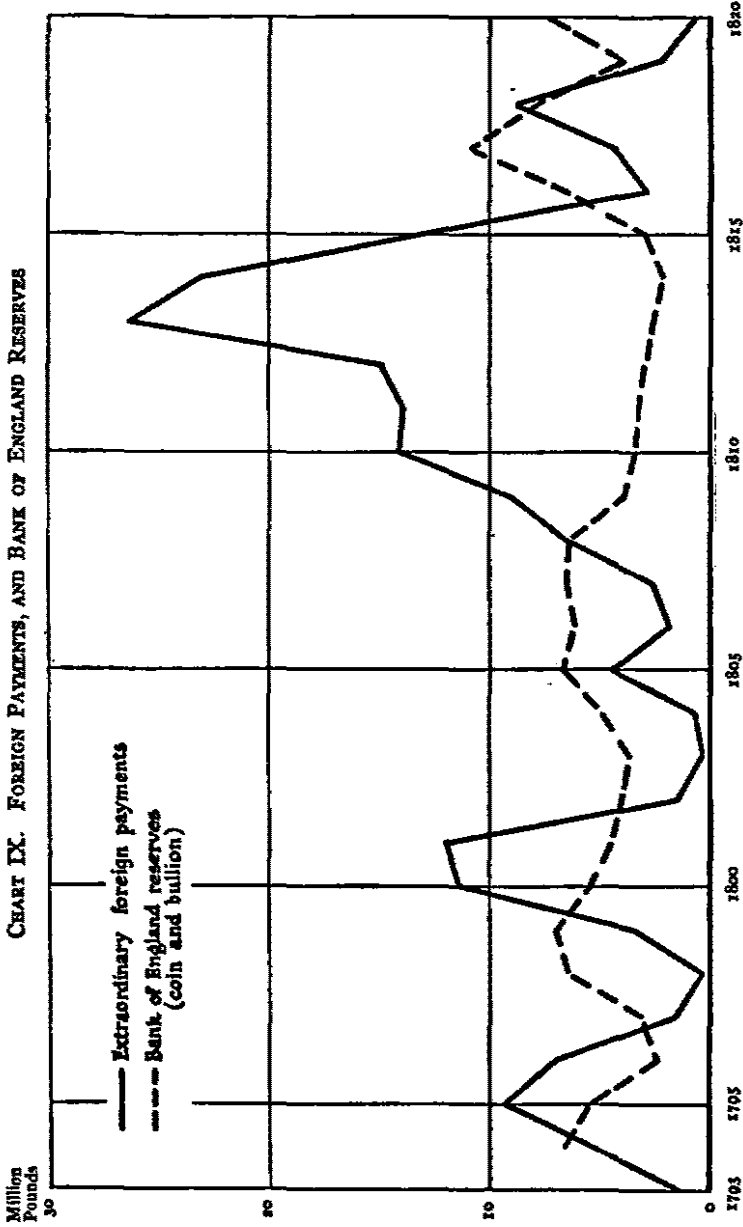




CHART IX. FOREIGN PAYMENTS, AND BANK OF ENGLAND RESERVES



from the exchange market to the money market and the Bank. By no means all of the payments, even on government account, were drawn *directly* from the Bank's reserves.

### III. PRICES, EXCHANGE RATES, AND THE PREMIUM ON SILVER

The data are presented in Chart X. The curves are plotted from columns 2, 3, and 11 of the Statistical Tables.

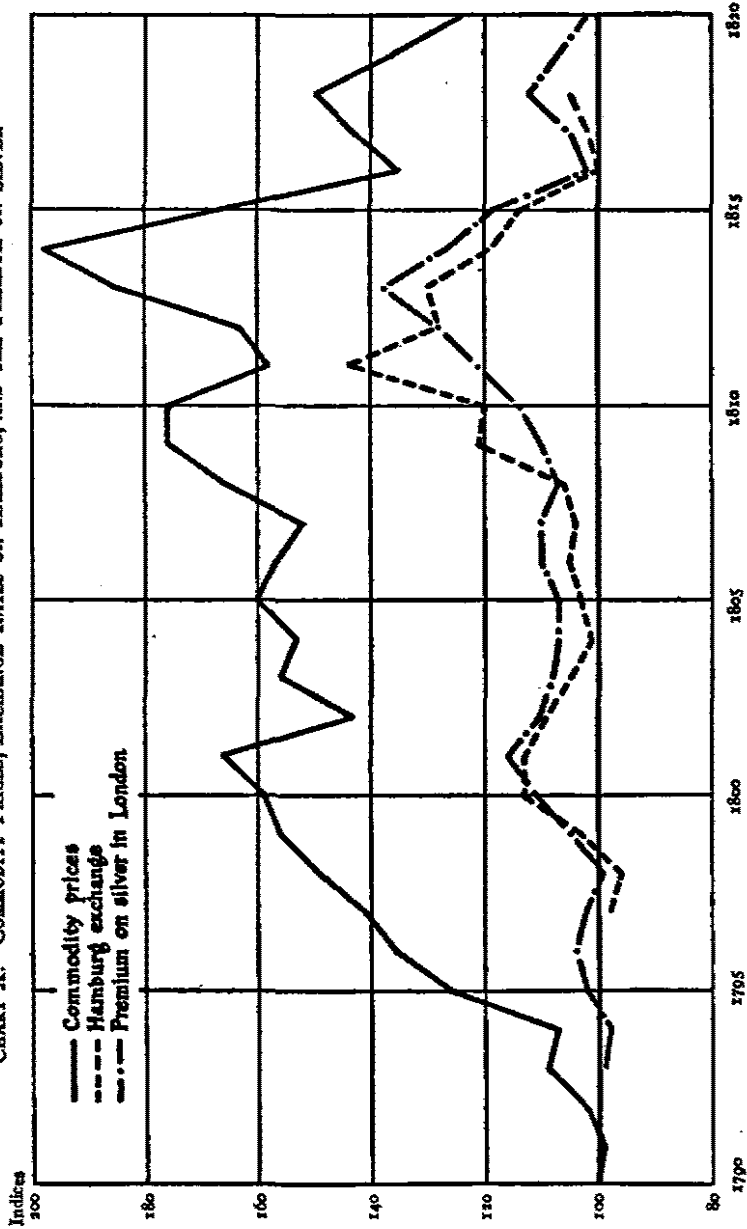
These curves show that there was a general and rather loose relationship between the major movements of the exchanges and the silver premium, on the one hand, and the course of general prices on the other. But the coincidence is not very close, and is especially doubtful for the critical years 1810-1815. It cannot be claimed, by the adherents of the purchasing-power-parity doctrine, that the rise in prices altogether accounts for the depreciation of the exchanges. (At least, in so far as British prices are an index: data on Continental price movements are missing.) Nor can the adherents of the opposite view claim that the depreciation of the exchanges entirely explains the rise in prices. There is undoubtedly a general coincidence of movements. But it is not close enough to justify either an assertion that the two elements were causally related, in one direction or the other, or that they were mutually dependent on a joint *antecedent* source of disturbance. As will be seen from the charts that follow, the addition of another independent element is necessary for a complete explanation. This element is largely provided by the fluctuations in the volume of domestic media of exchange.

It may also be pointed out that, contrary to the opinion of most contemporary writers, neither the specie premium nor the rise in the foreign exchanges were correct measures of the depreciation, if this last be measured by commodity prices. Both were much too low. Furthermore, both were tied up directly with the balance of payments, but *not*, in the first instance at least, with increases in the quantity of money. The characteristic Bullionist thesis was true, if at all, only very loosely. (Also see note to Chart XII.)

### IV. PRICES, BANK ADVANCES, AND NOTE CIRCULATIONS

The data are presented in Chart XI. The curves are plotted from columns 5, 7, 9, 11, and 14 of the Statistical Tables. The first three and the last provide various partial indices of fluctuations in the volume of domestic currency and credit.

CHART X. COMMODITY PRICES, EXCHANGE RATES ON HAMBURG, AND THE PREMIUM ON SILVER



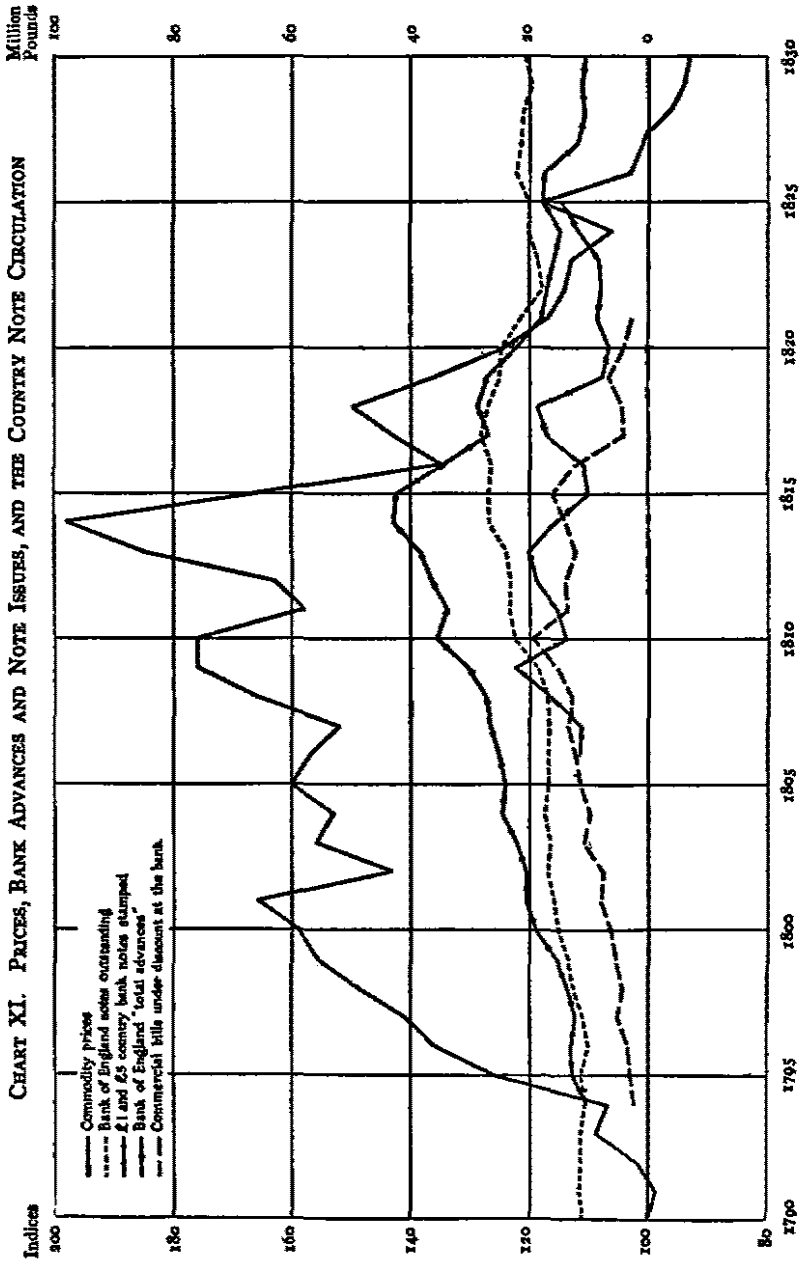
The greatest fluctuations were those in the Bank's total advances, and this seems to support the conclusions of the Bullionist writers. But the item is a composite. It is made up both of loans (direct or indirect) to the government, and loans to the market — of which the item commercial discounts is here taken as an index. It is evident that while the movements of the Bank's note issues were fairly well synchronized with the movements of prices, its total advances were not, and its advances to the market still less so. These last reached a peak in 1810, not 1814, and their fluctuations tended to be just *opposite* to those of prices. When prices were rising — especially after 1805 — discounts were held moderate or even contracted; when prices were falling they were usually increased, relatively if not always absolutely. In other words the Bank, in that part of the credit extensions over which it had independent control, exercised a *moderating* policy, of restraint in boom times and of assistance in stringency. (For a more detailed demonstration of this see Silberling, "British Prices," *loc. cit.*, pp. 240-241.) The inflationary element in its credit expansions was primarily due, rather, to the insistent pressure of the government for continued accommodation; an accommodation which the Bank was compelled to grant, despite its constant protests.

The Bank *note* circulation was a comparatively stable element, increasing steadily but moderately to 1817, then declining more abruptly. The great element of fluctuation in the volume of currency was, rather, the issues of the country banks. These issues usually expanded greatly before and during a rise in prices, while they contracted even more abruptly before and during a fall.

It therefore seems safe to conclude that the principal sources of the rise in prices — of inflation — were, first, the demand of the government for loans, as reflected in the volume of the Bank's total advances, and to a less extent in its note issues; and second, the operations of the greatly increased number of practically unregulated country banks. The Bank of England, *in so far as its independent and uncontrolled loan-extensions were concerned*, was largely blameless. (See Silberling, "British Prices," *loc. cit.*, p. 246; and note to the next chart following.)

