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**An historical inquiry into the production and consumption of the  
precious metals**

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Chapter XXIII.

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## CHAPTER XXIII.

On the rate of loss on gold and silver coin by abrasion in remote and recent periods.

It has been hitherto assumed in this work that the loss on the general mass of coined gold and silver by wear alone amounts to a three hundred and sixtieth part yearly. As from the greater increase of those metals more use of them was made for money, so the more general and rapid circulation of them, and consequently a greater loss by abrasion, naturally took place. We are arrived at a period when it appears to be necessary to make an alteration in the rate of the loss occasioned by wear. In showing the grounds of that alteration it may be most convenient to go back and show the grounds on which the former assumption was made.

In examining this subject, reference must be had to the several experiments, the particulars of which are detailed in the Appendix No. 1, to which the reader was referred in the first volume. The experiments made by the officers of the mint in April 1807, and the 16th December 1826, throw much light on the subject. It is, however, necessary to go a little farther back to a course of



experiments conducted under the direction of a committee of the privy council <sup>1</sup> between 1798 and 1802, by those eminent chemists Mr. Cavendish, since deceased, and Charles Hatchett, Esq., who, happily for himself and for all who know him, still survives.

The object of those experiments was not expressly for the purpose of ascertaining the loss on gold by abrasion in a given space of time; but to ascertain what kinds of alloys and what proportion of those several alloys formed the mixture of metals which rendered them when coined into money least liable to loss by abrasion. Mechanical contrivances were adopted for rubbing against each other pieces of metal of different proportions and kinds of alloys, and by comparison of their weights before and after such rubbing, to determine which description of them would form the metal least subject to loss for the future coinage of Great Britain.

It was ascertained by the experiments of these accurate and acute philosophers, that gold of the finest quantity that could be used, viz. that consisting of twenty-three parts and three quarters of pure gold, and one quarter alloy, suffered a much greater loss by friction than our standard gold of twenty-two parts in twenty-four of pure gold, and

<sup>1</sup> These experiments are recorded in the Philosophical Transactions for the year 1802, part first, page 160.



two parts of alloy ; whether that alloy was of silver alone, or of silver and copper in equal proportions.

Without entering into these numerous experiments, it is important to our purpose to remark that our British standard gold is proved by them to be less susceptible of loss by abrasion than that of any other of the several kingdoms of Europe, or than any that is coined in either Spanish or Portuguese America<sup>1</sup>.

It appears by the same experiments that our standard silver suffers a much greater loss of weight by friction than the standard gold, and is equal to that on gold of twenty-three carats and three-quarters fine. It is also made clear that there is a loss by friction on stamped pieces of gold, somewhat greater than on pieces with smooth surfaces.

It is shown by the Appendix No. 1, A, that the loss of weight on three hundred and fifty sovereigns in the year 1826, which had been coined

<sup>1</sup> It appears that the loss on gold by the same quantity of friction was with the different alloys as follows, viz.: on our standard gold, if alloyed with silver alone or with equal parts of copper and silver,  $4\frac{20}{100}$  on 854 grains ; if alloyed with tin and copper,  $15\frac{30}{100}$  on 846 grains ; and if with iron and copper,  $21\frac{60}{100}$  on 825 grains. As the alloy in our new coinage consists chiefly of silver, it is said that a practice has lately been adopted of sending the sovereigns to Paris, where, in consequence of an improved mode of parting the metals by sulphuric acid instead of nitric acid, the silver was taken out, and an equal alloy of copper supplied its place, and then being still standard, the gold in ingots has been returned to England and recoinced into sovereigns, which may be distinguished by their deeper colour, but which contain the legal quantity of 22 parts in 24 of pure gold.



