Therefore the debt will have been diminished by this process continued for n years, by an amount

$$\frac{S\ (r^{n+1} - 1)}{r - 1} - S.\,(n + 1)$$

$$= S \left\{ \frac{r^{n+1} - 1}{r - 1} - (n+1) \right\}$$

to calculate S.

The interest of S must equal half the supposed annual increase of the revenue, continuing the same notation must $= a$.

$$\text{We have, therefore, } S\ \overline{r-1} = a$$

$$S = \frac{a}{r-1}$$

and the above formula becomes

$$\frac{a}{r-1} \left\{ \frac{r^{n+1} - 1}{r - 1} - (n + 1) \right\}$$

which exactly agrees with the preceding one.

IV.—*Observations on the Gold Crisis, the Price of Silver and the Demand for it; with answer to the question, "What becomes of the New Supplies of Gold."**—By Richard Hussey Walsh, LL.B., Archbishop Whately's Professor of Political Economy in the University of Dublin.

Introduction.—A few years ago, when we first heard of the astonishing discoveries in our modern El Dorados, and read of diggers finding miraculous nuggets, and realising fortunes at a single blow of the pickaxe, many began to imagine that sovereigns and half sovereigns would soon be as common as shillings and sixpences, and were almost ready to believe that the old legend of London streets being paved with gold might at last be turned into a sober fact. But when production at the diggings continued and augmented, and the value of gold exhibited no marked decline, public opinion ran into the opposite extreme, and numbers were not only disabused of their extravagant anticipations, but even became willing to allow that no change whatsoever should be expected. The first of these conclusions—an exaggeration generated by a striking novelty, and the

* Read before the Statistical Section of the British Association, Glasgow, September 14, 1855.

second—a natural consequence of a hasty condemnation of the former, are alike unreasonable. A decline in the value of either of the precious metals must proceed very slowly; as, owing to their natural qualities and the purposes to which we turn them, they are calculated to accumulate gradually from age to age, and thus to form so very great a supply, that the entire amount will be but little affected by the production of a few years, though unusually abundant; and the metal accordingly, within a similar period, will become but very little cheaper. But this is not the way the generality looked upon the matter. When there is a great harvest one season, the price of food falls forthwith; and careless reasoners apparently imagined that gold, like corn, should fall in value immediately after increased production had set in. It was not taken into account, that as most of the supply of corn any one year has been raised during the preceding, an unusually prolific harvest causes the entire amount of food the year following to be much greater than otherwise, and the article, therefore, to be much cheaper; while, as regards gold, the circumstances of the case are the reverse, and similar consequences cannot be expected.

It is needless, however, to follow out this branch of the question, as although three years ago, or so, it might have been desirable to explain why the recent discoveries would not bring down the value of gold with anything like the same rapidity that a plentiful harvest makes bread cheaper; yet at present, when the first astonishment has passed away, and the tendency of public opinion rather seems to be to run into the opposite extreme, it becomes necessary to point out the error of supposing that as no great change appears to have attended increased production hitherto, so also none is to be expected from its continuance at the same rate. That a considerable change in the value of gold is to be expected may readily be demonstrated; but, before entering on the investigation which leads to that result, I propose to consider whether there has not been as yet a greater depreciation of gold than most are disposed to imagine; and then to draw attention to some fallacies by which numbers persuade themselves that no important change in the value of gold is to be anticipated; or, at least, that if there should, its progress will be so very gradual, as not to bring about any of the injurious results which would ensue from a more rapid alteration.

Circumstances concealing whatever fall in the value of Gold has already taken place.—Answer to the question, "What becomes of the new supplies of Gold?"—To ascertain if gold has as yet declined in value, it is usual to compare it with silver; which, it is thought, affords a safe measure, as there has not been so far any remarkable disturbance in the rate of production of that metal. Until within the last few years, the price of silver had been generally 4s. 11d. per oz., but since then it has risen a little, and seldom deviated much from 5s. 1d. This is not a great advance, and, such as it is, does not appear to be increasing very appreciably. It rose thus much a few years ago, and since that has remained pretty steady. So far, it is conceded, gold has grown cheaper; but the change is inconsiderable. Let us see if it be correct to infer from this that the decline in the value of gold has been no greater than in the proportion of 4s. 11d. to 5s. 1d.; in other words, let us examine if silver itself has remained steady in value; for, unless it has, the variations in its price afford no measure we can rely upon. The annual production of late years has not varied much. In 1800, it amounted to £7,840,000; in 1848, it was little more, the production for that year being £8,630,000.* But while the supply was thus steady, we must not forget the demand; and if it be found that this has fallen off considerably, then must the value of silver have sensibly declined. That such has been the case can be demonstrated; whence it follows that gold, which measured in silver has fallen only in the proportion of 4s. 11d. to 5s. 1d., must have declined as much more in general value as silver itself.

The falling off in the demand for silver has occurred in countries such as France and the United States, where a double standard is employed; that is, where payments may be made either in sums of gold or silver money indifferently, such sums containing fixed relative quantities of the metals of which they are composed. In these cases, when gold became a little cheaper, it was gradually preferred as the medium of exchange; and this not only led to a falling off in the coinage of silver, but also to the melting down and exportation of much of the previous stock of money composed of that metal. To show the great extent of the adoption of gold currency in France and the United States, in 1849, before the late discoveries in California and Australia had been made available in any considerable degree, the coinage of silver of both those countries amounted to £8,000,000, and that of gold to about £2,000,000; while in 1853, the silver coined was little more than £2,000,000, but the gold was above £23,000,000.†

And, carrying our investigations a year farther, we find that "the coinage of the French mint, which in former years used to consist of about £40,000 per annum of gold and about £4,000,000 of silver, consisted in 1854 of £20,000,000 of gold and £80,000 of silver

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* Newmarch on the Supplies of Gold, p. 6.

