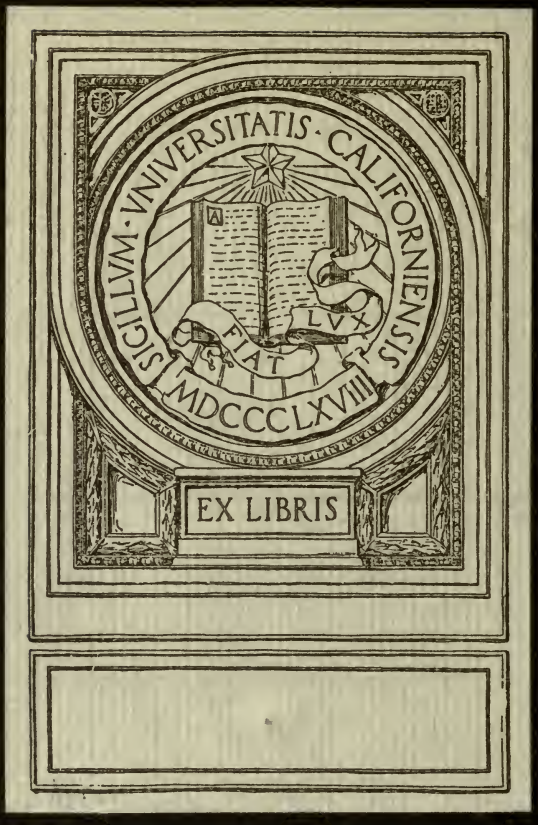
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THE UNIVERSITY OF ADELAIDE

CURRENCY AND PRICES IN AUSTRALIA

THE JOSEPH FISHER LECTURE
IN COMMERCE

DELIVERED IN ADELAIDE
15TH JUNE, 1921

BY

D. B. COPLAND, M.A.

PROFESSOR OF ECONOMICS AND DIRECTOR OF TUTORIAL CLASSES IN THE UNIVERSITY OF TASMANIA

ADELAIDE
G. HASSELL & SON, CURRIE STREET
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PREFATORY NOTE

In 1903 the late Mr. Joseph Fisher paid the sum of £1,000 to the University of Adelaide for the purpose of promoting, with the income thereof, the study of commerce at the University.

The "Joseph Fisher Lecture in Commerce" was founded as one result of this endowment.

The lecture is given biennially on a topic relating to commerce, industry, or finance by a lecturer who is appointed from time to time by the Council. The lectures are free and are open to the public, and printed copies are afterwards distributed at the cost of the fund.

The present lecture, which is the ninth of the series, was delivered by Professor D. B. Copland, M.A., of the University of Tasmania.

The following is a complete list of Fisher Lectures given since their foundation:

1904—"Commercial Education", by Henry Gyles Turner, Esq.

1906—"Commercial Character", by L. A. Jessop, Esq.

1908—"The Influence of Commerce on Civilization", by J. Currie Elles, Esq.

1910—"Banking as a Factor in the Development of Trade and Commerce", by J. Russell French, Esq.

1912—"Australian Company Law; and Some Sidelights on Modern Commerce", by H. Y. Braddon, Esq.

1914—"Problems of Transportation, and their Relation to Australian Trade and Commerce", by the Hon. D. J. Gordon, M.L.C.

1917—"War Finance: Loans, Paper Money, and Taxation", by Professor R. F. Irvine, M.A.

1919—"The Humanizing of Commerce and Industry", by Gerald Mussen, Esq.

1921—"Currency and Prices in Australia", by Professor D. B. Copland, M.A.

Copies of any of these lectures may be obtained free of charge on application to the Registrar, University of Adelaide.

The University accepts no responsibility whatever for any facts cited or opinions expressed in any of these lectures.

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CURRENCY AND PRICES IN AUSTRALIA

I. Introduction.

MY predecessor in the Joseph Fisher Lectureship has drawn attention to the great problems of industrial reconstruction awaiting solution before any reasonable measure of industrial stability can be attained.[1] As a part of this question of general industrial reorganization, the variability of the standard of value is, itself, of fundamental importance. In normal times, changes in the price-level promote serious disturbances in industry, but during the past six years no set of factors have been so disintegrating in their influence. "The rise and fall of general prices is one of the greatest evils that can afflict a commercial nation"[2]; yet this rise or fall is the normal condition of the price-level in all modern communities. Thus investigations into the price-level in the United Kingdom during the nineteenth century show that prices fluctuated as follows:

Table I.[3]

Price Fluctuations in the United Kingdom during the 19th Century.

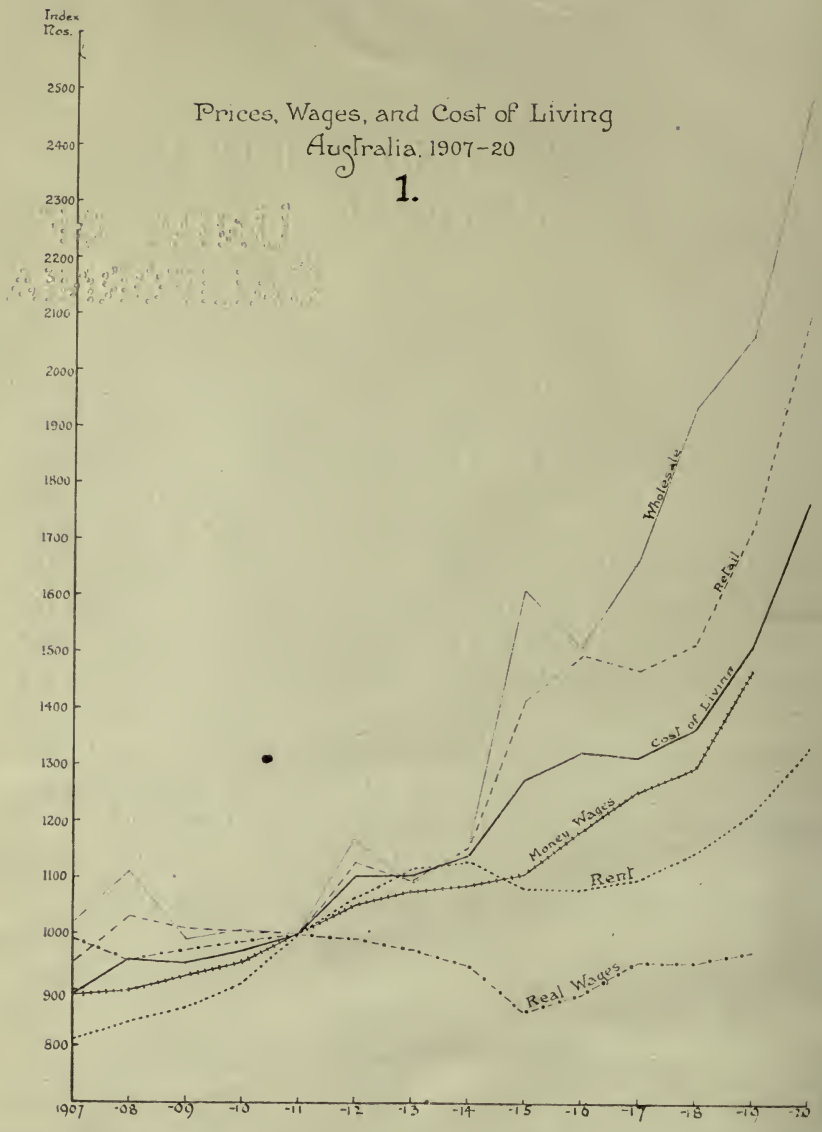
Period.	Movement.	Percentage Change.
1789–1809	Rising	85
1809–1849	Falling	59
1849–1873	Rising	50
1873–1896	Falling	40
1896–1914	Rising	35

In Australia price fluctuations have been equally disconcerting. Many will remember the crisis of the early nineties, as well as the boom of recent years, with scant respect for our standard of

1 Mussen: The Humanizing of Industry and Commerce.

2 Parsons: Rational Money, iii.

3 Jevons: Investigations in Currency and Finance, 134. . . . Fisher: Purchasing Power of Money, 240-6. See also Layton: An Introduction to the Study of Prices.



value.[4] The literature on currency and prices abounds with similar

4 See the index number of Melbourne wholesale prices published in the Reports of the Labour and Industrial Branch of the Commonwealth Bureau of Census and Statistics. The data on which this wholesale index number is based are obtained mainly from reports of Melbourne market prices published in the ordinary press and in special trade reviews. No attempt is made to record the price movements of clothing, footwear, furniture, or furnishings; no index number is ascertained for wholesale prices in any capital except Melbourne. For full details of the method of ascertaining these index numbers, see Report No. 1.

illustrations of changes in the general level of prices in all countries, and discusses freely the evils flowing therefrom.[5] But the rapid increases in the general level of prices during the war gave greater emphasis to the problem, as may be seen from the following tables.

TABLE II.[6]

PRICE MOVEMENTS DURING THE WAR.

	Wholesale Prices. 1913=100	Retail Prices of Food. 1914=100
United States (March, 1920)	253.0	196
United Kingdom (March, 1920)	321.8	235
Japan (October, 1919)	266.3	—
Sweden (March, 1920)	345.0	291
France (February, 1920)	522.4	(Paris) 297
Italy (December, 1919)	452.6	252

TABLE III.

PRICE INCREASES IN AUSTRALIA BEFORE AND DURING THE WAR.

