

on this at 5 per cent. would amount to £6,500,000. This apparently heavy charge is justified by the fact that it is desirable to have a currency possessing, or at least based on, value. The expense of a metallic currency is, however, combined with its weight, a strong reason for the great developments of representative money and credit in modern times, with the result that gold and silver are hardly ever used in large domestic transactions, all such payments being made by cheques, which are cleared off against one another. For a full account of the modern organization of credit, see the article BANKING.

6. *Historical Outline of Depreciations.*—The earliest systems of currency whose progressive debasements it is possible in any degree to trace are those of the various Greek states, though even here many details remain in obscurity. The Roman currency system is comparatively better known; while for the mediæval currencies from the time of Charlemagne (800 A.D.) elaborate materials are available, which naturally increase in bulk and precision as we approach more modern times. The general treatment of the history of coins belongs to NUMISMATICS (*q.v.*); but the history of monetary depreciations is important in connexion with the theory of money as illustrating the value of sound economic knowledge.

Until coinage became a state function a continued debasement was impossible, since it was open to any one to refuse the money offered in payment if it was not up to the proper standard. When, however, coinage became a function of government strong motives for debasement soon presented themselves. (1) The cost of coinage falling on the state, and being generally defrayed by a seigniorage, led to the idea that this seigniorage could be made more profitable by making it larger, while the existence of any deduction veiled the injustice of a charge exceeding the expense incurred in the operation of coining. (2) The position of most Governments was that of debtors, and as a debasement favoured all debtors at the expense of all creditors it was only natural that rulers, ignorant of the ultimately ruinous effects of a series of debasements, should seek to relieve themselves without exciting the odium incurred by the levy of heavy taxes. A more pressing case than the foregoing, and one where more justification exists, is that of a severe social crisis, when large numbers of the community are burdened with debt, and a depreciation of the monetary standard seems the simplest mode of escaping from so critical a situation. Whatever may be the inducements to enter on the perilous course of tampering with the monetary standard, a long experience has incontestably proved its disastrous effects. One of the great causes of the weakness of France during the "hundred years' war" was the extremely debased state of its currency, and the dread of further reductions in the value of the coins.¹ Lord Macaulay has given a graphic picture of the evils which England suffered from its depreciated silver currency towards the end of the 17th century.² And a debasement brought about by design possesses a further element of evil by creating a belief that similar devices will soon be again resorted to. So manifest are the evils that result from debasement that it may be reasonably hoped that all civilized Governments have abandoned the practice for ever; though, unfortunately, similar bad effects are produced by the over-issue of inconvertible paper currencies, and this is still an expedient adopted under the pressure of difficulties. "It is proper to observe that coins may be debased in three different ways—(1) by diminishing the quantity or weight of the metal of a certain standard of which any coin of a given denomination is made; (2) by raising the nominal value of coins of a given weight and made of a

¹ J. E. T. Rogers, *Historical Gleanings*, i. p. 97.
² *Hist. of Eng.*, v. xi.

metal of a certain standard, that is, by making them current or legal tender at a higher rate than that at which they passed before; (3) by lowering the standard or fineness of the metal of which coins of a given weight and denomination are made, that is, by diminishing the quantity of pure metal and proportionally increasing the quantity of alloy."³ The last of these methods is the most dangerous, since the detection of it is more difficult, as it is so much easier to discover the weight than the fineness of the metal in a coin; but all of them produce the same results and are adopted for the same reasons.

Greek Depreciations.—The first debasement of coinage known to us on good evidence is that of the Athenian coinage by Solon in 594 B.C.⁴ In order to obviate the severe distress of that period in Attica, he reduced the quantity of silver in the coins more than 25 per cent., so that 138 new *drachmæ* (the standard Athenian coin) were only equivalent to 100 pieces of the older coinage. This proceeding was perhaps justified by the critical state of things previously existing, and was a decided success. It is probable that another debasement of the gold coinage took place at Athens in 408 B.C. during the strain of the Peloponnesian War, though doubts have been cast on the reality of this debasement.⁵ It may, however, be said that generally the Greek cities fairly maintained the standard of money, though some states were notorious for dishonesty in this respect. The existence of an electrum coinage is no proof of a tendency to debasement, since it was regarded as a separate substance, and issued at its cost value, allowing for the expense of coining. As remarked before, this comparative honesty in relation to the coinage may be partly explained by the small extent of the Greek states, so that a debased coinage was unable to circulate beyond the boundaries of the issuing state. The keen perceptions of the more advanced Greek thinkers and their teachings on this subject may have also contributed to the same result.⁶

Roman Depreciations.—The earliest Roman coinage was composed of an alloy of copper (*æs*), and this continued unaltered up to the time of the First Punic War. Silver was introduced in 269 B.C., the proportion between it and the older copper being fixed at 250:1.⁷ The copper currency was first debased during the Punic wars at the most critical period of the Hannibalic invasion—"the Romans had debased the silver and copper coin, raised the legal value of the silver currency more than a third, and issued a gold coinage far above the value of the metal."⁸ Soon after this period the copper money, whose successive debasements are recorded by Pliny,⁹ seems to have been reduced to the position of a subsidiary currency, so that it is not really a case of debasement of the standard. The silver *denarius* which at first was $\frac{1}{16}$ of a Roman pound, had been debased to $\frac{1}{12}$ of a pound. In 91 B.C. a number of plated *denarii* were issued at the rate of one for every seven silver pieces issued. This proceeding, which was simply for political purposes, was proposed by Drusus, but in 84 B.C. a proposal for calling in these plated pieces was passed, and was extremely popular. It is probable that a slight debasement took place under Sulla, and one of the Cornelian laws seems to state the so-called *fat* theory of money.¹⁰ The *denarius* was lowered under Nero to $\frac{1}{16}$ of a pound, while the later period of the empire is a scene of continual tampering with the currency. The gold *aureus* was at first $\frac{1}{12}$ of a pound, but at the time of Augustus it was only $\frac{1}{16}$ of a pound, while under Constantine it had come to be only $\frac{1}{24}$ of a pound. The comparison of Hellenic with Roman monetary history seems to show that a considerable number of small states, all issuing coins, are less likely to meddle with the standard than the mint of a single large empire. It also proves the value of an acquaintance with monetary theory, if we can judge by contrasting the views of the Greek thinkers with those of the Roman lawyers.¹¹ A few words of caution may here be added against the danger of a careless comparison of values, as expressed in ancient or even mediæval money with those of modern times. It is extremely hard to accept the