† The coinage both of silver and gold in 1849 seems to have been unusually great compared with that of former years. The annual average coinage of silver in France had been about £4,000,000; in the United States something under £1,000,000. It may seem strange that even so much should have been coined each year in these two countries, when we reflect on the number of others using a silver standard, and that the annual production of the metal differed little from £8,000,000. But it must not be forgotten that what is coined is not always so much abstracted from the stock of bullion, consisting, as it often does, of what had been coined before, either in foreign countries or at home. And, besides, it is not unlikely that much of the precious metals produced each year escapes the researches and even the conjectures of those who prepare the returns. For instance, the Californian returns are computed from the deposits of gold-dust and bullion at the mint of San Francisco and the other mints of the United States; the Australian, from the accounts of what passes from the diggings by the government "escorts." The security afforded by the "mint" and the "escort" renders it probable that the one is usually selected as a place of deposit, and the other as a means of transmission; but such cannot be the case universally, and hence the returns so far are defective. At some of the Australian diggings the government has not established an "escort," and we cannot doubt but that many persons remove their treasures from California without availing themselves of the United States mints, whether at San Francisco or elsewhere.

coins."—(*Economist*, November 10, 1855.) The natural course of events must have brought on a change of this character, owing to the nature, as before explained, of the French monetary system; but its intensity appears to have been augmented artificially. "The state has aided the movement, in the first place, by directing the fabrication of gold pieces of ten and five francs, and then by favoring the coinage of gold and restricting that of silver."—(*La Presse*, July 25, 1855.) This conduct is extremely imprudent, for its effect must be to deprive the French of all their silver money, and leave them without any convenient medium of exchange for effecting small purchases. The choice will lie between cumbrous copper money, or gold pieces so small as to be not only perplexingly minute, but also subject to great waste from wear and tear, on account of the magnitude of their surfaces compared with the solid contents, fashioned, as they must be, in order to diminish the former disadvantage, of far less relative thickness than coins of large dimensions. Apparently alarmed by the gradual decrease of silver money, the Bank of France has lately purchased about a million and a-half of that metal, and it is said a new silver coinage is to be commenced forthwith. But if the present system be continued, this will be only a waste of labour, for the new silver coins will disappear as fast as they are issued. The Americans, in order to avoid the inconvenience which the French are exposed to, introduced subsidiary coins of silver in 1853, in imitation of ours; that is, coins each representing in value a certain fixed proportion of the gold standard money, but containing less silver than would be equivalent, at the market price, to this nominal worth; and prevented from leading in their turn to the abandonment of gold, by being legal tender to a very limited amount,—here, to the extent of 40s., by an act passed in 1816, and in the United States to 5 dollars, or a little more than £1. The weight of the new half dollar of silver is 192 grains, instead of $206\frac{1}{4}$ as before, and that of the quarter, dime, and half dime has been lessened in proportion. No change has been made in the silver dollar; and the consequence is, it is no longer coined, the new subsidiary coins being the only silver money now struck in the United States.* Congress, in abolishing the double standard, which virtually is what has been done, has placed the currency on a more satisfactory basis than the French; but in selecting as the standard of value a metal in course of depreciation, a grave mistake has been committed.

It will be said that if gold has acquired new channels of circulation in France and the United States, which it must fill up before becoming sensibly depreciated, on the other hand, it has lost a market in Holland and British India. In Holland, in 1849, the double standard was abolished, and silver alone retained as the measure of value. And in British India, in 1852, the permission which had been granted in 1835 to make payments in gold instead of silver if

* In the *Economist*, March 19, 1853, the act of Congress passed February 21, 1853, is given at full. In the number for March 25, 1854, there is a report on the new silver currency, containing much interesting information, but by no means free from scientific error, by Mr. Snowden, director of the United States mint. The English legislation of 1816 is referred to as a precedent.

desired, at a certain fixed proportion, was withdrawn. The effect of these two measures, however, was inconsiderable, and operated rather in preventing gold from acquiring a new market than in depriving it of an old one. Silver had previously been employed for the most part in both countries, British India particularly, and the consequence of the prohibition was less to oblige people to discontinue making payments in gold, than to prevent them from beginning to use it on a large scale instead of silver. The following table, from the *Economist*, May 27, 1854, proves this clearly as regards India:—

Coinage, in pounds sterling, of British India, from 1848 to 1852 inclusive.

	1848.	1849.	1850.	1851.	1852.
Silver	1,781,000	2,578,000	2,411,000	2,616,000	4,240,000
Gold	47,000	70,000	33,000	123,000	62,000

This shows that before the late discoveries the coinage of gold was very insignificant, and that it was not until 1851 there were any symptoms of its becoming generally employed; a symptom which was immediately followed by a prohibition of the double standard which had been previously tolerated for a few years. The great increase in the coinage of silver in 1852, occurring contemporaneously with the falling off in the employment of that metal in the countries which had hitherto employed it on the largest scale, is also deserving of our notice, as helping to explain the continued drain of silver to the East which has of late years set in. It is not an increased demand for that metal in the East which has been the primary cause; but a falling off in the demand elsewhere has rendered it profitable to export silver to India and other places, where it is still the general medium of exchange.

The facts which have been noticed establish that the comparative steadiness in the price of silver, so far from affording any just grounds for concluding that gold has not become depreciated, serves but to conceal the true state of the matter; and, when accurately investigated, proves the very contrary. As the demand for silver has declined, and the supply has not fallen off, its value must have decreased; and so also must that of gold to the very same extent, in addition to the trifling diminution in the proportion of 4s. 11d. to 5s. 1d. before adverted to. These figures show the entire extent of the change in relative value which the two metals have undergone. Beyond that, this relative value has remained unaltered; and, any variation in general value which the one has undergone must have been accompanied by a co-extensive alteration in the other. But it has been proved independently, that silver itself must have fallen in value; gold, therefore, must have declined in proportion, over and above the change exhibited by the rise in the price of silver of from 4s. 11d. to 5s. 1d.