	Wholesale Prices	Retail Prices.	Cost of Living.
Percentage increase in:			
(a) Last pre-war decade	11.8	10.5	23.2
(b) Five years of war	68	47.5	30.1
(c) From July, 1914, to June, 1920 [7]	166	87.1	53

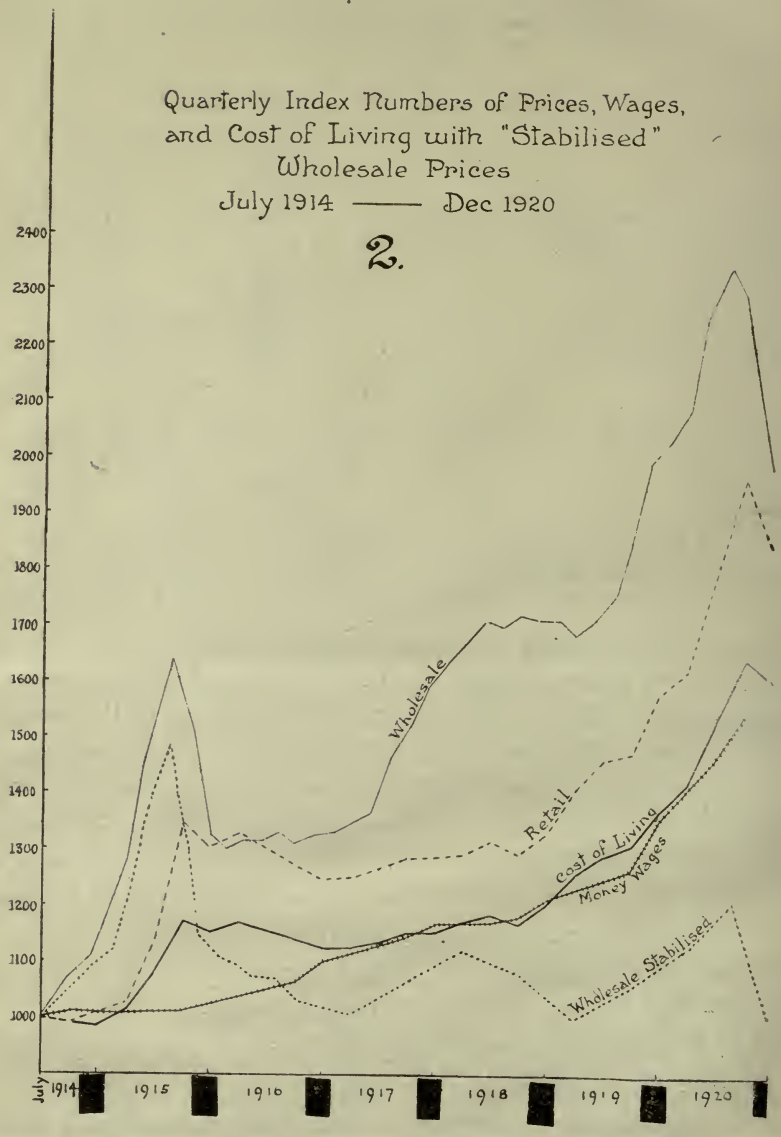
These tables suggest that some abnormal forces were operating during the war period, though the price-level increased in Australia considerably less than in other countries. The purpose of this lecture is to state briefly the causes of these changes in the price-level during the war, to explain the variability of the standard of value in normal times, to examine the social and economic effects of this variability, and to consider suggestions that have been advanced for promoting a more stable price-level. These problems will be developed as follows:

Causes of Rising Prices during the War.
Causes of Price Changes in Normal Times.
Social and Economic Effects of Price Changes.
The Functions and Attributes of Money.
Suggestions for Stabilizing Prices.

5 See particularly the investigations of Jevons in England and Irving Fisher in the United States. Fisher: Stabilizing the Dollar contains a short but searching analysis of the evils of a variable standard.

6 From a Report of the British Board of Trade (Cmd. 434).

7 Prices commenced to fall about August, 1920. Thus the wholesale index number dropped from 2,692 in August, 1920, to 2,245 in December.


Quarterly Index Numbers of Prices, Wages, and Cost of Living with "Stabilised" Wholesale Prices
July 1914 —— Dec 1920
2.
2400
2300
2200
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
Wholesale
Retail
Cost of Living
Money Wages
Wholesale Stabilised
July 1914
1915
1916
1917
1918
1919
1920

II. Causes of Rising Prices during the War.[8]

Changes in the general level of prices may be traced to one of two sets of factors, currency and trade. During the war the conditions affecting both these factors underwent some fundamental changes in all countries. It is generally assumed that trade decreased greatly, but this is not supported by a serious study of trade conditions for America and Australia, though it is doubtless true of many European countries, where the degree of trade paralysis varied with the duration of the war, and has been greatly accentuated by post-war conditions. In Australia a reliable measure of internal commerce [9] (wheat, wool, hay, butter, bacon and hams, gold, zinc, tin, coal, sheep, cattle), overseas trade, railway freights, shipping, and postal business shows that from 1914 to 1918 there was a decrease in general trade of only 9 per cent. Professor Irving Fisher found that in America the volume of trade increased by 53 per cent. from June, 1914, to December, 1918.[10] No doubt European conditions affected the price-level in both these countries, but the war increase was much greater than this influence of external trade would suggest. It is apparent, therefore, that currency factors have had an important influence.

There is much controversy over the causes of changes in currency, but economists are agreed that the relative abundance or scarcity of currency considerably affects the price-level. If currency is scarce prices will be low. Thus Hartley Withers quotes [11] Dr. Johnson's remark when he was told that in Skye twenty eggs might be bought for a penny: "Sir, I do not gather from this that eggs are plenty in your miserable island, but that pence are few." Now it may easily be shown that wartime conditions promoted a great increase in currency in all countries. Banking progress in the nineteenth century placed two valuable weapons in the hands of Governments seeking to finance the war: (i) The note issue, and (ii) machinery for developing credit. In financing the war these weapons were used in the following ways:

8 This section is derived mainly from results I obtained in an investigation into the war-time situation in Australia and published in the December number of *The British Economic Journal* for 1920, Vol. XXX, 485-510.

9 For the method of measuring these factors, see *Economic Journal*, Vol. XXX, 502-4. Complete statistics are not available for measuring trade after 1918, but the evidence available points to an increase from 1918 to 1919; yet prices rose in this period.

10 *American Economic Review*, Vol. IX, 407.

11 Our Money and the State, 55.

(*a*) Gold payments were suspended by law or custom.

(*b*) The note issue, now virtually inconvertible, became the legal tender reserve for banks.

(*c*) Great increases in the issue of notes were carried out by all belligerents.

(*d*) These notes formed the basis of the clearing-house operations of banks.

(*e*) Governments borrowed heavily from their citizens through the banks.

(*f*) The banks advanced considerable sums to their customers for investment in war loans.

(*g*) Bank deposits were thus increased, but the ratio of reserve to liability was maintained at a safe (and sometimes at the normal) figure by virtue of the increases in the note issue forming the legal tender reserve.

(*h*) The fresh notes found their way to the public and the banks through the clearing operations of the "Government" bank.[12]

These operations were carried out in Australia, where a Government Bank and note issue made the situation entirely favourable to their development. The note issue was rapidly increased from £9,573,738 in June, 1914, to £32,128,302 in June, 1915, and subsequently to £52,535,959 in June, 1918; the export of gold from Australia was prohibited; the associated banks of Victoria agreed to settle their daily differences through a reserve of notes, where before they had used gold, and the bank deposits increased steadily from £159,000,000 in the second quarter of 1914 to over £265,000,000 in the same quarter of 1920. Meanwhile the reserve of gold and notes to total liabilities rose, at first to 34 per cent., but afterwards fell, being 27 per cent. on the average, while the pre-war average was about 23 per cent. These facts may be seen more clearly from the following table:

12 This method of war finance has received much attention in recent economic publications. A popular account of it is given in Withers (Our Money and the State, chap. iii), and a more technical discussion will be found in Pigou (Economics of Welfare, 665-77); the Report of a Committee of the American Economic Association in 1918, *Am. Ec. Review*, Vol. IX, Supplement No. 2, pp. 90-118; Kirkaldy (editor): Industry, Finance, and the War, 228-9. The last publication, representing the considered opinion of British economists, concludes: "The amount of internal war loans that may be raised by an advanced community under modern banking conditions can be very great."

TABLE IV.

BANK DEPOSITS, 1914–1920.

(In thousands.)

Quarter ended June 30th.	I. Deposits. Not Bearing Interest.	II. Deposits. Bearing [1] Interest.	III. Total.	IV. Coin Bullion and Australian Notes.	V. Percentage of Reserve. IV to I.	VI. Percentage of Reserve. IV to III.
	£	£	£	£		
1914	70,195	89,014	159,209	41,447	58	26
1915	75,381	92,177	167,558	55,378	73	33
1916	92,822	90,641	133,463	58,312	63	34
1917	105,466	91,384	196,850	53,777	52	27
1918	112,262	97,276	209,548	56,360	50	27
1919	118,989	112,281	231,270	57,894	49	25
1920	133,913	113,734	247,647	55,940	42	23
Percentage increase of 1920 over 1914. . . .	91	29	55	37	—	—

[1] After 1912 the deposits given in the Commonwealth statistics include the deposits at the Commonwealth Savings Bank. These latter are given separately as at the end of each quarter, and not the average for the quarters. Figures for the amount at the Commonwealth Savings Bank thus given have been deducted from "Deposits Bearing Interest" and thus also from "Total Deposits."

The increase in total deposits is thus 55 per cent. for the six years, 1914–1920. In the previous six years, 1908–1914, the increase was only 40 per cent. The very large increase in deposits not bearing interest (*i.e.*, deposits subject to cheque) portrays the operations of the banks in advancing to customers for war loan purposes.[13] Now such advances created purchasing power in the hands of the Government or of private individuals, and obviously increased the currency. Thus war finance resulted in an increase in currency through both the note issue and bank deposits.

But other factors affect the real currency supply available for exchange purposes. Money circulates with varying velocities, accord-

[13] For an explanation of these returns, see *The Australasian Insurance and Banking Record*, Vol. XLXXX, No. 8, p. 614. Three causes are advanced to explain the increase: (i) bank assistance in financing Government purchase of wheat and wool; (ii) bank policy in war finance; and (iii) heavy importations after the armistice. The financial measures adopted by Australia are discussed by J. R. Butchart in a lecture on Money and Its Purchasing Power, given before the Incorporated Accountants' Students' Society, Victoria, on March 27, 1918. See also *The Economic Journal*, Vol. XXX, 492-99. From 1901-14 deposits not bearing interest increased by 50 per cent., and deposits bearing interest by 25 per cent. Table IV presents a striking contrast.

ing to political and economic conditions, and the actual quantity of money in a community makes purchases of much greater value each year than its face value. Thus in America, where the facts have been investigated thoroughly by Fisher, it is thought that money proper (gold and notes) had a velocity of circulation of 21 in 1913 and credit a velocity of circulation of 54; that is, each unit of money on the average performed exchanges of a value 21 times as great as its face value, and similarly each unit of credit a value 54 times as great as its face value.[14] Now these velocities of circulation are of great importance in estimating the total amount of purchases made in a community in any year. Moreover, they are changing velocities, for the conditions affecting them change from year to year. Thus Fisher estimates the velocity of circulation of money at 30 in 1918 and of credit at 95.6, increases over 1913 of 43 and 77 per cent. respectively. The influences operating on these velocities of circulation have been stated as follows[15]:

(i) The tendency to increased thrift or extravagance.
(ii) The method of wage payment.
(iii) The system of shop credit.
(iv) Closer settlement and urbanization.
(v) Facilities of transport and communication.
(vi) Familiarity with monetary transactions.

