THE

INDIAN EXCHANGE

PROBLEM

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BY

F. V. RUSHFORTH

B.A. (CANTAB.), F.R.E.S.

(LATE OFFICER OF ENROLLED LIST, INDIAN FINANCE DEPT.)

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INTRODUCTORY NOTE

This pamphlet is not intended to be an exposition of the Indian currency system, nor a treatise on foreign exchanges in general. It is simply a short statement of the theory and practice of rupee-sterling exchange with special reference to the events which have followed the introduction of the policy recommended in the Babington-Smith Currency Committee. The substance of the pamphlet originally appeared in *"The Statesman"* and my thanks are due to the proprietors of that paper for permission to reproduce the articles which have appeared from time to time in its columns. To those who may desire to study in greater detail the fascinating subject of Indian finance and currency I would suggest a reference to Mr. Findlay Shirras's book " Indian Finance and Banking," and to the annual reports on the operation of the Currency Department by the Controller of Currency. The general theory of foreign exchanges is explained in an elementary manner in Clare's "A. B. C. of the Foreign Exchanges." An excellent study of the Eastern exchanges will be found in Spalding's " Eastern Exchange, Currency and Finance." The full text of the Report of the Babington-Smith Currency Committee should be studied, and the Minutes of Evidence taken before the Committee will also be found worthy of perusal.

It is hoped that this brief analysis of the events of the past year will be found of interest to students, and possibly of practical use to business men who have been perplexed by the kaleidoscopic changes which have been experienced since Indian exchange broke away from its traditional parity at one and four pence per rupee.

Calcutta, January, 1921.   F. V. RUSHFORTH.

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THE INDIAN EXCHANGE PROBLEM

1. The economic factors which affect exchange are numerous, but speaking generally, and from the point of view of the average person in India, the rate of exchange depends on the relation between exports and imports. Exporters of Indian produce want to obtain rupees for the sterling paid to them in London by the British consignees. Importers of British goods want to obtain sterling to pay to the British consignors. In actual practice the exports may not go to Britain nor the imports come from Britain, but as far as payment for either is concerned it is customary to settle in sterling in London. Exchange Banks act as a clearing house and provide rupees in India for the exporters and sterling in London for the importers. The exporters therefore sell their sterling to the banks in exchange for rupees and the importers pay rupees to the banks in exchange for sterling. In a word, an exporter is a seller of sterling and an importer a buyer of sterling. The former usually sells his sterling in the form of bills, while the latter buys his sterling in the shape of remittance. It is important to remember however that bills and remittance are merely sterling or sterling claims. Here again it may be advisable to point out that although a bill need not necessarily be drawn in sterling nor does a remitter always remit sterling, yet the transaction will as a general rule pass through London, and will in that case affect sterling

exchange. For instance if a person exports goods to America he may sell a dollar bill to a bank in India. The bank however may not be able to dispose of the dollars which it receives in America except by selling them in London for sterling, and re-selling the sterling in the local exchange market to an importer. The rupee-dollar transaction thus develops into a rupee-sterling one. In banking language, it is customary to "cover" in London all exchange transactions, whether sales or purchases, whatever may be the currency of the original transaction.

2. It will be seen from the above that Exchange Banks are the mechanism which transfers sterling from seller to buyer. In order to do this they buy from the exporter and sell to the importer, the price being expressed as so many pence to the rupee. It could of course be similarly expressed as so many rupees to the pound, but the former method allows for the quotation of smaller variations without the introduction of fractions. Now like that of all other commodities the price of sterling depends on the relation between the supply and the demand. The greater the supply the lower the price; the greater the demand the higher the price. Conversely, the higher the price the greater the supply; the lower the price the greater the demand. To take an illustration; suppose the supply at any particular time is £1000 and the demand is £2000. The banks must put up the price so as to increase the supply and decrease the demand until the two are equal, say at £1500. We may here note that when the price of sterling goes up the rate of exchange goes down, and *vice versa*. It must be understood that these general principles are subject to slight modifications from time to time according to local circumstances and peculiarities, but for the present we need only consider the main causes and effects.

3.   We may now proceed to examine the price-level, or in ordinary language, the rate of exchange, and see what limits there are to its upward and downward movements.   Suppose the amount of bills to be sold at any particular moment is £B, and the amount of remittance to be bought is £R.   If B is greater than R, the price of sterling will fall (exchange will go up) ; if R is greater than B, the price of a sterling will rise (exchange will go down).   The price will tend to settle at a point where $£B^-_+b = £R^+_-r$, £b and £r being the elements of bills and remittance affected by the upward or downward movement of the price.   There are normally limits to the upward or downward movements, for when the price reaches a certain point it becomes possible for banks or bullion merchants to export or import specie and bullion, and thus automatically add to R or B as the case may be.   We shall deal with this question in greater detail later.

4.   Hitherto we have looked upon exporters as sellers of sterling, and importers as buyers of sterling, while the banks act as intermediaries.   It will however simplify the statement of the case if we include the banks with merchants as buyers and sellers of sterling.   Or perhaps it would be more explicit to say that the exchange market consists of primary sellers (exporters), primary buyers (importers), and secondary buyers and sellers in the shape of the exchange banks.   As far as the rate is concerned, the banks perhaps are mainly responsible in the first place for suggesting rates, but it must not be forgotten that merchants themselves have a very important part in fixing the point of equilibrium.   It will therefore simplify our further investigations if we think of the exchange market as a whole and not as in two parts, merchants and banks.

5.   The exchange market then consists of buyers and sellers of sterling.   If the supply is inadequate the price will rise (the rate of exchange will fall), so as to attract more or to diminish the demand.   If the   supply is in excess of the demand the reverse will happen.   It has been stated that the normal limits to the rise or fall in the price will be the points at which it pays banks (or merchants) to export or import specie or bullion.   It seems unnecessary in a short pamphlet of this nature to explain fully the reason for this generally accepted fact.   A simple illustration will suffice.   Suppose, for instance, the supply of sterling is continually in excess of the demand. The price will tend to fall (exchange will rise) and it may fall so low that an exporter will find it more profitable to import the gold equivalent of his sterling from London and dispose of it in return for rupees in the local bullion market than to sell his sterling in the local exchange market.   Similarly, if the demand for sterling is greater than the supply, it may be cheaper for an importer to buy the gold equivalent of his sterling requirements in the local bullion market and send it to London to be converted into sterling there than for him buy remittance. This is a crude way of expressing what might happen, and in practice we should never find merchants settling their debts in this elementary manner. The settlements in gold would be effected through the agency of bullion merchants, but the principle nevertheless remains the same.   In India, however, for many years past, Government have endeavoured to fix the upper and lower limits by entering the exchange market whenever the price of sterling rose above or fell below certain points.   Reverting to our symbols, if £B (supply) was greater than £R (demand) the price could not fall below, *i.e.*, exchange could not rise above, a certain

point because Government in effect said "Give us your surplus sterling and we will give you a constant price for it." They did this firstly by selling Council Bills in London, and secondly by taking over gold imported into India at a fixed rupee price. If £R (demand) was greater than £B (supply) Government said "We will give you the surplus sterling at an constant price." They did this to a small extent by giving sovereigns in exchange for rupees at fixed rates, and to a greater extent by selling Reverse Councils, which were merely sterling drafts.

6. At this point we may perhaps summarise the constitution of the exchange market as follows :—

    (A)   Sellers of sterling—
        (1)   Exporters.
        (2)   Exchange banks or bullion dealers when they export specie and bullion.
        (3)   Government when they sell Reverse Councils.
        (4)   People who wish to bring money out from England to India.

    (B)   Buyers of sterling—
        (1)   Importers.
        (2)   Exchange banks and bullion dealers when they import specie and bullion.
        (3)   Government when they take over imported specie.
        (4)   Government when they honour the Secretary of State's Council drafts.
        (5)   People who wish to send money to England.

[In (A) (4) and (B) (5) the transactions are not necessarily between England and India, but as already ex-

plained the settlement of such transactions usually takes place in London.]