#### V. PRICES AND NOTE-CIRCULATION DEVIATIONS

The data are presented in Chart XII. The curves are plotted from columns 8, 10, and 11 of the Statistical Tables. The composition of the note-deviation curves is explained in the notes to the corresponding



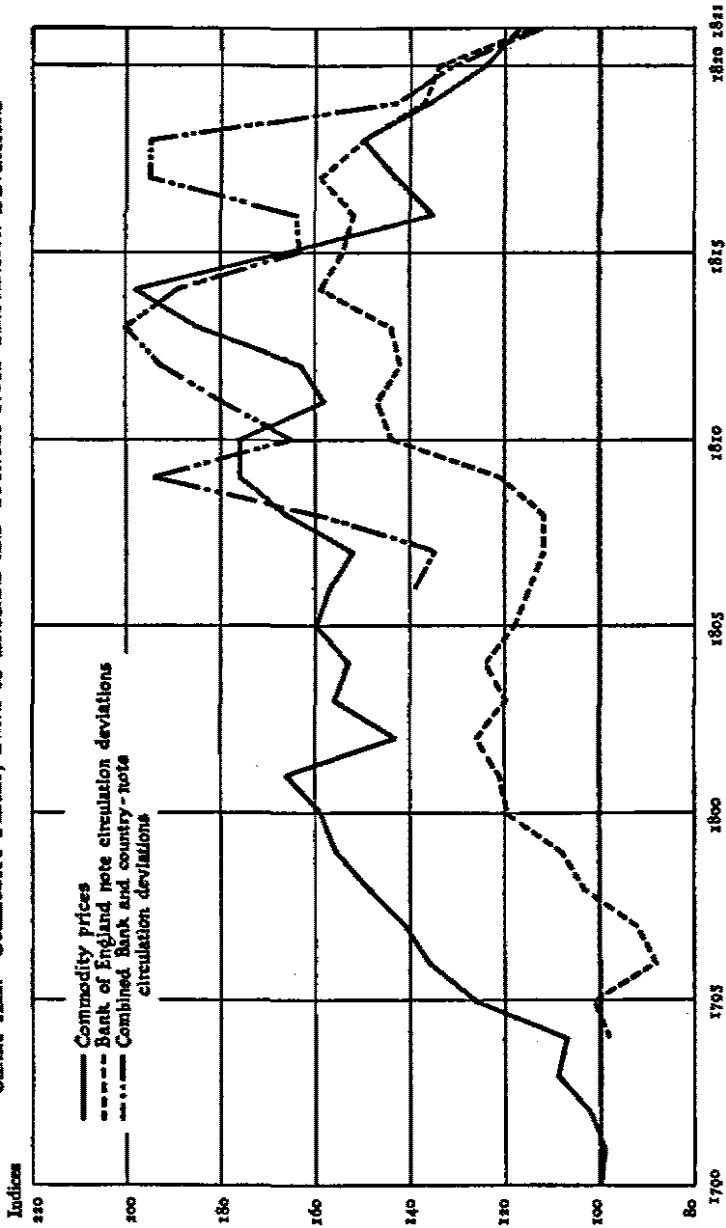
columns. They represent deviations from an estimated (and straight-line) norm of growth.

These curves are an attempt to discover how far the variations in the volume of internal currency and credit can explain the variations in general prices. The reasons for selecting the indices of internal circulation here used, instead of some other, are given in the note to column 10. The indices of course do not take direct account of variations in bank credit in *excess* of that represented by outstanding note issues. The assumption must therefore be made that such excesses fluctuated substantially in proportion to the note issues themselves. The results obtained, however, make this assumption seem not unreasonable. The assumption is conspicuously *not* true for the Bank of England during the restoration period. But the fluctuations in the excess of the Bank's total advances above its note issues were due primarily to the demands of government war-time finance, not to strictly commercial operations (see below, and also the note to column 5); and the *relative* changes in advances were out of all proportion to the fluctuations in prices. (See Chart XI.)

It is at once evident that the data available by no means tell the whole story for the earlier period, up to 1807-1808; while in 1817 and 1818 they seem to tell too much. In the period from 1807 to 1815-1816, however, the coincidence of the price curve and the combined note-deviation curve is convincingly close. The general range is similar, and the price curve follows the other with a reasonable lag (which would be considerably diminished had it been practicable to present the quarterly figures here).

The period to 1806-1807 is the least easy to explain, for the available data account, at best, for less than a third of the actual rise in prices. There is good ground for thinking (see Silberling, "British Prices," *loc. cit.*, p. 246) that the missing element is largely to be found in the fluctuations of country bank notes and country credit — a conclusion which is supported by the known facts of the years subsequent to 1806. But certain other factors must also be considered: (1) The "psychological" impetus given to prices by the outbreak of war. There is no other way of explaining the abrupt rise of 1794 and 1795, after the slight check of 1793-1794. The Bank circulation, for example, was on the whole, *decreasing*. (2) An actual shortage of certain commodities, due to the ordinary war-time interruptions to trade, and later to the various blockades. (3) The depreciation of the exchanges produced by the position of the balance of payments — leading directly to higher

CHART XII. COMMODITY PRICES; BANK OF ENGLAND AND COUNTRY NOTE CIRCULATION DEVIATIONS



import prices, and indirectly, by domestic competition, to higher export prices. That this element was not especially important in the Restriction period *as a whole*, however, is shown by Charts VIII and X: the exchanges and the silver premium are intimately related to the balance of payments, but only very loosely to the course of prices. (4) Working in the opposite direction, toward a *fall* in prices, there was a decrease in the metallic circulation from exportation and from hoarding, which was not offset by the increase in paper money for some years — judging from the Bank circulation at least.

In the period from 1807-1808 to 1815-1816, the effects of the statistically unascertainable factors seem to have been fairly well offset by the increase in the Bank and country circulations: the price curve and the combined deviations-curve are satisfyingly similar. (The average deviation from the "normal" is, for the combined Bank and country note issues from 1806 to 1816 inclusive, 171.1; for prices, 166.5.) It will be observed, however, that the curve for the deviations of Bank of England notes taken alone appears to *follow* rather than to precede the price curve, and to be relatively stable when the *combined* curve was most variable. The critical fluctuations in the total volume of paper currency were due, rather, to the uncontrolled country issues — further evidence of the error in charging the Bank with the entire responsibility for inflation. The country issues seem to have anticipated and exaggerated the changing fortunes of business at every turn, whereas the Bank circulation was relatively stable — as in the crises of 1810-1811 and 1814-1815. (Also see Silberling, "British Prices," *loc. cit.*, pp. 237-238.)

In the period after 1816, the country issues again soared. Prices responded, but much less than in proportion (here they moved more closely with the Bank circulation alone) and soon resumed their drastic post-war collapse. The crisis of 1819-1820 ensued.

A further conclusion can also be drawn from this and the preceding chart: namely, that the Bullionists in general, and the framers of the "Bullion Report" especially, were apparently somewhat less than one third right in their condemnation of the Bank. It is true that the Bank's excessive issues of currency and credit were one of the two chief sources of inflation. But, in the first place, the responsibility for the excess lay primarily with the government, not with the Bank itself. In the second place, the more violent and more disastrous fluctuations in the total volume of media of exchange were due to the operations of the uncontrolled country institutions, not of the Bank. Finally, in the only



part of its loan-extensions over which it retained full control — its advances to the market — the Bank gives evidence at almost every stage of having followed a *non*-inflationary and commendable policy. The government and the country banks were to blame for inflation and for “the high price of bullion,” not the Bank of England. The curves of Chart XI indicate clearly that the volume of commercial discounts moved *after* prices rather than before, and with a moderating influence. This is shown still more clearly by the quarterly data Professor Silberling has collected, although the data are too voluminous to reproduce here. The Bank’s *total* advances, on the other hand, were fairly well synchronized with prices. Now commercial discounts made up only 35 per cent of the Bank’s total advances for the whole period 1794–1821, and only 24 per cent for the period 1811–1821. (See note to column 15 of the Tables, below.) The balance of the item was in part made up of loans on commercial collateral, but the greatest part of it almost certainly represented the direct or indirect carrying of government obligations, especially short-time. This conclusion is partly verified by the fact that, until after 1815, the difference between discounts and advances was nearly always larger than, and fluctuated roughly with, the excess of governmental outlay over revenue. (See column 16 of the Tables.) It therefore seems highly probable that while government borrowings were an important factor in the rise of prices, the commercial operations of the Bank were not. The Bank was not to blame. (Also see Cannan, *op. cit.*, p. xlvi; Silberling, “Financial and Monetary Policy,” *loc. cit.*, pp. 221–222 and following; and *idem*, “British Prices,” *loc. cit.*, pp. 240–242.)

#### VI. GOVERNMENT REMITTANCES AND THE FOREIGN EXCHANGES AGAIN

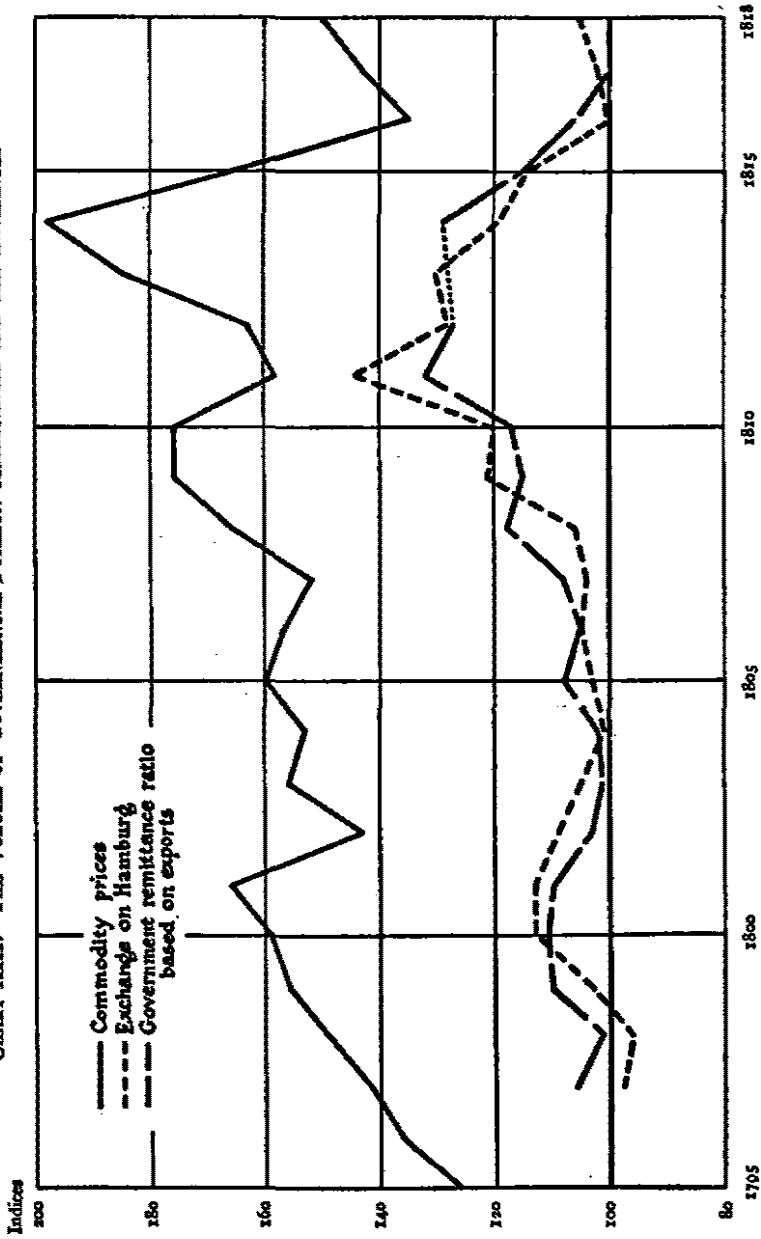
The data collected by Professor Silberling have made it possible to draw a further tentative conclusion, of considerable theoretical interest, as to the quantitative relation between the abnormal government remittances to the Continent and the course of the exchanges. In his article on “Financial and Monetary Policy,” already referred to, he presents figures for the total commodity imports and commodity exports of England during this period. I have taken the figures for commodity imports, and added to them the figures for government remittances, in order to get the total volume of payments due by England to other countries. (The figures for government remittances are secured by subtracting those for excess grain imports, shown in column

19 of the Tables below, from those for the totals of extraordinary foreign payments in column 1.) These totals were then divided into the volume of government remittances alone, in order to estimate the importance of the government-payment item in the total balance of payments. A similar operation was performed with exports as the base, instead of imports. These various figures are given in full in Table V. (There are no import and export figures for 1813.)

The ratios showing the relative importance of government remittances were then compared with the course of the exchange on Hamburg. The correlation between the remittance ratios and the exchange is extraordinarily close, with the ratios on the whole preceding somewhat. It seems impossible not to conclude that the immediate cause of the exchange depreciation and fluctuation was the pressure for government remittances; and that the exchanges moved only just far enough, on the whole, to equate the total volume of payments due *to* England (measured in foreign currencies) with the total volume of payments due *from* England. The relations on which these conclusions are based are presented graphically in Chart XIII. In the chart, the ratio derived from exports is used instead of that derived from imports, because it gives a closer correlation. This last fact is presumably due simply to the existence of unrecorded non-commodity debit items other than government remittances, which also entered the balance of payments. The curves begin with 1797, since before then the gold standard was operative. On the chart, a par rate of exchange is plotted as 100, a depreciation of 25% as 125, and so on. To make the curves comparable, therefore, a remittance ratio of 0 is similarly plotted as 100; a ratio of 25% is plotted as 125; and so on.

But a fundamental difficulty is involved in the original data, which makes the significance of these correlations uncertain. The figures for imports and exports are based on "official" valuations, themselves derived from prices current toward the close of the seventeenth century. The movements of the import and export figures are therefore only indices of changes in the physical volume (at fixed prices) of imports and exports, not of changes in the total sums of money due or receivable. The actual close correlation between the remittance ratios based on them, and the course of the exchanges, seems to show that the physical volume of goods, and the volume of total money payments due or receivable for them, moved fairly closely together. If prices moved upward, however, and thus increased the volume of payments more than in proportion to the increase in physical quantities, this ought to make

CHART XIII. THE VOLUME OF GOVERNMENTAL FOREIGN REMITTANCES AND THE EXCHANGES



the remittance ratios, as here calculated, too high. For the denominator in the ratios, physical volume, would be too small. If on the contrary prices moved upward, the opposite ought to be true: the denominator would be too large, and the resulting ratios too small. It is interesting to observe that those expectations are substantially borne out by the relationships shown on Chart XIII. During periods of rising prices, the remittance ratio was *above* the actual exchanges, as a rule, while during falling prices it was below.