³ Lord Liverpool, *Coins of the Realm*, p. 37.

⁴ Grote, *Hist. of Greece*, part ii. ch. 11.

⁵ *Ib.*, vol. iii. p. 116, note 1.

⁶ For a full discussion of this point, see Lenormant in *Contemp. Rev.*, February 1879.

⁷ Mommsen, *Hist. of Rom.* (Eng. trans.), i. p. 458.

⁸ *Ib.*, ii. p. 173.

⁹ *H. N.*, xxxiii. ch. 13.

¹⁰ Mommsen, *ib.*, pp. 413-414; Lenormant, *op. cit.*

¹¹ Compare, for instance, the passage previously cited from Aristotle with the following:—"Quia non semper nec facile concurrebat ut, cum tu haberes quod ego desiderarem, invicem haberem quod tu acciperes, electa materia est cuius publica ac perpetua estimatio difficultatibus permutacionum æqualitate quantitas subveniret; eaque materia forma publica percussa utum dominiumque non tam ex substantia præbet quam ex quantitate."—Paulus, *Dig.*, xviii. l. 1.

prices given by any ancient writer, since the varying factors necessary to be estimated are so many, viz., (1) the weight of the coin, (2) its purity, (3) the value of the monetary metal at the time, (4) the value of the commodity sold in relation to other things, (5) the question whether the commodity was in its normal state as regards supply and demand; to all these may be added (6) the difficulty of determining whether the figures have not been altered.¹ After the fall of the Western empire, the various barbarian sovereigns adopted silver as their principal coinage, combined with the greatest diversity in the systems adopted. On the revival of the empire under Charlemagne an effort was made by him to establish a general system of currency, based on the silver pound as a unit, and thus corresponding to the unit of weight. This system was introduced into England, and thence into Scotland, but the rapid decay of the Carolingian empire prevented any uniformity being preserved in these different countries, while the different debasements in each produced widely divergent systems, which will require separate notice.

English Depreciations.—The first debasement undergone by the English silver coinage was in 1300, when Edward I. reduced the amount of metal in the coins by $\frac{1}{14}$ per cent., or, in other words, 20 shillings and 3 pence were coined out of the Tower pound instead of 20 shillings as previously.² This was the prelude to a series of changes which were carried out during the next three centuries, and which terminated in 1600, when the pound troy of silver was coined into 62 shillings; since that time the silver coinage has not been debased, the reduction carried out in 1816, by which 66 shillings were coined from the troy pound, being accompanied by a limitation of its use in discharging debts to a maximum amount of £2, as well as by the abolition of the public right of coining silver at the mint. The period extending from 34th Henry VIII. to 6th Edward VI. (1543-1552) has been specially noted by Lord Liverpool as a time of peculiar interference with the fineness of the metal.³ The old proportion of 11 oz. 2 dwts. of metal to 13 dwts. of alloy, was altered to 10 oz. of metal per pound, then to 6 oz. or one-half, 4 oz. or one-third, and finally in 1551 to 3 oz. of pure metal and 9 oz. of alloy. A tendency to reformation began under Edward VI., and was finally carried out under Elizabeth in the recoinage of 1560, which has been fully described by Mr. Froude.⁴ Various proposals to depreciate the silver currency have been made since then, and one of these, as above mentioned, was accepted in 1600. The most remarkable of the unsuccessful schemes for debasing the standard was that of Lowndes, which was advanced in 1695, when the discussions preparatory to the recoinage of 1696 were being carried on. Lowndes's plan was to coin the pound troy of standard silver into 77s. 6d., thus debasing it 25 per cent. He was resisted by Locke, who, in his *Further Considerations concerning Raising the Value of Money*, contributed materially to the development of monetary theory; and the recoinage was, mainly in consequence of his efforts, in combination with those of Newton and Montague, based on thoroughly sound principles.⁵ The first English gold coinage, so far as has been clearly proved, was that of 1257, in the reign of Henry III., when a small number of gold pennies were coined at the ratio of 10 to 1 to the existing silver coins. Previously to this date the need of gold for business transactions could not have been felt, as the commerce of the country was necessarily limited. It is probable that for the few transactions of foreign trade a species of gold coins issued by the Greek emperors at Constantinople, and thence called *byzants*, were used.⁶ Another gold coin, known as a *florin*, from the place where it was first coined, was also used after 1250. The regular series of English gold coinage begins in 1344, when Edward III. coined, in imitation of the foreign coin just mentioned, a large number of florins at the rate of 50 to the Tower pound. The gold coinage was, however, for a long period a secondary part of the monetary system, and suffered a series of changes, the last of which took place in 1717.⁷ The present English coinage system is regulated by the Coinage Act of 1870,⁸ which amends and consolidates previous Acts on the subject. The schedule to that Act, which is reproduced at p. 484 of the present volume, gives full information as to existing coins, their weight, fineness, "remedy," &c.