Now, if items (A) (3), (B) (3) and (B) (4) are removed the level of exchange is left to the natural laws of supply and demand, and where there is a continual excess of exports over imports or vice versa it will depend finally on the demand for and supply of specie and bullion. If on the other hand (A) (3) and (B) (3) are *freely* brought into operation, the rate of exchange cannot rise above or fall below certain definite points which can be fixed by Government. For the present we need not examine any more closely the functions of the Secretary of State's Council drafts. Although they are a very important element in exchange they are sold primarily to suit the convenience of the Secretary of State, and except for the case of "Special" Councils sold during the war the object of such sales has not been to assist in the fixation of exchange.

7.   Let us now proceed to examine the recent position. The terms of reference of the Babington Smith Currency Committee appointed on the 30th May, 1919 were as follows :—

" To examine the effect of the war on the Indian exchange and currency system and practice, and upon the position of the Indian note issue, and to consider whether, in the light of this experience and of possible future variations in the price of silver, modifications of system or practice may be required : to make recommendations as to such modifications, and generally as to the policy that should be pursued with a view to meeting the requirements of trade, to maintaining a satisfactory monetary circulation, and to ensuring a stable gold exchange standard." The fundamental recommendations of the report as summarised in a Government Communiqué of the 2nd February, 1920, were as follows :—

(a) that the present rupee, unchanged in weight and fineness, should remain unlimited legal tender ;

(b) that the rupee should have a fixed exchange value and that this exchange value should be expressed in terms of gold at the rate of one rupee for 11·30016 grains of fine gold, that is, one tenth of the gold contents of the sovereign.

(c) that the sovereign which is now rated by law at rupees 15 should be made legal tender in India at the revised ratio of rupees 10 to one sovereign.

(d) that the import and export of gold to and from India should be free from Government control as soon as the change in the statutory ratio is effected, and that the gold mint at Bombay should be open for the coinage into sovereigns of gold tendered by the public.

(e) that the notification of Government undertaking to give rupees for sovereigns should be withdrawn ;

(f) that the prohibition on the private import and export of silver should be removed in due course and that the import duty on silver should be repeated unless the fiscal position demands its retention.

8. It is not proposed to discuss in detail each of the above recommendations. It will suffice in the meantime to apply them generally to the summary of the exchange market given above in para 6. If we were living in normal times it would only be necessary to substitute for (A) (8) "Government when they sell Reverse Councils at 2s. 0d. per rupee" (less the

customary deduction for charges) and for (B) (3) "Government when they take over imported specie at the rate of ten rupees for one sovereign." Complications have arisen however owing to the facts, (1) that the pound sterling has depreciated in terms of the gold sovereign, and two shillings (sterling) is not equal to one-tenth of the value of a gold sovereign, in other words to two shillings (gold), and (2) that India was not at the time of the introduction of the new policy a free market for the precious metals, with the result that (A) (2) and (B) (2) could not have their full effect on the exchange market.

9. It is necessary to differentiate very carefully between two shillings (sterling) and two shillings (gold). In pre-war days the difference did not exist. Two shillings meant one tenth of a pound sterling or one tenth of a sovereign. During the war the pound sterling depreciated in terms of gold owing to the liberal issue of "Bradburys," which, though theoretically convertible at the Bank of England into gold sovereigns, have not as a matter of practice been so convertible. Consequently the price of gold expressed in sterling, instead of remaining at the Mint figure of £3−17−10 per ounce, has risen until it is now quoted at well over £5 per ounce. It follows that as the exchange market fixes the relation between the rupee and sterling, the fixation of the rupee at two shillings (gold), had this ideal been accomplished, would not have prevented fluctuations in the sterling quotation of the rupee so long as sterling is divorced from gold. The fluctuations of the pound sterling compared with gold are best measured by the movements of the London-New York Cross rate, i.e., by the market value of the American dollar in terms of the pound sterling. The American dollar contains 23.22 grains of fine gold, and there is a free market for gold in America. If, therefore

we wish to know how much gold can be purchased with £100 sterling, we simply calculate $23.22 \times X$ grains, where X is the London-New York Cross rate, *i.e.*, the number of dollars which can be purchased on the London exchange with £100 sterling. The sterling price of gold is quoted regularly in London, but owing to the restrictions on the movement of gold to and from England it simplifies calculations to treat the Cross Rate as the index-number of the price of gold. This explains why in the months immediately following the introduction of the new exchange policy the American Cross Rate played such an important part in rupee-sterling exchange. The rupee was to be fixed at 11.30016 grains fine gold ; the dollar is fixed at 23.22 grains fine gold. Roughly speaking therefore the number of rupees in the pound sterling should be approximately double the number of dollars in the pound sterling. More exactly :—

If x pence $= 1$ rupee.

$= 11.30016$ grs. fine gold.

23.22 grs. fine gold $= 1$ dollar.

D dollars $= 1$ pound sterling.

$= 240$ pence.

then $x = \dfrac{11.30016 \times 240}{23.22 \times D} = \dfrac{11680}{D}$ pence.

10. A table is given in the Appendix showing the values of x corresponding to different values of the Cross Rate. Had the accepted policy of Government been realised in practice, the exchange value of the rupee should have closely followed the sterling equivalents of the American Cross Rate as given in this table. In other words, if Government had been successful in fixing the value of the rupee at one tenth of the gold contents of the sovereign, it would at any time have purchased the amount

of sterling corresponding to the prevailing Cross Rate. With this end in view Government began selling Reverse Councils at the rates shown in the table after deducting a fraction to represent the cost of transferring the imaginary gold contents of the rupee to London. In view of subsequent developments it is a simple matter to criticise the action of Government, but at the time they had no other alternative. Their aim was to make the sovereign and the rupee interchangeable at the constant ratio of ten rupees per sovereign. The Currency Committee recommended this ratio and Government accepted the recommendation in the full belief that it was capable of fulfilment. Had they sold Reverse Councils at any other rate, it would have been a deviation from the policy recommended by the Committee, for it would have been equivalent to exchanging gold for rupees at a rate different from ten rupees per sovereign. It is clear that Government could not alter the actual ratio between rupees and gold by an arbitrary pronouncement, nor by any legislature. It was necessary for them to guarantee the desired parity by persistently exchanging gold (or the sterling equivalent of gold) for rupees at that parity. Otherwise the ratio would settle itself under the law of supply and demand as expressed through the exchange and bullion markets. The fact that Government decided at a later stage to sell Reverse Councils at a rate other than those mentioned above will be referred to in a subsequent paragraph.

11. Why then did exchange fall away from Reverse Council Rates ? To put the question in another way why did not the market rate rise to Reverse Council rates ? It has been explained above why Government sold Reverse Councils at two and three pence above the market rate, a proceeding which provoked much criticism at the

time.   In order to answer the preceding questions let us revert to our symbols.   The supply of bills on the exchange market is £B.   The demand for remittance is £R.   If R is greater than B, exchange tends to fall (the price of sterling tends to rise) until the excess of R over B has been eliminated by an additional supply of bills, say £b, or by a decrease in the demand for remittance, say £r, or what is more probable a combination of £b and £r.   A rate of exchange will then be reached where £ B+b= £ R−r.   A reference in now necessary to para. 6, in which the buyers and sellers of sterling have been enumerated. Before the price of sterling reaches the point where £ B+b=£ R−r items (A) (2) and (A) (3) may have come into operation.   We may ignore (A) (2) for the moment, because until comparatively recently the export of silver was prohibited and the export of gold owing to the abnormal demand for it in the Indian bazaars would the have been a very expensive business.   Suppose ⌐ ⌐rnment express their intention to sell Reverse Councils, say £ C, at the rates mentioned in para. 10.   If exchange is to be maintained at the prescribed level, the equation of equilibrium of exchange should be £ B+C=£ R where B and £ R are respectively the supply of bills and demand for remittance at Reverse Council rate.   It is however most unlikely that an arbitrarily chosen amount C will give us the required identity, and we must deal with the cases where B+C is greater or less than R, remembering all the time that B and C will vary according to the rate of exchange at which C is issued. · If B+C is greater than R, it means that the supply of sterling is greater than the demand.   In this case the effect will be that the market will not absorb the whole of C, but will take say C−c, where £B+C−c=£R.   As Government is offering to sell C only in order to increase the supply of sterling to the

amount required to satisfy the demand at a certain rate (*viz.* Reverse Council rate) it is immaterial to them if the amount c is not required. Their main object will have been attained. This was the actual case on several occasions prior to the introduction of the new policy. On one occasion, for instance, Government offered £2,000,000 Reverse Councils out of which only £300,000 was taken up. This meant that the supply of sterling on the market at Reverse Council rate was only £300,000 less than the demand at that rate.