Despite the peculiarities of the data, therefore, the conclusions of the preceding paragraph are on the whole justified — that the exchanges moved only just far enough to equate the total of money payments due to England with the total volume due by her. The balance of payments, that is, would have been very near equilibrium at the par rate of exchange, had the government not been compelled to remit heavily to the Continent. The exchanges depreciated enough to allow these payments to be effected, and when they ceased moved back to near parity. The general theoretical significance of the substantial verification of this proposition is evidently great.

3. The statistical data on which the conclusions of this Appendix are based are presented in the following pages. Their source and composition are indicated in notes placed after the tables.

TABLE I. THE FOREIGN EXCHANGE SITUATION

Year	1 Extraordinary for- eign payments. In million pounds	2 Per cent premium on silver in London. Par = 100	3 Deviations of ex- change on Hamburg. Par = 100	4 Deviations of ex- change on Paris. Par = 100
1791	...	...	...	...
1792	...	...	...	...
1793	1.4	99	...	...
1794	5.3	98	...	...
1795	9.4	102	...	...
1796	7.0	104	...	...
1797	1.6	102	98	...
1798	0.3	99	96	...
1799	3.4	105	103	...
1800	11.3	111	113	...
1801	12.0	116	113	...
1802	1.5	110	109	106
1803	0.3	108	105	103
1804	0.7	107	101	100
1805	4.5	107	103	99
1806	1.8	110	105	103
1807	2.6	110	104	104
1808	6.6	107	106	108
1809	9.1	110	121	123
1810	14.1	114	120	125
1811	13.8	121	144	139
1812	14.8	128	128	131
1813	26.3	138	130	127
1814	23.1	126	119	116
1815	11.9	118	114	117
1816	2.9	102	100	100
1817	4.4	105	102	102
1818	8.9	112	105	104
1819	2.2	107	...	...
1820	0.7	102	...	...

TABLE II. THE BANK OF ENGLAND; COUNTRY NOTES

Year	5 "Total advances" of the B. of E. In million pounds	6 B. of E. reserves: coin and bullion. In million pounds	7 B. of E. notes outstanding. In million pounds <sup>1</sup>	8 Deviations of B. of E. circulation from a "norm." In per cents	9 £1 and £5 country notes stamped. In million pounds	10 Deviations of B. of E. £1/5s country circulations. In per cents
1791	...	...	11.8	...	...	...
1792	...	...	11.5	...	...	...
1793	...	...	11.6	...	...	...
1794	10.5	6.7	10.8	98	...	...
1795	13.0	5.4	11.5	101	...	...
1796	13.1	2.3	10.2	88	...	...
1797	12.4	3.1	11.0	92	...	...
1798	13.6	6.4	12.6	103	...	...
1799	15.4	7.0	13.5	108	...	...
1800	19.0	5.4	15.2	119	...	...
1801	20.6	4.5	15.8	121	...	...
1802	20.5	4.0	16.9	126	...	...
1803	22.1	3.6	16.5	120	...	...
1804	24.5	4.8	17.4	124	...	...
1805	24.0	6.7	16.9	118	...	...
1806	25.0	6.1	16.8	115	11.6	139
1807	26.6	6.5	16.7	112	11.1	135
1808	27.3	6.4	17.1	112	16.4	160
1809	30.3	4.0	18.7	121	22.4	194
1810	35.7	3.4	22.5	144	13.9	165
1811	33.9	3.3	23.5	147	15.4	180
1812	36.4	3.0	23.2	142	18.9	193
1813	38.5	2.6	24.0	144	20.2	200
1814	42.9	2.2	26.9	159	15.9	189
1815	42.5	3.0	26.9	154	10.1	163
1816	34.6	6.6	26.6	152	11.0	164
1817	27.0	10.8	28.3	159	17.3	195
1818	29.0	7.8	27.2	150	18.9	195
1819	27.2	3.9	25.1	137	7.9	143
1820	22.2	7.3	24.9	134	6.7	131
1821	18.0	...	21.6	114	8.7	113
1822	17.1	...	17.9	...	8.0	...
1823	16.0	...	18.6	...	8.4	...
1824	14.8	...	20.1	...	11.8	...
1825	17.9	...	20.1	...	14.9	...
1826	17.6	...	22.3	...	...	...
1827	12.0	...	21.5	...	...	...
1828	10.8	...	21.1	...	...	...
1829	11.2	...	19.7	...	...	...
1830	10.6	...	20.5	...	...	...

<sup>1</sup> The figure for 1790 is 21.1.

TABLE III. COMMODITY PRICES

Year	<sup>11</sup> Silberling's index of commodity prices. 1790 = 100	<sup>12</sup> "Residual" prices: silver premium removed. 1790 = 100	<sup>13</sup> Jevons's index of commodity prices. 1782 = 100
1791	99	...	...
1792	102	...	93
1793	109	110	99
1794	107	108	98
1795	126	123	117
1796	136	131	125
1797	141	139	110
1798	149	151	118
1799	156	149	130
1800	159	143	141
1801	166	144	153
1802	143	131	119
1803	156	145	128
1804	153	143	122
1805	160	150	136
1806	157	143	133
1807	152	139	132
1808	166	155	149
1809	176	160	161
1810	176	154	164
1811	158	132	147
1812	163	128	148
1813	185	134	149
1814	198	157	153
1815	166	140	152
1816	135	132	109
1817	143	136	120
1818	150	135	135
1819	136	127	117
1820	124	123	106
1821	117	...	94
1822	114	...	...
1823	113	...	...
1824	106	...	...
1825	118	...	...
1826	103	...	...
1827	101	...	...
1828	97	...	...
1829	94	...	...
1830	93	...	...

TABLE IV. STATISTICS SUPPLEMENTARY TO TABLES I, II, III

Year	14 Commercial bills under discount at the B. of E. In million pounds	15 Percentage of Bank's commercial discounts to total advances	16 Excess of government outlay over revenue. In million pounds <sup>1</sup>	17 Unfunded governmental borrowing. In million pounds	18 Funded governmental borrowing. In million pounds	19 Grain im- ports above two million pounds. In million pounds	20 Premium on gold in London. Par = 100.
1791	...	...	...	10.5	...	...	...
1792	...	...	-1.9	8.5	...	...	...
1793	...	...	4.4	8.5	3.9	...	...
1794	2.5	24	9.4	10.0	12.9	...	...
1795	3.0	23	31.8	13.7	18.8	...	...
1796	3.5	27	36.2	7.0	28.6	2.5	...
1797	5.2	42	27.4	10.2	42.8	...	100
1798	4.4	33	19.9	14.3	22.8	...	100
1799	5.5	36	19.8	27.2	16.4	...	...
1800	6.3	23	22.4	26.0	20.5	6.8	107
1801	8.0	39	26.5	23.6	36.1	8.2	109
1802	7.6	37	13.1	16.5	26.1	0.2	...
1803	10.8	49	10.4	18.9	12.0	...	...
1804	9.8	40	12.4	18.7	14.2	...	103
1805	11.3	47	16.0	27.7	25.3	1.8	103
1806	12.1	48	12.7	30.9	20.1	...	...
1807	13.3	50	8.0	34.5	15.5	...	...
1808	12.9	47	10.0	45.1	14.2	...	...
1809	15.3	51	12.8	36.1	22.6	0.7	...
1810	19.5	55	9.7	37.7	21.6	5.1	...
1811	13.7	40	18.4	41.2	23.8	...	124
1812	14.0	39	21.2	45.8	34.9	...	130
1813	12.3	32	36.7	54.2	51.1	0.2	136
1814	14.0	32	35.2	52.3	36.6	0.8	124
1815	16.2	38	19.9	44.8	50.7	...	119
1816	12.3	36	2.5	46.6	9.3	...	103
1817	4.3	16	1.5	...	...	4.4	102
1818	4.6	16	-2.0	...	...	8.9	105
1819	6.9	25	-0.4	...	...	2.2	...
1820	4.2	19	-1.9	...	...	0.7	...
1821	2.9	16	-2.8	...	...	...	...

<sup>1</sup> Minus sign: excess of revenue.



TABLE V. THE RATIO OF GOVERNMENT REMITTANCES TO THE TOTAL BRITISH BALANCE OF INTERNATIONAL PAYMENTS

Year	21 Commodity exports. In million pounds	22 Commodity imports. In million pounds	23 Government remittances (col. 1 minus col. 10). In million pounds	24 Exports plus government remittances. In million pounds	25 Imports plus government remittances. In million pounds	26 Ratio of govt. remittances to total credit payments. (Based on exports.) In per cents	27 Ratio of govt. remittances to total debit payments. (Based on imports.) In per cents
1791	20	17	...	...	...	...	...
1792	22	17	...	...	...	...	...
1793	18	16	1.4	19.4	17.4	...	...
1794	23	19	5.3	28.3	24.3	...	...
1795	23	20	9.4	32.4	29.4	...	...
1796	26	21	4.5	30.5	25.5	...	...
1797	24	18	1.6	25.6	19.6	6	8
1798	28	26	0.3	28.3	26.3	1	1
1799	30	24	3.4	33.4	27.4	10	12
1800	36	28	4.5	40.5	32.5	11	14
1801	37	31	3.9	40.9	34.9	10	12
1802	40	30	1.4	41.4	31.4	3	4
1803	29	27	0.3	29.3	27.3	1	1
1804	32	28	0.7	32.7	28.7	2	2
1805	31	29	2.7	33.7	31.7	8	8
1806	34	27	1.8	35.8	28.8	5	6
1807	31	27	2.6	33.6	29.6	8	9
1808	30	27	6.6	36.6	33.6	18	20
1809	48	31	8.4	56.4	39.4	15	21
1810	45	40	9.1	54.1	49.1	17	18
1811	29	27	13.8	42.8	40.8	32	34
1812	40	27	14.8	54.8	41.8	27	35
1813	...	...	26.1	...	...	...	...
1814	55	34	22.3	77.3	56.7	29	39
1815	60	33	11.9	76.9	44.9	15	27
1816	49	27	2.9	51.9	30.0	6	9
1817	52	31	negligible	52.0	31.0	0	0
1818	56	37	after 1816	56.0	37.0	0	0
1819	43	30	...	43.0	30.0	0	0
1820	49	32	...	49.0	32.0	0	0
1821	52	30	...	52.0	30.0	0	0

## 4. Notes to statistical tables.

Column 1. Extraordinary foreign payments. — Taken from N. J. Silberling, "Financial and Monetary Policy of Great Britain during the Napoleonic Wars" (38 *Quarterly Journal of Economics*, February and May, 1924), p. 227. This item includes bills drawn and specie remitted for: (1) the British armies in Europe; (2) British subsidies, loans, etc., to foreign states and to diplomatic agents; (3) the estimated excess value of British grain imports from the Continent *above* £2,000,000. (This last figure is taken as the maximum that would be imported in normal years of no especial crop deficiency. The item of excess grain imports is spasmodic: see column 19.) The data were computed by Professor Silberling from government accounts, documents, etc.

Column 2. Per cent premium on silver in London. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, p. 227. The quotation is for Spanish silver dollars, to the nearest per cent.

Column 3. Deviations of exchange on Hamburg. — Taken from R. G. Hawtrey, "The Bank Restriction of 1797" (*Economic Journal*, March, 1918), p. 64.

Column 4. Deviations of exchange on Paris. — Taken from R. G. Hawtrey, "The Bank Restriction of 1797," *loc. cit.*, p. 64. Despite the existence of a state of war with France during most of this period, exchange on Paris continued to be quoted: Paris and Hamburg remained the chief Continental exchange markets.

Column 5. "Total advances" of the Bank of England. — Taken from N. J. Silberling, "British Prices and Business Cycles, 1779-1850," (*Review of Economic Statistics*, October, 1923, Supplement), p. 255. Silberling gives quarterly figures, from which the annual ones here presented were obtained by a simple averaging. They include both advances to the money market, and advances to the state.

Column 6. Bank of England reserves: coin and bullion. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, p. 225.

Column 7. Bank of England notes outstanding. — Taken from N. J. Silberling, "British Prices," *loc. cit.*, p. 255. Silberling gives quarterly figures, from which the annual ones here presented were obtained by a simple averaging.

Column 8. Deviations of Bank of England circulation from a "norm." — These figures are calculated from the preceding column. The "norm," from which they represent the percentage deviations of the actual circulation, is the annual increase in the circulation which it

is estimated would have taken place, without war or inflation, because of the normal growth of the country. To obtain this norm, the mean of the actual circulation from 1792 to 1796 was subtracted from the mean of the period 1822 to 1826 (respectively, in million pounds, 11.1 and 19.8), and the difference was distributed over the intervening years as an equal annual increment (of 0.29). The resulting norm is of course rectilinear.

Column 9. £1 and £5 country notes stamped. — Taken from N. J. Silberling, "British Prices," *loc. cit.*, p. 258. Silberling gives quarterly figures, from which the annual figures here presented were obtained by a simple averaging. They cover a limited period, but are the only index of the country note circulations and credit obtainable that is suited to the present purpose.

Column 10. Deviations of Bank of England *plus* country circulations. — These figures are calculated from columns 7 and 9, by a process essentially similar to that employed in computing the figures of column 8. The country circulation, taken alone, showed no definite trend either of increase or of decrease. To obtain a basis for calculation, therefore, the following procedure was used. The average country circulation, in the part of the Restriction period for which data were available (taking this period to extend to 1821, to get the widest possible base), was compared with the average Bank of England circulation in the same period (1806–1821). The averages, in million pounds, were respectively 14.6 and 23.1. Country notes alone, that is, made up 38.7 per cent of the average combined circulation. 38.7 per cent of the average country circulation, therefore (or 5.65 million pounds), was added to the "norm of increase" for Bank of England notes alone (as calculated for column 8 above). In this way a composite straight-line "norm" of growth was secured; and from it is calculated the deviations of the sum of the actual Bank and country circulation.