The accounts of the mint operations in countries using a double standard convey another lesson. They enable us to answer the often repeated question, " What becomes of the new supplies of gold?" That the increased coinage of gold of late years has been sufficient to absorb the new supplies is a fact which has been occasionally noticed; and to the preceding question, taken literally, this affords a reply. But, in reality, those who put the question do not mean so much to inquire to what purposes the gold has been turned, as to seek an explanation why the effects of the enormous addition which has been made to the circulation of the world appears to be so trifling. During the six years terminating with the end of 1853, and principally within the last three, £94,000,000 of gold have been coined and put into circulation;* and in the same period £80,000,000 worth of gold have been produced from the new sources, and about £50,000,000 from the old. Within the last and the present years, the proportion of production to coinage seems to have been greater still; but I have no corresponding returns to go by. In France alone, £20,000,000 have been coined in 1854, and £14,000,000 during a portion of 1855; and if the coinage of England, the United States, and other countries put together, amounted to as much more, (which is by no means unlikely), we have the coinage of gold at the rate of more than £34,000,000 per annum, something the same as the annual production of that metal. This shows what has been done with almost all the gold which has been raised of late years. To the amount of upwards of £150,000,000 it has been added to the circulation of the world; and this is enough to make us wonder why wages and prices have not risen to something like a corresponding extent; why money is not far more visibly abundant, and more readily obtained than formerly by each individual, in exchange for the services he renders, or the commodities he sells. Some will answer, because the requirements of the war carry off the money, and then it finds its way into the hands of traders and dealers in the neighbourhood of the seat of hostilities, who hoard what they receive and withdraw it from circulation. There is some truth in this. A good deal of specie has already been sent to the East, and much of it is supposed to have been hoarded by traders and others inhabiting the Turkish and Grecian dominions, and the southern parts of Russia; and this operation, it is probable, will continue as long as the war. But what are these sums, great as they may be, compared with the amount which has of late been

* The following appeared in the *Economist* for May 27, 1854:—

Coinage of gold in the most important countries in the world during the six years terminating with the end of 1853:—

Great Britain	£31,210,000
France	31,210,000
Spain	800,000
Prussia	700,000
Austria	4,550,000
United States	43,220,000
India	330,000
Total	£112,020,000

But from this is to be deducted what has been recoined during the same period, the amount of which is estimated at £18,000,000, leaving £94,000,000 as the clear addition to the circulation. Russia is not included in the preceding, and its coinage cannot have been inconsiderable. It is curious that the aggregate coinage of France and England during the six years has been exactly the same, though they do not correspond year by year. Since 1853, however, a great deal more gold has been coined in France than in England.

coined? It is evident we must look farther for an explanation; and this is to be found in the fact that the recent addition of gold to the general circulation of the world has been to a great extent not in addition to the pre-existing total amount, but in substitution for that part of it consisting of silver; the latter being driven out of circulation *pro tanto*, and melted down into bullion; some of which, indeed, may be recoined in other countries where there is a silver standard, but a greater portion, no doubt, is devoted to purposes other than coinage, or held over in expectation of an altered state of the bullion market. We are told that in France all silver money is rapidly melted; five-franc pieces are become rare in Paris; the bank pays its notes in twenty-franc (gold) pieces; and in 1853 about £12,000,000 worth of silver were exported, since which the operation is believed to have proceeded at a still greater rate.* We do not wonder that a vessel is not overflowed, though a stream of water continually pours into it, if, while the fluid enters at one end, it goes out at the other; and so, in like manner, we should not be surprised that the recent enormous additions to the gold coinage have not filled the channels of circulation in proportion, since while, on the one side, gold has been pouring in, on the other, silver has been driven out.

There is another circumstance which has helped to conceal whatever change has as yet occurred in the value of gold; and this is to be found in the character of the variations in prices which have taken place of late years. Prices in general, it is true, have risen, and this, it was to be expected, should have led to the conclusion that money was becoming less valuable. But no such conclusion has been generally arrived at, and the reason seems to be, so far as those who give themselves any trouble in treating of the subject are concerned, that the changes which have come to pass have not been of such a kind as would, at first sight, be anticipated from a depreciation of the currency. This, in the end, usually affects all things alike; but the variations we have witnessed present no such uniformity, and must, therefore, it is presumed, be attributable to a variety of different causes affecting each article in particular, and not to any one which is common to all. Besides, there is a popular idea afloat, that any amount of dearness may be accounted for as the necessary consequence of a European war—a tradition handed down from the last we were engaged in, and which numbers now adopt with reference to the present; forgetting that in the former instance much of the dearness was the obvious result of the suspension of cash payment by the banks under the authority of the state, whereby a flood of paper money was poured over the country;

* "Notre monnaie d'argent se fond á vue d'oeil. Les pièces de 5 francs sont devenues rares á Paris. La banque ne rembourse plus ses billets qu'avec des pièces de 20 francs. On peut fixer á près de 300 millions d'argent qui, en 1853, avait passé á l'étranger avec bénéfice pour les exportateurs. Depuis, ce chiffre á dû s'accroitre. Si la spéculation se prolongeait, il ne faudrait, suivant M. Cochut, que sept ou huit ans pour que tout l'argent existant en France, fût soutiré."—(*La Presse*, July 25, 1855.) The author of the article from which this extract is taken, M. Darimon, is not one of those who view with regret the gradual adoption, as a standard of value, of a metal in course of depreciation. He, on the contrary, approves highly of the employment of gold currency, and accordingly we have no grounds for condemning his account of the fate of French silver money as the exaggeration of an alarmist.