12.   The position is different when £ B+C is less than £ R. The supply of sterling is less than the demand for sterling, and the only hope of an equation of equilibrium is for the price of sterling to rise (*i.e.* for the rate of exchange to fall) until additional bills £ b have been created and the demand for remittance decreased by £ r, where B+b+C=£ R−r. The rate of exchange in this case is   rate affecting b and r and has nothing to do with the rat.   which Reverse Councils £ C are being issued. The only way in which the latter rate could be enforced would be by increasing C by say c, where £ B+C+c=£ R. So long, therefore, as C is a fixed amount which does not at any particular time satisfy the identity £ B+C=R, the market rate of exchange cannot remain at the rate at which £ C is sold. Briefly, the maintenance of the level of exchange depends on the amount of C and not on the price of C. This is merely an application of the economic maxim known as the law of marginal increments. If the demand for certain articles at £ 1 each is 1,000, and 999 can be produced at 15*s.* and the remaining one at £ 1, the market price will be £ 1 and not 15*s.* It is the cost of the final marginal element needed to satisfy the demand which fixes the price, and the profits of the producers vary in accordance with the cost of the marginal element. This

illustration may be somewhat exaggerated, but it shows the principle involved.

13.   Applying the law to the case of exchange, if the demand for remittance at 2*s.* 6*d.* per rupee is £ 10 millions, and the supply of sterling consists of £ 2 millions Reverse councils at 2*s.* 10*d.*, £ 2 millions of bills at 2*s.* 8*d.*, £ 2 millions of bills at 2*s.* 7*d.*, and £ 4 millions of bills at 2*s.* 6*d.*, the market rate of exchange cannot be anything but 2*s.* 6*d.*, otherwise equilibrium between supply and demand would be impossible. The fact that banks bought part of the supply at higher rates than 2*s.* 6*d.* could not alter the fact that they had to lower the rates until they obtained a sufficient supply of bills to satisfy the demand for remittance. The market rate of exchange therefore depended on the rate necessary to attract the final bill and destroy the final element of remittance necessary to eliminate the gap between bills plus Reverse Councils and remittance.

14.   A very important deduction from the above agreement is that no alteration in the method of distribution of Reverse Councils could materially affect the market rate of exchange. In the early days it was sometimes suggested that if Reverse Councils could have been allotted primarily to the Exchange Banks, the market rate would have been nearer the Reverse Council rate, as banks would have been able to sell at higher rates. The fallacy of this suggestion is at once seen where we remember that if the supply of sterling £ B+C is less than the demand for sterling £ R, no rearrangement of the sellers of B+C can alter the fact of inequality between supply and demand. Suppose the banks had been able to obtain the whole of the £ 2 millions Reverse Councils at 2*s.* 10*d.* they would have had to lower their rates till they brought out the bills required to meet the demand for remittance, say £ 10 millions, at 2*s.* 6*d.*

15. A further suggestion was made to the effect that if the Reverse Councils could have been sold direct to genuine remitters, and not to every speculator who had credit or nerve enough to apply for the whole amount, in order to retail his allotment round the market, rates would have been nearer Reverse Council rates. Here again, it must be remembered that even if every person, whose demand for remittance at 2s. 6d. had helped to make up the total of £ 10 millions, had received a proportionate share of the £ 2 millions Reverse Councils at 2s. 10d., the market rate would still have been 2s. 6d., as that rate alone could attract just enough bills to satisfy the demand. While admitting the desirability of a just distribution of Reverse Councils, and the elimination of profits by speculators, it is necessary to remember that so long as the supply of sterling was inadequate, no scheme of distribution could have obviated the inconvenience and uncertainty caused by the discrepancy between Government rates and market rates.

16. The equation of equilibrium of the exchange market then is £ B+b+C=£ R−r, and the rate is that which attracts £ b bills and drives away £ r remittance at any particular moment, in order to eliminate the excess of R over B. It is hardly necessary to point out that both R and B are variable quantities which cannot be measured in round figures day by day. The process of equilibration however is actually experienced every day the exchange market is open. A demand for remittance at a quotation given by a bank may be £ 100,000. The bank will perhaps be unwilling to sell more than £ 50,000 at that rate, and will offer the balance at $\frac{1}{16}d.$ or $\frac{1}{8}d.$ lower. The buyer may refuse to accept the lower rate and will be content with the lesser amount for the time being. If in due course he is unable to postpone his demand

for the balance he will be compelled to buy at the lower rate offered by the bank.   In this way supply and demand acting through the rate of exchange on b and r tend to bring about equilibrium between B and R.

17.   It will now be clear why exchange did not follow the par based on the American Cross Rate.   It the Cross Rate goes down the par goes up, but unless the marginal bill can be procured at the higher rate the market rate will follow its own course.   To what extent, then, does the Cross Rate affect the exchange market?   A reference to para. 9 will show that the Cross Rate affects the sterling price of gold.   It will not therefore become a determining factor in the exchange market until the rate of exchange approaches what is commonly known as the gold points. When B (supply of bills) is greater than R (demand for remittance) exchange will rise until it reaches a point at which it is profitable to import gold.   [*vide* (B) (2) in para. 6].   The supply of bills depends on the volume of exports.   If the value of exports exceeds the value of imports to such an extent that banks or merchants must import gold to fill up the gap, exchange will rise to the level at which it is profitable to import gold.   When the best buyer of gold is Government, that is when the market price is less than Rs. 15-14-8 per tola (or ten rupees per sovereign), this level will be the par shown in the table already referred to, plus a percentage to allow for the charges incurred in importing gold.   In that case the equation of exchange would be £ B$-$b$=$£ R$+$r$+$G, where G is the value of imported gold, and b and r are respectively the marginal bill and marginal element of remittance affected by the rate of exchange at which G is imported.

18.   An   error which was made by many operators in the early months of 1920 was the assumption that the movements of the Cross Rate would inevitably

react on exchange, and the failure to take into consideration the numerous other factors which might counteract the influence of the Cross Rate. If the Cross Rate fell the general inference was that a higher exchange was inevitable, and merchants competed with each other in selling bills (or to be more correct in making forward bill contracts). The result was that the rate of exchange rose to a high level. As soon as the Cross Rate rose a reaction took place : there were no sellers, and everyone tried to buy while rates were high, with the result that exchange came down again. A careful comparison of the market rate of exchange with the par based on the Cross Rate* will show that until about the first week of May there was a distinct co-relation between the two. From the middle of May onwards the fact was gradually realised that the Cross Rate *per se* had no magical powers over the market rate, the sentimental effects of the movements of the Cross Rate became negligible, and exchange since then has followed an erratic course which not the wisest prophet could foretell.

19. It is important to grasp fully the significance of Reverse Councils and the American Cross Rate, and their functions as originally anticipated in the Babington-Smith Committee's recommendations. At the present moment the Report is of technical rather than practical interest, but it is impossible to say that circumstances may not arise which will again bring it to the forefront. It may therefore be well to summarise the argument at this point. Reverting to our symbols, in a weak market the equation of equilibrium of exchange would be £ B+b+C=£ R −r, and the rate of exchange would be that which attracts the final bill b and drives away the final element of remittance r necessary to equate

the supply of and demand for sterling. In a firm market the equation would be £ B—b=£ R+r+G, and the rate of exchange would be that at which gold could profitably be imported. The anticipation of the Committee was that Government would be able to stabilize the price of gold at Rs. 15-14-8 per tola (or ten rupees per sovereign), and would ultimately take over gold from importers at this rate, when the excess of bills over remittance had to be counterbalanced by the import of gold. They also considered that in a weak market, Government would be able to provide the sterling equivalent of gold in the form of Reverse Councils in quantities sufficient to meet the demand for remittance at Reverse Council rates. These anticipations were based on the assumption that India would continue to maintain a favourable trade balance. If they had been realized, the equation of equilibrium would certainly have become £ B—b=£ R+r+G, and the rate approximately that shown in the table referred to above.