Already before the war these factors were operating to promote an increase in the velocities of circulation. Thus there was less thrift, wages were paid frequently, shop credit was allowed to a greater extent, country lands were being more closely settled, and cities and towns more densely populated, facilities for transport and communication were developing, and the masses, as a whole, were becoming more familiar with paper money. It would, therefore, appear that the velocities of circulation of money increased, but there are no means at hand of measuring it. Changes in the velocity of circulation of credit can, however, be ascertained with some certainty from the clearing-house statistics, though it is impossible to state definitely the actual velocity at any one time. Obviously, the clearings depend largely upon the amount of credit available and the rapidity with which it circulates. Now reliable statistics of clearings are available

14 Fisher: *The American Economic Review,* Vol. IX, 407. See also his exhaustive analysis in The Purchasing Power of Money.

15 Barker: Theory of Money, 53-6.

and the bank deposits are known. Hence it is possible to measure changes in the velocity of circulation in the following manner:

TABLE V.

CHANGES IN THE VELOCITY OF CIRCULATION OF CREDIT, 1914–20.

Year.	I. Clearings for Melbourne and Sydney. (Thousands.)	II. Deposits not Bearing Interest. (Thousands.)	III. Velocity of Circulation of Credit I divided by II.
1914	652,736	70,195	9.3
1915	657,097	73,381	8.8
1916	780,159	92,822	8.4
1917	821,832	105,466	7.8
1918	1,045,984	112,262	9.3
1919	1,134,308	118,989	9.6
1920	1,489,555	133,913	11.1

From 1914 to 1917 the velocity of circulation of credit decreased. This was no doubt due in part to the Government handling of primary produce and to its advances to farmers on their products; and in part to the contraction following the fear of a crisis on the first shock of war. Both factors would tend to decrease velocity of circulation. Thus the commercial transactions would be diminished, and credit advances to primary production would circulate less rapidly than credit advances for industrial purposes. After 1917 there was a steady increase in velocity in spite of these factors. This increase was pronounced in 1920, when it amounted to 15.6 per cent., and would thus have a considerable influence upon the price-level.

The general result of this analysis may now be given in tabular form.

TABLE VI.

MOVEMENTS IN CURRENCY AND TRADE, 1914–20.

Year.	I. Notes in Circulation. (Millions.)	II. Bank Clearings. (Millions.)	III. Trade.
1914	11.6	653	113
1915	9.6	657	93
1916	13.9	780	110
1917	16.5	822	104
1918	18.5	1,046	103
1919	20.3	1,134	—
1920	22.0	1,489	—

Notes in circulation represent the notes in the hands of the public for the years 1915-20. For 1914 the figures include gold and notes in

circulation, and are based upon an estimate by the Commonwealth Statistician.[16] This gives a reliable measure of money in circulation. The figures in column II do not require further comment, and those in column III are derived from the statistical information available on the trade factors mentioned above. The methods adopted in estimating trade have been fully described in *The Economic Journal* for December, 1920, and space does not permit of their repetition here.[17] It is now clear that trade decreased but little in the period 1914-18, and had probably recovered in 1919,[18] though there was doubtless a setback towards the end of 1920. But information is not yet available for a reliable estimate for these years. On the other hand, the money in circulation and total credit increased very greatly during the six years. Clearly this expansion of the currency largely explains the great increase in prices in Australia during the war.[19] In a word, the methods of war finance produced a serious inflation of the currency, leading to increases in prices.[20]

This general analysis may be supplemented by reference to tests I adopted in my earlier investigation. The accompanying graphs (Nos. 3 and 4) show the general effects of these tests, and only the results obtained will be stated here.

(i) A comparison of movements in the note issue with movements in the wholesale and retail price index number suggested general agreement.

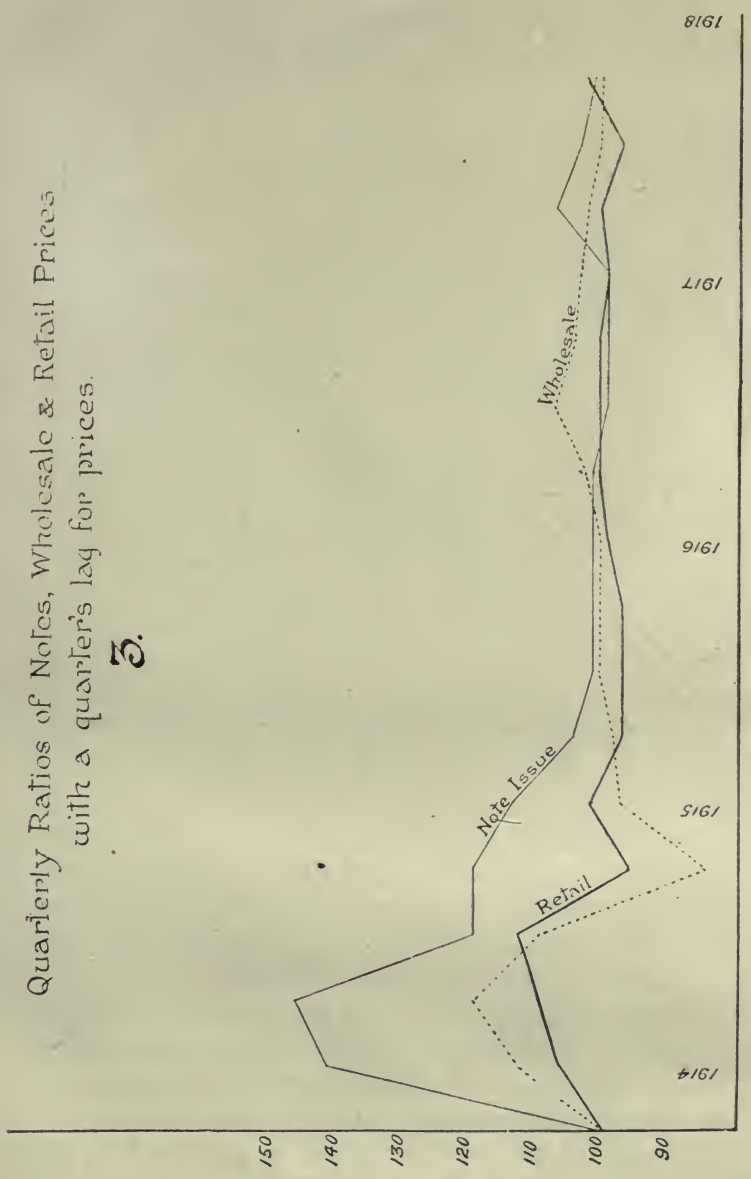
16 Commonwealth Year Book, No. 9, p. 772.

17 See also Fisher: Purchasing Power of Money, 478-86.

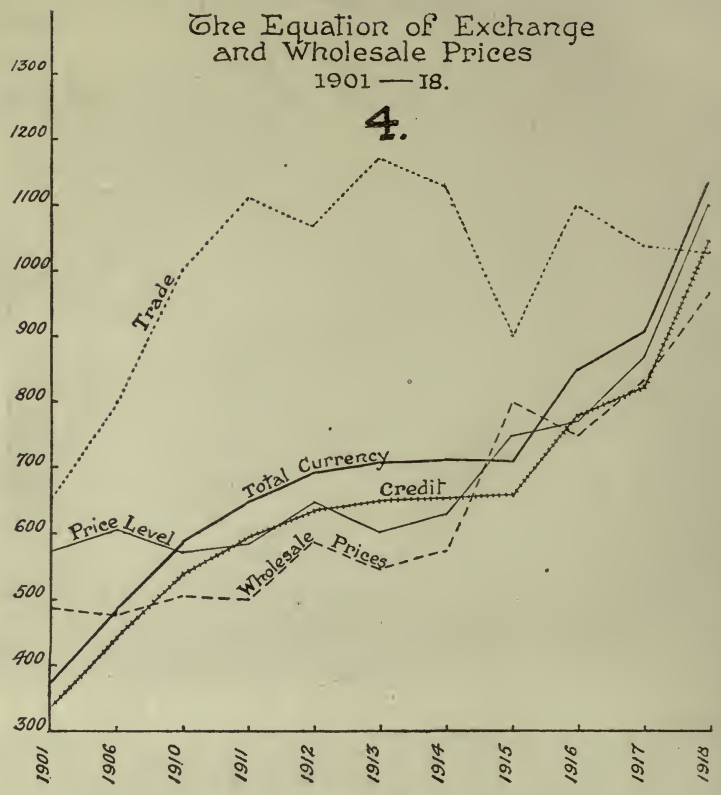
18 Evidence of this is to be found particularly in overseas trade, shipping, and railway-ton mileage. The production statistics, so far as they are available, show but a slight increase over 1918.

19 Similar results have been obtained for the United Kingdom by Professor J. S. Nicholson in *The Journal* of the Royal Statistical Society, Vol. LXXX, Part iv, p. 487; for America, by Professor E. W. Kemmerer in *The American Economic Review*, Vol. VII, p. 247, and Professor Irving Fisher in the same journal, Vol IX, p. 407, and Stabilizing the Dollar, 29. Professor Gustav Cassel has obtained equally important results for Russia (*Economic Journal*, Vol. XXVI, 319-23). A remarkable return, published by the British Board of Trade in 1919 (Cmd. 434), compares with striking results increases in currency with increases in prices in many leading countries.

20 It must not be supposed that such paper inflation is the only form that inflation may take. There is also "gold" inflation, such as the United States experienced during the war, when gold supplies were increased rapidly through large imports. "Credit" inflation is another form, and may result from methods of war finance adopted by belligerents, or from banking policy in times of boom, such as land speculation in Australia in the late seventies.



(ii) A much more reliable test was then adopted. The ratios between the successive numbers in each series were taken and a lag of three months allowed for movements in prices. The agreement was then more pronounced, and when tested by



the method of correlation a very close connection between movements in the note issue and movements in retail prices was established. Movements in wholesale prices were not so closely connected with the movements in the note issue, but correlation was established there also.

(iii) The equation of exchange for Australia was established; that is, the relation between movements in currency and movements in trade was estimated, and the changes in the price-level thus ascertained. This price-level showed a high degree of correlation with both the retail and the wholesale price-level as calculated by the Commonwealth Statistician.

These results are highly satisfactory from the point of view of monetary science, as well as being helpful in interpreting the Australian situation. They must, however, be related to the influence of external trade upon the Australian price-level. Clearly the rising

prices of Australian products in the world markets influences the home price-level, but the influence is less pronounced than has been popularly supposed. In the first place, foreign trade is not as important as home trade, and the operation of increasing prices for exports and imports alone would raise the Australian price-level as a whole less than these increases themselves. Secondly, wholesale prices in Australia during the war increased more than the prices of imports and exports.[21] Thirdly, the export and import of gold before the war regulated the Australian price-level in rough approximation to international gold prices, but during the war the operation of this factor was eliminated by Government action. The influence of foreign trade was then restricted, and though a rise in Australian prices was perhaps inevitable even had the gold standard been maintained, it is nevertheless true that "local action was free to push prices up without the normal corrective of an outflow of gold being set in motion."[22] We are forced to the conclusion that the price-level in Australia is higher than it would have been had Government policy not produced the inflation of the currency.