that it was a succession of bad harvests during a part of that period which, aided by the abundance of the currency, raised the price of provisions occasionally to an unprecedented height; and that these seasons of dearness were by no means contemporaneous with the years of greatest expenditure by government—the popular explanation of the extravagance of war prices; and, finally, forgetting also that the dearness lately set in was not introduced with the Russian war, but commenced a year before it. But, leaving all this aside, a few words as to the effect on prices of an increased supply of money, and the character of the changes which have already taken place, may throw some light on their connexion. No doubt if, while other things remain the same, money becomes more abundant, the final result in general will be to increase the prices of all articles in the same proportion. Yet, though this will be so in the end, the change in the price of each will not be brought about with equal rapidity; and the order in which they will be acted on depends partly on the mode in which the new supplies of money are distributed, and partly on the manner in which increased demand for any commodity affects its value. Those into whose hands the additional supplies of money first find their way naturally augment their expenditure; and the articles they principally consume are those which will first become dearer. But all these will not become dearer at the same rate, even supposing the increased demand for each were precisely similar. Demand advances prices by its action on supply, and this is not always of equal efficacy. Of some articles large stocks, either of such, or of the materials from which they are formed, are usually kept on hands, besides what is immediately offered for sale; of others, the stocks are much smaller. In the first case, a trifling increase in price will draw forth what the consumers require; in the second, a greater advance must take place. To investigate this subject with anything like satisfactory clearness and detail would require an essay to itself, and accordingly I pursue it no further for the present. I only throw out the idea as suggestive of an explanation why the irregular and unequal rise in the prices of many articles, within the last few years, may have been occasioned by a depreciation of the currency, although not exhibiting that uniformity which it would be the final effect of such an occurrence to produce.

So far as the late rise in prices is general, it is chiefly manifested in case of the necessaries of life, and other articles extensively consumed by the many. This coincides with the probable distribution of the new supplies of money. Owing to the great emigration which has been for some time in operation, and several other causes, wages have risen throughout the United Kingdom; a fact which is partially concealed by the circumstance of the increase of earnings often following rather from a greater constancy of employment, than from labour being more highly remunerated during any fixed time. Hence, a larger proportion than before of the wealth of the nation goes to the labouring population, and the extra supplies of money poured forth from the mint being distributed accordingly, the working classes receive a greater share of a more abundant currency. Thus, their expenditure compared with that of the rest of the community is more considerable now than it used to be, and the articles towards which this is directed become subject to greater changes in value than others. This accounts for the fact that the first necessaries of life, and other articles entering generally and extensively into consumption, have risen in price much faster than those confined to a narrower market.

FALLACIES BY WHICH MANY PERSUADE THEMSELVES THAT NO CONSIDERABLE CHANGE IN THE VALUE OF GOLD IS TO BE EXPECTED.—Having considered the circumstances calculated to conceal whatever change in the value of gold had as yet taken place, we proceed to examine the grounds on which some are disposed to conclude, *à priori*, that no great depreciation is to be expected, at least until a very remote period. Thus M. Lèon Faucher, the French economist, and many others of less eminence, contend that as metallic money forms but a small proportion of the total circulation of the world, consisting as it does to a much greater extent of bank-notes, cheques, bills of exchange, and other instruments of credit, the depreciation of the currency resulting from an increase of coin will be equally trifling, as it will be measured by the proportion of the augmented stock of coin to the entire circulation, and not by its proportion to the previous supply of coin alone. To use an example which I have seen given of this error; supposing the circulation of the world consisted of £100,000,000 coin, and £300,000,000 notes, bills, cheques, &c.; and that £100,000,000 additional of coin were added, then, according to M. Lèon Faucher, the value of the currency will sink in the proportion of four hundred millions to five, and not of four to eight; that is, that after the supposed introduction of the extra £100,000,000 of coin, it will require £5 and not £8 to purchase so much as £4 could have done before. But this cannot be, as whatever exchanges had been effected by means of instruments of credit prior to the introduction of the new supply of coin, will be effected in the same manner afterwards, in the absence of any artificial restriction, the impelling motives remaining unaltered. Prices having risen by the augmentation of the coinage, as it is agreed on both sides they must to some extent, merchants, instead of drawing-bills for the same number of pounds they would have remitted to their correspondents had prices continued at the former level, and then sending the difference in cash, will draw so as to cover the entire amount of their transactions, for the very same reason they did so originally. Again, the same motives which led traders and others to place their reserves in bank, will still remain in operation after a general rise in prices has rendered it at once necessary and feasible for them to augment their deposits in a corresponding degree. They will do so accordingly, and then issue cheques to those they deal with, to a nominal amount proportionably greater; and as prices advance higher still, so likewise will the quantity of deposits and cheques go on increasing. The supply of bank-notes, in the absence of any artificial restrictions, will naturally advance on similar principles; their portability recommending them to the public just as before; the depreciation of the currency rendering a greater nominal amount of them necessary to transact the same quantity of exchanges; and bankers, like other dealers, taking care to supply their customers in proportion to the increased demand. In an account which appeared in the *New-York Courier and Enquirer*, (quoted in the *Economist*, December 4th, 1852,) of the banks of the United States for the period elapsing from 1842 to the beginning of 1852, we learn that the aggregate paper circulation increased from 83,000,000 to 153,000,000 dollars, the enormous production and coinage of gold during the concluding years of the series not only failing to diminish the amount of notes, but doubtless tending to augment it, by placing at the disposal of bankers a larger supply of specie, capable accordingly of insuring the convertibility of a greater quantity of notes. In 1842, the specie in bank amounted to 28,000,000 dollars, and in 1851, to 51,000,000. The preceding account, though stated as including the banks of the United States generally, without any specified exception, evidently does not take in them all. The aggregate paper circulation of the total number of banks comprised in the above does not differ much from that of a single bank in the United Kingdom, the Bank of England.