20. Having dealt with the theory and practice of exchange during the months immediately following the introduction of the new exchange policy, it is now necessary to consider in further detail subsequent developments. In June, 1920, Government decided to remove the restrictions on the import and export of the precious metals. Up to that time they had acquired gold imported privately and had paid for it at rates modified from time to time, and finally fixed at Rs. 10 per sovereign or Rs. 15-14-8 per tola. The result of the removal of the embargo on the import of gold was to allow the thirst of India for gold to have its full effect on the exchanges. Large quantities were imported, which led to an ever-increasing demand for remittance to pay for these imports. At the same time exports showed no corresponding increase,

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and the supply of bills on the market was inadequate to meet the demand for remittance. The inevitable consequence was a rapid fall in exchange, which in turn caused the price of gold to rise to a level at which the demand could periodically be met by the supply.

21. In order to endeavour to satisfy the demand of India for gold Government had for some time past been holding periodic sales of gold bullion held in the Paper Currency Reserve. The original object of such sales was to reduce the premium on gold (a common but incorrect expression used to represent the difference between the market value and the statutory value), and thereby facilitate the circulation of sovereigns at a time when rupees were in danger of disappearing, and Government were faced with the possiblity of an inconvertible note issue. During the later stages of the war the excess of exports over imports had become so great that in default of accepting credits abroad and owing to the difficulty of getting gold India demanded silver. A reference to the exchange identity may make the position clearer. It has been stated in paras. 17 and 19 that when exports are in excess of imports the identity becomes £ B—b= £ R+r+G, where the rate of exchange is the rate at which it is profitable to import gold, and b and r are the marginal elements of bills and remittance affected by that rate. Now if the rate is fixed (as it was during the war) the operation of the natural laws which would produce equilibrium through b and r is nullified. Further, G was a negligible quantity owing to the restrictions on the export of gold from belligerent countries. The exchange position therefore was for a long time represented by the inequality £ B > £ R. Government endeavoured to bring about equilibrium by taking over as far as

possible the surplus sterling in London and providing
rupees in India though the agency of Council Bills. The
exchange markets endeavoured to equate supply and
demand by in effect adding to R and deducting from B
what was commonly known as the "premium for cover."
The net result however was a demand for silver, which
put up the world price of silver to such a level that the
rupee was in serious danger of acquiring a commodity-
value and disappearing as bullion. Government consi-
dered it essential to maintain the token characteristic of
the coin and simultaneously the convertibility of the note
issue, and therefore endeavoured to protect the coinage
by exchanging the gold in the Paper Currency Reserve for
rupees.

22. The actual effect of the sales of Government gold
on exchange has been the subject of much controversy.
Without attempting to express a definite opinion on the
subject a few general observations may be made. It is
clear that in normal times the exchange of gold for silver
in the metallic reserve of the paper currency could not
have any effect on exchange, which depends primarily,
as has already been shown, on the relation between exports
and imports. In so far as the gold had been imported
it would have entered into the equation of exchange
$£ B - b = £ R + r + G$ at the time it was imported. If it
was imported privately and acquired by Government, it
automatically created a demand for sterling remittance
in the same way as the import of any other commodity.
If it was gold which Government had received in London
against the sales of Council Bills it affected exchange at
the time of the sale of the Councils, and its re-sale in India
could not have a further effect on exchanges. The re-sale
served its purpose in conserving the rupee resources of
Government.

23. Owing however to war conditions India had been deprived of gold and had received a surfeit of rupees and rupee notes. As soon therefore as Government removed the restrictions on the import of gold, there developed an insatiable desire to convert the surplus of rupees into gold. In so far as Government were able partially to meet the demand, the amount of gold imported was limited to the amount required over and above Government supplies. When Government stopped their sales, the full demand went abroad and added to the volume of imports, with a consequent further weakening of exchange. In view of this result of their action Government have been subjected to severe criticism, and it has been suggested that in order to raise exchange to a figure corresponding more closely with the parity recommended by the Currency Committee, they should resume the control of imports of gold and recommence the sales of gold from the Paper Currency Reserve. They have refused to consider the first suggestion on the grounds that "the right of India to free importation of both gold and silver is absolute, and not contingent upon the existence of any particular exchange conditions." † They have not specifically stated their objections to the second proposal, but apparently consider that it would only weaken their gold resources without having any appreciable effect on the general exchange position.

24. In this connection it is well to remember that so long as India demands gold and is willing to pay more than Rs. 15-14-8 per tola for it exchange cannot rise to the gold point recommended by the Currency Committee, for the gold import point will always be lower than the proposed parity. For if Rs. 15-14-8 per tola represents

† *Letter dated 16 November, 1920 from the Secretary to the Government of India, Finance Department, to the Secretary, Bengal Chamber of Commerce.*

ten rupees per sovereign, any rate higher than Rs. 15-14-8 per tola will represent more than ten rupees per sovereign : consequently one rupee will be worth less than two shillings (gold).   Now if Government restrict the supply of gold into India, the internal price owing to the unsatisfied demand is bound to be higher than if supplies were coming in freely.   Although therefore by limiting the imports of gold Government might temporarily raise the market rate of exchange, they would be no nearer the fulfilment of their ideal.   The pent-up demand would always be imminent, ready to break out at the first possible opportunity, and would always be a potential danger to any artificially high exchange.   It is interesting also to note the opinion of the Finance Member expressed in his speech introducing the Indian Coinage Bill.   "The world is not short of gold, but its stock is now held in bank reserves and does not pass into currency, but it cannot be a permanent lock up.   Sooner or later the banks of the world will have to open their safes, and make available for commerce the gold it demands as currency.   When the world has used its credits it will absorb its note issue, and finally it will use its gold.   India will then get all the gold she demands in payment for her exports."

25.   While dealing with the question of trading in gold, a mathematical illustration may be of interest.   It has been pointed out that the American Cross Rate is the barometer of the gold market.   Suppose the Cross Rate is D (*i.e.* D dollars = £ 1 sterling), the Indian bazaar price of gold is R rupees per tola and the rate of exchange is x pence per rupee.   Then if

x pence	=	1 rupee.
R rupees	=	180 grains fine gold.
23.22 grs. fine gold	=	1 dollar.
D dollars	=	240 pence.

$$\frac{180 \times 240}{R \times 23.22 \times D} \qquad \frac{1860.46}{R \times D}$$

From this formula we can find the rate of exchange at which it is profitable to import or export gold. For purposes of import we must add a percentage for charges to cover freight, insurance and interest on outlay. For export we must deduct charges.

26.   The figure can be similarly calculated from the price of gold in London say L shillings per oz. fine gold. [The market price of gold must not be confused with the mint par of gold *viz.* £ 3-17-10 per oz.]

$$\text{If } x \text{ pence} \quad = \quad 1 \text{ rupee.}$$
$$R \text{ rupees} = \quad 180 \text{ grs.}$$
$$480 \text{ grs.} = \quad L \text{ shillings.}$$
$$= \quad 12 \text{ L pence.}$$

then $x = \dfrac{180 \times 12 \text{ L}}{480 \times \text{R.}}$

The connection between the formulæ will be seen from the following chain :—

$$\text{If L shillings} \qquad = \quad 480 \text{ grs. fine gold.}$$
$$23.22 \text{ grs. fine gold} \quad = \quad 1 \text{ dollar.}$$
$$\text{D dollars} \qquad = \quad 20 \text{ shillings.}$$

Then $\text{L} = \dfrac{480 \times 20}{23.22 \times \text{D.}}$

Substituting the value of L in the preceding formula we get

$$x = \frac{180 \times 12}{480 \times \text{R}} \times \frac{480 \times 20}{23.22 \times \text{D.}}$$

$$= \frac{180 \times 240}{\text{R} \times 23{\cdot}22 \times \text{D.}}$$

which is the formula in para. 25.