It has been repeatedly asserted that rising wages caused rising prices in Australia during the war, and this doctrine requires notice in relation to the analysis given above. It will be readily admitted that high wages cannot be paid without increased output or a high price-level. Further, in times of prosperity producers may be able to "pass on" the increases in costs on a rising market. During the war the conditions were favourable to such "passing on," but this does not prove that the rising scale of wages caused prices to rise. When viewed in relation to the following points the theory breaks down as a complete explanation of the problem:

(i) From July, 1914, to September, 1920, wholesale prices increased 162 per cent. and wages of adult males 54 per cent.

(ii) Labour is only one factor in production, and in Australian factories it absorbs about half the net output.

(iii) Consequently if increasing wages offered a complete explanation of rising prices the rise in prices would have been less than the rise in wages. The position, however, is the reverse.

(iv) The wages per employee in Australian factories increased from £100 in 1913 to £125 in 1919; that is, by 25 per cent. Meanwhile the net output per employee increased from £193 to £255; that is, by 32 per cent.

21 The actual increases from 1913 to 1918-19 were 78 per cent. for wholesale prices and 68 per cent. for import and export prices.

22 Pigou: *Economic Journal,* Vol. XXVII, p. 293.

(v) It may fairly be assumed that labour enters into the cost of production to a greater extent in retail business than in wholesale production. Yet the prices of wholesale goods have risen much higher than retail prices.

(vi) Producers have not complete power to vary their selling prices according to changes in labour costs.

In view of these facts the proposition that rising general prices may be wholly explained by wage increases is untenable. What then is the relationship between wages and prices?

Since labour is a factor of production, wages enter into the cost price of all commodities, and no employer can afford to pay higher wages than the industry will bear. The general practice of varying wages with the cost of living ignores this point, for doubtless some industries may readily pay the higher costs, while others are unable to do so without increasing their selling prices, a practice which producers can adopt only for a limited period, and that on a rising market. It is through individual prices that the wages factor operates, but it is only one factor among a number of others affecting conditions of demand and supply. To suppose that wage increases can be successfully passed on is to ignore the conditions of demand altogether. In actual fact, during the war, the conditions of demand were such that in most industries the selling prices were much higher than the increased labour costs warranted. And now, with demand conditions changing rapidly, selling prices are falling and, of course, in advance of wages. Thus from June to December, 1920, wholesale prices in Australia fell by nearly 16 per cent., while, according to the September returns, wages were still rising. How was this possible if producers could effectively control their selling prices?

III. Causes of Price Changes in Normal Times.

The special problems created by rising prices during the war are likely to obscure the lesser though vital problems connected with price changes in normal times. These changes occur both in individual prices and in the general level of prices. Changes in individual prices may be caused by any factors affecting the supply of or demand for special commodities. Changes in the general level do not admit of any such simple explanation as the experience provided by the rising price-level in times of abundance proves. Thus for the twenty years before the war the general level of prices was rising, and this was a period in which the production of goods was increasing rapidly. In Australia trade increased by 80 per cent. between 1901 and 1913,[23]

[23] According to the measure noted above and outlined in *The British Economic Journal*, Vol. XXX, 503.

while in the United States, according to Fisher, the increase from 1896 to 1913 was 138 per cent. Therefore the law of supply and demand, as applied to individual commodities, does not offer an adequate explanation of the general movements over the whole field of prices. Failure to observe this fact has given rise to much misunderstanding upon the problem of rising prices, and has led many to suppose that the price-level could be controlled by regulating the prices of individual commodities.[24] Even during the war investigations into the causes of the increase in prices were almost wholly confined, in Australia, to a consideration of individual commodities.[25] Obviously, all factors affecting individual prices will also affect the general level of prices, but there are factors influencing the latter which do not exert a direct influence upon the former. "We cannot explain the level of the sea by the height of its individual waves; rather must we explain in part the position of these waves by the general level of the sea."[26] Similarly, each individual price is partly a product of the general level, and the first step in explanation of individual prices is to measure and account for changes in this general price-level. Such explanations of price changes as monopoly, trade unionism, tariffs, labour unrest, speculation, profiteering, higher standards of living, public expenditure, etc., as are put forward from time to time do not adequately account for price movements, for these factors have operated in periods of falling prices as well as in periods of rising prices. They ignore the fundamental facts of the problem, as can easily be shown by a brief consideration of the meaning of "the general level of prices."

The general level of prices may be regarded as the relationship between trade movements on the one hand and currency movements on the other.[27] Though it is true that all the factors affecting individual prices influence this relationship considerably, it is also true that this relationship may change, apart from the operation of these factors. Currency conditions are not necessarily affected by such influences. It is, therefore, important to investigate the causes of fluctuations in the currency, if the movements of the general level of prices are to be adequately explained. The factors affecting the currency may be

24 Jethro Brown: Prevention and Control of Monopolies, p. 126.

25 See in particular the investigations made by the Interstate Commission into the prices of several commodities during the war.

26 Fisher: Purchasing Power of Money, 177.

27 Many who oppose the analysis of price movements given here recognize this fact. Thus so whole-hearted an opponent as Professor J. L. Laughlin considers that "the general level of prices is the resultant of two sets of forces acting both on the standard of value and on goods in general." Money and Prices, 7.

stated as follows:—(a) the money material forming the standard of value; (b) the growth of bank deposits or credit; (c) the "efficiency" or "rapidity" of circulation of money and credit. Changes in any one of these factors will affect the total currency available for exchange purposes, and therefore alter the relationship between currency and trade—*i.e.*, will cause fluctuations in the general level of prices. Before the war gold was the standard of value and the basis of credit. Though credit might change through the development of banking and the growth of cheques as media of exchange, as well as through increases in wealth,[28] it was in the long run dependent upon the standard of value itself. The growth of credit is closely connected with banking policy, but there is a limit to which banks may increase their deposits by granting loans to customers. This limit is set by the requirements of the community for ready cash for making petty payments, and by other demands for gold noted below. If for any reason bank credits be expanded, greater purchasing power through cheques is available and the price-level will rise. With a higher price-level all petty payments increase and more cash is required. This cash, in the long run, is available only from the bank reserves, and bankers thus find their reserves depleted. They are forced, therefore, to restrict their credit advances to customers in order to maintain an adequate percentage of reserve to liability.[29] In the same circumstances bankers might also have to face a drain upon their reserves for gold for export purposes or for use in the arts. With a rising price-level an adverse balance of trade is encouraged, and a settlement by exporting gold may be necessary. Further, the value of gold as money will have fallen and its value as a commodity increased. There will thus be a flow of gold from its money use to its use in the arts. An examination of the percentage of reserve (coin, bullion, and Australian notes) to deposits in Australian banks shows that from 1901 to 1913 the percentage fluctuated slightly about 23 per cent. This demonstrates that bank credits are in practice regulated by the legal tender reserves of the banks, though the progress of banking tends to increase the use of credit relative to gold as a means of exchange. But while gold remains the standard of value, and the basis of the legal tender note issue, it effectively regulates the amount of credit available. Changes in the velocity of circulation of credit are similarly controlled, and gold,

28 For the factors affecting credit see Barker: Theory of Money, 53-59.

29 "The ordinary banks could create credit, but they endangered their stability if they exceeded a limit ultimately set by the amount of their cash reserves." Rt. Hon. R. McKenna, in his annual address to the shareholders of the London Joint City and Midland Bank, Ltd., January 28, 1921.

therefore, remains the vital factor affecting the currency supplies of the community. The supply of gold, therefore, greatly affects the general level of prices. But no attempt has been made hitherto to regulate the supply of gold according to changing trade conditions, and therefore to promote a stable price-level. It will generally be found that the great periodic changes in prices in the 19th century are very closely associated with important fluctuations in the gold production of the world. This was particularly true of the periods following the great gold discoveries of the middle of the century and of the early nineties. In 1890 the gold production of the world was 24.7 millions, and the total gold supplies were estimated at 1,674 millions. In 1916 the annual production was 93.9 millions, and the total world's stock was 3,431.9 millions.[30] It is quite clear that gold production during this period had an enormous influence upon the price-level. The total increase in the world's supply of gold in the period was thus 105 per cent., whereas in the period 1871-90 the increase was only 38 per cent., and this at a time when many countries were adopting the gold standard and trade was rapidly expanding. It is clear that in the period 1871-90 the gold supplies were not adequate for the increasing monetary demand for them, while in the period 1890-1916 they were more than adequate, despite the enormous increase in trade. The supplies of gold are therefore of fundamental importance in explaining the movements in the general level of prices. This analysis, it is hoped, gives due weight to the influence of credit and to the increased velocity of circulation of both credit and money as factors affecting the supplies of currency, and therefore the level of prices; but it has been shown that all these factors are dependent upon the standard of value itself—*i.e.*, upon gold.[31] Of course, if gold

30 Todd: The Mechanism of Exchange, 213.

31 This is very largely the real point at issue between quantity theorists and their opponents. The latter rightly insist upon the relation between goods and credit, showing that credit is a function largely of trade conditions, and that the bulk of exchanges in modern times are performed without the use of money. Now if credit were wholly dependent upon trade conditions, and free from all control, price changes would be largely eliminated, for a fairly stable relationship between trade and currency could be maintained. This appears to me to be the fundamental mistake of the so-called "credit" theorists, but Professor Irvine, of Sydney, in making a careful analysis of the basis of credit in goods, remarks: "I agree that under existing conditions and pre-suppositions the bank's capacity to loan, or what amounts to the same thing, its power to liquefy specific forms of wealth, is to some extent artificially restricted by its legal tender reserve." (Loans, Paper Money, and Taxation; the Fisher Lecture for 1917, p. 9.) The case against the quantity theory has been most forcibly put by Hobson (Gold Prices and Wages),

supplies remain stable the general level of prices will alter through changes in trade conditions. But as gold supplies are not in any way regulated to changing trade conditions, it would appear that the standard of value has very grave defects. These defects are associated with its variability in purchasing power; in a word, it does not possess the attribute of stability which modern communities insist upon in other measures, such as the yard or the pound weight. The evils associated with this instability are examined in the following section. It now remains to consider the movements in the factors affecting the general level of prices in Australia before the war. Money in circulation increased between 1901 and 1913 by 66 per cent., credit and its velocity of circulation as represented by the clearing-house statistics by 91 per cent., and the total supplies of currency by 88 per cent. Meanwhile trade increased by 80 per cent., and thus the ratio between currency and trade was changed in the period.