The resulting figures are by no means entirely satisfactory (as see Chart XII, and the note to it). But on the other hand they provide (together with the figures of column 8 alone, to 1806) a much better index of the volume of internal currency and credit than any of the other statistics available. Use of different bases for the Bank index (column 8), such as 1790–1794 and 1826–1830, gives practically the same combined deviation-index, at most 2 or 3 per cent lower. Use of the Bank's "total advances" (column 5), or of its commercial bills alone (column 14), produces either grotesque distortion, or insensitivity to critical general changes. The influence of loans to the government upon "total advances," for example, is far too great, relative to

the influence of loans to the money market and relative to the apparent effect upon prices. (See, however, Silberling, "British Prices," *loc. cit.*, p. 240.)

Column 11. Average commodity prices. — Taken from N. J. Silberling, "British Prices," *loc. cit.*, p. 232. Silberling gives quarterly figures, from which the annual figures here presented were obtained by a simple averaging. The index, an original computation by Professor Silberling, is made up from 17 commodities of high value relative to freightage charges, and 18 of low. It differs considerably at important points from the index ordinarily used for this period, that computed by Jevons from Tooke's data. (See column 13.) The defects of Jevons's index are indicated by Silberling in the text accompanying his table. For an account of the events that accompanied the principal fluctuations in these prices, see *ibid.*, pp. 237-238.

Column 12. "Residual" prices: silver premium removed. — These figures were calculated by dividing the general price index (column 11) by the silver premium (column 2), with the object of estimating the amount of the fluctuations in prices due to causes other than those bound up with the appreciation of silver. Silver is used as a base rather than gold, because the gold quotations are not continuous. The value of gold in terms of silver, however, does not seem to have varied sufficiently to produce an important change in the residual price calculations. (See column 19, and note.) It should be remarked, however, that this elimination of the silver premium does not seem to lead to conclusive results. Various attempts to compare the corresponding curve with other series failed to reveal significant relationships.

Column 13. Jevons's index of commodity prices. — Taken from E. Cannan, "The Paper Pound of 1797-1821" (London, 1919), pp. xliii-xliv. This index, though not used in the calculations here, is presented for purposes of comparison. (See note to column 11.)

Column 14. Commercial bills under discount at the Bank of England. — Taken from N. J. Silberling, "British Prices," *loc. cit.*, p. 256. Silberling gives quarterly figures, from which the ones here presented were obtained by a simple averaging.

Column 15. Percentage of the Bank's commercial discounts to total advances. — Computed from the data of columns 5 and 14. These percentages are on the whole surprisingly low. For the whole period 1794-1821 the average is 35 per cent; while for the critical later years, 1811-1821, it is only 24 per cent.

Column 16. Excess of government outlay over revenue. — Taken

from Cannan, *loc. cit.* A *surplus* is indicated by a minus sign. Also see Silberling, "Financial and Monetary Policy," *loc. cit.*, for further data on the way in which this deficit was made up; and columns 17 and 18.

Column 17. Unfunded governmental borrowing. In million pounds. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, p. 217.

Column 18. Funded governmental borrowing. In million pounds. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, p. 217. The figures for this and the preceding column are here confined to the war period.

Column 19. Grain imports in excess of two million pounds. In million pounds. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, p. 227. See note to column 1, above.

Column 20. Premium on gold in London. Par = 100. — Taken from R. G. Hawtrey, "The Bank Restriction of 1797," *loc. cit.*, p. 64. These figures, when they are obtainable, correspond fairly closely with the quotations for silver. (See column 2.) The ratio of gold to silver at Hamburg stayed within the range 15.11–16.11, and more than half of the quotations fall within the range 15.41–15.79. (See table, in *ibid.*)

Columns 21 and 22. Commodity exports and imports. In million pounds. — Taken from N. J. Silberling, "Financial and Monetary Policy," *loc. cit.*, pp. 228–229.

Columns 23 to 27 are self-explanatory.

*Supplementary Bibliography.* In addition to the publications already referred to here, and the more familiar general works dealing with the period, see H. S. Foxwell's preface to A. Andréadès's "History of the Bank of England" (2 ed., London, 1924); N. J. Silberling, "British Theories of Money and Credit," 1776–1848 (unpublished Ph.D. thesis, dated 1919, in the Harvard University Library), which contains a wealth of doctrinal as well as statistical material; and R. G. Hawtrey, "Currency and Credit" (2 ed., London, 1923), chap. 16—largely a reprint of his article in the "Economic Journal" for 1918, already referred to. Hawtrey attributes the drain of specie from England to the return of France to a metallic basis after the collapse of the assignats, rather than to remittances by the British government. (*Loc. cit.*, pp. 266 ff.) Silberling, who maintains the opposite thesis ("Financial and Monetary Policy," *loc. cit.*, pp. 231–233), admits some truth in this, but is puzzled as to why the flow of gold should have been so large, if this is to be the chief explanation. (*Ibid.*, p. 232, n. 3.) Silberling's data seem to support his view rather than Hawtrey's, as see Chart VIII above.

## APPENDIX B

### A NOTE ON THE INTERNATIONAL TRANSFER OF CAPITAL

The general form in which capital is transferred from one country to another has been quite definitely established. Both the writers who employ deductive methods and those who have undertaken inductive investigations are agreed that the transfers are effected primarily by means of changes in the commodity balance of trade. But it is not always quite clear just how the changes in the balance of trade are brought about, nor what are the effects of the capital transfers themselves. Much light has been cast on these questions by the considerable volume of statistical material that has been compiled in recent years. It is the purpose here to bring together the principal conclusions to which the study of this material has led, and to see what further inferences can be drawn from it. The bearing of such a discussion on the problems that are involved in the general theory of international prices requires no demonstration. The transfer of capital is evidently, from the point of view of that theory, simply one major source from which may come both changes in the ratios of commodity exchange between countries, and changes in the levels of international prices themselves.

The treatment of these questions, however, must necessarily be brief, and the details be left to the works cited. Moreover, in most of the cases it will be possible to examine the situation only with respect to the country which *receives* the capital. This limitation results from the character of the available data. Finally, nothing can be said about international transfers of capital other than those giving rise to the movement of securities or of other recorded obligations, for no comprehensive statistics dealing with such transfers have as yet been compiled. We shall consider only certain cases of private borrowing, in which the transfer of securities was involved; and certain cases of inter-governmental payments. In brief, they are: Canada, 1900-1913; the United States, 1860-1878; Argentina, 1881-1900; England, 1880-1913; France and Germany, 1871-1873; again England, 1793-1816; and the United States, 1919-1924.<sup>1</sup>

<sup>1</sup> Most of the material given in this note was used by the present writer in preparing a chapter for a recent publication of the National Industrial Conference Board entitled *The Inter-Ally Debts and the United States* (New York, 1925).

1. Canadian Borrowings, 1900-1913.<sup>1</sup>

During the years from 1900 to 1913, Canada was borrowing steadily and in increasing volume from foreign countries, especially from England. The borrowing was relatively moderate until 1908, but then expanded rapidly, reaching a high point of \$547,000,000 in 1913. For the period as a whole, the total exceeded \$2,500,000,000. The money was used for all sorts of industrial, commercial and even agricultural purposes, and was apparently a principal cause of the remarkable economic growth of Canada in the decade before the war. The period was one of rising prices and wages, and evidences of rapidly increasing prosperity were to be found in every direction.

The main features of the situation have already been indicated at another point in the present study (ch. vi, sect. 9, above; see also ch. xvi, sect. 3). The case is so good an example of the first phase in a borrowing operation, however, that it seems worth while to present the significant data in more detail.

An examination of the Canadian balance of international payments for the period as a whole shows that the new borrowings, amounting to \$2,546,000,000, were received in these ways:

	%
Debits on capital account.....	42
Net commodity imports.....	49
Non-loan debit balances.....	7
Unaccounted for.....	2
Total.....	100

The debits on capital account represent interest and amortization charges payable, which were in effect cancelled by the new borrowings, and also a small volume of foreign lending by Canada herself. They form a surprisingly large fraction of the total.

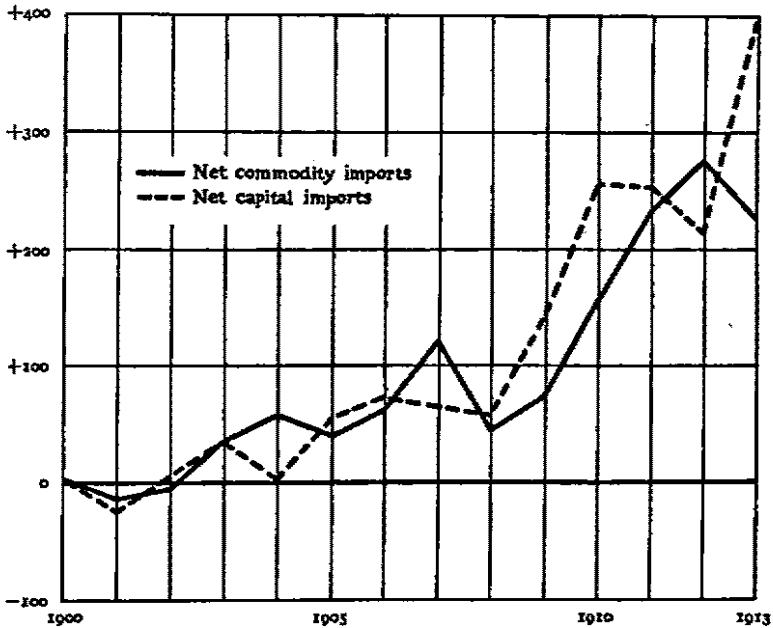
The *net* import of capital was of course much smaller than the total new borrowings, since these borrowings were in part offset by the debits on capital account just referred to. It amounted to \$1,538,000,000, and was received in these ways:

	%
Net commodity imports.....	83
Non-loan debit balances.....	14
Unaccounted for.....	3
Total.....	100

<sup>1</sup> The data on which this section is based are taken from Professor Viner's book, already referred to, on *Canada's Balance of International Indebtedness, 1900-1913* (Cambridge, 1924).

It is thus clear that the net imports of capital were received primarily in the form of an excess of commodity imports over commodity exports.<sup>1</sup> This conclusion is confirmed by the close correlation between the annual fluctuations in the volume of net capital import and those in the balance of trade, shown in Chart XIV. The trade balance, however, appears to follow with a lag of a year. This is probably due to

CHART XIV. CANADIAN COMMODITY AND CAPITAL IMPORTS  
1900-1913  
In million dollars



two things: first, to the interval between the announcement of each new loan (at which time it was usually credited to Canada) and its actual flotation; and second, to the lag between the accumulation of the capital abroad and the appearance of the resulting changes in the commodity balance.

Furthermore, the movements of the various groups of prices within Canada were those which would be necessary to make possible the transmission of the net capital imports primarily in the form of goods;

<sup>1</sup> The other debit items in the total Canadian balance of international payments were comparatively stable and insensitive.



that is, such as to increase commodity importation relative to exportation. This is shown by the data in Table I, below. Strictly domestic prices rose steadily to a level of 161.7 at the end of the period (with 1900 = 100). Import prices, on the other hand, rose to only 114.1, and their average for the period was only 102. Import prices are established primarily in the world markets, and the world average did not go up in anything like the same degree as Canadian domestic prices. This caused the prices of imports to fall *relative* to the general level of prices within Canada, and thus stimulated importation. Export prices, on the other hand, rose more than import prices, to 133.9, but not as high as domestic prices. This narrowed the foreign markets for Canadian exports, while at the same time making their production less profitable than the production of articles for the purely domestic market. Thus the necessary semi-permanent general changes in the trade balance were brought about. Were data also obtainable for the movements of the various groups of wages, they would undoubtedly reflect these price changes.

But this leaves unanswered the question of *how* the changes in prices were brought about; that is, of how the capital imports so operated within Canada as to alter the balance of trade to the necessary extent. Despite Professor Viner's rather different interpretation (see ch. vi, sect. 9, above), I think the solution is to be found in the fluctuations of Canadian bank deposits.<sup>1</sup> If in any given year the net volume of capital to be imported was just equal to the net volume of "final" means of payment available — the net volume of commodity imports, plus freight-service imports, and so forth — then no change in the situation was necessary. The sums made currently due to Canada by her borrowings abroad were then just offset by the sums she had to pay for her imports of commodities, freight services, etc. If on the other hand the net volume of capital to be imported materially *exceeded* these final means of payment, what apparently happened was that Canadian bank deposits were increased, in consequence of the increased offer for

<sup>1</sup> Bank deposits are taken as the most convenient available index of the total volume of purchasing power in circulation. In short periods this index is of course made inaccurate by changes in the distribution of currency as between bank reserves and active circulation. But in handling annual data — that is, over periods of some length — the effects of these changes tend to be smoothed over, while the general *trends* of the movements of deposits and currency in circulation are usually consistent. Moreover, the total amount of money in circulation is much smaller than the total volume of bank deposits, so that its fluctuations are, in a sense, of the second order of importance.

discount (relative to the demand) of bills of foreign exchange. If this increase in deposits was large and of some duration (statistical evidence on short-time adjustments is almost impossible to get), it led to a further rise in Canadian prices, and to a consequent further increase in commodity imports relative to exports. A considerable lag, however, usually appeared. When, finally, the net imports of capital fell *below* the final means of payment available, the opposite sequence of events occurred, though again with a lag. Taking the period as a whole, these changes in the balance of trade were on the average of such size as to enable the changing volume of borrowings to be transmitted primarily in the form of goods. The general *a priori* analysis of this process has been presented at sufficient length elsewhere (see ch. xvi, sects. 2 and 3), and need not be repeated.