27. The actual significance of the formula is that it shows the rate of exchange obtained by buying gold in India, exporting it to America, selling it for dollars, and buying sterling with the dollars thus obtained. Or, vice versa, it shows the rate of exchange obtained by buying dollars in America with sterling in London, converting the dollars into gold, and importing the gold into India. The importance of the formula is therefore obvious, as it gives the upper and lower limits of exchange at times when the excess of exports or imports of merchandise is being settled by the import or export of gold. While the actual bullion operations are carried out by banks or bullion merchants, it is desirable that all persons interested in exchange should watch the effects of bullion movements on exchange.

28. Reverting to the formula in para. 25, we see that $x \times R \times D = a$ constant figure, where x is the rate of exchange, R is the bazaar price of gold, and D is the American Cross Rate. Any variation in one of the three variable quantities may affect one or both of the other variables. For example if D goes up, x or R will go down by a corresponding fraction ; if R goes up, x or D will go down. Now it may be assumed for the present that no fluctuations in x or R will have much effect on the Cross Rate, which is determined by the volume of trade and financial transactions between Europe and the U. S. A. [At the present moment Britain is bearing the brunt of the Allied indebtedness to the U. S. A. and it is therefore stated that the Cross Rate is affected by trade movements between Europe and the U. S. A., and not only Britain and America as would normally be the case.] Assuming therefore that the Cross Rate remains steady, any fluctuation in x will affect R and vice versa. The experience of the last few months

shows this to be the case. It is much more difficult to anticipate the effect of fluctuations in the Cross Rate on x and R. If the Cross Rate goes up, either x or R must vary in order to satisfy the identity $x \times D \times R =$ constant. It is also possible that both may vary to a smaller extent, and a further possibility is that one or other may be affected to excess, and the other may react accordingly. Let us take actual figures. Suppose the Cross Rate is 345, the price of gold Rs. 28/12 per tola, and exchange 17 pence per rupee. If the Cross Rate goes up to 350, which means that the price of gold in the international market has fallen, we should naturally expect the price of gold in India to fall. If it falls sufficiently to counteract the rise in D from 345 to 350, say to Rs. 28-8, then the rate of exchange need not necessarily alter. If the demand in India is so keen that the price still remains at Rs. 28/12 we should expect exchange to fall, say to $16\frac{3}{4}$ pence per rupee. A further possibility still is that the price might fall further than was justified by the rise in the Cross Rate, say to Rs. 28, in which case exchange would probably go up to say $17\frac{1}{2}$ pence per rupee to counteract the excessive fall in the price of gold.

29. Before leaving the question of the import and export of gold, reference must be made to one other factor, namely the Yokohama-London Cross Rate. For reasons already explained it is usual to look upon the American Cross Rate as the price-index of the gold market, but the Japanese yen is a gold coin and the Japanese market for gold is free so far as imports are concerned. It may therefore happen that gold may be exported from India to Japan if this is more profitable than exporting the metal to America. As the payment for the gold will generally be made in London, and not by direct remittance to India, an export of gold to Japan will probably affect

rupee-sterling exchange. The bank or merchant who exports the gold will receive sterling in London, which he will sell in the local exchange market. The relation between the variable factors in business of the above nature is shown as follows :—

> If x pence = 1 rupee.
> R rupees = 180 grains fine gold.
> 15.333 grs. = 1 gramme.
> .75 grammes = 1 Yen.
> 1 Yen = Y pence.

where Y is the London-Yokohama Cross Rate express-ed in pence per yen,

$$\text{Then } \frac{x \times R}{Y} = \text{constant.}$$

If Y goes down either x or R must go down ; if Y goes up, either x or R will go up. Here again however we see that it is impossible to foretell with any certainty how a fluctuation in the London-Yokohama rate will affect the Indian exchange or bullion market. If exchange is steady and independent for the time being of bullion movements, we should expect fluctuations in Y to affect R before they affected x. If on the other hand exchange is weak and susceptible to changes in the local bullion market, we should probably find that an alteration in Y would affect both x and R, and there might be fluctuations in both before each factor found its position of equilibrium corresponding to the new value of Y.*

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* *In considering the equations $x \times R \times D = const.$ and $\frac{x \times R}{Y} = const.$ it may be be found that the substitution of daily quotations will not always give exactly the same constant figure. This is because the constant includes items such as freight, interest and insurance, and also because the effects of supply and demand may not act simultaneously on each of the variable quantities. An-*

80.   It is, however, almost impossible to predict the immediate effect of any change in one of the numerous factors affecting exchange. Apprehension of the future often operates on the minds of men, and produces effects greater than the actual circumstances of supply and demand would appear to justify. Within the short period of eighteen months India has been willing to pay up to Rs. 35 per tola for gold, and has been parting with it freely at Rs. 29 per tola. One needs to bear in mind that almost every economic cause has two effects, the short period and the long period effects. If for instance the price of a commodity begins to rise, there may develop an exaggerated demand for that commodity which will force up the price to an artificially high level. At a certain point demand will cease, and there will be an immediate reaction possibly to a point below the original level. This happens with the exchange market periodically. During the war when the Secretary of State was endeavouring to regulate exchange on the basis of the bullion value of the rupee, a rise or fall in silver would have the effect of stimulating the supply of or demand for sterling with the consequent fluctuations in exchange. We have seen similar fluctuations since the introduction of the new policy, when any change in a known factor, such as Reverse Councils, has been announced. The short period effect was not necessarily the same as the

examination of actual quotations will however show the close relation between x, R and D.

Decr.	1	2	3	4	6	7	8	9	10	11	13	14
x	18⅟	17¾	17½	17¼	17	16¾	16¾	16¾	16¾	16¾	16⅝	17¼
R	27¾	28	28½	29½	28¾	29¼	29½	29½	29½	29¼	29½	28¾
D	319	348¾	ᴈ49	349¼	349¼	346¼	313½	344¾	344	314	245¾	345½

long period effect, and persons who were correct in their anticipations of the former were frequently mistaken in respect of the latter.   Any formulæ, such as those already quoted, must be interpreted as showing only in a general way the probable trend of exchange, but any forecast as to the immediate movements must be based on an intelligent appreciation and analysis of existing facts and figures, and will always be liable to error owing to the uncertainty of present circumstances.

31.   An event which must be briefly referred to was the decision of Government to sell Reverse Councils at fixed rates instead of at the rates mentioned in para. 10. The communiqué in which the decision was announced was not very clear as to the reason which prompted the decision.   It was suggested that when sterling returned to a parity with gold, the rate for Reverse Councils would be $1\text{-}11\frac{19}{32}$, and that in selling Reverse Councils at this rate there would be no serious deviation from the recommendations of the Committee.   A further reason was probably that they considered that remittance was being unduly stimulated by the high rates of Reverse Councils, people assuming that if they could remit money to England at rates well over two shillings, they would, when sterling resumed its parity with gold, be able to bring back the money at a good profit.   It is however difficult to justify the decision on either of the above grounds. The proposal of the Committee was to link the rupee to gold : the sales of Reverse Councils at $1\text{-}11\frac{19}{32}$ implied that Government for the time being at any rate were linking their rupees to sterling.   This deviation could not fail to suggest doubts as to the practicability of the Committee's proposals.