Before concluding this section on the causes affecting the general level of prices, it may be pointed out in support of the above analysis that:

(i) Countries possessing the same standard of value experience similar price movements;

(ii) Countries with differing standards of value experience different fluctuations in prices; and

(iii) "Not only do the price-levels of various countries having different monetary standards differ from one another, but the degrees of difference correspond to the degrees of difference in their standards." [32]

Thus movements in prices in the United States, Canada, Great Britain, Germany, and other countries with the gold standard, were

and by Laughlin (Principles of Money; and Money and Prices). On the other hand, some quantity theorists, recognizing the relationship between gold and credit, rather "worship the golden calf" as a means of regulating the currency. But Professor Fisher, perhaps the ablest of them, has for many years led the agitation against gold as the *measure* of value.

32 Fisher: Stabilizing the Dollar, 23-9. Professor Fisher concludes a searching analysis of the causes of price changes with the assertion that "to monetary causes (money, deposits, and their velocities) we should ascribe the great bulk of almost all changes in the price-level." Whilst perhaps not going so far as this, it can certainly be said that the variability of prices is caused through the failure of currency to adjust itself to trade conditions. But since currency may be controlled much easier than trade, it would appear that Fisher's assertion is true in the sense that no modern State attempts so to regulate currency as to stabilize prices.

remarkably similar in the period 1874 to 1893, while prices in India, with a different standard, moved in the opposite direction.

IV. Social and Economic Effects of Price Changes.

The evils of a fluctuating standard cannot be exaggerated. It is generally held that one of the most important attributes of money is stability of value, but no student of monetary theory can claim this virtue for our present standard of value. We are familiar with the evils of rising prices, particularly in their effect upon wage-earners, the salaried classes, and the relations between capital and labour. But are falling prices to be desired, even though they may relieve these classes for a time? The critical days of the early nineties would suggest that falling prices may have serious effects upon commercial development and upon the whole community. Economists are, in fact, divided upon the question whether falling prices bring greater evils than rising prices. Apart from the great disturbances in contracts caused by our unstable standard, there are many forces set in motion by fluctuations in prices, either up or down, which create the gravest disturbances in the economic order.[33] Thus rising prices bring commercial prosperity and increase business enterprise. But they are unjust to wage-earners and creditors generally, and when the rise becomes severe serious industrial trouble may develop. On the other hand, falling prices tend to increase real wages, but they injure the debtor class and may check business enterprise, leading to a general slump, unemployment, and finally even to a crisis. Again, rising prices may bring such a crisis by the confidence they impart to the business community. It is unnecessary, however, to pursue the argument, though authorities may be quoted on either side. Thus Price considers that "the balance of general advantage lies on the side of rising rather than of falling prices."[34] On this side, too, is Jevons.[35] But Marshall considers that falling prices are beneficial because they promote a better distribution of wealth, while not diminishing production perceptibly.[36] There is thus sufficient evidence beyond our individual experience to warrant the most careful consideration of proposals calculated to give stability to the standard of value. It cannot

33 See the searching analysis of the evils in Fisher: Stabilizing the Dollar, chap. iii Also Layton: Introduction to the Study of Prices, 10-16; Jevons: Investigations, 13-111; Kinley: Money, 176-98.

34 Price: Money and Its Relation to Prices, 68.

35 Investigations, 91, and the authorities quoted in Walker: Money, chap iv.

36 Evidence before the Gold and Silver Commission, quoted by Layton, 12. Layton is inclined to agree with Marshall. So also does Fisher, *American Economic Review*, December, 1914.

be argued that the sequence of periods of rising and falling prices bring their own compensations, for though the classes of the community suffer and benefit in their turn, the individuals differ, some amassing fortunes and others incurring debts.[37] The problem is becoming more insistent in Australia, for the custom has developed of regulating wages according to changes in the cost of living. This has been endorsed by the Basic Wage Commission,[38] and no one can regard with equanimity the disturbances that will be associated with these regular adjustments. There is much to be gained by a stable standard of value, for it would:

(*a*) Lead to a more equitable distribution of wealth.
(*b*) Discourage speculation.
(*c*) Reduce uncertainty in industry.
(*d*) Render public finance more stable; and
(*e*) Promote more settled industrial relations.[39]

It must not be supposed, however, that such a stable price-level would bring stability in all individual prices. Individual prices would still fluctuate, for they are influenced by factors other than those which operate on the general level of prices.[40] It would probably be undesirable that individual prices should remain totally unchanged, and certainly under competition it is impossible. What is required is that the general level, the final expression of all individual prices, should remain as nearly stable as possible.

The Standard of Value and Commercial Crises.

Among the grosser evils of the fluctuating standard are commercial crises and inconvenient movements in the foreign exchanges. These evils are in a different class from those mentioned above, for they do not involve injustice to particular classes so much as disturbances to the whole community. This is not the place to enter into a detailed statement of the causes of commercial crises, but all economists are agreed that they are due partly to psychological factors and partly also to variations in the general productivity of the world.[41] But the psychological factors may be regarded as the immediate causes of crises in most cases, though the ultimate causes are closely connected with trade conditions. Now it is through the defective standard of value that these psychological factors operate. A rising price-level

37 Kinley: *American Economic Review*, Vol. III, 1-4.
38 Report, 55-7.
39 Chapman: Outlines of Political Economy, 116-7, 242-3.
40 Report of Commission on Cost of Living in New Zealand, 41-42.
41 See the summary given in Chapman: Outlines of Political Economy, 254-62.

benefits business profits and imparts confidence to business men, who make financial arrangements to enlarge their businesses and thus increase production. This necessitates an expansion of credit, which in its turn promotes a further increase in prices, and so the boom develops. Ultimately it is necessary for the banks to restrict their advances owing to the drain upon their gold or legal tender reserves. But before this has happened business men have committed themselves to contracts, the fulfilment of which may necessitate further financial assistance, such has been their confidence in the markets. But with the banks tightening up their overdrafts, and with a turn in the market in prospect, the confidence of the business community soon gives place to doubts, depression, and even to the despair of a panic. According to *The Economic Bulletin*, published by the Chase National Bank, this was the situation in the United States in 1919 and 1920. "Business psychology in 1919 and early 1920 manifested an irrational exaltation of an extreme sort. From this we swung to a state of shell shock in December, 1920." Hence the rule that "the function of credit in a critical period is to *mobilize* the *slow* assets of *solvent* businesses, and not to *validate* the *bad* assets of *insolvent* businesses."[42] It is true that by adopting such a policy modern banks are better able to withstand a crisis, but it is also true that the credit expansion preceding such developments is largely responsible for the crisis. This is just what has happened in Australia, for during the war bank deposits increased very greatly and the clearing-house statistics portray the extent of such credit expansion. It was found necessary towards the close of 1920 to check this development, and banks commenced to restrict their advances. Such action was necessary, and had beneficial results, checking speculation and warning business men of the impending trend of the market. How much better would it be if credit expansion were automatically adjusted to trade needs! This is precisely where the present variable standard of value fails. As a means of adjusting currency to changing trade conditions it is totally inadequate. In prosperous times there is little demand for the material forming the standard of value, but in a crisis a strong demand rapidly develops and may easily outrun the resources of the banks to meet it. Thus "metallic money is a cause of industrial disturbance and panic, and by retiring instead of expanding in times of stringency it adds to and intensifies the disturbances produced by other causes."[43]

42 Anderson: Factors of Safety when Prices Drop, 7.

43 Parsons: Rational Money, 77.

A standard of value that operates in this way is certainly not conducive to industrial stability. Yet there are many who think that a simple return to the gold standard would solve the present currency problem. Apart from the impracticability of such a step in the immediate future, and even though the gold standard is greatly to be preferred to the present paper standard, its adoption would still leave us with a commodity money of quite uncertain value.

The present financial crisis, however, is due to a variety of factors, of which credit expansion has perhaps the most important immediate influence. In a suggestive analysis of the crisis in America in last December, Dr. B. M. Anderson, economist to the Chase National Bank, gives stress to the following matters:

(i) The European situation.
(ii) Export of gold through unfavourable trade balance with the non-European world.
(iii) Rapidly rising prices with growing tension in the money market.
(iv) Large Government expenditure.
(v) Defective transport services through the strain of war.
(vi) Rising costs of production, particularly labour, coal, raw materials, and managerial ability.
(vii) Speculation in commodities, securities, foreign exchanges, and real estate.
(viii) Rapid expansion of bank credits, amounting to 25 per cent. from April, 1919, to April, 1920.
(ix) Excess of raw materials and food stuffs through failure of manufacturers in Europe and collapse of markets for foods.
(x) Fluctuations in exchange rates.
(xi) Business psychology.[44]

Are not these the symptoms of the present crisis in Australia? With the exception of No. (ii), all these factors are operating at the present moment, and the severity of our crisis will be conditioned very largely by psychological factors. We cannot escape the consequences of the present European situation, but owing to the false prosperity engendered by financial and banking policy, and by our defective standard, we have scarcely appreciated the gravity of this situation. The prosperity of a rising price-level and the well-grounded suspicion of undue "profiteering" have produced a state of affairs in which it will

[44] Chase Economic Bulletin, No. 3, February, 1921.

be difficult to meet an impending crisis. For not only has the business community assumed obligations which it will find difficult to meet, but there is also a legacy of hostility between capital and labour which will render almost impossible the rapid re-adjustment necessary in such a crisis. The weakness of adopting the cost of living as a guide for the rate of wages is now becoming apparent. The rate of wages is dependent upon no such artificial standard, but upon the productivity of industry. It should have been noted more carefully that wholesale prices were rising much higher than retail prices, and that the cost of living as a means of regulating wages in a time of rising prices was to the advantage of the producer.[45] Not so when prices commence to fall, for wholesale prices will first feel the shock and fall more rapidly than the cost of living. Labour costs will then be reduced at a much slower rate than prices. Consequently producers will be inconvenienced both by a stringent money market and by a relatively inelastic labour cost. Is not this exactly the situation in the mining industry at the present time? According to press reports, it was stated by the employers in a conference between the Mount Lyell Company and the Unions concerned that wages could not be varied according to the cost of living, as the shareholders could not "entertain any greater loss which might eventuate from increased wages."[46] Recent movements in wages and prices confirm these observations upon the defects of the cost of living as an adequate guide for wages. Thus from July to December, 1920, wholesale prices fell 16 per cent., while according to the last information available wages rose nearly 6 per cent. from June to September. Thus the methods of wage adjustment necessary for a fluctuating standard are likely to intensify the difficulties of the transition period from rising to falling prices.

Now Australia has a further and vital interest in such a crisis as we are passing through. Two distinctive features of her economic system are (i) her indebtedness to the old world, and (ii) her great dependence upon primary production. According to the Wealth Census of 1915, about 80 per cent. of the wealth of Australia is associated with land and minerals, while statistics of production show that nearly 75 per cent. of the total wholesale production consists of primary production, including minerals. Now such primary products

45 The facts are interesting. From July, 1914, to June, 1920, wholesale prices increased by 133 per cent. and retail prices by 77 per cent. From second quarter, 1914, to second quarter, 1920, the cost of living, including rent, rose 53 per cent., and wages of adult males 46 per cent.