Scotch Depreciations.—The coinage of Scotland was derived from the primitive Carolingian system through the medium of England, and for a long period remained the same as at first. The pressure

¹ As to the various elements requisite for a proper estimate of mediæval prices, see Cibrario, *Della Economia Politica del Medio Evo*, l. iii. c. 8.

² The Tower pound, which was three-quarters of an oz. troy-less than the troy pound, was used in England until the 18th of Henry VIII. (1527), when it was replaced by the troy weight. This should be always remembered in considering the precise amount of depreciation at any given time.

³ *Coins of the Realm*, ch. xiii.

⁴ *Hist. of Eng.*, vii. p. 2.

⁵ Macaulay's account of this recoinage, which is written in his typical manner, has made this episode of English monetary history very generally known.

⁶ Lord Liverpool, *Coins of the Realm*, p. 47.

⁷ The third great English recoinage was that of the gold coin, which took place in 1773-1775. It is commonly known as the recoinage of 1774.

⁸ 83 & 84 Vic. c. 10.

under which the resources of Scotland suffered during the constant wars with England, as well as perhaps the example of their close ally France, led the Scottish sovereigns to debase their coins out of all proportion to the English system. This was the reason for the prohibition of Scotch coins as currency *by tale* in England, the variation in course of time being so great that in 1600 the pound of silver, which contained about three pounds sterling English, was made into thirty-six pounds Scotch, the latter being thus twelve times as much debased. After the union of the crowns in 1603 no steps were taken to assimilate the two systems, which continued as before till the complete union of the two countries in 1707. At the latter date a complete recoinage on the basis of the English system was carried out, thus rendering the coinage of both countries exactly similar. This most valuable reform was at first viewed with suspicion by the Scotch people, and a large amount of the old Scotch currency was hoarded or exported.

Irish Depreciations.—No coined money existed in Ireland before the English invasion in 1170. The English colony, as a matter of course, used the same coinage as the mother-country, but on several occasions inferior money was introduced, as being good enough for a subject country. At the recoinage of 1560 it was proposed to send the bad coins that were called in to Ireland, but to this Elizabeth refused to assent. From 1689 to 1825 the nominal value of the coinage was $\frac{8}{9}$ per cent. higher in Ireland than in England. In the latter year Irish money was reduced to the English standard,⁹ from which time the United Kingdom has possessed a perfectly uniform system of metallic money.

French Depreciations.—The monetary system established by Charlemagne throughout his dominions soon disappeared in Italy and the German provinces. It continued to exist in France proper. The general state of confusion, however, and the weakness of the central authority, led to local issues by the various feudal lords. "At the accession of Hugh Capet as many as a hundred and fifty are said to have exercised this power."¹⁰ The increase of the power of the Capetian kings enabled them to restrict this freedom of coinage, and to reserve to themselves this profitable function, the seigniorage on the process of coining being a special branch of the royal revenue. They were unfortunately not inclined to confine their gains to this legitimate source. The French coinage was recklessly debased during the many centuries from Philip I. (ob. 1108) to Louis XV. (ob. 1774). The management of the mint under Louis IX. was always regarded as a model for imitation,¹¹ but even in his time the *livre*, originally a pound, was debased to less than one-fourth of its primitive value. The dealings with the currency were still more unscrupulous during the protracted wars with England, the result being that at the accession of Louis XI. (1461), when the English had been finally expelled from France, the *livre* was only about one-fifteenth of its original value. Nor did the depreciation of the currency rest here. The period of something over a century, extending from 1497 to 1602, presents a remarkable series of changes in a downward direction, no less than nineteen depreciations having taken place, many of them consisting of changes in the fineness of the metal.¹² There is in this respect a remarkable analogy between this epoch of French coinage and the English period from 1543 to 1552.

The history of French depreciations did not terminate, as that of the English ones did, with the close of the 16th century; under Louis XIV. the *livre* was only one-half of what it had been under Henry IV. The final result was that in 1789 the *livre* had come to be only one seventy-eighth of its weight in the time of Charlemagne. At the Revolution it was converted into the *franc*, at the rate of 81 *livres* to 80 *francs*.¹³ It is not, however, to be supposed that the changes in the French currency were always towards debasement. The terrible evils arising from the debased coinage led to a general outcry, which in some cases was so strong as to force the king of the time to reform the monetary standard; one striking instance occurred in the reign of Philip IV.,¹⁴ whose dealings with the currency led to his receiving the epithet of "le faux monnoyeur."

Depreciations in other Countries.—The very brief notice of the depreciations in the originally uniform currencies of England and France which has just been given is sufficient to establish the general tendency, and throws light enough on the resulting consequences; a similar course was followed in the other countries of Europe, but the details are too unconnected to be conveniently presented. A few facts will suffice. Thus, the German *florin* "was originally a gold coin of the value of about 10 shillings of our present money; it is now become a silver coin of the value of

⁹ A survival of this older system is to be found in many charges on Irish lands, which are reduced to English money by deducting one-thirteenth from the nominal amount.

¹⁰ Hallam, *Middle Ages*, i. p. 306.

¹¹ Stephen, *Lectures on French History*, i. p. 459.

¹² Tooke and Newnarch, *Hist. of Prices*, vol. vi. p. 374. The views there given are based on those of M. Levasseur, who had specially studied the question.