The substantial validity of the explanation here advanced is clearly suggested, if not conclusively proved, by the correlations indicated in Charts XV and XVI. Chart XV shows that the changes in bank deposits *followed*, with a lag up to a year, the changes in the excess of net capital imports over final means of payment; and that the magnitudes involved were roughly similar when the lag is allowed for. Now the increase in bank deposits of course arose from general economic growth, as well as from the effects of the borrowing operations, and was hence greater than the excess of net capital imports. But this growth was fairly even, as indicated by the movements of the various price groups, whereas the volume of net capital imports fluctuated widely. It is therefore significant that the fluctuations in deposits tend to coincide with the capital-import fluctuations, after allowance is made for a year's lag. The latter set of fluctuations evidently dominate the first set. The only exception is in 1910, when deposits reacted after their too-abrupt rise in 1909. The lag is accounted for by the delay, already commented on, between the announcement of each loan and its transmission.

Finally, the fluctuations in deposits show a fairly good general correlation with those in the balance of trade. The latter has, however, a characteristic tendency to a lag of about a year. Their relationship can be inferred from the corresponding curves, as shown in Chart XVI.

The sequence of events therefore seems to have been substantially as follows: increase in volume of borrowing, excess of capital imports over final means of payment, increase in bank deposits, rise in prices, increased excess of commodity imports over exports, and final transmission of the capital imports primarily in the form of commodities.

CHART XV. NET CANADIAN CAPITAL IMPORTS AND BANK DEPOSITS  
1900-1913

In million dollars

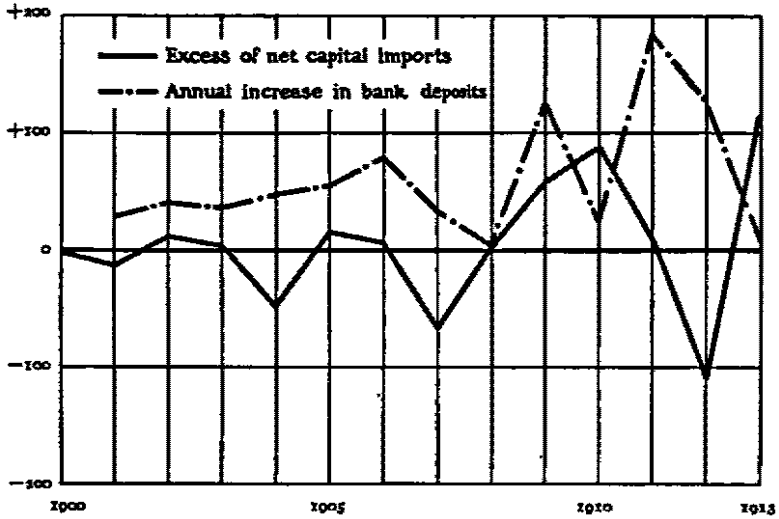


CHART XVI. CANADIAN BANK DEPOSITS AND THE BALANCE OF TRADE  
1900-1913

In million dollars

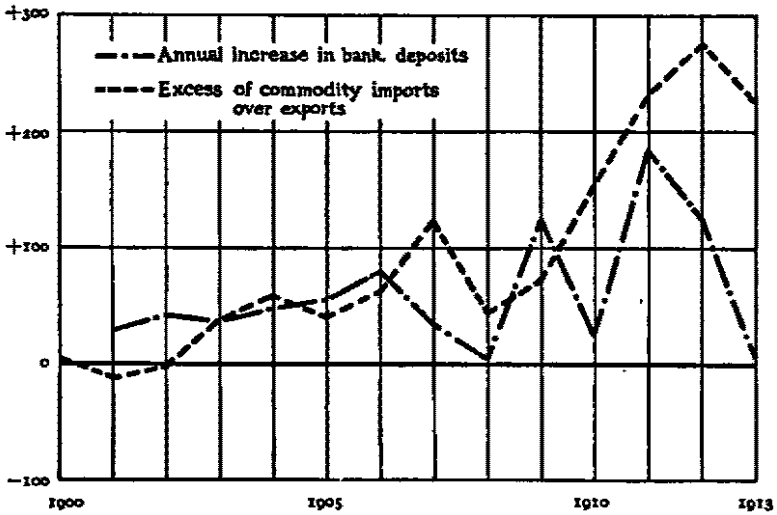


TABLE I. CANADIAN FOREIGN BORROWING, 1900-1913, AND ITS EFFECTS

Year	Capital and Trade Movements. In million dollars				Prices. (1900 = 100)			
	1 Net com- modity imports <sup>1</sup>	2 Net capi- tal im- ports <sup>2</sup>	3 Excess of capital imports <sup>2</sup>	4 Increase in bank deposits	5 General wholesale prices	6 Domestic prices	7 Import prices	8 Export prices
1900	4	3	- 2	...	100	100	100	100
1901	-12	-25	- 13	29	100	112	95	101
1902	- 3	5	11	42	104	119	93	103
1903	38	36	3	37	104	119	98	103
1904	59	2	- 49	48	105	119	94	104
1905	40	55	15	56	108	121	98	108
1906	62	72	7	80	114	123	107	115
1907	122	65	- 67	33	122	136	114	124
1908	45	59	- 2	3	118	134	100	120
1909	73	143	58	126	119	141	102	124
1910	154	257	89	24	121	146	105	126
1911	232	253	- 8	134	124	151	104	129
1912	275	213	-112	125	136	162	113	139
1913	223	400	113	6	132	162	114	134

<sup>1</sup> Minus sign: net export.

<sup>2</sup> Minus sign: net capital imports are less than the combined total of "final" means of payment (net commodity imports plus other net non-loan imports).

## 2. American Borrowings, 1860-1878.<sup>1</sup>

The principal features of the foreign borrowings by the United States from 1860 to 1878, like those of the Canadian case, have been presented elsewhere in the present study (see ch. vi, sect. 7). In their essentials the two cases are much the same. In the period of net capital importation, 1860-1873, 51 per cent of the total new American borrowings, which amounted to \$1,065,000,000, was received in the form of an effective cancellation of interest and amortization payments on outstanding loans. Of the balance, 72 per cent was received as commodity imports, and 28 per cent as imports of freight services. In the period of net capital exportation, however, from 1874 to 1878, the net payments of \$512,000,000 were transmitted entirely as commodity exports, since the service items all showed debit balances.

<sup>1</sup> The data used here are taken from F. D. Graham, *International Trade under Depreciated Paper: the United States, 1862-1879* (36 *Quarterly Journal of Economics*, 1922), unless otherwise indicated.

The relative movements of the various groups of prices were also what we should expect. In the first period (with the exception of one or two years) export prices were higher than import prices, and domestic prices higher than either group. In the second period, when capital was flowing out, the situation was reversed. Export prices became *lower* than import prices by the end of the period, and domestic prices lower than either. This operated to stimulate exportation, while checking importation. Furthermore, the movements of wages were of the character which these price changes would lead us to look for — a type of data, incidentally, not available for the Canadian case. In the period of capital importation, wages in the purely domestic industries were well above those in the industries competing with foreign products, indicating that the latter class of industry was unprosperous relative to the general American average. In the period of capital exportation domestic wages, it is true, had not fallen to the level of the other group at the end of the period for which data are available, but the difference was rapidly diminishing. This indicates that the prosperity of the industries which competed with foreign products was *rising*, relative to the general standard. The data on which these conclusions are based are presented in Table II, below. On the other hand in England, the principal lending country, just the opposite price movements tended to appear. The prices of exports were relatively *higher* in the borrowing period, and lower in the repayment period, than the general English level. Thus it became possible for England too to transmit and receive the capital primarily in the form of goods.

Finally, the intermediary process by which these changes in prices, and hence in the balance of trade, were effected, seems to have been the same as that suggested in the Canadian case: namely, by fluctuations in bank deposits. The data on which this conclusion rests are also presented in Table II. The correlation between the excess of capital imports above final means of payment and fluctuations in bank deposits is shown in Chart XVII. It was especially close in the period of net capital importation, but the similarity in the direction of change is marked throughout. That between bank deposits and the balance of trade is shown in Chart XVIII. It too was close to about 1874-1875, with the balance of trade showing a lag of about a year. After 1875, however, it looks as if the excess of commodity exports were increasing in the face of a nearly constant volume of deposits, whereas we should expect a *decrease* in deposits because of the growing volume of capital exportation. The explanation probably is that the country at

large was growing rapidly, and needed an increasing volume of bank credit merely to *maintain* any one level of prices. The substantial constancy in the volume of deposits was in effect equivalent to a *relative* decline — relative, that is, to the needs of the country. This last conclusion is confirmed by the fact that the general price level was falling

CHART XVII. AMERICAN CAPITAL MOVEMENTS AND BANK DEPOSITS  
1866-1876

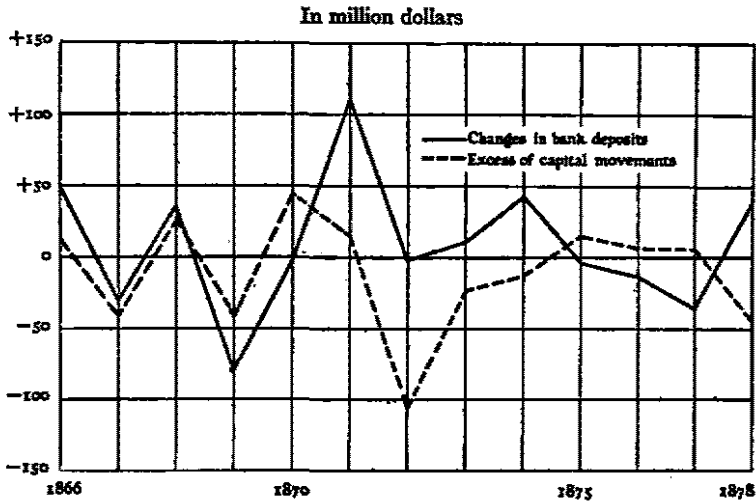
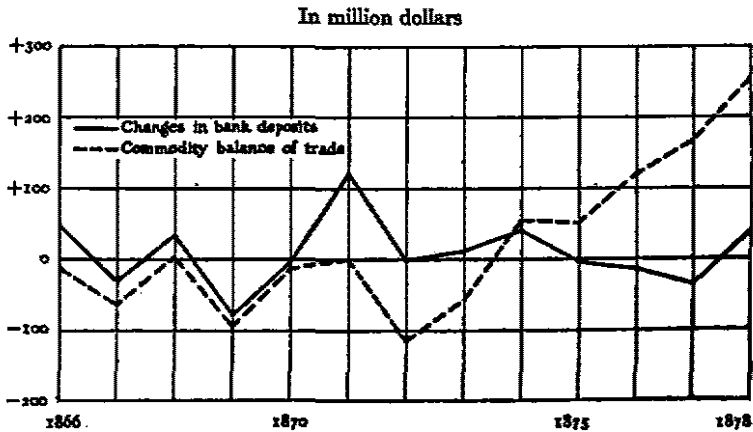


CHART XVIII. AMERICAN BANK DEPOSITS AND THE COMMODITY  
BALANCE OF TRADE, 1866-1878



much more rapidly than the gold premium, which indicates that there was an actual shortage of bank credit at the then-current levels of prices.

The study of the American situation at this time is also complicated by the contemporary depreciation of the currency. If the reasoning presented above is correct, however, this depreciation had comparatively little effect on the essential features of the borrowing operations. Allowance must be made for it, but the important factors were the *relative* changes in the different groups of prices and wages, and the relative changes in bank deposits. Not much more stress should be placed on the gold premium in this connection, for example, than on the paper price of any other "international" commodity. It had no greater influence than any one of them in facilitating the capital movements, and was in turn no more affected. Nor does the relation between the exchanges on the one hand, and the ratio between the American and foreign prices on the other — the "price parities" — seem to have played a controlling part. Discrepancies between the price parities and the exchanges, so far as they were related to the capital-transfer operations, were results rather than causes. Nor do they appear to have exerted, of themselves alone, a corrective effect upon the situation.

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The data of Table II are not begun until 1866, even where available before then, in order to avoid the confusions of the war period.

### 3. Argentine Borrowings, 1881-1900.<sup>1</sup>

The history of the foreign borrowing by Argentina from 1881 to 1900 is enough like that of the American case to make a detailed review unnecessary. Its main outlines have also been presented elsewhere (ch. vi, sect. 8). The data available cover both of the two chief phases involved in such operations, one of net capital import and one of net export due to the growing volume of interest payments on prior loans. In the first phase, nearly 35 per cent of the total new borrowing was offset by interest payments. Of the balance, 41 per cent was received in the form of net commodity imports, while 59 per cent was "unaccounted for." The size of this last item is due to the fragmentary character of the usable data. A very large part of it was probably composed of imports of freight services. In the second period, of net capital exportation, the figures for gross imports and exports themselves are

<sup>1</sup> The data used here are taken from J. H. Williams, *Argentine International Trade* (Cambridge, 1920). See Table III, below (p. 516).