46 *The Mercury*, Hobart, April 28, 1920.

as Australia exports are generally sensitive to price changes, fluctuating more than the general level. Reference to the graphs published by the Commonwealth Statistician confirms this.[47] Hence the exports of Australia are likely to benefit greatly by a rise in prices, but to suffer severely by a fall. But the indebtedness of the Commonwealth intensifies these tendencies. Her obligations involve less real value on a rising market and greater real value on a falling market. Thus while we have profited greatly in recent years through our primary exports and our indebtedness, we shall find a falling price-level doubly embarrassing through the same factors. We are, on this ground, vitally interested in preventing any serious decline in the price-level.

The Standard of Value and the Foreign Exchanges.

For a country with a depreciated standard there are another set of disturbances: those connected with the foreign exchanges. The rate of exchange may be regarded as a thoroughly good trade barometer, and in normal times it was the signal for corrective measures in times of distress. Thus an unfavourable exchange could be corrected in any of the following ways:

(i) Raising the rate of discount.
(ii) Restricting imports.
(iii) Increasing exports.
(iv) Shipping gold.
(v) Selling securities abroad.
(vi) Raising loans abroad.

During the war Great Britain found that many of these expedients failed. A rise in the rate of discount had little effect, for the country was not on a gold basis; but since such a rise may have led to an increase in the interest necessary for war loans it was undesirable. It was impossible to restrict imports or increase exports, and supplies of gold for shipment were not sufficient to settle international indebtedness. Hence recourse was had to loans abroad and to the sale of securities, more especially to the latter. The story of the efforts made to control the exchanges by acquiring American securities for sale is now available in the report of the British Committee on American Dollars Securities.[48] When the Committee discontinued operations in April, 1919, securities to the amount of some 1,400 million dollars [48a]

47 Labour and Industrial Branch Report, No. 2, p. 63.

48 *American Economic Review*, Vol. X, 413.

48a It is estimated that the United Kingdom, during the war, sold in all about one thousand million pounds' worth of foreign securities. Keynes: Economic Consequences of the Peace, 258.

had been acquired, but the New York exchange had been maintained at almost 4.76 dollars. After the "unpegging" the rate fell heavily, reaching 3.37 in February, 1920. Now since this situation affects Australia greatly, and is closely associated with the "depreciation" of money, it requires close examination. The tests of depreciation of an inconvertible paper currency are:

(i) Rising prices.

(ii) Unfavourable exchange rates.

(iii) A rise in the paper price of gold above the fixed price of 85s. per oz. for fine gold.

All three symptoms were present in 1919. The following table (VII) shows the movements in the price-level in the United States and the United Kingdom:

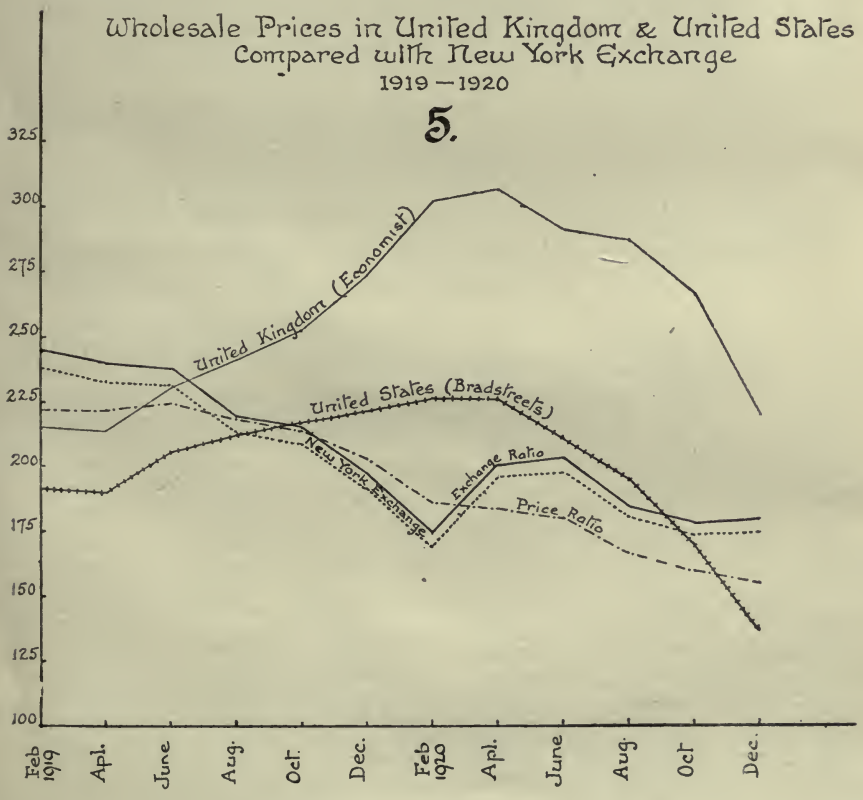


Table VII.

Index Numbers of Wholesale Prices in the United States and the United Kingdom.

Year.	United Kingdom. Economist.	United Kingdom. Board of Trade.	United States. Bradstreets.	United States. Bureau of Labour.
1913	100	100	100	100
1914	98.7	100.6	97	99
1915	123.1	123.5	108.1	100
1916	160.5	160.1	130.0	123
1917	204.1	208.6	172.2	175
1918	224.9	229.5	204.0	196
1919	235.2	254.5	204.0	212
1920	283.2	318.8	201.3	244

In 1918 the average increase of the two index numbers over 1913 was 127.2 per cent. for the United Kingdom and 100 per cent. for the United States, but in 1920 the increases were 201 per cent. and 122.6 per cent. respectively. Thus in the two years of free exchange between the countries "paper" prices in England had moved away from "gold" prices in America. This is supported by movements in the index numbers over the period.

Table VIII.

Comparison of Index Numbers for the United States and United Kingdom, 1919–20, with the Rate of Exchange of London on New York.

Month.	I United Kingdom (Economist) 1913=100.	II United States (Bradstreets) 1913=100.	III Percentage U.S.A. on English Prices.	IV Rate of Exchange.	V Percentage market rate on mint par of exchange.
1919.					
February	215.3	191.5	.89	4.76	.98
April	214.4	190	.88	4.66	.96
June	229.8	205.7	.89	4.62	.95
August	241.5	212.0	.87	4.27	.88
October	252.4	216.7	.86	4.18	.86
December	273.5	221.7	.81	3.84	.79
1920.					
February	303.1	226.4	.75	3.38	.69
April	305.7	225.7	.74	3.93	.87
June	291.4	210.7	.72	3.95	.81
August	287.6	195.7	.69	3.61	.74
October	266.5	170.6	.64	3.47	.75
December	220.0	137.8	.62	3.50	.72

Had the gold standard been maintained in England, or the exchange position regulated, the difference between the movements in the index numbers for the period could not have been so pronounced. The striking feature of the table is the connection between the rate of exchange and the movements in the two price-levels. This connection is shown in columns III and V, and is brought out clearly in Graph No. 5. Thus the relative movements of prices in England and in America, together with the fluctuations in the foreign exchange, especially in 1920, may be regarded as a sign of paper depreciation. This is true also of Australia, though to a less extent, for prices dropped considerably during the second half of 1920. Now Table VIII shows the extent to which the foreign exchange was against England. Do the ordinary trade or financial factors account for this situation? An adverse exchange rate would be produced mainly by:

(i) Demand for bills to pay for imports.

(ii) Purchase of securities abroad.

(iii) Payment of interest to foreigners.

(iv) Payment of shipping freights and insurance to foreigners.

Now, in 1919-20, the only factor of importance in England was the first, for in respect of the others there was a credit due to England. It is true that imports exceeded exports, but not by more than could be accounted for by "invisible exports," such as services rendered by English shippers and investors, for which they received freights, and interest paid in goods by the foreigner.[49] But owing to the practice of selling on the continent on long term credits, exports were not all available for payment of imports, and this would doubtless have some effect on the dollar exchange rate. But the trade position was not the only factor in promoting an unfavourable foreign exchange. After exchange control ceased, important changes occurred in the relative external and internal purchasing power of the currencies of European countries. Under ordinary trade conditions, the external and internal purchasing power of currencies, as measured in the same goods, varies but little, allowance being made for transport charges, tariffs, and

[49] "The United Kingdom soon attained, on the face of the trade and shipping figures, a fairly strong position." Pigou: *Economic Journal*, Vol. XXX, 468. See also an article in the British *Board of Trade Journal*, January 15th, 1920, where it is estimated that, after making allowance for invisible exports, "the United Kingdom will go a long way towards recovering the net surplus of about £200,000,000 which was available before the war for investment abroad."

other costs involved in foreign trade.[50] Professor Pigou has made a careful analysis of this problem, and his conclusions are:

(i) That the great expansion of the currencies of European countries was accompanied by "pegging" of the exchanges, so that the external purchasing power of these countries rose relatively to their internal purchasing power.

(ii) That the "unpegging" of the exchanges that followed the Armistice, accentuated by trade conditions, promoted a heavy fall in the external purchasing power of European currencies in relation to their internal purchasing power.[51]

In these circumstances the London-New York rate fell heavily throughout the whole of 1919 and much of 1920. The following table will throw further light upon the position:

TABLE IX.

FOREIGN EXCHANGE AND THE PRICE OF GOLD.

Date. 1920.	I. Exchange on New York.	II. Percentage below parity.	III. Price of gold. s. d.	IV. Percentage mint price below market price of gold.
February 26	3.40	30.88	122 4	30.57
March 4	3.63	26.49	114 6	25.76
March 11	3.68	23.20	112 1	24.16
March 18	3.79	23.25	108 4	21.54
March 25	3.91	20.68	105 8	19.56
March 31	3.87	19.63	106 2	19.94

Column IV of this table is the gold measure of the depreciation of the English paper pound, and is in close agreement with the depreciation of the New York exchange, as shown in column II. This is in conformity with the economic proposition that the depreciation of the exchanges is an *approximate* measure of the depreciation of an inconvertible paper currency. Thus, speaking of the effect of the depreciated currency in Germany, Professor Taussig points out that "foreign exchange and the specie premium do run together."[52] The above example is rather a striking confirmation of this doctrine.

50 Kinley: Money, 80-6.

51 *Economic Journal*, Vol. XXX.