nine years before, viz. in 1817, was at the rate of four shillings and six-pence farthing on each hundred pounds. If then it be taken as five shillings for ten years, it will appear that one part in four hundred only had been lost. It must, however, be considered that the sovereigns though coined had not been issued till the bank restriction was removed in the year 1823; that after that period few or none had travelled into the country; that none were seen in Scotland or Ireland; that whatever came into the hands of the country bankers were locked up till a safe opportunity presented itself of returning them to London; and that even in London the circulation of one and two pound bank notes was greater than that of sovereigns. There seems to be a great difference in the loss on a parcel of gold coin in London between that taken in a retail shop and that received from a banking-house. Thus by Appendix, No. 1, B., it is seen that a given number of guineas in the year 1807, collected in a retail shop, was deficient one pound three shillings and fourpence per cent., whilst those received at a banking-house were only deficient eighteen shillings and eleven-pence per cent. As the experiment at the mint was probably made from a number of sovereigns taken from the Bank of England, they were most likely in better preservation than what would have been taken from a banking-house; as the bank at all times has been very strict in receiving no gold coin

that is not the full legal weight. This was so much the case that when gold rose so that a light guinea as bullion was worth twenty-five or six shillings, the bank refused to take it as money at twenty-one shillings.

It may be farther observed with regard to this experiment of 1826, that those pieces which had been coined but one year suffered a much greater proportion of loss than those which had been coined five years or nine years. Those of one year old suffered a loss of one shilling and three-pence, which in the ten years would be twelve shillings and sixpence, whereas those of nine years appear to have lost only at the rate of four shillings and sixpence. It deserves also to be remarked that the dirt accumulated on the pieces is a better criterion of the length of time they had been in circulation than the loss on weight. If the period of circulation be measured by the portion of dirt adhering to the pieces, the conclusion from this experiment would be that the pieces coined in 1821 had circulated more, if not longer, than those coined in 1817. The first were found to have three grains of dirt to each hundred pieces, and the second, though double their age, only two grains of dirt to each hundred pieces. The pieces which had been coined but one year were found to have contracted dirt at the rate of more than one grain and a half in that time. If then those of nine years old had equally circulated, they



ought to have contracted more than thirteen grains of it on the hundred instead of two, as they appear to have done. If judgment be formed from this criterion, the result would be that the pieces coined in 1821 had been issued before those of the prior date, or that they had been despatched to some distant part of the kingdom, and, after passing through a few hands, had at length come back again to the bank from whence they had been issued.

The time when the new coinage was manufactured followed a period of great inactivity at the mint. The officers of that department had enjoyed leisure and opportunity for exercising those talents for which they are eminently distinguished in investigations and experiments to improve the fabrication of money. Whatever the mechanical or chemical sciences could contribute to that object was examined, and if found appropriate, was adopted. The best alloys were ascertained by which the money should be made most durable, and yet not brittle. The form of the coins was changed so as to render them less subject to loss by abrasion, and other improvements were introduced, which, not falling immediately under the design of this inquiry, need not here be entered into, though they are of great advantage to the public, and reflect high honour on the eminent persons attached to that establishment.

It must, from the observations before made, be

obvious that the coins issued, with all the improvements which have been so judiciously and so laboriously introduced, can exhibit no fair scale of the loss of gold by abrasion that can be applicable to all ages and to all countries. It would not form an accurate scale for the loss on the coins of England that were issued in the earlier part of the reign of George the third. It would be less appropriate to determine the loss on all the coins issued from the continental mints, either in the old or the new world. It would least of all be fitted to measure the loss on the coins in the time of high antiquity in Egypt, Babylon, and Persepolis, or in the ages which followed, when the Grecian and Roman coins were fabricated, to say nothing of what was transacted in the dark ages.

It is well known by the analysis of ancient coins, as well as by the writings of Pliny<sup>1</sup>, that, in the times of antiquity, alloys in the gold coin were used of various kinds. Silver was too valuable to be applied to that purpose, and copper was of much higher value than in modern times. Iron and tin were therefore employed to mix with the gold, as thereby the colour of the metal was scarcely perceptibly changed, and with the im-

<sup>1</sup> As early as the times of Livius Drusus the silver money of Rome was mixed with one eighth part of alloy of brass and tin, as stated by Pliny in the 33d book, chap. iii., and in the 9th chapter of the same book he says that Anthony, when he was one of the Triumviri, mixed iron with the silver denier.



perfect knowledge of assaying that then existed the small quantity of those inferior metals could not easily be detected.