Hence we see that if, as in our numerical examples, the quantity of metallic money throughout the world be doubled, it will still be employed in but the same class of transactions as the original supply. Thus, a similar increase in the amount of paper circulation will be required, and prices in the end be driven up in the proportion of one to two, and not from four to five only; or, having recourse again to our figures, if £100,000,000 coin be added to a circulation consisting of a similar sum, together with £300,000,000 paper credit, money instead of declining to but four-fifths of its former value or purchasing power, will fall to one-half, the entire circulation eventually consisting of £800,000,000, the paper circulation, originally £300,000,000, being necessarily doubled in consequence of the metallic currency having been increased in the same proportion.

The error of those who hold M. Lèon Faucher's opinion appears to result from the circumstance of bills, notes, cheques, and the like being called instruments of credit. This suggests the idea of indebtedness; and thence it is imagined that if there was money enough for all to keep clear of debt, no instruments of credit would be used. Here it is forgotten, that whatever be the origin of such expedients, they will always be used by the most solvent persons as a more convenient means for effecting certain classes of payment. For domestic exchanges, notes will generally be preferred to coin as a more portable species of currency, and cheques often to either, as saving the necessity of keeping large sums of money in private establishments. In foreign dealings, bills of exchange will still be adopted, in order to avoid the cost and risk of cash remittances. No abundance of money will dispense with the use of instruments of credit for such purposes, and find new channels of circulation by checking their employment. But as for the use of instruments of credit arising from the inability of some to make immediate cash payments, supposing (what is not easily conceivable) the new supplies of bullion were so distributed among the needy and improvident as to put a stop to it, this would not permanently create any new channels of circulation for metallic money, but merely change the time of its employment. Instead of certain debts being paid some time hence, as soon as the bills or notes of the debtor fall due, when money is to be had immediately, they are paid at once. But, in consequence of this, it is the time alone of payment that is changed, and not a farthing less of coin is required when such employment of instruments of credit is discontinued.

Though involving a digression, it will aid the elucidation of the preceding to point out briefly how and how far instruments of credit economise the use of money. To the extent that they are used solely in consequence of a present inability to pay, they do not economise the use of money at all; whence some have concluded generally that they have never any such effect—a doctrine which others push yet farther, asserting that they even render necessary a larger amount of metallic currency than would be required in their absence; as they circulate, it is alleged, in a contrary direction to money, creating a number of sales and purchases which it must adjust in addition to what devolved on it before. Instruments of credit sometimes have such an effect; but it is forgotten by those who make the general assertion, that pecuniary transactions resulting from indebtedness are not created by the instruments of credit, which merely change the time of their final adjustment. A man cannot pay his debt to day, so he gives a promissory note payable some months ~~since~~ hence; this instrument of credit necessitating a cash payment when it falls due. But if it had not been employed, the cash payment would have taken place in the first instance; and in either case the same amount of metallic currency is required. Having shown that instruments of credit do not always economise the use of money, I now come to show how and when they do effect such a purpose. They do so in either of two ways; 1st, they may occasion an increase in the rapidity of the circulation of money; and 2nd, they may lead to the transaction of sales and purchases without the intervention of coin, either immediately or subsequently. By means of cheques and banks of deposit, the use of money is economised by rendering circulation more rapid. Were there no such banks, each person would keep in his till whatever money he might have occasion for, which accordingly must remain inactive during the interval preceding expenditure. But when there are banks of deposit, and persons pay with cheques instead of money, which are subsequently converted into cash at the banks, a large proportion of what the depositors would otherwise have kept inactive is thrown into circulation, the bankers lending part of what is left with them, knowing from experience that the cheques of the depositors do not all come in at once, but that while some persons draw out their money, others lay in more, and thus the means of meeting demands are afforded, although much less than the total amount of liabilities is retained for the purpose. Two-thirds of the deposits may in general be lent at a time without danger, according to the rules of safe banking; and if any one reflects on the enormous amount of deposits in all the banks throughout the United Kingdom, he may form some conception of the extent to which the use of money is thereby economised.

Again, bank-notes economise the use of money, not by affecting the rapidity of its circulation, but by dispensing with its employment; the country being saved the expense of acquiring and maintaining so much metallic currency as is equal to the difference between the amount represented by the notes issued, and the lesser amount of coin and bullion that must be retained by the bankers to insure the convertibility of their paper.

Bills of exchange, and other instruments of credit employed for the purpose of transacting sales and purchases between parties residing at a distance, economise the use of money by leaving in circulation what would otherwise have remained inactive while being transmitted. Supposing a person in London buys goods from a dealer in Calcutta, and instead of sending the price in cash, buys a bill for the amount on Calcutta, and sends it thither; then though the purchase of goods involves a corresponding outlay of money, yet its use is economised, the price being available for effecting other exchanges occurring within the time the money would have remained inactive while being transhipped, had the London merchant made his payment without the intervention of a bill.

As any instrument of credit may be exchanged for money, or for goods and services, it follows that it will either render a larger amount of metallic currency necessary, or economise its use, or produce no effect one way or the other, according as it is exchanged for money oftener or less frequently than for goods and services, or an equal number of times; for in the first case there is more work for the metallic circulation to do than if the instrument of credit did not exist; in the second, there is less; and in the third, the amount of work to be done is left just the same. This, however, is only as regards the effect of the instrument in increasing or diminishing the number of exchanges in which money must be employed. But even when it increases the number of exchanges in which money must be employed, it may still economise its use in another point of view, so as either to diminish or neutralise, or even more than compensate its opposite action. To take an example just given; if the bill bought for money in London is sold in like manner at Calcutta, two exchanges must be effected by coin, where without the instrument of credit but one would have sufficed. But if there is more work to be done by money, yet, on the other hand, there is money left available for general purposes of circulation, in consequence of the intervention of the instrument of credit, which without it would have remained inactive during the process of transhipment.