52 Proceedings of the American Economic Association, Vol. X, supplement, 39. See also Kinley: Money, 337-9.

The three tests,—specie premium, rising prices, and depreciated exchanges—were thus in evidence during the past two years. The Australian exchanges are largely controlled by British conditions, and this partly explains our difficulties with America during the past two years. The position has, however, been accentuated by Australian currency and foreign trade in the last twelve months. In general terms, a country with a currency in process of depreciation stands to gain in its export trade. The exchange is rising, and exporters may draw upon their foreign purchasers and sell their exchange to advantage at home. Meanwhile their costs of production have not increased to the same extent as the price-level, and thus "depreciation of inconvertible notes has much the same effect as a protective duty: it stimulates exports but checks imports." [53] While a country like Germany, with reparation obligations, may benefit considerably by this state of affairs,[54] it was of no real advantage to Australia. At the time Australia was importing very heavily, and this had the effect of increasing the exchange difficulties. Goschen pointed out in his treatment of the foreign exchanges that, despite the above considerations, "a country in which a depreciated currency and a prohibition to export bullion exists is likely to be importing more than it is exporting." [55] This was precisely the situation in Australia during the latter part of 1920.

TABLE X.

AUSTRALIAN IMPORTS AND EXPORTS.[1]

Month	Imports. 1919-20.	Imports. 1920-1.	Exports. 1919-20.	Exports. 1920-1.
July	10,543	13,063	7,543	10,408
August	5,485	13,485	9,501	8,576
September	6,403	15,716	14,454	9,009
October	5,785	15,019	13,669	10,353
November	6,185	15,464	12,871	12,741
December	8,886	15,894	11,031	10,018
January	8,005	17,420	12,868	11,588
February	7,033	11,841	13,576	12,390
Totals	58,325	117,445	95,513	85,263

1 This table is derived from the statistics published by the *Importers and Exporters' Journal of Australia* and may contain slight errors, but it is sufficiently reliable to portray the actual position.

53 Clare: A B C of the Foreign Exchanges, 153.

54 Taussig remarks: "It promises to play into Germany's hands in an unexpected way."

55 Goschen: The Foreign Exchanges, 72. For a treatment of the problem see Nicholson: Banker's Money, 38. . . . The Australian position has been fully investigated by Mr. I. Horwitz, and his results were presented at the meeting of the A.A.A.S. in January last.

These figures speak for themselves. Imports were much greater in 1920-1, and exports had fallen; the position was improving in February of this year. But it is clear that in such a state of affairs the demand for remittances would be heavy and the supply weak; hence the difficulties of obtaining credits in London. No doubt the great increase of imports was due to the trade boom in Australia, as well as to the fact that during the war there was a scarcity of imports, a position which post-war trade sought to rectify. Further, the falling market in other parts of the world encouraged the import trade of Australia.[56] Here then is the explanation of the exchange position as it developed in the spring and summer of 1920, and banks in raising their rates for foreign remittances were acting under the compelling conditions of the market.[57]

This digression on foreign exchange has further emphasized the evils of a fluctuating standard. In summarizing these evils with reference to Australian conditions emphasis should be given to the following:

(i) Rising prices bring prosperity, but may ultimately cause a crisis. Owing to our indebtedness and the nature of Australian exports falling prices produce severe depression.

(ii) The adjustment of wages according to the cost of living is a painful process at best, and in times of transition from rising to falling prices it may be injurious to industrial stability.

(iii) Contracts are upset and injustices done to debtors or creditors according to the price movements.

(iv) Speculation is encouraged, especially in land values, in a time of rising prices. This is a great evil under Australian conditions.

(v) Trade cycles are intensified.

(vi) Social unrest is promoted, leading to grave disorder, strikes, and lessened output.

56 "Local commerce was the martyr of external suppliers, who had from their overloaded or unsold stocks, poured into this country an unprecedented volume of goods, and complained that they could not pour more. From their files were gathered long past orders, ignored orders, duplicated orders (given because of the declared dearth of goods), delayed orders and orders uncertain, for future delivery. Other markets having weakened, all Australian orders were rounded up and as many despatched as the financial support given to shippers would stand." *Australasian Business*, March, 1921, p. 10.

57 *Importers and Exporters' Journal of Australia*, Dec. 4, 1920, p. 1414.

(vii) Classes whose incomes are fixed largely by custom suffer in a time of rising prices.

V. The Functions and Attributes of Money.

Brief consideration of the functions and attributes of good money will show clearly along what lines our present monetary system requires reform. The functions of money have been classified by Kinley as follows.[58]

(*a*) Essential: necessary at every economic stage:
- (i) A medium of exchange.
- (ii) A measure or common denominator of value.

(*b*) Derived from the essential functions:
- (i) Standard of deferred payment, or a transferer of value from time to time.
- (ii) Transferer of value from place to place.
- (iii) A store of value.

(*c*) Contingent upon the conditions of contemporary life:
- (i) Distributor of social income.
- (ii) Basis of system of credit.
- (iii) Embodiment of generic value, giving a liquid form to capital.

It will be observed that these functions centre round the essential services that money performs, as noted under (*a*) above. In so far as they are associated with money as a medium of exchange, the present monetary system performs them to general satisfaction. In fact, with the enormous development of the credit system, modern media of exchange are the most serviceable yet devised by man. But most of the above functions imply stability of value in money, and, as we have shown above, the modern monetary system does not possess this attribute. To perform the above functions the following are the necessary attributes:

(i) Stability of value.
(ii) General acceptability.
(iii) Elasticity.
(iv) Uniformity.

To these must be added portability, divisibility, durability, etc., and some economists consider intrinsic value to be necessary also. It is argued that if money is valuable in itself it will be difficult to

58 Kinley: Money, 59-68.

produce, and will therefore not be issued in abundance. Thus intrinsic value will be a safeguard against over issue and inflation. It is largely because gold has possessed this attribute, together with many of the others noted above, that it has been adopted almost universally as the standard of value. But the intrinsic value of gold has varied considerably during the past hundred years, and the difficulties of procuring it have been no safeguard against fluctuating supplies and consequent changes in prices. Gold for money is not desired because of its intrinsic value, but because it is useful for exchange purposes. For this reason many eminent economists are agreed that intrinsic value is not necessary in the money commodity.[59] Much more important are the attributes of elasticity and stability of value. Elasticity signifies that the currency should expand and contract in conformity with trade conditions. The credit system at present, and the note issue in some countries, possess this attribute to a limited extent only. Since they are both restricted by the supply of the standard of value their elasticity is largely conditioned by the elasticity of the standard itself. We have already seen that the relationship between gold and trade is really very remote, and that the supply of gold may be altered very materially by new discoveries or new processes of production. It is, therefore, in respect of these two attributes that money requires reform. To many the suggestion that the gold standard should be "tampered with" spells economic and financial disaster. It is supposed that the gold standard has been adopted after much careful thought and that it has served the community so well that any change is not to be entertained. But gold was adopted as the standard of value only because it served that purpose better than any other commodity available. As a matter of fact, England adopted the gold standard in opposition to the advice of financiers.[60] In practice it has worked better than any other single commodity standard, and better also than a bimetallic standard. Theoretically, bimetallism is preferable to mono-metallism. Owing to the supply of money coming from two metals instead of one it is likely that the fluctuations in the supply

59 "All commodities in the market become measured as to their value, without regard to the cost of production of the money itself." Palgrave: Dictionary of Political Economy, Vol. II, 793. This view is to be found in the works of Ricardo, Mill, Walker.

60 Thus Sykes considers it due "to an illogical and partial adoption of Sir Isaac Newton's report, a report which was intended to prevent, and not to hasten, the displacement of silver by gold in our currency." Banking and Currency, 30.

will be less extreme, but the difficulties of maintaining a stable ratio between the two metals led to the final abandonment of bi-metallism.[61]

It is obvious that the greater the number of commodities forming the standard of value the less will be the fluctuations in the price-level. Gold is by no means the most stable commodity. Thus Fisher observes that "gold, as a standard of general purchasing power, has been more stable than silver, but less stable than eggs or carpets, which last proves to be the best standard of purchasing power during the period (1890-1914)."[62] A combination of commodities as the basis of the whole currency system would doubtless lead to a much more stable price-level.[63] With the measurement of the general level of prices by index numbers it is now comparatively easy to adopt such a multiple standard as this suggestion implies.

VI. Suggestions for Stabilizing Prices.[64]

Many proposals for the adoption of a multiple standard, such as the tabular standard suggested by Jevons, are open to two serious objections:

(i) They necessitate Government action requiring official decisions such as may lead to danger.

(ii) They require adjustments which have a disturbing influence on economic relations.[65]

Recent investigations have shown that these objections may be overcome, and the great merit of the proposal put forward by Professor

61 Professor Marshall has shown that there is very little difference between bi-metallic and mono-metallic prices. See his article in the *Contemporary Review* for March, 1887, quoted in Parson's Rational Money, 105.

62 Fisher: Stabilizing the Dollar, 42. Cf. Giffen: "Viewing a long period dynamically it is beyond all question that the commodities are comparatively steady, and only money changes." Growth of Capital, 61.

63 The multiple standard has been advocated by many economists during the 19th century. Thus Jevons considers that "the purchasing power of the note (based upon commodities) must remain steady compared with that of gold or silver," Money and Mechanism of Exchange. Among other supporters of the multiple standard are Ricardo, Walker, Marshall, Simon Newcomb, Aneurin Williams, and in more recent times, Irving Fisher, A. C. Pigou, and a great many teachers of economics in England and America.

64 This section is based largely upon a paper prepared for Section G of the A.A.A.S. by Mr. L. F. Giblin, Government Statistician of Tasmania, and the writer.

65 These proposals are summarized in Fisher: Purchasing Power, chapter xiii; Barker: Theory of Money, 105-20. There is further information on similar proposals in Fisher: Stabilizing the Dollar, 288, *et seq.*, and in Kinley's article in *The American Economic Review*, Vol. III, 2.

Irving Fisher, as a result of these investigations, is that it is both automatic and free from serious adjustments. There had been considerable discussion on monetary reform in the nineteenth century and Fisher's proposal was suggested in general terms by economists including Newcombe and Marshall,[66] but it had not been worked out in any detail until Fisher's recent investigations. In "The Purchasing Power of Money," published in 1913, it was briefly described, but it had already appeared in economic journals.[67] The monetary experience of the war assisted the practical application of the plan, for gold no longer circulates, even in the United States, though it still remains theoretically the basis of the currency and the *standard of value,* except in countries where the gold standard has been temporarily abandoned. This has enabled Fisher to overcome a difficulty associated with the circulation of gold coin, and the plan, as worked out in his recent publication, "Stabilizing the Dollar" (1920), is as follows:

(i) To maintain the gold standard by providing, as before the war, that gold will be the basis of the currency.

(ii) To keep gold out of circulation as at present, using notes as the medium of domestic exchange and gold as the ultimate medium of foreign exchange.