¹³ The silver franc was made to weigh exactly 5 grammes.

¹⁴ Stephen, *Lect. on French Hist.*, i. p. 482.

only 20d.¹ Similar depreciations took place in the cases of the Spanish *maravedí* and the Portuguese *rei*. At the present these coins are so subordinate, where they have not been abolished, as to possess little practical interest.

It is well to notice before concluding the question of depreciations that it is the poorer classes who especially suffer from a change in the coinage. The reasons of this are very plain, for from their ignorance they are less able to understand the nature of the alteration, and, even if it were not so, the absence of available resources places them at a disadvantage in comparison with others. Masters and dealers are quick to discount—so to speak—the nominal value of the depreciated money, and prices are much more speedily adjusted to the new state than wages, so that it may be confidently asserted that a debased coinage is especially injurious to the more helpless classes of society. The same remark applies to an over-issue of inconvertible paper.²

7. *Economic Aspects of the Production of the Precious Metals.*—In considering various monetary questions it is essential to have some acquaintance with the economic aspects of the production of gold and silver. The technical matters connected with the processes of preparing those metals for use are to be found in the articles GOLD and SILVER (*q.v.*). The first point to which we will here direct attention is the field over which production extends. At one time or other these two metals have been found in every continent. Asia Minor in early times possessed its gold fields, or rather auriferous sands.³ Ceylon also undoubtedly contained gold mines. China and India both produced silver to a considerable extent. Egyptian remains show that gold was commonly known in that country, probably procured from Nubia and Abyssinia. On the opposite side of Africa, too, the name of Gold Coast shows that that metal was thence exported. Neither Asia nor Africa, however, has been the main contributor to the stock of money in more modern times. The mines of Laurium in Attica were a source of supply to the Greeks, and were worked as a state monopoly. At an earlier date the Babylonian and Assyrian empires had each large accumulated stores of gold. The Phœnician importations of gold from the Red Sea coasts (Ophir) are known from Scripture.⁴ The Persian kings from the time of Darius levied tribute on all their provinces,—in gold from India, in silver from the remaining districts; and the larger part of this was stored up in the royal treasuries.⁵ This tendency of sovereigns to accumulate had all through ancient history important effects on the economic structure of society. At present it is quite natural to assume that the materials of money are distributed by means of international trade, and tend to keep at an equal level all the world over,—an assumption which is in general well grounded, though an important exception exists. Ancient history presents a widely different set of forces in operation. Gold and silver were produced by slaves under the pressure of fear, and were drawn towards the ruling parts of the great empires; in a word, war, not commerce, was the distributing agency. From this condition of affairs it is easy to see that whatever may be the reasons for assigning to cost of production a potent influence over the value of money in modern times (and grounds have been already advanced for the belief that this influence has been exaggerated), no such reasons then existed. The production of the precious

metals was carried on, as the great buildings and other works of those periods, on non-economic grounds, and therefore produced quite different effects. The whole history of the Persian monarchy to its overthrow by Alexander (330 B.C.) shows that the mass of the precious metals hoarded up continued constantly to increase. On the capture of Persepolis by the Grecian army an enormous treasure was found there, some estimates placing it as high as 120,000 talents of gold and silver (£27,600,000).⁶ All the temples, too, were receptacles for the precious metals, so that the stock accumulated at about 300 B.C. must have been very great. The only causes which tended to diminish the store were the losses arising from wars, when the various treasuries were liable to be plundered and their contents dispersed.⁷ There was therefore a more unequal distribution of the material of money than at present. The growth of the Roman dominion led to important results, since under their rule the Spanish mines were developed and became a leading source of supply. The great masses of treasure set towards Rome, so that it became the monetary centre of the world. The overthrow of the Republican government and the peace which followed also affected the conditions of production. The inefficiency of the Roman administration made it advantageous to let out the mines to farmers, who worked them in a wasteful and improvident manner, while the supply of slaves was reduced, thus depriving the lessees of their principal agency for carrying on production. The result was a continuous decline in the store of money. Mr Jacob has made an attempt to estimate the amount at the death of Augustus (14 A.D.), and he arrives at the conclusion that it was £358,000,000.⁸ Without placing much value on this necessarily conjectural estimate, it is safe to assume that this period marked the highest point of accumulation.

The succeeding centuries exhibit a steady decline, though it is of course impossible to attach any value to even the most carefully-guarded numerical estimates. The phenomenon which has since so often attracted notice—the drain of the precious metals to the East—began at this time, and was a subject of complaint to the Roman writers,⁹ while the stock of gold and silver being thrown into more general circulation suffered more from abrasion, and was more likely to be lost than when stored up in the royal treasure-houses and temples. These causes tended to depress the scale of prices, while the barbarian invasions produced a strong effect on the supply by drawing off the mining population and damaging the various erections used for working the mines. The conjectural estimate is, that about 800 A.D. the total supply had been reduced to £33,000,000 (or about one-eleventh of what it had been at the death of Augustus).¹⁰ A new period in the history of gold and silver production may be fixed at this date. The Moors, now firmly established in Spain, began to reopen the mines in that country which had been allowed to fall into disuse. Other European mines also were opened.¹¹ The international system of currency based on the pound of silver as a unit which was introduced by Charlemagne must have tended to economize the wear of the metals. We may therefore conclude that from this date (800 A.D.) the supply was sufficient to coun-

⁶ Grote, xi. p. 499, note 3.

⁷ A commercial agency which existed for the distribution of gold and silver was the Phœnician system of trading, which extended all over the Mediterranean.

⁸ Jacob, *Production and Consumption of the Precious Metals*, i. p. 224.