32   The last and most important step taken by Government was the cessation of sales of Reverse Councils.

As was to be expected in view of the arguments already put forward, the immediate effect was a fall in exchange. There is no doubt that the fall was exaggerated by sentiment. It has been shown that the all-important factor in Reverse Councils was the amount, if the rate at which they were being sold was to become effective. The market rate, owing to the inadequacy of the supply of Reverse Councils, had for some time previously been feeling its way downwards, so as to attract the requisite amount of bills necessary to meet the demand for sterling remittance. So long, however, as Government were selling Reverse Councils, the mercantile community were under the impression that the policy advocated in the Babington-Smith Report would at some time become effective, and exchange settle somewhere near two shillings sterling. [Two shillings (gold) was for most people a dream of the past.] In these circumstances merchants were unwilling to book forward remittance at rates below two shillings, and as soon as Government withdrew from the exchange market, a large amount of remittance came on to the market for settlement, which brought down rates very rapidly, and a crisis was narrowly averted. It is well known that huge losses have been incurred, both by importers and exporters who had anticipated and based forward business on a two shilling exchange. The former had bought goods forward without buying exchange, and the latter had sold exchange forward without selling goods. Consequently when exchange fell, both parties endeavoured to buy exchange, the former to cover their purchases of goods, the latter to cover their sales of exchange which they were unlikely to be able to cover by shipments of goods.

88.   Much criticism has been levelled at Government for their ineffective attempts to stabilize exchange at the

level recommended by the Currency Committee. The principal remedies proposed are the renewal of sales of Reverse Councils and of the sales of Government gold. The latter has already been dealt with in para. 23. As regards the former, it may simplify the statement of the case to revert for a moment to our symbols. The immediate effect of the re-introduction of Reverse Councils £ C on to the exchange market would probably be to raise the rate of exchange. Now if the supply of bills at the moment is £ B and the demand for remittance £ R the effect of the higher rate would be to decrease B by say b, and increase R by say r. If equilibrium was to be attained we should have therefore

$$\text{£ B}-b+C=\text{£ R}+r \text{ or £ B}+C=\text{£ R}+r+b.$$

Now we know that so long as imports exceed exports B is less than R. Unless therefore C was not only equal to the excess of R over B, but also greater than this by the amount $r+b$, equilibrium would be impossible. In the present precarious state of the market it is probable that any appreciable rise in the rate of exchange would affect large amounts of bills and remittance ; $b+r$ would in that case be a considerable amount, and it is therefore most unlikely in the light of past experience that Government could possibly sell sufficient Reverse Councils to ensure stability at an artificial level. It is for consideration in these circumstances whether it is not better for Government to remain out of the exchange market until such time as exports begin to assume their former preponderance over imports.

34. The desideratum from a business point of view is stability of exchange. It does not matter whether the rate is high or low, so long as it remains steady or fluctuates within narrow margins. The mere sale of Reverse Councils cannot effect this ideal unless they are sold in

unlimited quantities to meet the trade demand in full.
If they do not meet the demand, the market is at the
mercy of sellers of sterling, and is bound to fluctuate
considerably.

85.   The course of exchange since the cessation of the
sales of Reverse Councils has been very uncertain, and on
several occasions the rate has fallen until it became
necessary for banks to export bullion in order to meet
their sterling liabilities caused by the incessant sales of
remittance.   It is interesting in this connection to note
that prior to the introduction of a gold standard in 1893
exchange was independent of Government action, and the
fact that it was possible in those days to carry on inter-
national trade without the assistance of a Government
controlled exchange standard should encourage merchants
today to endeavour to evolve some scheme to protect
themselves against exchange risks.   In those early days,
if the value of imports exceeded that of exports, arrange-
ments had to be made to pay for the excess by the export
of silver rupees.   Similarly if exports exceeded imports,
the balance would be settled in silver.   Exchange at any
time, therefore, was liable to fluctuate between the limits
of the cost of importing or exporting silver.   Now it must
be admitted that complications arise when the currency
of one the trading countries is silver, and of the other
gold.   The value of silver may vary considerably in
relation to gold during the time of trans-shipment, though
the risks of variation may to some extent be overcome
by "forward" contracts.   The fact remains however
that when it became necessary to pay for imports in hard
cash arrangements could be made to do so.   Similarly
today, if India is importing more than she is exporting,
the balance must be settled by the shipment of specie
or bullion.

36. The relation between the rupee and the silver market, as quoted daily in London is found as follows :—

If x pence   = 1 rupee.

1 rupee   = 165 grains fine silver.

925 grs. fine   = 1000 grains standard.

480 grains standard = 1 ounce.

1 ounce   = P pence.

where **P** is the London price of silver

then $x = \dfrac{165 \times 1000 \times P}{925 \times 480.}$

$= \cdot 3716 \times P.$

A table is given in the appendix showing the values of x corresponding to various values of P. If we add to the above rate a percentage to represent charges incurred in importing silver or exporting rupees and selling them as silver, we shall find the upper and lower limits of exchange on a silver basis.

37. At the present moment the difficulty is to know on what basis to calculate exchange in endeavours to fix forward business. The old ratio of fifteen rupees to the sovereign has been replaced by a new one of ten rupees, but apart from the re-writing of Government accounts on a ten-rupee basis (which as far as can be judged is a ten-rupee per pound sterling basis and not a ten-rupee per sovereign basis) it is non-effective from the point of view of trade. The parities of gold and silver are sometimes above and sometimes below the market rate, the vagaries of which are impossible to anticipate and difficult to explain even in retrospection. It seems fairly clear however that from the date on which Government showed their inability to fix exchange on a two-shilling (gold) basis, exchange has been trying to find a lower limit at which the export of something or other would counterbalance the abnormal excess of imports over exports.

With the demand for India's produce falling off owing to the inability of Europe to purchase it, India has several times been reduced to disgorging quantities of the precious metals she absorbed during war-time. As far as silver is concerned, the effect of India selling has been to lower the London price, and *ipso facto* to lower the bullion value of the rupee. The result has been that Indian exchange and the London price of silver have acted and re-acted on each other until no one can say when either has reached its lower limit.

38. The position is much the same as during the two or three years immediately following the decision to fix the rupee at 1s. 4d. There was at that time no lower limit except that at which it was profitable to export rupees, and the upper limit was reached only when the balance of trade in favour of India had reached such proportions that sovereigns were imported and sold to Government at the fixed rate of fifteen rupees per sovereign. For months after the above decision the exchange value of the rupee fluctuated from one shilling to one and three pence. Even after it was apparently stabilized owing to a steady excess of exports, resulting in a regular influx of gold, the lower limit was a matter of much uncertainty until Government gave positive evidence that they would sell Reverse Councils to meet the trade demand for remittance.

39. Reference may be perhaps be made to two more points on which the action of Government is open to criticism. The one to which public attention has been directed recently is with regard to the policy of control of the export of certain foodstuffs. Their action in restricting the export of wheat, by imposing a maximum price up to which wheat for export can be purchased, has been severely criticized. It would certainly facilitate

a speedier adjustment of the exchanges if they would allow trade to follow its natural course, and remove all restrictions on imports and exports, except in so far as was necessary for revenue purposes. Government have admitted this, but at the same time consider it necessary to protect India's supply of foodstuffs from the demand anticipated from hungry Europe. Government may be in possession of facts which justify this policy of protection, but from the point of view of the economist the natural means of protection would be the higher exchange which would at once follow an increase in exports, and the increased supply which would follow the higher price willing to be paid by the foreign consumer. We must admit, however, that, from the point of view of Government of India, price-policy is as important as exchange policy, and while in theory it may be certain that if left to the ordinary laws of supply and demand, prices and exchange would mutually adjust themselves, it may be expedient at the moment to subordinate exchange-policy to price-policy. The ideal to be kept in view, nevertheless, should be that the sooner trade can be allowed to follow a natural course, unimpeded by artificial controls and restrictions, the sooner will exchange settle itself. The knowledge that Government might by a stroke of the pen affect the present course of trade introduces an element of uncertainty into the exchange market, which makes business on a normal scale impossible, and also encourages gambling in exchange to the disadvantage of the legitimate trader.