TABLE II. AMERICAN CAPITAL MOVEMENTS, 1866-1878, AND THEIR EFFECTS

Year	Capital movements. In million dollars			Prices. (1860 = 100)				Wages. (1860 = 100)	
	1 Excess of net capi- tal move- ments <sup>1</sup>	2 Changes in bank deposits <sup>2</sup>	3 Com- modity balance of trade <sup>3</sup>	4 Pre- mium on gold	5 Domes- tic prices	6 Export prices	7 Import prices	8 Wages in "domestic" industries	9 Wages in "inter- national" industries
1866	+ 12	+ 48	- 11	141	182	181	175	165	150
1867	- 42	- 31	- 63	138	173	165	163	171	151
1868	+ 26	+ 36	+ 4	140	173	167	161	174	151
1869	- 42	- 79	- 94	133	164	162	161	180	152
1870	+ 45	- 3	- 10	115	146	144	153	181	154
1871	+ 15	+121	+ 1	112	144	134	138	182	152
1872	-106	- 2	-116	112	147	137	136	183	154
1873	- 23	+ 11	- 57	114	146	134	132	182	153
1874	- 23	+ 43	+ 57	111	139	140	124	177	151
1875	+ 15	- 4	+ 52	115	130	135	119	168	148
1876	+ 7	- 13	+120	112	116	123	113	160	144
1877	+ 6	- 36	+167	105	110	118	120	147	141
1878	- 44	+ 38	+254	101	99	100	108	142	137

<sup>1</sup> Plus sign: excess of net capital movements over net means of final payment. Minus sign: excess of means of payment over capital movements.

<sup>2</sup> Original data from the annual Reports of the Comptroller of the Currency. Figures are for a day in the first week of October.

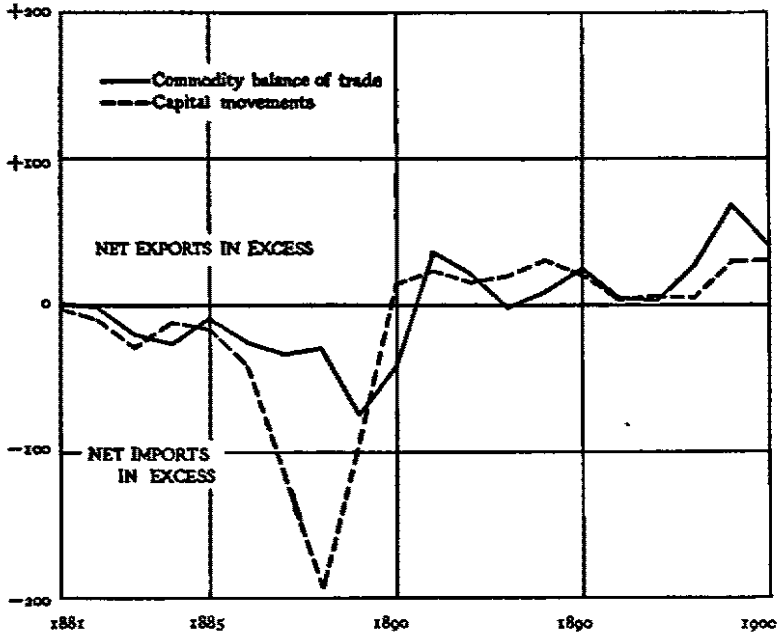
<sup>3</sup> Plus sign: net export. Minus sign: net import.

incomplete. Of the *net* export of capital, 96 per cent was accounted for by the net export of commodities. It is interesting to observe, incidentally, that this export excess was secured not so much by an actual increase in the volume of exportation, as by a *decrease* in importation. Finally, for the period as a whole the commodity balance of trade accounts for only 57 per cent of the total net capital movements. But, as shown in Chart XIX, the fluctuations in the latter item correspond very closely with those in the former. This clearly suggests that the trade balance was the chief means by which *changes* in the volume of net capital movements were effected. The other elements in the Argentine balance of payments, that is, were comparatively insensitive.

Data are missing to show statistically *how* the shifts in the trade balance were brought about, and we can only speculate as to the nature of the process. The data on price and wage movements are also fragmen-



CHART XIX. THE ARGENTINE BALANCE OF TRADE AND CAPITAL MOVEMENTS, 1881-1900



tary. These movements seem, however, to have been dominated chiefly by the internal depreciation of the currency. The effects of the borrowing operations on them were largely covered over.

#### 4. The Export of Capital from England, 1880-1913.

A study which has been made recently by Professor Taussig<sup>1</sup> casts a good deal of light on what happens during a period of international borrowing from the point of view of the *lending* country. Its results are necessarily tentative, in the absence of complete data on the British balance of international payments, but they are entirely in line with the conclusions drawn from other quantitative investigations.

From 1880 to 1900, England was constantly making new foreign loans — such as those to Argentina, already discussed. The available evidence goes to show, however, that these loans were on the average much more than offset in each given year by the interest and amortization payments on *prior* loans. Such was the case with respect to Ameri-

<sup>1</sup> F. W. Taussig, *The Change in Great Britain's Foreign Trade Terms after 1900* (*Economic Journal*, 1925). I shall not present Professor Taussig's statistics here.

TABLE III. NET BALANCES OF ARGENTINE COMMODITY AND  
CAPITAL MOVEMENTS, 1881-1900<sup>1</sup>  
(In million gold pesos)

Year	Period of Net Capital Importation		Year	Period of Net Capital Exportation	
	Commodity trade	Capital movements		Commodity trade	Capital movements
1881	+ 2	- 2	1890	-41	+15
1882	- 1	- 9	1891	+36	+24
1883	-20	- 28	1892	+22	+16
1884	-26	- 12	1893	- 2	+20
1885	- 8	- 16	1894	+ 9	+31
			1895	+25	+21
1886	-25	- 41	1896	+ 5	+ 3
1887	-33	-116	1897	+ 3	+ 6
1888	-28	-193	1898	+27	+ 5
1889	-75	- 94	1899	+68	+30
			1900	+42	+31

<sup>1</sup> Plus sign: net export. Minus sign: net import.

can borrowings, it will be remembered, after 1873. In other words, the net movement of capital was probably *into* England, and on a considerable scale. This conclusion both is borne out by, and helps to explain, the fact that British commodity imports were heavily in excess of exports during the period, by £100,000,000 to £150,000,000 a year on the average. Furthermore, the ratio between physical quantities of exports and physical quantities of imports — what Professor Taussig calls the “gross barter terms of trade” — was falling steadily. That is, a decreasing quantity of exports was being given for the same quantity of imports. This clearly suggests, if it does not definitely prove, that Great Britain was receiving the net income from her outstanding foreign investments (her net import of capital) primarily in the form of commodities; a conclusion which harmonizes with the results of the investigations made for other countries. The index of money wages was also rising, which shows that the general prosperity of the country was growing. This was presumably as the result, in considerable part, of the net payments being currently received from abroad.

From 1900 to 1913, however, a new flood of capital exportation developed. Commodity imports still exceeded commodity exports, but of the two, exports were increasing much more rapidly. Furthermore,

the ratio of physical quantities of exports to physical quantities of imports was *rising*, and rising far more rapidly than it had in the earlier period. This indicates that although the net movement of capital was still into England rather than away from it, the amount of the net importation was declining. Furthermore, the upward movement of the money wage index almost ceased. From 1900 to 1911 there was virtually no change. This, again, was probably due in large part to the decrease in the net volume of payments currently received from abroad.

These data, as far as they go, serve to confirm the main conclusion we have sought to draw from other investigations — that the *net* movements of capital between countries are effected primarily through the agency of the commodity balance of trade. Furthermore, they indicate that there is a relation of sorts between such capital movements and the level of money wages, and of money incomes in general. Net capital importation means more “favorable” terms of commodity trade (fewer exports, per physical unit of imports) and a larger volume of spendable national income, measured in money, than would otherwise have existed. Individual money incomes, that is, will rise. Net capital exportation, on the other hand, means just the reverse: less favorable terms of trade, a smaller volume of national money income (because some of it is being invested abroad), and comparatively stationary individual money incomes. But these last propositions, in the absence of more conclusive quantitative data, must be regarded as tentative.

#### 5. The French Indemnity Payments, 1871–1873.<sup>1</sup>

The various international transfers of capital hitherto discussed have all been cases involving borrowing and repayment operations; operations in which the lenders, if not always the borrowers, were private individuals or enterprises. The French indemnity payments to Germany after the Franco-Prussian War provide an example of transfers exclusively between governments, in which no subsequent counterflow of capital was involved.

The indemnity amounted to about five billion francs. It was paid *legally*, or proximately, in the following ways:

<sup>1</sup> The data used here, unless otherwise indicated, are taken from an article by A. E. Monroe, *The French Indemnity of 1871 and Its Effects (Review of Economic Statistics, 1919)*.

	Million francs
Transfer of Alsace-Lorraine railroad . . . . .	325
French gold and silver . . . . .	512
Foreign bank notes and coin . . . . .	230
Bills of exchange, acquired by:	
Subscription to loans . . . . .	1,773
Bankers' syndicate . . . . .	700
Purchases in the market . . . . .	1,774
	<hr/>
Total bills . . . . .	4,247
	<hr/>
Total payments . . . . .	5,314

Of this total, 500,000,000 francs were transferred within a few weeks of the signing of the agreement, in 1871. In the last twelve months of the period, in 1872 and to September, 1873, the payments were made at the rate of about 250,000,000 francs a month. In consequence, roughly 2,250,000,000 francs must have been paid in each of the years 1872 and 1873.

The source of the *economic* payments — that is, the funds from which these means of legal payment were secured — seems to have lain largely in a diversion to Germany of French credits in the international capital account. This diversion accounts for about two thirds of the total, as follows:

	Million francs
Sale of government securities abroad, and of foreign securities held in France . . . . .	1,400
Estimated sacrifice of income from outstanding foreign investments . . . . .	1,500
Net excess of commodity exports . . . . .	420
Coin and notes . . . . .	1,000
Unaccounted for . . . . .	600
	<hr/>
Total . . . . .	4,920

The item "coin and notes" is larger here than that shown in the preceding table, because it includes an additional 250,000,000 francs in gold sent abroad by French bankers to cover their foreign-exchange transactions. The basis for estimation of the item "sacrifice of income" will be explained below.

There still remains, however, the problem of showing how the diversion of credits in the international capital account was itself effected, and what form it took. In the absence of more extensive data than we now possess, this cannot be done with much definiteness, but a suggestion may be ventured. Let us assume that by 1878 or 1879 French

foreign-trade relationships had been restored to their ordinary terms, and that by then the effects of the indemnity payments had been worked out. The excess of imports over exports in 1879 was 1,365,000,000 francs. For the five years before the war the average annual excess was 300,000,000. The difference is 1,065,000,000. If we arbitrarily distribute this sum over the period 1868-1879, as an equal annual increment of roughly 95,000,000, we then have the "normal" balance of trade which would presumably have appeared as the average condition, in the absence of the indemnity operations. This "normal" balance represents the volume of payments that France would otherwise have received, as the income from her foreign investments. If it be compared with the actual trade balance, the difference can be taken as indicating the amount of her foreign income in each year which France sacrificed. This difference constitutes the "effective" French balance of trade. The comparisons involved are made in Table IV.

TABLE IV. THE FRENCH BALANCE OF TRADE, 1871-1879  
(In million francs)

Year	Actual balance <sup>1</sup>	Estimated "normal" balance <sup>1</sup>	"Effective" balance <sup>2</sup>
1871	- 695	- 590	- 105
1872	+ 190	- 685	+ 875
1873	+ 230	- 780	+1,010
1874	+ 195	- 880	+1,075
1875	+ 335	- 975	+1,305
1876	- 410	-1,075	+ 665
1877	- 235	-1,170	+ 935
1878	- 995	-1,265	+ 270
1879	-1,365	-1,365	0

<sup>1</sup> Plus sign: excess of exports. Minus sign: excess of imports.

<sup>2</sup> Plus sign: absolute amount by which the actual balance was less "unfavorable" than the estimated normal balance. Minus sign: amount by which the actual balance was more "unfavorable."

The total of the "effective" balances from 1871 to 1879 is 5,900,000,000 francs, which is a little more than the total of the indemnity payments. This suggests that even the secondary effects of the indemnity on French foreign trade were exhausted by 1878 or 1879, and justifies the selection of 1879 as a "normal" year. For 1872 and the first three quarters of 1873, the total is roughly 1,500,000,000 francs, which is the figure used above for the estimated sacrifice of income from abroad in those two years.

The conclusion to be drawn from these calculations, however tentatively, is as follows. By 1878 or 1879, France had bought back the foreign securities which she had previously sold to help pay the indemnity; she had bought back her government bonds sold abroad, or their equivalent, and her former holdings of coin and notes; and she had recouped herself for the diversion to Germany, from 1871 to 1873, of income from her foreign investments. She did this through her commodity balance of trade, in some part by acquiring an actual excess of exports over imports, but chiefly by abstaining from taking the large excess of *imports* which her prior foreign investments entitled her to receive currently. That is to say, the indemnity was *ultimately* paid, though over a number of years, by a diversion of French credits in the international capital account. At the time the indemnity payments were actually made, France sacrificed much of both the income and the principal of her foreign holdings. But in the following five or six years she bought them back again, primarily with the income from the holdings she had retained. With that income she was also able to pay off her own governmental borrowings abroad. This diversion of credits was effected through changes in the commodity balance of trade from the levels at which it would otherwise have been established.

Presumably the changes in the trade balance itself were brought about, as in the other cases examined, by differential changes in the various groups of French prices, but data on this point have not been compiled. French prices as a whole were distinctly below the German level until 1876.

The data on the receipt of the indemnity by Germany are scanty. "Legally," they were received in the manner already pointed out in connection with the payments by France. "Economically," they were received in three principal ways; by a net excess of commodity imports over exports, by the discharge of foreign debts contracted to carry on the war, and by an increase in German foreign investment. Germany also received some 500,000,000 marks in new gold, but this addition proved to be for the most part temporary. It is not worth while to go into the further details of the case here, because of the lack of usable statistics. At a rough estimate, however, 75 per cent of the indemnity was received "economically" in the form of an excess of commodity imports, and 25 per cent as gold bullion and foreign currencies. The subsequent loss of most of the latter item was offset by new German investment abroad. The situation is complicated, however, by the fact that from 1871 to 1873 German private enterprises borrowed

very large sums, perhaps 2,000,000,000 marks or more, from foreign markets.