⁹ See Pliny, *H. N.*, xii. c. 18.

¹⁰ Jacob, i. p. 237.

¹¹ It was at this time that the most productive European mines were discovered, namely, those of Saxony and the Harz Mountains, as well as the Austrian mines, which were the chief sources of supply during the Middle Ages.

¹ Lord Liverpool, *Coins of the Realm*, p. 125.

² Readers requiring full details on the subject of the various currency changes may consult Lenormant, *Monnaie dans l'Antiquité*, for ancient times; Lord Liverpool, *Coins of the Realm*, for England; and the works of Le Blanc and Pauton for France.

³ The Pactolus in Lydia was widely famed for its "golden sands."

⁴ 1 Kings ix. 28.

⁵ See Herodotus, iii. c. 96; also Grote, *Hist.*, iv. pp. 162 sq.

teract the loss by wear and exportation,¹ and accordingly regard the metallic supply as fixed in amount until the next change in the conditions of production, which was the result of the discovery of America. Though 1492 is the date of the first landing, yet for some time no important additions were made to the supply of money. The conquest of Mexico (1519) gave opportunities of working the silver mines of that country, while the first mines of Chili and Peru were almost simultaneously discovered, and in 1545 those of Potosi were laid open. From this latter date we may regard the American supply

TABLE I.—Estimated production of gold and silver from 1493.

Period.	No. of Years.	Amount in Kilos.		Value in Millions of Francs.		Ratio of Value of Gold to Silver.
		Gold.	Silver.	Gold.	Silver.	
1493-1520	28	162,400	1,316,000	560	292	11.3
1521-1544	24	171,800	2,165,000	592	481	11.2
1545-1580	36	273,000	10,976,000	940	2,439	11.5
1581-1600	20	147,600	8,378,000	508	1,862	11.9
1601-1620	20	170,400	8,458,000	587	1,880	13.0
1621-1640	20	166,000	7,872,000	572	1,749	13.4
1641-1660	20	173,400	7,326,000	604	1,628	13.8
1661-1680	20	185,200	6,740,000	638	1,498	14.7
1681-1700	20	213,300	6,888,000	742	1,429	15.0
1701-1720	20	256,400	7,112,000	883	1,580	15.2
1721-1740	20	381,600	8,624,000	1,314	1,915	15.1
1741-1760	20	492,200	10,658,000	1,696	2,370	14.8
1761-1780	20	414,100	13,006,000	1,426	2,900	14.8
1781-1800	20	355,800	17,581,000	1,226	2,906	15.1
1801-1810	10	177,800	8,942,000	612	1,987	15.6
1811-1830	10	114,400	5,408,000	394	1,202	15.5
1831-1850	10	145,200	4,606,000	460	1,023	15.8
1851-1840	10	202,900	5,964,000	699	1,325	15.7
1841-1850	10	547,600	7,804,000	1,886	1,734	15.8
1851-1855	5	987,600	4,431,000	3,402	985	15.4
1856-1860	5	1,030,000	4,525,000	3,546	1,006	15.3
1861-1865	5	925,600	5,506,000	3,188	1,223	15.4
1866-1870	5	959,500	6,695,000	3,305	1,488	15.6
1871-1875	5	853,400	9,847,000	2,940	2,188	16.0
1876	1	171,700	2,965,000	591.5	625.5	17.8
1877	1	132,800	2,428,000	429.8	578.3	17.98
1878	1	183,700	2,603,000	632.6	578.3	17.98
1879	1	156,900	2,557,000	540.3	568.2	18.39
1876-1879	4	695,100	9,953,000	2,394	2,211	17.40
1493-1850	358	4,752,100	149,828,000	16,368	83,292	14.05
1851-1879	29	5,451,200	40,957,000	18,773	9,101	15.85
1493-1879	387	10,203,300	190,785,000	35,146	42,393	...

as an influential factor in the matter,² and look upon the stock of money as increasing. The annual addition to the store of money has been estimated as £2,100,000 for the period from 1545 to 1600. At this date the Brazilian supply began. The course of distribution of these fresh masses of the precious metals is an interesting point, which has been studied by Mr Cliffe Leslie.³ The flow of the new supplies was first towards Spain and Portugal, and from thence they passed to the larger commercial centres of the other European countries, the effect being that prices were raised in and about the chief towns, while the value of money in the country districts remained unaltered. The additions to the supply of both gold and silver during the two centuries 1600-1800 continued to be very considerable; but, if Adam Smith's view be correct, the full effect on prices was produced by 1640,⁴ and the increased amount of money was from that time counterbalanced by the wider extension of trade.⁵ At the commencement of this century, the annual production of gold has been estimated as being from £2,500,000 to £3,000,000. The year 1809 seems to mark an epoch in the production of these metals, since the outbreak of the revolts of the various Spanish

¹ Jacob, i. p. 311.

² Adam Smith assumes 1570 as the date when prices were affected in England, *Wealth of Nations*, p. 88. Humboldt estimated the total production (1492-1545) as being about £17,000,000; but see Table I., which contains Dr Sötber's estimates, based on the best available data.

³ *Essays in Pol. and Mor. Phil.*, Essay xx.

⁴ *Wealth of Nations*, p. 88.