40. The second point to be noted is that exchange is closely connected with the purchasing power of the rupee.* If Government therefore by superfluous additions to the

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* See the League of Nations Memorandum on the World's Monetary Problems written by Professor Gustav Cassel.

paper currency depreciate the purchasing power of the rupee, they tend to lower the rate of exchange. Critics of Government have stated that instead of allowing the deflation of the currency caused by the sale of Reverse Councils to have its full effect on exchange, Government have replaced the money on the market and thus kept the exchange value of the rupee at an artificially low level. In this matter Government have had to decide between the relative advantages of a higher exchange value of the rupee, and a low rate for money internally. By contracting the rupee circulation they could doubtless have raised the exchange value of the rupee, but they would probably have made money so "tight" in India that internal trade would have been seriously hampered. It is not intended here to criticize the decision of Government in this matter, any more than their decision to subordinate exchange-policy to price-policy in the case of the export of wheat; it is only necessary to point out the probable effects of Government action as far as exchange is concerned. If one has any faith in Government one must assume that they adjudicate in these matters, so as to afford the greatest good to the greatest number. At the same time, while accepting the position as a legacy of the War, one looks forward to the time when Government controls will be abolished, and trade, both international and internal, is allowed to follow its own course under the inexorable laws of supply and demand.

41. In conclusion it may be of interest to give a few facts relating to the actual business of exchange. Buyers and sellers of sterling as a rule settle their business through the agency of brokers, who endeavour day by day to bring buyers and sellers to an agreement. The business is fixed finally by contract to the effect that seller A agrees to sell to buyer B £C at rate r pence per

rupee, to be delivered on a certain specified date, or within a specified period, usually one month. £ C may be in the form of telegraphic transfer, on demand, *i.e.* a demand draft, or three months sight bills, or a combination of them all, each option having a fixed rate. If for example a merchant contracts to sell bills to a bank, it is customary to allow him the option of delivering six months sight, four months sight, three months sight, 30 days sight or sight bills. The differences between the rates for the various options are settled from time to time by the banks. If a bank sells telegraphic transfer, it is customary to allow the buyer the option of taking "on demand" at a slightly higher rate.

42. The question of deliveries affects the rate. Transactions are of two kinds, ready and forward, and it may happen that an operator will be willing to buy or sell "ready" when he will refuse to enter into "forward" transactions, or vice versa he may operate "forward" and be unwilling to buy or sell "ready." A keen business man always endeavours to buy or sell for deliveries which will give him the most advantageous rates. Suppose he has to make a sterling payment sometime within the next month. Owing to the weakness of the market he can buy ready remittance only at a comparatively low rate, but he may be able to find a seller for a month hence at $\frac{1}{8}d.$ or perhaps $\frac{3}{16}d.$ higher; further he may think he foresees certain circumstances which will cause exchange to firm up during the month. He must weigh the advantages of booking ready, forward, or taking his chance of a better rate by waiting. This is a simple illustration of what takes place on a very large scale in connection with India's foreign trade. The bulk of the exchange is nearly always fixed up months before the shipment of goods actually takes place. This fact explains

why it is important to analyse very carefully the long-period and short-period effects (see para. 29) of incidents affecting exchange.

43. One or two other points may perhaps require explanation for the general reader. The exchange market report frequently states that banks will operate in "doubles" only, or will buy bills only against cover, or will sell remittance only against bills. It was stated in para. 1 that the exchange banks act as a clearing house for exporters and importers, buying sterling from one and selling it to the other. Now a few minutes work with an exchange table will show that if a profit is to be made out of buying and selling sterling it is necessary that the rate for the purchase must be higher than the rate for the sale. If a bank buys £ M at rate r_1 pence per rupee and sells it at r_2 pence per rupee, the purchase costs him $\dfrac{240\ M}{r_1}$ rupees and the sale brings him in $\dfrac{240\ M}{r_2}$ rupees. If he has made a profit, $\dfrac{240\ M}{r_2}$ must be greater than $\dfrac{240\ M}{r_1}$, *i.e.* $240\ M\left(\dfrac{1}{r_2}-\dfrac{1}{r_1}\right)$ must be positive or $\dfrac{r_1-r_2}{r_1 r_2}$ must be positive, which can only be the case if r_1 is greater than r_2. The golden rule on the exchange market in all cases where the rate of exchange is expressed in a currency other than rupees is "buy high, sell low."

44. If the course of exchange is so uncertain that a banker cannot be reasonably certain of covering his purchases at a lower rate, or covering his sales at a higher rate, he may refuse to operate except in doubles. This means that he will not sell remittance to an importer unless he can simultaneously buy bills from an exporter, nor will he buy the latter's bills unless he can at the same time sell the former's remittance. Similarly if the market is weak, and exchange is certain to fall in the immediate

future he will obviously not go on selling sterling, when his cover may consist of bills the next day at a lower rate. If the market is firm and rates are likely to go up, he will not buy bills with the sure knowledge that he will have to sell remittance against them the following day at a higher rate.

45. This point explains one of the fundamental disadvantages of a violently fluctuating rate of exchange. In a steady market the banks will be prepared to buy or sell in excess, knowing that they run no serious risk of making a loss on the excess. If, however, the rate is rapidly fluctuating, an oversold or overbought position may result in considerable losses.

46. When banks buy and sell simultaneously they fix the rates for the purchase and sale at a certain fraction of a penny, which varies from time to time according to circumstances, such as discount rates in London, delays in mail, and other factors too numerous to mention. An examination of the daily exchange quotations during the past few months will show that the difference between the rate for telegraphic transfer and three months sight bills varies from $\frac{3}{4}d.$ to $1\frac{1}{8}d.$ This means that if a banker buys £ M of bills and sells £ M of T. T. at $\frac{3}{4}$ difference and his selling rate is say 1/5, he first of all receives $\frac{240\ M}{17}$ rupees in return for his paying out £ M in London, and he then pays out $\frac{240\ M}{17\frac{3}{4}}$ rupees to the bill merchant in return for £ M bills, which will be paid three months after sight in London. His immediate profit in rupees is $240\ M \left(\frac{1}{17} - \frac{1}{17\frac{3}{4}} \right) = 240\ M \times \frac{\frac{3}{4}}{17 \times 17\frac{3}{4}}.$ Against this profit has to be placed the cost of obtaining £ M in London for the period which elapses between the time of paying out the T. T. and the time of realisation of the bills.

(In practice the bills are not held till maturity, but are discounted on arrival in London.)   The difference between T. T. and 3m/st. varies according to the deliveries of the sales and purchases.   If it happens to suit a banker, he may offer to work at a more favourable difference between forward purchases and ready sales than he would between forward sales and ready purchases, or even ready sales and ready purchases.

47.   It may be that after perusing these pages many puzzled operators will put the book down in despair, because nothing has been told him about the future course of exchange.   There is not a merchant in India who would not welcome a definite and authoritative pronouncement regarding the possibility or probability of a stabilized rupee of either two shillings sterling or two shillings gold within a reasonable period.   Such a pronouncement cannot however be made, as so many of the factors affecting exchange are still in the lap of the gods.   Many people hold the opinion that the proposals of the Currency Committee were based on assumptions which have since been falsified, and it is therefore impossible to expect their anticipations ever to be realized.   On the other hand may be quoted the opinion of the Government of India as expressed in their letter dated 16th November, 1920, to the Bengal Chamber of Commerce.   "....But for the rest, they can only rely on the natural course of events and the return of favourable export conditions, combined with the reduction of imports, which is the natural corollary of the recent overstocking of the Indian market, to strengthen exchange.   Experience has demonstrated that, in the present condition of world trade, stability is at present unattainable : but the Government of India see no reason why the operation of the natural conditions, to which reference has been made above, should not

allow of the eventual fixation of exchange at the level advocated in the report of the Currency Committee." Torn between these conflicting opinions the average merchant can only take every precaution to eliminate risks of exchange moving against him, in the same way as he takes precautions against fluctuations in other markets. Until exchange begins to adopt some settled course he should endeavour to leave no business uncovered. Risks he must take, and he is naturally prepared to take, but his main object should be to eliminate all risks which can possibly be avoided, and those which are out of proportion to the business he is endeavouring to transact. Finally, despite the temptation to make a business profit out of the fluctuations of the exchange market by buying at the top and selling at the bottom, let it be remembered that exchange is only a means to an end, and it will ultimately be for the prosperity of everyone concerned if, by the studious avoidance of speculation, exchange can gradually be brought back to a fixed gold-standard basis, and thereby become the handmaid of Indian trade it has been since 1895.