This brief explanation of the ways in which instruments of credit affect the demand and supply of money, shows the error of those who believe that transactions now effected by credit will be adjusted with coin when the latter becomes more abundant, so as that new requirements will absorb the fresh supplies of gold and thereby check its depreciation. So far as these transactions are effected with credit instead of money, for greater convenience alone, no abundance of the latter will dispense with the former. And in so far as credit arises from inability to pay, it exercises no permanent effect on the demand and supply of money. Thus, no matter what be the consequences of the gold discoveries, whether they induce greater general solvency or the reverse, in neither case will their action on the employment of instruments of credit alter the permanent demand for money, or affect the available supply.

It is very commonly said that the trade and commerce of the world are increasing so fast as to require all the expected augmented production of gold to prevent the enhancement of money; that, in fact, the present and approaching abundance of bullion will not occasion a general rise of prices and disturbance of pecuniary contracts, but merely prevent prices from declining, and contracts from being deranged by changes in the worth of money. To answer this, it may, in the first place, be observed, that since the commencement of the present century the production of gold has been multiplied twelve or sixteen times, and there seems no probability of there being any falling off; while, even in the most favoured countries, wealth, trade, and population have not been more than quadrupled, except in the case of a few colonies; in others, justly deemed to be progressing satisfactorily, they have increased but two-fold; and in many, perhaps most, advances of such a nature have been, comparatively speaking, insignificant. This extreme disproportion between the rate of increase of gold and everything else, ought to make us cautious of assenting to the statement, so very generally put forward, that the growing requirements of trade and commerce are amply sufficient to absorb the new supplies of bullion, without there being any disturbance in its worth in relation to other articles. And in the next place we should remember, that once a community has passed that primitive state when exchanges are effected by barter, and has entered on a career of industrial progress, its requirements for money do not advance co-extensively with wealth, population, and commercial activity. "The growth of credit, and of the various substitutes for the actual use of money which arise out of the extended use of credit, are the invariable concomitants of increasing wealth and progressive civilization. Even in England, in which the contrivances for economizing the use of money have already been carried to an unusual extent, it would not be difficult to suggest further means of a very simple and practical character, by which the present amount of bank-notes in circulation may be made efficient for the adjustment of a largely increased amount of transactions." At the Clearing-house in London, for example, to which the city bankers send every day all the cheques they have received against each other, the cheques due by any one being set off against those in his favour, and the difference only paid in money, it is calculated that business transactions to the amount of £3,000,000, and upwards, are adjusted every day by means of about one-fifteenth of that sum in cash and notes. When this system becomes more generally adopted, as no doubt it will with the progress of industrial civilization, a corresponding increase in the efficiency of money will come to pass, and the smaller, accordingly, will be the proportion of coin to the wealth and trade it can support at a given scale of prices. Already, I believe, it has been introduced into New-York, and considerably extended in London.

Besides the general argument that the increased supplies of gold will find themselves a market in substitution of paper credit, without the metal undergoing any sensible depreciation,—an argument which I have proved to be unsustainable, if properly examined,—it is also contended, as a matter of fact, that in several states of Europe and elsewhere, the people are rapidly adopting gold coin where before they employed paper currency. That the use of gold is becoming very general is true; but it is in place not of paper but of silver. I am not aware of any authenticated account of gold having been substituted for paper; but I have seen one of the very contrary in the case of Holland, where notes have taken the place of gold. That the legitimate employment of the instruments of credit should be diminished by the increased abundance of the precious metals, is neither probable nor desirable; but it is much to be wished that the small note currency of the United States, and several of the nations of Europe, were put a stop to. The notes I allude to are those representing the worth of a few shillings or thereabouts; a species of paper currency which has little recommendation on the grounds of portability, as the quantity of metallic currency it dispenses with could never prove very cumbrous under a well-adjusted monetary system, but which is exposed to the gravest objections in another point of view. Many who would hesitate to accept notes of larger amount, unless pretty well satisfied of the solvency of the issuers, are more careless as regards notes for trifling sums; hence, both private individuals and governments, utterly undeserving of credit, can get these latter into circulation with a degree of facility it would be vain to expect if they tried the former; and thus they are made a fruitful source of abuse. But this is the very species of paper that the adoption of gold currency does not dispense with, and may encourage. Gold coins, worth only a few shillings, are perplexingly minute; and from the large extent of their surface, compared with their bulk, as usually fashioned, are subject to rapid waste from wear and tear. Hence, for small coinage, gold is extremely objectionable, and, therefore, it is the less likely to lead to the displacement of small note currency. But it may even encourage the employment of small notes, by displacing, where a double standard prevails, the silver currency; the currency of that metal best adapted for affording coins for transacting small exchanges—neither perplexingly minute, like those of gold of corresponding value, nor cumbrous like those composed of copper or other base metals. We may rest assured that the not very solvent governments of Europe, if they do not supply the deficiency of their silver coinage with paper, at all events will not think of displacing their paper by gold. And it does not appear likely the Americans will allow their government to suppress their small note currency, merely because gold is more abundant. Mr. Snowdon, the director of the United States mint, in his report before alluded to, recommends, it is true, that, by the imposition of stamp duties, the very small notes should be indirectly suppressed, founding his suggestion on the supposed facility the increased production of gold affords to the carrying through of such a measure; but I do not find his advice has been followed. When sounder notions become afloat, the Americans no doubt will abandon the use of their extremely objectionable small note currency, after condemning it on just grounds; but until that improvement occurs, it is unlikely they will suffer themselves to be persuaded to take such a step, by reason of any arguments just or otherwise.