⁵ The total production is roughly computed at over £1,200,000,000 for the two centuries 1600-1800; but see Table I. for more precise estimates.

dependencies in South America tended to check the usual supply from those countries, and a marked increase in the value of money was the consequence. During the period 1809-1849 the value of gold and silver rose to about two and a half times their former level, notwithstanding fresh discoveries in Asiatic Russia.⁶ The annual yield in 1849 was estimated at £8,000,000. The next important date for our present purpose is the year 1848, when the Californian mines were opened, while in 1851 the Australian discoveries took place. By these events an enormous mass of gold was added to the world's supply. The most careful estimates fix the addition during the years 1851-1871 at £500,000,000, or an amount nearly equal to the former stock in existence. The problems raised by this phenomenon have received the most careful study by several distinguished economists,⁷ to whose writings those desiring more extensive information may refer. The main features of interest may be briefly summed up. (1) The additional supply was almost entirely of gold, thus tending to produce a distinction between the two principal monetary metals and an alteration in the currency of bimetallic countries. Under this influence France, from being a silver-using, became a gold-using, country. (2) The contemporaneous development of the Continental railway systems, and the partial adoption of free trade, with the consequent facilities for freer circulation of commodities, led to the course of distribution being different from that of the 16th century. The more backward districts were the principal gainers, and a more general equalization of prices combined with a slight elevation in value was the outcome. (3) The increased supply of gold rendered a general currency reform possible, and made the use of a gold monometallic standard appear feasible. The movements for currency reform, as will be seen, all arose after these discoveries. (4) The change in the value of money, which may for the period 1849-1869 be fixed at 20 per cent., enabled a general increase of wages to be carried out, thus improving the condition of the classes living on manual labour. It may be added that the difficulty of tracing the effects of this great addition to the money stock is a most striking proof of the complexity of modern economic development. (5) The last point to be noticed is the very small influence exercised on the value of silver by the new gold.⁸ Hardly had the gold discoveries of 1848-1851 ceased to produce a decided effect when new silver mines of unusual fertility came into working. During the period immediately succeeding the gold discoveries the production of silver remained at an annual amount of from £8,000,000 to £9,000,000. This amount suddenly, about 1870, increased to £15,000,000,⁹ and remained at that amount for the next five years. More than half of the supply came from new mines opened in Nevada. This increased supply was accompanied by a marked depreciation in the gold price of silver, though the prices of commodities in countries having a silver standard did not rise. The result of the close investigations to which all aspects of the question were subjected was to show that the increased production of silver was only a minor element in causing its depreciation. The policy pursued by various states—viz., (1) Germany and the Scandinavian

⁶ The Russian supply became important after 1823.

⁷ The following may be specially consulted:—Chevalier, *Depreciation of Gold* (trans. by Cobden); Tooke and Newmarch, *Hist. of Prices*, vol. vi., pp. 135-236 (Part vii.); article "Precious Metals," *Ency. Brit.* (8th Ed.); J. E. Cairnes, *Essays in Pol. Econ.*, pp. 1-165; T. E. C. Leslie, *Essays*, pp. 264-374; W. S. Jevons, *Serious Fall in the Value of Gold*.

⁸ The price of silver in London rose from 59½d. per oz. to 62½d. per oz., or 2½d. per oz.—that is, only 3 to 4 per cent.

⁹ See Report of Select Committee on the Silver Question, 1876; and for another estimate see Table I.

states in adopting a single gold standard, (2) the countries composing the Latin Union in limiting the coinage of silver, (3) the Indian Government by adopting a new method of drawing bills—proved to be the really influential causes for the decline in the value of silver as contrasted with gold.¹

Before closing this notice of the economical aspects of gold and silver production, the consumption of those metals must be considered. It may be classed roughly under three heads, viz., (1) their use as merchandise, (2) their use as money, (3) the export to the East. With regard to the first of these, while it is impossible to give precise data, it may be still held with some confidence that the demand for this purpose tends, after society has passed a certain not very advanced stage, to decline. The desire for personal adornment is with most civilized persons not a strong one. It is, so far as it exists, gratified by other articles than those made of silver or gold. Their use as manufactured goods continues to be large, and is one of the principal forms of use at present. The second head with which we have here to deal is the one by which prices are affected. The laws regulating the value of the metals as money have been considered above, p. 721, the primary one being "that the value of money varies inversely as its quantity multiplied by its efficiency," though this proposition needs limitation and explanation. Under the third head a remarkable exception occurs to the general theory of the tendency to equal diffusion of the precious metals. For a period extending over nearly 2000 years the movement of silver from West to East has been noticed. Humboldt has made the ingenious remark that these metals move in the opposite direction to civilization, and history bears out his view. During the Middle Ages the chief Eastern products used in Europe were silks and spices, and to pay for these commodities silver was sent from Europe. The discovery of the passage round the Cape of Good Hope increased the Eastern trade, and added to the drain of silver. Humboldt and Sötbeer have given copious details. In more recent times the flow has continued, the amount of silver which passed to Asia by the Isthmus of Suez during the twelve years from 1851 to 1862 being £110,000,000.² There are two points requiring some further notice with reference to the form and the reason for this drain. Silver is the metal which is exported from Europe, since gold is not used for currency purposes in the East, and even as merchandise silver possesses a higher relative value than it does in Europe. Those European countries that had a double standard were the natural source of supply for exportation, their silver currency being replaced by gold. The unceasing drain of the precious metals to the East may further be explained by the fact that the greater part of the new metal is used for ornamental and not for currency purposes, and thus the demand is not checked by a rise of prices. Another reason, not generally noticed, is that Eastern prices are very much influenced by custom, and thus do not depend on supply and demand. But it is this tendency of an increased quantity of money to raise prices which forms the basis of the economical theory of the distribution of the precious metals.³ This explains the otherwise unaccountable phenomenon of a continual drain of the money material towards those countries where custom has remained most powerful in regard to commercial transactions, or, in other words, the backward countries of India and China.