(iii) To maintain the unrestricted deposit of gold at the mint and *the unrestricted redemption of notes in gold,* thus ensuring the convertibility of the notes.

(iv) To measure changes in the general level of prices by means of an index number.

(v) To adjust the "gold content" of the £1 (*i.e.*, the weight of gold which the Treasury would buy or sell for £1 note) to changes in the index number or *vice versa.*

Fisher summarizes his plan as follows:

We restrain

a rise or fall in the price-level,

a fall or rise of the purchasing power of the sovereign,

by

increasing or decreasing the weight of the sovereign,

decreasing or increasing the price of gold.[68]

66 Fisher: Stabilizing, 293.

67 *Economic Journal,* Dec., 1912, 213-35. But see the Bibliography in Fisher: Stabilizing, 294-6.

68 Stabilizing, 105.

"Under the plan about to be presented gold is retained; and there is essentially the same mechanism by which it freely enters or leaves the circulation. But under this plan the gold dollar becomes a standard of value instead of a standard of weight."[69] The general principle underlying the scheme is brought out in this passage. The price of gold has been fixed by decreeing that a sovereign shall always contain 123.27 grains of gold, but its value fluctuates. The price of gold should vary by varying the "gold content" (weight) of the sovereign so that its value may remain stable. For all commodities (except gold) price is the expression of value in the money material; but for gold, the money material, *there is no such relation between price and value.* It is, therefore, not desired that the price of gold should remain fixed, but rather that its value should be stable, even though its price be variable. A sovereign is desired not because it contains a certain quantity of gold, but because it enables its possessor to purchase a certain quantity of goods. If the quantity of goods obtainable varies, the sovereign itself is variable in value. But if the quantity of goods remains stable the value of the sovereign, irrespective of its weight, is a constant. Now apart from controversy on the quantity theory of money, all will agree that more gold will buy more goods, and therefore in a time of rising prices, when the sovereign is depreciating in value, that an increase in the gold content of the sovereign will tend to restore its value.[70] The variation in the "gold content" or weight in itself is not important, for as Fisher points out the sovereign is a measure of value, not of weight. Any serious objections to varying the weight of the sovereign must be based upon the reactions on exchange conditions caused thereby, and not on the fear that such action is tampering with the currency. "We do not need a sovereign as a unit of weight. We need it as a unit of value, and the trouble is that its constancy in weight makes it inconstant as a unit of value."[71] The general principle of the proposal is thus sound, but its working may lead to practical difficulties.

Of fundamental importance is the fact that the plan does not

69 Ibid, 89.

70 "Because I *am not* a quantity theorist, I am disposed to believe that Professor Irving Fisher's plan of stabilizing the dollar might be feasible." B. M. Anderson, jr., in *American Economic Review*, Vol. III, supplement, 42. Anderson now opposes the proposal on the ground that it will lead to financial disturbances. See his Fallacy of the Stabilized Dollar.

71 Fisher: Stabilizing, 223.

mean Government control. The work will be entirely automatic, being a slight extension of the present statistical work involved in calculating index numbers. The following are the main details:

(i) The calculation of an index number,
  (*a*) Using wholesale prices, and
  (*b*) Excluding prices that move very slowly.

(ii) Varying automatically the "gold content." Thus if the index number rose 1 per cent. the "gold content" would be increased from its par weight of 123.27 grains to 124.5 grains. Hence the price of gold would change from £3 17s. 10½d. to £3 17s. 1¼d. per ounce. This would have the effect of bringing notes to the Treasury for redemption, the currency would be restricted, and the price-level would move backwards towards par. The interval between the variations should be just sufficient to show reactions from the previous adjustment in the "gold content" of the £1—about two to three months.

(iii) To prevent speculation in gold there would be two prices for gold, a buying and selling price, differing by a certain percentage, which may be called the brassage fee. A single change in the "gold content" of the £1 would never be greater than the brassage percentage.

(iv) The legal tender bank reserves would consist of the notes, and thus bank credits would expand and contract with variations in the "gold content." Hence total currency would be regulated to promote stable prices, and one of the main causes of financial crises (too rapidly expanding bank credit) eliminated.

(v) Concerted action by several nations is desirable, but the plan could be adopted by a single nation with advantage, though inconvenient fluctuations in the ratios of exchange might result. This disadvantage would be more than counteracted by the advantage of stable prices.

Space does not permit the detailed examination of the objections made against the proposal. They have been set out in the paper referred to above. I have endeavoured to estimate the course the Australian price-level would have taken during the war had the proposal been in operation on the following conditions:

(i) *Brassage:* 2 per cent.

(ii) *Adjustment:* 1 per cent. for each 1 per cent. deviation of the index number from par, but no adjustment greater than the brassage. Thus for every 1 per cent. alteration of the index number the "gold content" of the £1 would be varied by 1 per cent.

(iii) *Influence:* It is assumed that 1 per cent. adjustment in the "gold content" would affect 1 per cent. change in the price-level. Such an assumption is made in the absence of evidence as to what the influence would be.

(iv) *Lag:* Each adjustment to have completed its influence in two months.

(v) *Tendency:* As in the index number of wholesale prices.

The following table shows the stabilized and unstabilized index numbers on these conditions, but the comparison is better observed in Graph No. 2.

TABLE XI.

STABILIZED AND UNSTABILIZED INDEX NUMBERS OF WHOLESALE PRICES SINCE JULY, 1914.

Date	Index No. Unstabilized.	Index No. Stabilized.
July, 1914	1,000	1,000
September	1,0541	1,054
November	1,1081	1,086
January, 1915	1,162	1,117
March	1,280	1,206
May	1,453	1,343
July	1,640	1,486
September	1,514	1,344
November	1,328	1,156
January, 1916	1,300	1,109
March	1,313	1,099
May	1,315	1,079
July	1,332	1,071
September	1,312	1,034
November	1,321	1,021
January, 1917	1,330	1,008
March	1,344	1,009
May	1,371	1,019
July	1,483	1,080
September	1,520	1,085
November	1,591	1,113
January, 1918	1,635	1,120
March	1,668	1,120
May	1,711	1,126

1 The index numbers for September and November are interpolated, as the figures for those months were not included in the information available at the time.

Date	Index No. Unstabilized.	Index No. Stabilized.
July	1,700	1,097
September	1,720	1,088
November	1,716	1,064
January, 1919	1,713	1,041
March	1,683	1,002
May	1,715	1,021
July	1,760	1,027
September	1,850	1,058
November	1,987	1,114
January, 1920	2,026	1,113
March	2,089	1,124
May	2,250	1,186
July	2,341	1,210
September	2,291	1,149
November	2,072	1,011

This result is interesting. It was to be expected that there would be a considerable rise in the unstabilized number in 1915, for the very remarkable increase in wholesale prices during the early months of that year rendered this inevitable. But this was followed by an equally rapid fall, and by January, 1916, the number was only 11 per cent. above par. From this till January, 1920, it kept within 12.6 per cent. of par, but rose to 21 per cent. above par in July, 1920, dropping almost to par at the close of our period. But in 1920 the unstabilized index number had risen to 134 per cent. above par, and was still 107 per cent. above par in November.

This proposal would then give us the multiple standard without any rigid Government regulation or inconvenient financial disturbances. It is theoretically sound, and involves no fresh currency machinery, except provision for altering the "gold content" of the sovereign in conformity with movements in the price index number. No fundamental objections have been successfully upheld against the proposal, and the present financial situation in the Commonwealth and elsewhere renders a reconstruction of monetary units vitally necessary.[72] Thus Australia might take the present note issue as a basis and proceed to regulate it according to the index number of prices, contracting it with a rise and expanding it with a fall. At the same time, if the dollar exchange were "stabilized" it might be possible to

72 This is what Professor Cassel suggested in his memorandum to the Brussels Financial Conference. European countries should stabilize their mint pars to their present market rates of exchange on New York and this would prevent a heavy fall in prices necessary for the restoration of the pre-war mint pars. The same applies, with less severity, to Australia and the United Kingdom.

avoid the difficulties of a falling price-level, which in present circumstances is inevitable. As an experiment, the note issue might thus be regulated, but it would be desirable to have international action. The following machinery, necessary for carrying out this suggestion, is simple:

(i) An index number of *responsive* wholesale prices.

(ii) The automatic variation of the note issue according to movements in the index number.

(iii) The use of notes as legal tender bank reserve and for clearing-house operations.

This machinery exists to-day, and could easily be put into operation. Of course, such details as the method of withdrawing and issuing notes, the amount of variation necessary in the note issue to correct an observed tendency in the index number, would require careful consideration. But the plan would introduce a multiple commodity standard without the use of gold, and would be well worth trial as an experiment.

The evils of a fluctuating standard are now so obvious to the mass of men that a new standard must be adopted eventually. "The worship of the golden calf" is quite reasonable among those who contrast the movements in war-time and pre-war prices; but the restoration of the gold standard is no panacea, and in view of the serious fall in prices it entails[73] it is too difficult and hazardous a process for most nations with their present money units. Monetary theory has gone beyond the gold standard, as we knew it before the war, and a simple return to it will be no real advance. On the other hand, the successful adoption of a multiple standard is the next step forward. The course of action for this purpose is already shaping itself. But a better knowledge of the first fundamentals of monetary theory is the supreme need in Australia at the present time, and in anything we may do to promote such a knowledge we are carrying out the wishes of our benefactor, whose name we commemorate this evening. To this task this lecture is dedicated.

73 "The nation which was to take to gold again would have to go through a very unstable monetary regime and undergo a cost to have it. It would undergo a crisis the reverse of the one it underwent when inflation was going on." Professor Panteleoni in a memorandum for the International Financial Conference at Brussels.

NOTES ON GRAPHS.

No. 1 is compiled from the yearly statistics published by the Bureau of Census and Statistics. Real (or effective) wages are obtained by dividing the index numbers for money wages by the numbers for the cost of living.

No. 2 contains the same information as No. 1, but quarterly statistics are given and the base period is July, 1914. The "stabilized" index number of wholesale prices is given as shown in Table XI. The relative movements in money wages, wholesale prices, and retail prices in both graphs are particularly interesting.

No. 3 shows the percentage change in the note issue, and wholesale and retail prices from quarter to quarter, but the changes in the prices for any one quarter are comparable with changes in the note issue for the previous quarter.

No. 4 is based upon the results obtained in estimating the equation of exchange. Some interesting features of the graph are: (i) the increase in prices despite the general rise in trade throughout the period, (ii) the great expansion of currency portrayed, and (iii) the close connection between movements in wholesale prices and movements in the price-level as obtained from the equation of exchange.

No. 5 contains rather extraordinary movements in the index numbers for the United Kingdom and the United States. The *price ratio* and the *exchange ratio* curves are derived from Columns III and V of Table VIII. There is general agreement between them.