The nature of the general economic effects produced within Germany by the indemnity receipts is not easy to determine. The surface facts are these. From 1871 until the middle of 1873 Germany had a financial and industrial boom of unusual size and intensity; then a catastrophic collapse; and then a long period of severe depression and recurring smaller crises, which lasted until the end of the decade. To some it has seemed obvious to attribute these events to the artificial stimulation of the indemnity. But many writers, among them Wagner, have denied this. They point out that the crisis of 1873 was worldwide, not confined to Germany alone; and that it began in Vienna rather than in any German center. At most, they admit that the periodic (rather than continuous) receipt of the payments had a temporarily disadvantageous effect, especially in the money markets; and that the retirement of a considerable part of the national debt released capital for use in business enterprises — which were necessarily somewhat speculative. On the other hand, the boom was admittedly much greater in Germany than in other countries, while the depression was both more acute and more prolonged.

The correct explanation of the situation — although lack of adequate statistical data makes any positive conclusion uncertain — probably lies somewhere between the two interpretations just outlined. In 1872 and 1873, all of the leading commercial countries were in the upward phase of the business cycle, so that some sort of crisis and depression were ultimately inevitable. In Germany, this "normal" upward swing was greatly accentuated by — though it was not exclusively due to — the inflationary effects of the *sudden* receipt of the indemnity, and by the general optimism consequent on the successful termination of the war. The crisis and later depression were correspondingly more acute, although again they did not originate solely in the indemnity receipts. Moreover, it made little difference where the actual crisis began. If it had not begun in Vienna, the structure of speculation and inflated values and over-investment, which was characteristic of other countries as well as of Germany, must surely have cracked elsewhere. A severe readjustment of some sort was inevitable. In a word, the effects of the indemnity receipts were simply superimposed, in Germany, upon the relatively "normal" development of the business cycle. They greatly exaggerated the upward and downward swings of this cycle, but did not "cause" them.

It seems likely, however, that Germany could have avoided suffering materially more than other countries at the time, had she received the payments as a continuous small flow, spread out over a considerable interval. The resulting stimulus would then have been gradual, instead of being impossibly abrupt, and German finance and industry would have had time to make the necessary readjustments. It was not so much the *fact* that payments were received, as the *manner* in which the receipts themselves were taken, that produced a greater financial disaster in Germany than in the rest of Europe.<sup>1</sup>

6. British Government Remittances during the Napoleonic Wars.

The remittances of the British government to the Continent, from 1793 to 1816, have been discussed at length in Appendix A. Attention is again called to them here because they present a case in which the necessary relative changes in the various groups of prices, requisite to alter the commodity balance of trade, were brought about in a way not hitherto encountered. In the other cases examined, whenever the data were adequate, it appeared that the price changes were produced by changes in the volume of domestic currency and credit. Here they seem to have been produced by the effects of the depreciation of the foreign exchanges.

In the Appendix already referred to (see especially Charts VIII and XIII therein presented), it was shown that the exchanges were dominated by the pressure of the government for foreign bills. When the pressure was great the exchanges depreciated roughly in proportion, since England was in effect under inconvertible paper. When it relaxed, they moved back towards par. Now a depreciation of the exchanges, other things equal, operates to increase the price (in the domestic currency) that importers in the depreciated country must pay for bills. It also increases the sums that its exporters receive. Other things again equal, this will stimulate exportation and check importation. When the exchanges improve, the opposite tendencies appear.

<sup>1</sup> For more detailed discussions of these problems see, in addition to the article by Professor Monroe already referred to, the following: A. Wagner, *Das Reichs-finanzwesen* (Schmoller's Jahrbuch, 1874); H. H. O'Farrell, *The Franco-German War Indemnity* (London, 1913: Garton Foundation Publications), which has an extended bibliography; a British Foreign Office handbook, *Indemnities of War* (London, 1920); G. Carano-Donvito, *Indennità di guerra e debiti interalleati (Riforma Sociale, 1925)*; and a chapter by the present writer in the National Industrial Conference Board report, *The Inter-Ally Debts and the United States* (New York, 1925).



There is hence good ground for holding that the government remittances were in effect transferred by means of changes in the commodity balance of trade, but that these changes were produced by exchange depreciations *themselves* caused by the government demand for foreign bills.

It is of course true that exchange depreciation tends to produce corresponding alterations in the prices of commodity exports and imports in the country concerned, and when this adjustment is completed the direct mechanical influence of the depreciation on the course of foreign trade disappears. But the statistics and charts submitted in the previous Appendix show that there was no very intimate connection between the fluctuations of the exchanges and the movements of prices. These last were, rather, dominated by the severe and largely independent depreciation of the English currency itself, and indeed went to much higher levels than the exchanges. On the whole, therefore, the exchange fluctuations can therefore be regarded as having exerted their full effects on foreign trade, *without* having given rise to corrective price changes of substantial size.

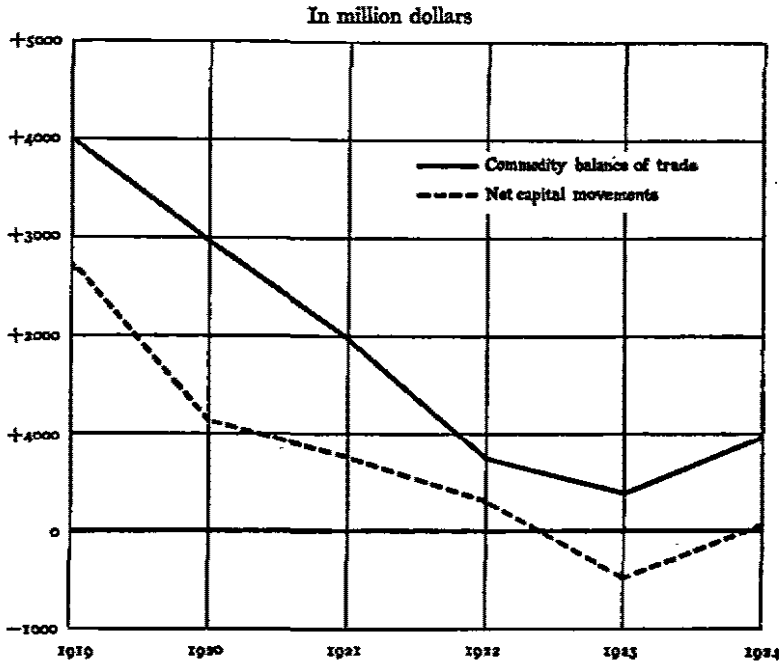
7. The Export of Capital from the United States, 1919-1924.

In the six years after the war the United States exported an enormous volume of capital, over \$8,500,000,000 in amount at the least. Of this sum roughly \$2,700,000,000 represents advances made by the American government, chiefly in 1919, for reconstruction and relief, but the remainder is almost entirely private investment. On the other hand the United States imported nearly \$4,000,000,000, the largest item being the repayment of foreign loans, so that the *net* export was only some \$4,600,000,000.

The statistics are so biased by the post-war inflation in this country, and by the depreciation of the European currencies, that it is almost impossible to show in any detail what the processes involved really were. So far as the data go, however, they bear out the conclusions reached in other cases. Net capital movements and the commodity balance of trade maintained a close relationship, as is shown in Chart XX, and the capital exports can reasonably be regarded as having been effected primarily in the form of commodities. The difference in the levels of the two curves is accounted for by net debits in the other items of the balance of payments, debits which were a moderately stable element in the situation. Beyond this, however, it does not as yet seem worth while to try to go.

The relevant data are presented in Table V. They are taken from the estimates published by the U. S. Department of Commerce.<sup>1</sup> It may be remarked that the "unaccounted for" item is explained very

CHART XX. THE AMERICAN BALANCE OF TRADE AND THE NET MOVEMENT OF CAPITAL, 1919-1924



largely by bankers' and traders' balances, left abroad either voluntarily or involuntarily after the war and later gradually withdrawn.

#### 8. Summary of Conclusions.

The principal conclusions to which this review of the available continuous data on the international transfer of capital leads may now be summarized. They apply, however, only to comparatively long-time

<sup>1</sup> *Trade Information Bulletins*, Nos. 144, 215, and 340.

A more elaborate study of the situation has been made by the present writer in a chapter on *The Debts and American Finance*, in the report of the National Industrial Conference Board on *The Inter-Ally Debts and the United States* (New York, 1925). Such additional conclusions as are there reached, however, rest on data which are too elaborate to be presented here, and which are less certain. Sufficient time has not yet elapsed since the war, for example, to warrant the drawing of definitive inferences from price and bank deposit statistics.

TABLE V. NET BALANCES OF AMERICAN INTERNATIONAL PAYMENTS, 1919-1924

*(In million dollars)*

Plus sign: Net export. Minus sign: Net import

Year	1 Merchandise	2 Gold, silver, and other currency	3 Other non-capital items <sup>1</sup>	4 Total "final" means of payment, net (1+2+3)	5 Capital movements	6 Un-accounted for (5-4) <sup>2</sup>
1919	+4,016	+403	-557	+3,862	+2,780	-1,082
1920	+2,950	+ 79	-757	+2,272	+1,129	-1,143
1921	+1,976	-778	-667	+ 531	+ 759	+ 228
1922	+ 754	-246	-693	- 185	+ 303	+ 448
1923	+ 389	-246	-768	- 625	- 473	+ 152
1924	+ 970	-272	-847	- 149	+ 63	+ 212

<sup>1</sup> Net balance of freight charges, plus immigrants' remittances and relief, plus tourists' expenditures.<sup>2</sup> I. e., the annual credit (+) or debit (-) balances unaccounted for.

relationships — to periods of at least a year in length, and usually more. It does not seem possible to get satisfactory data on the processes of short-time adjustment. These conclusions are most conveniently presented in an order the reverse of the actual sequence of changes.

(1) The *net* transfers<sup>1</sup> are eventually effected primarily in the form of changes in the commodity balance of trade. This balance is much the biggest single item in the net movements of those "final" means of payment which are to be offset against the capital movements, and is also much the most sensitive to changes in the latter. If the capital transfers are large and sudden, however, as in the case of the French indemnity, they are apt to be effected in the first instance through the transfer of *other* kinds or forms of capital. The movement of securities provides an example. But ultimately these latter alternative capital movements are reversed, and are replaced by corresponding movements in the balance of trade.

<sup>1</sup> In the case of borrowing and repayment operations from 35 per cent to 50 per cent or more of the dominant capital movement, in the cases here examined, was offset by a counter-flow of capital — either of interest payments, or of new investments, according to the case. At any one time, in advanced countries, the situation always shows a complex network of capital movements simultaneously proceeding in opposite directions. This is precisely like the course of the strictly commodity trade.

(2) The changes in the balance of trade itself, at least under stable metallic standards, are brought about by changes in the various groups of prices within the countries concerned. In a country importing capital, for example, export prices will move above import prices, and domestic prices above both. Similar changes appear in the corresponding classes of wages, and in the relative prosperity of the corresponding classes of industry.

(3) The movements in prices, in turn (again assuming stable monetary standards), are produced by changes in the total volume of purchasing power in circulation. These changes are themselves the consequence of a shift in the relation between the demand and the supply of bills of exchange. In a country importing capital, for example, an excess of net capital importation above the quantity of "final" means of payment available increases the rate at which bills of exchange are currently supplied to the exchange market. Since no change has taken place in the demand, the banks' holdings of such bills, and therefore their deposits, will expand. A part of the increased deposits may subsequently be transformed into cash, but the net result will be an augmentation in the country's total supply of purchasing power in circulation. This will operate to raise the general level of prices, and also to increase the divergence between the various price groups. It will thus alter the balance of trade to the necessary extent. But these various relationships, it must be repeated, take time to work out. They are not to be interpreted in any short-run or very immediate sense.

In a country exporting capital, or importing it at a less rapid rate than before, the opposite changes presumably appear, although this is less clearly established by the data available. The demand for bills of exchange is increased, relative to the supply; the total volume of purchasing power in circulation declines; and prices fall. The differential movements of the various price groups are also reversed, and the balance of trade changes in the opposite direction. If the capital-exporting country is under inconvertible paper, however, there is some evidence to show that the changes in prices and the balance of trade are produced simply through the effects of a depreciation of the foreign exchanges, itself a consequence of the increased demand for bills. But this takes place only in so far as the general price level *fails* to reflect the movements of the exchanges.

(4) The importation of capital on any important scale leads to general prosperity and expansion during the continuance of the importation, or at least during the time its rate is increasing, and probably for

some time afterward. It also leads to rising money incomes. The exportation of capital, on the other hand, does not necessarily induce depression and falling incomes. But it does cause the country's general economic advance to be less rapid than it would presumably have been otherwise.

9. Rejection of the Cyclical Hypothesis.

The existence of a fairly intimate (though not a short-time) connection between capital movements and the commodity balance of trade thus seems clearly established by the available statistical data. It is tempting to try to relate both the movements of capital and the fluctuations of the trade balance to an antecedent common cause, the cyclical oscillations of business at large.