One of the technical features of the production of the precious metals may sometimes produce remarkable economic effects,—namely, the fact that gold is generally found near the surface, while silver is obtained by deep mining. It follows from this that the production of the former metal depends more on accidental circumstances, while the production of silver is affected chiefly by the state of mechanical skill. In the Nevada mines, gold and silver are found together, and their value in a given mass is nearly equal.

8. *Miscellaneous Questions regarding Metallic Money.*—The recent discussions of matters relating to currency, and the increased intercourse among the more advanced nations, have led to the raising of some questions with regard to the proper constitution of monetary systems. Each country possessing any claim to enlightenment has directed its attention to its own monetary arrangements, and compared them with those of others, while the effect which the currency system of any nation exercises on its neighbours leads to the exciting of a lively interest in its monetary legislation. The principal problems may be summed up under

¹ See, for details, the Report of Mr Goschen's Committee, 1876, and W. Bagehot, *Papers on the Depreciation of Silver*.

² See A. Sötbeer in the *Vierteljahrsschr. für Volkswirtschaft.*, iii., 1863.

³ See Ricardo, *Principles of Pol. Econ.*, p. 79 (ed. McCulloch).

three heads: (1) The proper standard to use, the discussion of which in practice turns on the comparative merits of a single standard of gold or silver and of a double standard of gold and silver at a fixed ratio; (2) the system of subdividing the currency, which is generally discussed under the title of proposals for decimal coinage; (3) proposals made in many quarters to assimilate the various currency systems of the world. These take one of two forms. It is either desired that a group of nations shall assimilate their currencies, in which case the coinage may be called an international one; or a wider view is taken, and a single system is advocated for all states. This may be styled universal coinage. The question of the proper standard may be deferred for the present, as it is of a more complex nature than the others. Before discussing even the simpler of these questions it is desirable to state some elementary facts involved in all such points. Every currency system must be based on a *standard unit of value* which consists of a "fixed quantity of some concrete substance defined by reference to the units of weight or space." Thus the English unit is the *pound*, which consists of a definite quantity of gold (123·27447 grs. standard fineness), while the French unit is the *franc* (composed of 5 grammes of silver $\frac{9}{10}$ ths fine). It is not, however, necessary that the standard unit shall be a coin. All that is needful is that the current coins shall be multiples or submultiples of the unit, or at all events easily reducible to it. The Portuguese *rei* is too small to be coined, and the pound of silver which formed the unit of the early French and English currency was too large. Distinct from both the actual coins and the unit of value is the *money of account*, though in practice it is usually identical with one of them. In Russia in early times the *rouble* was an imaginary money of account not coined, while the copper *copeck* was the unit of value. Another distinction must be pointed out, namely, that between *standard* and *token* money, the former being of the same value as the metal it is made of, while the latter is rated at a nominal value higher than that of its material. The silver and copper coins in England and the smaller silver coins in the Latin Union are merely tokens, being in the case of the English silver coins about 30 per cent. below their nominal value. The French coins are of inferior fineness (835 per 1000). Token coins are only admissible in small payments, as otherwise—in accordance with an elementary principle to be presently explained—the standard coins would be driven out of circulation. The maximum amount in payment for which they are legal tender is in England 40s. One of the functions of money being to afford a standard for estimating deferred payments,⁴ it is generally used as the means of discharging obligations when they become due, and in this aspect is styled *legal tender*. The principal coinage of any country is legal tender to an unlimited amount, and, when offered, discharges any pecuniary obligation. It is only the standard coinage which possesses this property, or rather the standard coinage is that which does possess it.

In discussing monetary questions it is also important to remember that a metallic currency has to circulate among the most diverse classes of society, and must be suited to the wants, and even to the prejudices, of the population using it. Many curious instances of the preference of a community for some particular coin could be given. The Austrian Maria Theresa dollar is a special favourite on the coast of Africa, and is still coined exactly as it was in 1780. The inhabitants of California refused to accept the greenbacks issued during the American civil war, and consequently gold was always used in payments in that State. Many apparently well-devised reforms have miscarried

⁴ See p. 720, above.

owing to the habits of the people not having been attended to. Some writers have, however, misconceived the principles of currency and extended this influence to cases where it does not apply. Thus it has been sought to explain the adoption of gold as the principal English coinage after 1696 by assuming that the English deliberately preferred that metal.¹ The fact of different nations possessing different currencies, as the prevalence of gold in England and of silver in France during the 18th century, is to be otherwise accounted for. The great mass of a population, it is true, take and give money without particularly observing it. It is enough if the coin conforms to the usual type. There exists, however, in all mercantile communities a class of dealers in money² who make a profit by selecting the best coins for exportation, or, if two metals are in concurrent use, the coins of that metal which is undervalued in the proportion fixed. The mode in which self-interest thus operates produces an effect which may be briefly formulated by saying that *bad money drives out good money*. It is often now called "Gresham's law," from a former master of the English mint,³ who observed it. The illustrations of its working are numerous. Under its action the gold which was overvalued relatively to silver in England in 1696 became the main English coinage, as above stated. And in order to meet the want of silver coins, Sir I. Newton advocated, and secured, the reduction of the guinea from 21s. 6d. to 21s. The exportation of metallic money when an over-issue of inconvertible paper takes place is another case of the theorem. By means of this principle we can easily explain the tendency of currency to depreciation, for when once, either by wear or by the issue of inferior coins, a currency has become debased, no reformation is possible unless the debased coins are removed from circulation, as otherwise they will be preferred for payments by dealers, and will not be melted down or exported. All demands for foreign trade will be met from the best part of the coinage. An argument in favour of state coinage has been founded on Gresham's law. It is argued that private coinage would lead to the issue of depreciated money.⁴ It is, however, overlooked in this argument that the action of the law arises from the fact that the depreciated currency is legal tender; were it not so, coins less than the proper weight would be at once rejected. It may be added that Greek monetary history bears out this view.⁵