The extended use of gold for plate and ornament incidental to the increased supplies will, it is said by some, retardin a considerable degree its decline in value; each step in that direction creating an extensive demand, and thus putting off to a distance any further change of a similar character. That such a cause has not yet been largely in operation, appears from the comparison previously instituted between the coinage and production of gold within the last few years, which shows that the new supplies have been principally employed as money and not in any other capacity. And a little consideration will make it clear that such is the destination which should have been anticipated, and which is still to be expected. Except as money, the consumption of gold is very limited, few using it at all, and those who do so employing it in very small quantities. With such a narrow field of consumption, there is no reason that each fall in the value of gold should greatly retard another, by extending the use of the metal for plate and ornament; and it may confidently be predicted that the greater part of the new supplies will be coined as fast as produced, and depreciated in proportion, so soon as the displacement of silver has been completed in countries which employed a double standard at the time of the gold discoveries, and have not since resorted to silver alone.

Grounds for concluding that a considerable fall in the value of gold is to be expected before long:—In the beginning of this century, the annual production of gold has been estimated at a little over - - - - - £ 3,000,000

By 1848 it had risen to nearly - £10,000,000

And in 1852 it reached the amount of £36,000,000,

since which the annual supplies have not varied much, as far as I can learn; so we shall not be far wrong in setting down the production of gold at present, and during each of the last three or four years, at the rate of from thirty to forty millions per annum.* This

* The following estimates are taken from Mr. Newmarch's pamphlet on the "Supplies of Gold," pages 6 and 12 :—

Production of gold throughout the world in the years 1800 *and* 1848.

	1800.	1848.
America	1,920,000	2,100,000
Europe (excluding Russia)	140,000	360,000
Russia	90,000	4,100,000
Africa	280,000	550,000
Archipelago of Asia	650,000	2,800,000
Other sources	180,000	
Total	£3,260,000	9,910,000

Comparison between the production of gold in the years 1800, 1848, *and* 1852.

	1800.	1848.	1852.
All sources except California and Australia	3,260,000	9,910,000	9.400,000
California	—	—	12,500.000
Australia	—	—	14,400.000
Total	£3,260,000	9,910,000	36,300,000

is a wonderful change from three millions in the beginning of the century; and there is little doubt but that by this time the entire pre-existing supply throughout the world has been altered very appreciably. That abundance has not hitherto produced so great an effect as would at first be anticipated, in rendering the article which had become more plentiful less valuable, has been already explained; and it has also been shown why we may expect that the causes which have hitherto so much retarded the depreciation of gold will cease to operate before long.* It may be said in opposition to this, that we have no reason for concluding that gold, though obtained in greater abundance than formerly, is procured at a less proportionate expense; and that should such not be the case, as soon as abundance renders the metal less valuable the diggers' employment will cease to be profitable, and further production be checked until brought to that point where no more will be raised each year than the requirements of trade and commerce can absorb on remunerative terms. But, so far as I can learn, the value of gold may decline a great deal before any such result is to be expected. If production has been found so remunerative heretofore, as to counteract the repugnance labourers must feel to risking themselves in places where person and property are so insecure as they are usually believed to be at the diggings,—what will it not be when such drawbacks have been removed, as there is every reason to anticipate they quickly must be, in obedience to the law of progressive improvement which prevails in communities possessing so abundantly the germs of civilization as the new states of California and Australia? And besides, as these continue to progress, we may expect that better machinery will be employed in extracting the precious metal from the quartz and other substances in which it is so often found imbedded, and thus the gold be obtained with increased facility.

A SILVER STANDARD SHOULD BE ADOPTED, AND ONE POUND NOTES INTRODUCED INTO ENGLAND:—To recapitulate the principal points which I have been desirous of bringing forward prominently,—by the decline in the *general value* of silver, resulting from a falling off in the demand for it in countries using a double standard, the depreciation of gold is concealed to the same extent whenever it is attempted to measure its value by that of silver; and while the steadiness in the *price* of silver for the last few years has thus conveyed a delusive lesson, the rise in the prices of many other articles failed to impart a true one, because in these no such uniformity was exhibited as would on first thoughts be anticipated as the consequence of a depreciation of the currency. Moreover, the displacement of silver by gold produced another effect, as besides causing a decline in the value of the

* For instance, the displacement of silver in France must soon come to an end, and the extra market for gold thus created be filled up. Before the late discoveries, the silver currency of France was estimated at £100,000,000, while gold was but little used. Since that, more than £60,000,000 of gold have been coined; and in two years more, if the coinage continues at the same rate as at present, there will be more than £100,000,000, by which time there will be enough to make up for any possible displacement of silver; and whatever gold may be coined afterwards will be a clear addition to the currency.

former, it retarded the fall of the latter, by creating an extra market. In this way, the depreciation of gold was partly concealed and partly checked, and there were not wanting persons who attempted to shew that that which was to some extent illusory, and in other respects temporary, was real and permanent, and that accordingly no great change in the value of gold was to be anticipated; some going on the fallacy supported by M. Léon Faucher, and others on an erroneous idea of the nature and magnitude of the extended requirements of trade and commerce. The unsoundness of these arguments I have endeavoured to demonstrate; and it seems to me as clear as day, that gold must fall rapidly in value as soon as it has filled up the extra market opened for it in countries whose monetary arrangements allowed it to displace the silver currency. The effect of this change will be to disturb all existing pecuniary contracts and impede the formation of new ones,—a consequence the injuriousness of which it is not difficult to conceive. But here we are not left to theory, as the financial history of most countries records the troubles and sufferings which have been undergone by the people, and the tumults and disorder by which these have been manifested, whenever the purchasing power of money has been altered, either artificially, by government tampering with the currency, or neglecting to maintain it in a sound condition,—or naturally, whenever the precious metal composing the coin of the realm has varied in value.* To obviate the mischievous consequences which would flow from a depreciation of our standard, it should be changed from gold to silver—bank-notes and other instruments of credit thenceforth entitling the holders to receive certain specified amounts of the latter metal, instead of the former as at present. As silver, as well as gold, has been shown to be declining in value of late years, it might be said that nothing is to be gained by the alteration; but this is an error, the decline in the case of silver originating in a temporary cause—the cessation of the demand for it in countries using a double standard—and one, moreover, which would be corrected by the new demand that must spring up in the United Kingdom were the proposed change of standard adopted. It is also asserted that silver can be produced cheaper than before, owing to certain recent improvements in the mode of extracting the metal from the ore, and to the discovery in Mexico and elsewhere of more abundant sources of quicksilver—a substance largely employed in that process. If this be correct, the cost of production of silver is reduced, and the value will be permanently lessened; but until we are tolerably sure not only that such will be the case, but also that the expected depreciation will be as great as that of the other precious metal, we have no valid reason for objecting to the abandonment of the gold standard.† It is, however more common to hear the adoption of a silver standard condemned on the grounds of the