Evidently if the cycles in two different countries are coincident, and of roughly equal magnitude, their influence will not materially affect the situation. But if they are not, discrepancies of various sorts will arise, and will affect the international movement of goods and capital. Suppose, for example, that one country is in the midst of a boom period, while the other is in a less active phase of the cycle or even in a depression. In the first country, prices are relatively high. This stimulates commodity importation relative to exportation. Profits and interest rates are also high, thus stimulating the import of capital for investment in fixed-yield securities (the prices of which are low), and checking its export. On the other hand, however, the capitalized value of businesses and of shares of stock is high too. This will *check* the import of capital for investment in them. In the other country, prices are low, and commodity exportation from it will be relatively increased. Profits and interest rates are also low. This will check the import of capital for investment in fixed-yield securities (the prices of which are now high), and stimulate its export. On the other hand, the low capitalized value of businesses and of stocks will stimulate the *importation* of capital for investment in them.

Now the great bulk of the securities that move between countries is of the fixed-yield type. As far as they are concerned, therefore, the cyclical hypothesis is borne out. The import of capital and the import of goods, or vice versa, will move together, and be jointly due to the cyclical fluctuations of business. But a very large part of the international investment of capital, almost as large a part perhaps, takes the form of the purchase of ownership, not of fixed-yield debts; that is, the purchase of stocks, and of direct titles (such as the acquisition of real estate, etc.). This type of capital moves in just the opposite direc-

tion. It is *exported*, for example, at times when the position of the business cycle is stimulating commodity *importation*; and vice versa.

*A priori* reasoning thus leaves us in some doubt as to the correctness of the hypothesis. Its validity seems to depend on whether the purchase of fixed-yield securities predominates over other types of foreign investment. Moreover, it deals only with new *investment*. The commodity balance of trade, however, responds rather to changes in the *net* movement of capital, which is made up of interest and profits payments as well as of investment itself. But the volume of interest payments is of course not related to the cyclical fluctuations of business. At any one time it is comparatively constant, and it may therefore upset that relation which might otherwise appear between capital movements and the trade balance. The payment of profits to foreigners, also, will be large in a boom period, yet at this same time the low price of fixed-yield securities is stimulating their sale abroad.

Taking the situation as a whole, therefore, it is evident that there can be no uniform and invariable relation between the *net* movement of capital and the business cycle, for each phase of the cycle induces important capital flows in *both* directions. Depending on the international investment situation in the particular case, and on the precise form the investment itself takes, cyclical fluctuations may produce a flow in *either* direction.

Nor does the statistical evidence in the cases examined above here seem to support a cyclical theory. It is of course true that the available data are annual only, and therefore tend to cover over rather than to accentuate any cyclical influences that may actually exist. But the fluctuations in the net movements of capital and in the trade balances take place too frequently, and in too nearly a constant relationship, to suggest clearly a common cyclical origin. At different points in non-coincident cycles, we should expect quite different degrees of effect and of connection. The distribution of the peaks and valleys also fails to indicate a recurring cycle.

Finally, the cyclical hypothesis is of little or no direct use in accounting for the appearance and correction of changes in the *other* items in the balance of international payments — in freight charges, tourists' expenditures, and so forth. Yet they too exert an important influence on the trade balance. With respect to these adjustments, the explanation advanced at another point alone seems adequate. This is the explanation which turns on the effects of changes in the supply and demand for foreign bills of exchange upon the volume of purchasing power in circulation.

## APPENDIX C

### BRITISH, FRENCH AND GERMAN STATISTICS, 1919-1924

The figures here presented are the data used in constructing the charts of Chapter XVII. They are copied or computed from the elaborate and valuable compilations contained in the U. S. Senate Commission of Gold and Silver Inquiry report, entitled Foreign Currency and Exchange Investigation, Serial 9, vol. 1 (Washington, 1925).

No attempt has been made in the present study to draw up charts or tables for Germany, except those dealing with the physical volume of foreign trade. The statistical work involved is very laborious, because of the enormous size of the figures, and the grotesque distortion imposed by the ultimate complete collapse makes it almost impossible to derive useful conclusions different from those obtainable from the more easily handled data for other countries. After the end of 1922, prices, exchanges and note circulation all rose with skyrocket velocity, but the relative order and magnitudes of the movements seem to have had little significance. Each was simply a different aspect of the same phenomenon: the "flight from the mark." The flight itself was induced, in the first instance, by events of a political rather than a primarily economic character.

An interesting study of these movements, however, is made in the Senate report just mentioned. To this the reader may be referred.

TABLE I. BRITISH STATISTICS, 1919-1924

Year and Month	1 Foreign exchange: price of dollars in per cents of par. <sup>1</sup> Par = 100	2 Price parities on U. S. (In pounds per dollar). <sup>2</sup> Par = 100	3 Total note circulation (£ millions)	4 Price index <sup>3</sup>	5 Net imports (£ millions) <sup>4</sup>	6 Net exports (£ millions) <sup>4</sup>
1919 — I...	102	112	377	224	130	47
II...	102	114	385	220	102	47
III...	103	111	402	217	97	53
IV...	104	109	426	217	99	58
V...	104	113	421	229	124	64
VI...	105	116	421	235	111	65
VII...	110	117	418	243	141	65
VIII...	114	116	411	250	133	75
IX...	116	120	413	252	133	67
X...	116	125	419	264	134	79
XI...	119	125	423	271	123	87
XII...	128	124	444	276	143	91
1920 — I...	132	124	414	288	158	106
II...	144	132	417	306	148	86
III...	130	131	435	307	150	104
IV...	124	128	439	313	147	106
V...	124	124	452	305	146	119
VI...	124	124	464	300	150	116
VII...	126	125	469	299	145	137
VIII...	132	129	462	298	140	115
IX...	138	125	463	282	139	117
X...	140	133	465	282	133	112
XI...	142	134	458	263	131	119
XII...	140	135	481	243	130	97
1921 — I...	130	137	452	232	107	93
II...	126	134	444	215	89	68
III...	125	134	454	208	85	67
IV...	124	134	447	199	81	60
V...	122	132	442	191	79	43
VI...	129	129	443	183	81	38
VII...	134	132	434	186	71	43
VIII...	132	128	427	181	79	51
IX...	130	124	420	175	78	55
X...	126	115	416	163	74	62
XI...	122	114	418	161	79	63
XII...	117	112	433	157	76	59



TABLE I. — (Continued)

Year and Month	1 Foreign exchange: price of dollars in per cents of par. <sup>1</sup> Par = 100	2 Price parities on U. S. (In pounds per dollar). <sup>2</sup> Par = 100	3 Total note circulation (£ millions)	4 Price index <sup>3</sup>	5 Net imports (£ millions) <sup>4</sup>	6 Net exports (£ millions) <sup>4</sup>
1922 —						
I...	115	113	408	156	68	63
II...	112	110	400	155	59	58
III...	111	111	404	157	78	65
IV...	110	111	402	158	71	56
V...	109	107	400	159	80	58
VI...	109	106	399	159	76	52
VII...	109	102	400	157	73	60
VIII...	109	99	396	152	75	60
IX...	109	99	390	150	70	63
X...	110	100	387	153	77	60
XI...	108	99	390	153	86	66
XII...	106	98	405	152	86	59
1923 —						
I...	105	99	381	153	90	67
II...	104	99	391	155	74	58
III...	104	99	388	156	81	61
IV...	105	99	384	157	74	63
V...	105	100	390	155	77	72
VI...	105	99	389	150	78	63
VII...	106	98	392	147	68	60
VIII...	106	99	387	147	82	60
IX...	107	98	384	150	75	64
X...	108	99	383	150	89	71
XI...	111	103	384	156	91	66
XII...	112	104	405	156	99	64
1924 —						
I...	114	107	384	161	88	64
II...	113	108	381	163	83	68
III...	113	108	384	161	91	61
IV...	112	109	393	161	74	63
V...	112	110	389	161	109	70
VI...	113	110	394	160	78	62
VII...	112	111	400	163	98	71
VIII...	108	108	392	162	93	66
IX...	109	112	387	166	91	63
X...	108	113	386	172	108	69
XI...	106	112	386	171	106	68
XII...	104	111	396	174	120	69

<sup>1</sup> Monthly average for cables.<sup>2</sup> Monthly average. *Statist* index for England, *Bureau of Labor Statistics* index for United States.<sup>3</sup> Monthly average. *Statist* index.<sup>4</sup> Excluding gold and silver.

TABLE II. FRENCH STATISTICS, 1919-1924

Year and Month	1 Foreign exchange: price of dollars, in per cents of par. <sup>1</sup> Par = 100	2 Price parities on U. S. (in francs per dollar). <sup>2</sup> Par = 100	3 Total note circulation (in hundred million francs)	4 Price index <sup>3</sup>	5 Net imports (100,000 quintals) <sup>4</sup>	6 Net exports (100,000 quintals) <sup>4</sup>
1919 —						
I...	105	174	320	348	18	16
II...	105	177	327	340	23	21
III...	109	171	334	336	27	25
IV...	116	167	340	332	24	22
V...	122	161	340	325	24	22
VI...	123	162	344	329	32	30
VII...	134	165	350	349	31	28
VIII...	152	160	351	347	30	27
IX...	164	170	358	360	30	27
X...	166	180	370	382	30	27
XI...	182	187	374	405	22	20
XII...	208	190	373	423	93	65
1920 —						
I...	227	209	376	487	27	22
II...	274	225	378	522	34	24
III...	269	237	376	555	42	33
IV...	310	241	377	588	39	29
V...	282	223	379	550	39	32
VI...	244	203	375	493	44	30
VII...	238	206	377	496	50	40
VIII...	268	217	379	501	42	29
IX...	287	233	392	526	43	32
X...	295	238	391	502	45	32
XI...	322	236	388	461	45	30
XII...	326	243	379	435	56	44
1921 —						
I...	300	240	379	407	41	29
II...	269	236	378	377	28	13
III...	274	232	384	360	30	18
IV...	267	234	382	347	29	16
V...	231	227	382	329	25	12
VI...	238	229	374	325	23	8
VII...	247	234	369	330	25	11
VIII...	249	233	368	331	30	18
IX...	265	244	371	344	42	29
X...	267	233	371	331	38	24
XI...	268	237	363	332	42	27
XII...	246	233	365	326	49	35

TABLE II. (Continued)

Year and Month	1 Foreign exchange: price of dollars, in per cents of par. <sup>1</sup> Par = 100	2 Price parities on U. S. (In francs per dollar). <sup>2</sup> Par = 100	3 Total note circulation (In hundred million francs)	4 Price index <sup>3</sup>	5 Net imports (100,000 quintals) <sup>4</sup>	6 Net exports (100,000 quintals) <sup>4</sup>
1922 —						
I...	237	227	364	314	34	18
II...	221	217	362	306	41	26
III...	214	216	355	307	45	29
IV...	208	220	358	314	38	20
V...	212	214	357	317	44	28
VI...	220	217	360	325	43	25
VII...	233	210	360	325	42	25
VIII...	243	214	364	331	45	27
IX...	252	216	366	329	42	17
X...	262	219	367	337	45	21
XI...	281	226	361	352	46	26
XII...	267	232	364	362	50	31
1923 —						
I...	288	248	368	387	41	22
II...	314	268	371	422	39	14
III...	306	267	372	424	41	23
IV...	290	261	365	415	41	26
V...	289	261	367	407	45	26
VI...	305	267	367	409	49	31
VII...	328	270	369	407	49	30
VIII...	342	276	364	413	48	26
IX...	330	276	376	424	50	29
X...	325	276	377	421	44	22
XI...	350	291	373	443	49	26
XII...	368	304	379	459	52	25
1924 —						
I...	413	328	388	495	39	22
II...	437	359	393	544	44	21
III...	412	333	395	499	48	23
IV...	314	289	398	450	49	24
V...	334	312	396	459	55	33
VI...	368	321	396	465	46	21
VII...	377	327	403	481	54	31
VIII...	355	318	400	477	45	20
IX...	364	328	403	486	47	20
X...	370	327	405	497	47	20
XI...	366	329	404	503	44	14
XII...	358	323	406	507	47	22

<sup>1</sup> Monthly average for cables.<sup>2</sup> Monthly average. Index of *Statistique Générale* for France, *Bureau of Labor Statistics* index for United States.<sup>3</sup> Monthly average. Index of *Statistique Générale*.<sup>4</sup> Excluding gold and silver.

TABLE III. GERMAN FOREIGN TRADE, 1921-1924<sup>1</sup>  
*In hundred thousand metric tons*

Year and Month	1 Imports	2 Exports	Year and Month	1 Imports	2 Exports
1921 — V.....	15	11	1923 — III.....	52	9
VI.....	18	15	IV.....	64	10
VII.....	19	16	V.....	40	9
VIII.....	21	18	VI.....	48	9
IX.....	25	19	VII.....	42	11
X.....	30	20	VIII.....	41	11
XI.....	25	19	IX.....	34	11
XII.....	21	19	X.....	29	12
1922 — I.....	23	20	XI.....	34	10
II.....	15	17	XII.....	29	11
III.....	26	22	1924 — I.....	27	8
IV.....	29	22	II.....	28	8
V.....	38	21	III.....	25	9
VI.....	40	19	IV.....	26	10
VII.....	48	16	V.....	30	11
VIII.....	47	14	VI.....	32	9
IX.....	48	16	VII.....	31	12
X.....	56	15	VIII.....	21	13
XI.....	45	16	IX.....	29	13
XII.....	43	18	X.....	33	15
1923 — I.....	47	13	XI.....	49	22
II.....	32	11	XII.....	50	30

<sup>1</sup> Data earlier than May, 1921, not available.

## APPENDIX D

### BIBLIOGRAPHY

In the following bibliography, secondary works dealing with the *doctrines* of given periods are classified according to the date of the subject-matter, not of publication. Recent studies of the English Bullion Controversy, for example, are placed in the division 1800-1850. The purpose is to make each division a guide to both the content and the subsequent interpretation of each principal group of ideas.

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## II. FRENCH THOUGHT

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