Table showing the sterling equivalent of the bullion value of the rupee corresponding to London prices of silver from 30 to 59 pence per oz (see para 35).

	30	31	32	33	34	35	36	37	38	39
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s d.
—	11.15	11.52	11.89	1-0.26	1-0.64	1-1.01	1-1.38	1-1.75	1-2.12	1-2.49
⅛	11.20	11.57	11.94	1-0.31	1-0.68	1-1.05	1-1.42	1-1.80	1-2.17	1-2.54
¼	11.24	11.61	11.98	1-0.36	1-0.73	1-1.10	1-1.47	1-1.84	1-2.22	1-2.59
⅜	11.29	11.66	1-0.03	1-0.40	1-0.77	1-1.15	1-1.52	1-1.89	1-2.26	1-2.64
½	11.34	11.71	1-0.08	1-0.44	1-0.82	1-1.19	1-1.57	1-1.94	1-2.31	1-2.68
⅝	11.38	11.75	1-0.12	1-0.49	1-0.87	1-1.24	1-1.61	1-1.98	1-2.35	1-2.73
¾	11.43	11.80	1-0.17	1-0.54	1-0.92	1-1.29	1-1.66	1-2.03	1-2.40	1-2.77
⅞	11.47	11.85	1-0.21	1-0.59	1-0.96	1-1.33	1-1.70	1-2.08	1-2.45	1-2.82

	40	41	42	43	44	45	46	47	48	49
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
—	1-2.86	1-3.24	1-3.61	1-3.98	1.4-35	1-4.72	1-5.09	1-5.47	1-5.84	1-6.21
⅛	1-2.91	1-3.28	1-3.65	1-4.03	1-4.40	1-4.77	1-5.14	1-5.51	1-5.88	1-6.26
¼	1-2.96	1-3.32	1-3.70	1-4.07	1-4.44	1-4.82	1-5.19	1-5.56	1-5.93	1-6.30
⅜	1-3.00	1-3.37	1-3.74	1-4.12	1-4.49	1-4.86	1-5.23	1-5.60	1-5.98	1-6.35
½	1-3.05	1-3.42	1-3.79	1-4.16	1-4.54	1-4.91	1-5.28	1-5.65	1-6.02	1-6.40
⅝	1-3.10	1-3.47	1-3.84	1-4.21	1-4.58	1-4.95	1-5.33	1-5.70	1-6.07	1-6.44
¾	1-3.14	1-3.51	1-3.88	1-4.26	1-4.63	1-5.00	1-5.37	1-5.75	1-6.12	1-6.49
⅞	1-3.19	1-3.56	1-3.93	1-4.30	1-4.68	1-5.05	1-5.42	1-5.79	1-6.16	1-6.53

	50	51	52	53	54	55	56	57	58	59
	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.	s. d.
—	1-6.58	1-6.95	1-7.32	1-7.69	1-8.07	1-8.44	1-8.81	1-9.18	1-9.55	1-9.93
⅛	1-6.63	1-7.00	1-7.37	1-7.74	1-8.11	1-8.49	1-8.86	1-9.23	1-9.60	1-9.97
¼	1-6.67	1-7.05	1-7.42	1-7.79	1-8.16	1-8.53	1-8.90	1-9.27	1-9.64	1-10.02
⅜	1-6.72	1-7.09	1-7.46	1-7.83	1-8.20	1-8.58	1-8.95	1-9.32	1-9.69	1-10.06
½	1-6.76	1-7.14	1-7.51	1-7.88	1-8.25	1-8.62	1-8.99	1-9.37	1-9.74	1-10.11
⅝	1-6.81	1-7.18	1-7.56	1-7.93	1-8.30	1-8.67	1-9.04	1-9.41	1-9.79	1-10.13
¾	1-6.86	1-7.23	1-7.60	1-7.97	1-8.35	1-8.72	1-9.09	1-9.46	1-9.83	1-10.20
⅞	1-6.90	1-7.28	1-7.64	1-8.02	1-8.39	1-8.76	1-9.14	1-9.51	1-9.88	1-10.25

Table showing the rupee—sterling par of exchange (based on ten rupees per sovereign) corresponding to values of the London New York Cross Rate (see para 10).

No.	s. d.	No.	s. d.	No.	s. d.	No.	s. d.	No.	s. d.	No.	s. d.	No.	s. d.	No.	s. d.
300	3-2.93	325	2-11.94	350	2-9.37	375	2-7.15	400	2-5.20	425	2-3.48	450	2-1.96	475	2-0.59
301	3-2.80	326	2-11.83	351	2-9.28	376	2-7.06	401	2-5.13	426	2-3.42	451	2-1.90	476	2-0.54
302	3-2.67	327	2-11.72	352	2-9.18	377	2-6.98	402	2-5.05	427	2-3.36	452	2-1.84	477	2-0.49
303	3-2.55	328	2-11.61	353	2-9.09	378	2-6.90	403	2-4.98	428	2-3.29	453	2-1.78	478	2-0.44
304	3-2.42	329	2-11.50	354	2-9.00	379	2-6.82	404	2-4.91	429	2-3.23	454	2-1.73	479	2-0.38
305	3-2.29	330	2-11.39	355	2-8.90	380	2-6.74	405	2-4.84	430	2-3.16	455	2-1.67	480	2-0.33
306	3-2.17	331	2-11.29	356	2-8.81	381	2-6.66	406	2-4.77	431	2-3.10	456	2-1.61	481	2-0.28
307	3-2.05	332	2-11.18	357	2-8.72	382	2-6.58	407	2-4.70	432	2-3.04	457	2-1.56	482	2-0.23
308	3-1.92	333	2-11.08	358	2-8.63	383	2-6.50	408	2-4.63	433	2-2.97	458	2-1.50	483	2-0.18
309	3-1.80	334	2-10.97	359	2-8.54	384	2-6.42	409	2-4.56	434	2-2.91	459	2-1.45	484	2-0.13
310	3-1.67	335	2-10.87	360	2-8.45	385	2-6.34	410	2-4.49	435	2-2.85	460	2-1.39	485	2-0.08
311	3-1.56	336	2-10.76	361	2-8.36	386	2-6.26	411	2-4.42	436	2-2.79	461	2-1.34	486	2-0.03
312	3-1.44	337	2-10.66	362	2-8.27	387	2-6.18	412	2-4.35	437	2-2.73	462	2-1.28	487	1-11.98
313	3-1.32	338	2-10.56	363	2-8.18	388	2-6.10	413	2-4.28	438	2-2.67	463	2-1.23		
314	3-1.20	339	2-10.46	364	2-8.09	389	2-6.03	414	2-4.21	439	2-2.61	464	2-1.17		
315	3-1.08	340	2-10.35	365	2-8.00	390	2-5.95	415	2-4.15	440	2-2.55	465	2-1.12		
316	3-0.96	341	2-10.25	366	2-7.91	391	2-5.87	416	2-4.08	441	2-2.49	466	2-1.06		
317	3-0.85	342	2-10.15	367	2-7.83	392	2-5.80	417	2-4.01	442	2-2.43	467	2-1.01		
318	3-0.73	343	2-10.05	368	2-7.74	393	2-5.72	418	2-3.94	443	2-2.37	468	2-0.96		
319	3-0.62	344	2-9.95	369	2-7.65	394	2-5.65	419	2-3.88	444	2-2.31	469	2-0.90		
320	3-0.50	345	2-9.86	370	2-7.57	395	2-5.57	420	2-3.81	445	2-2.25	470	2-0.85		
321	3-0.39	346	2-9.76	371	2-7.48	396	2-5.50	421	2-3.74	446	2-2.19	471	2-0.80		
322	3-0.27	347	2-9.66	372	2-7.40	397	2-5.42	422	2-3.68	447	2-2.13	472	2-0.75		
323	3-0.16	348	2-9.56	373	2-7.31	398	2-5.35	423	2-3.61	448	2-2.07	473	2-0.69		
324	3-0.05	349	2-9.47	374	2-7.23	399	2-5.27	424	2-3.55	449	2-2.01	474	2-0.64		