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* For instances of each of these, see "Elementary Treatise on Metallic Currency." (Dublin, M'Glashan, 1853) pp. 59, 64, and 70.

† Should both the precious metals, by depreciation or otherwise, become unfitted to serve as measures of value, then some contrivance in the nature of a "tabular standard" should be adopted. See *Ibid*, p. 94.

metal being so scarce that we could not obtain a sufficient supply without raising its value considerably, and thus lowering the price of everything with reference to the new silver money, and so deranging all pecuniary contracts—the very evil which it was sought to avoid by abandoning the gold standard, except that in the one case the derangement would flow from an enhancement in the value of money, and in the other from a depreciation. But it is a mistake to suppose there is any scarcity of silver; and the fact relied upon to prove it—the gradual diminution of the quantity of that metal in circulation in France and the United States—is the result not of silver becoming scarce, but of gold becoming unusually plentiful, so that it is more advantageous to make payments in money made of the latter metal, and therefore that made of the former is removed from circulation. During the suspension of cash payments in England, from 1797 to 1819, gold almost disappeared from circulation; and what remained, though declared by law to be worth no more than bank-notes purporting to be for a corresponding amount, bore a premium above the mint price, just like bullion itself, with the price of which the law did not interfere. Forthwith there was a universal cry of a scarcity of gold, and it was laid down dogmatically that a resumption of cash payments was impossible, as the metal for making them had become so scarce, that an adequate supply could not be obtained. Yet all this time the scarcity of gold was apparent only, resulting from an unusual abundance of the inconvertible paper money with which it was compared; just like the scarcity of silver at present, a delusive appearance occasioned by the abundance of gold. So far from either metal having become scarce and dear on the occasion referred to, a cessation of demand cannot but have rendered both one and the other cheaper. And it may confidently be anticipated that if silver enough were now required to support the change of standard, it would be obtained without any more difficulty than the gold in 1819.

The only inconvenience which the change of standard could involve would be that in England, where no notes for less than £5 are permitted, it would prove troublesome to carry about the person so much silver for making payments to any amount under £5, as would then be required. In Scotland and Ireland no such effect is to be apprehended, as the one-pound notes can be, and generally are, employed in adjusting all domestic exchanges in which the sovereign is used exclusively in England. But is there any good reason for this partial prohibition? When the issue of one-pound notes was suppressed in 1825, in England, there were two grounds on which the measure was defended. The first was, that as those notes can be employed in all domestic exchanges where sovereigns otherwise are required, the latter are exported whenever there is a great demand for money for foreign expenditure; and then, if any circumstance leads to a contraction of the circulation at home before the gold returns, the banks have not the means of paying for the notes sent in to them, and the public suffer the inconvenience arising from the destruction of much of the paper currency. But whatever weight this argument might once have been entitled to, it can be deserving of none if the provisions of the act of 1844 be extended to the suggested issues of one-pound notes; so that for every such note, beyond whatever amount may be safely calculated on as certain to be retained in domestic circulation, there must be a sovereign corresponding in the coffers of the Bank. The second objection to one-pound notes, is the temptation it is alleged they hold out to forgery. The smaller a note, and the greater the population amongst whom it circulates, the oftener it is exchanged; and the oftener a note is exchanged, the more difficult it is to trace a counterfeit to the party who issued it. On this account, it is said that one-pound notes hold out a greater temptation to forgery than larger ones, especially when circulating throughout a very numerous community; and in support of this, is brought forward the frequency with which counterfeits of the one-pound notes of the Bank of England were formerly passed off on the public. But this, I imagine, is to be attributed to the clumsy manner in which those notes were prepared, which rendered their imitation an easy task; as we do not find that the elaborately engraved one-pound notes of Scotland and Ireland, and of the English country bankers before the prohibition of 1825, have been exposed to a similar objection.

These difficulties being removed, no impediment remains to the adoption of the remedy suggested for averting the monetary disturbances impending from the growing depreciation of gold. The remedy is to adopt a silver standard, allowing at the same time the use of one-pound notes in England as well as Scotland and Ireland, so as to obviate the inconvenience which otherwise would be experienced in England in transacting sales and purchases from one pound to five pounds.* And from the proposed extension an auxiliary advantage might be derived. The issue of one-pound notes not having been permitted of late in England, is not the subject of vested interest in bankers, as in the case of notes for larger amounts. Hence, on the same principle that under Sir Robert Peel's act of 1844, £22,000,000 of notes unrepresented by bullion are allowed to enrich the banking trade, whatever amount of one-pound notes might safely be left unrepresented could, without injustice, be appropriated by the state. In Ireland and Scotland the aggregate sum of the one-pound-note currency exceeds that of the larger notes; and this affords some grounds for believing that the same would eventually be found to be the case in England, and thus that at least 22,000,000 one-pound notes might be left unrepresented, and bullion to the same amount be obtained by the government for the benefit of the public.

* When gold, as a standard of value, was abolished in Holland, small notes were introduced for the purpose of affording a satisfactory medium of exchange in pecuniary transactions too large to be adjusted conveniently with silver.