Having disposed of these elementary questions, the general groups into which all currency systems fall may now be stated. The simplest form of currency seems to be that in which the state coins ingots of different metals, and allows them to circulate freely, without any ratio being fixed. This, which is the lowest form of currency proper,⁶ has arisen in many countries through the introduction of coins of various other nations. Turkey is a European example. Many of the South American republics possess a currency of this description. A theoretical form of this system has been advocated in France. It is proposed to issue coins of one, two, five, and ten grammes of gold, and to allow the present silver coins which are multiples of the gramme to circulate along with them. The difficulties of this plan are so obvious that there is no likelihood of its being adopted. The arguments in its favour are of little

¹ R. Giffen, *Essays in Finance*, p. 303.

² The Jewish and Lombard merchants discharged this function in the mediæval period; Hallam, *Middle Ages*, iii. p. 369, note t.

³ Aristophanes (*Ran.* 719-733) appears to recognize this principle. *Vote* (vol. iii. 116 note) has misunderstood him, and seems to deny the principle stated.

⁴ Jevons, *Money*, p. 82.

⁵ See p. 726, above.

⁶ In his discussion of this subject Prof. Jevons, on whose excellent work much of this section is based, mentions currency by weight as the simplest form, but it is hardly correct to regard this as a currency system; it is rather a primitive stage, closely akin to barter.

force, since it is hardly correct to contend that it is a natural system, when it has never been willingly adopted by any country. The next system to be noticed is that of a single metal being fixed as legal tender. This in early times is the really natural arrangement, and has been widely adopted. It is needless to recapitulate the instances which have already been given in dealing with other matters. There is, however, a difficulty which soon arises under this system. If the metal chosen is not very valuable, it is too cumbersome for large payments; if, on the other hand, it possesses a high value, it is hard to coin pieces suitable for small transactions. Thus, even silver would be too bulky for such payments as frequently occur. £100 in silver at its present value would weigh nearly 40 lb, while it would be impossible to coin gold pieces of the value of a penny or even a shilling. This system thus naturally leads to the use of other metals besides the standard one, and when the state fixes the ratio between these metals a new system has come into existence, which has been called the *multiple tender* system. In it the ratios between the metals are fixed, either once for all, or until changed by state authority. This system was in force in England from 1257 (or rather 1344) to 1664, the ratio between gold and silver being fixed from time to time by proclamation. France, too, adopted it during the Revolution, the ratio of 15½ to 1 being that fixed between gold and silver. The fluctuation of currencies arranged on this method, owing to the action of Gresham's law, has led in England and Germany to a modified system, which seeks to combine any advantages of the multiple standard with the principle of the single standard. By this method one metal is fixed as the principal legal tender, while the smaller coins are made of a less valuable material, and circulated at a nominal value somewhat above their real one, or, in other words, as token coins, but they are only legal tender to a limited amount. This has been called the *composite legal tender* system.⁷

For further details reference may be made to Tables II. and III., and the notes appended. Every currency system requires the existence of subsidiary coins, and, as stated before, this want is met by using a less valuable metal, generally silver, and for smaller payments copper or bronze. But, apart from the question of the material of the smaller coins, it is important to determine the best ratio between them. The simplest of all would be the *binary*. In it each coin would be the half of the next highest one, and double the one immediately below it. Nothing, apparently, is plainer or simpler than this scale, but the objection to it is the great number of coins that would be required, as well as the want of conformity with the general arithmetical scale. In a modified form it does prevail in many countries. Thus in England we have the *penny*, *half-penny*, and *farthing*. At a higher stage we have the *florin*, *shilling*, *six-penny piece*, and *three-penny piece*, and, again, the *sovereign*, *half-sovereign*, *five-shilling piece*, and *half-crown*. The coinages of the Latin and Scandinavian Unions, as also those of Germany and the United States, have several binary series in their coins.⁸ There is, however, no completely binary system known. The old English scale was partly *duodecimal*, and the arguments in favour of this arrangement are by no means weak. At present the shilling is duodecimally divided. It is urged in favour of this scale that the main divisions of time—year and month, day and hour, are duodecimally related, and that time is one of the elements in all questions of value.⁹ Another argument is that 12 is capable of being resolved into several factors (2 and 6, 3 and 4), and therefore

⁷ This system came into existence in England accidentally, through silver being overvalued by the mint regulations, but its theoretical basis was given by the often-quoted work of Lord Liverpool, *Coins of the Realm* (1805), which contains even now the best explanation of its principles.

⁸ This piece is now almost extinct.

⁹ For instance, the 20-franc, 10-franc, and 5-franc pieces, and, again, 2-franc, 1-franc, and 50-centime pieces in France, &c.; 20-kroner and 10-kroner pieces, and 4-kroner, 2-kroner, 1-kroner, 50-öre, and 25-öre pieces in Denmark, &c.; 20-, 10-, and 5-mark pieces, and 2-mark, 1-mark, and 50-pfennige pieces in Germany; while the United States have eagle, half-eagle, and quarter-eagle, and also dollar, half-dollar, and quarter-dollar.

¹⁰ See S. Laing, *Notes of a Traveller*, pp. 57-59.