It has been shown by the experiments of Messieurs Cavendish and Hatchett that if our English standard gold, consisting of two parts of alloy in twenty-four, were to have that alloy formed of a mixture of iron and tin, the loss by friction would be five times as much as it is with the kind of alloy applied at the mint<sup>1</sup>; if the alloy were copper and tin it would be nearly four times as much. There is no reason to conclude that the ancients ever used any alloy except tin, iron, and copper, and we may conclude therefore that the loss on their gold coins was from four to five times as great as would be experienced on the modern English gold coins.

The maximum of durability for gold coins seems to be fixed at twenty-two parts in twenty-four of pure gold with the appropriate alloys. When the fineness ascends or descends from that point, the consumption by abrasion is increased. Thus the experiment of Mr. Cavendish and Mr. Hatchett shows, as before stated, that gold of the finest quality that can be worked, viz. of twenty-three carats and three quarters fine, suffers a loss of four times that of the standard of twenty-two fine. On the other hand, the coins below that

<sup>1</sup> See note, page 170.

standard wear faster in proportion to their decline in fineness. The twenty franc pieces of France wear faster than even our guineas did. The Spanish doubloons are worse than the French gold, and wear away faster; and it is affirmed by some accurate goldsmiths, that the gold used by them of eighteen carats fine suffers a loss very much greater than even the Spanish coin.

Our new gold coinage only commenced in 1817, and the whole amount coined in that year was four million two hundred and seventy-five thousand three hundred and seventy-seven pounds; and in the three next years the coinage amounted only to three million eight hundred and fifteen thousand four hundred and sixty-four pounds, ten shillings<sup>1</sup>. Though partial payments in gold were made at the bank, they were very soon suspended, and it was not till the large coinage of 1821, when nine million five hundred and twenty thousand seven hundred and fifty-eight pounds had been prepared, that the necessary measure of a general return to cash payments could be with safety adopted. If we may judge from the small diminution of bank notes after June, 1823, when the restriction on the bank ceased, and from current rumours that the bank was overloaded with gold, we should conclude that very little of the new coinage was in circulation before the latter end of

<sup>1</sup> See Appendix, No. II.



the year 1825, when the panic in the commercial world created a great drain, and dispersed the larger portion of it. The experiments we are now considering were conducted one year after that panic, and though some of the gold coins upon which they were made may have been coined nine years before, they may not have been in circulation more than a year or two.

It would scarcely be an unfair mode of calculation to presume that the general mass of gold in circulation in December, 1826, when this experiment had been tried, had not circulated more than two years, or two years and a half on the average. If we take the average wear on the three dates of 1817, 1821, and 1825 to have been of three years and a half, eight shillings and tenpence per cent. will be the loss in that time, or about one pound four shillings per cent. in ten years. This would show a loss on that gold coin at the rate of one part in eight hundred yearly.

The report of the experiment of the mint does not seem to be such as can be satisfactorily applied to general circumstances, not from any want of accuracy, but from the peculiar period in which it was made; when the whole of our monetary system was passing through a crisis which rendered it unfit to become a scale for the measurement of the loss which in other times and countries occurs by the wear of gold.

Any scale that can be framed must, however,



have the coinage of England for its basis; but it may be taken at a different time, when the peculiar circumstances which existed—when, after a long period in which gold was scarcely in use, it became again by degrees into general circulation—were not in operation. In the Appendix, No. 1, B, is exhibited some experiments made by the officers of the Mint, in April, 1807, the object of which was to ascertain the deficiency of weight of the average gold coins of the kingdom. At the time the experiments were made, the suspension of cash payments by the Bank had been maintained ten years. There had been, consequently, a suspension also of the wear of the gold, for it had almost all disappeared and could scarcely be said to be in circulation. Between the suspension of the payments in gold at the Bank in 1797 and the date of the experiments in 1807, as very little gold had been coined, that which was in existence must have been of the coinage of years antecedent to 1797. Before that year all guineas were scrupulously weighed, and what were found deficient were withdrawn from circulation. Thus, in 1797, a number of guineas taken from a banker's or any other shop could not exhibit a fair average of the wear of the mass of guineas, but only the average of the wear of those which had not been reduced below the current weight. To ascertain the actual average weight of the whole mass it would be necessary to know how many pieces had been with-



drawn from them from being deficient. That, however, could not be known, and it becomes necessary to have recourse to conjecture. It does not seem likely that the guineas to be met with in 1807 were, on the average, of an older date than the year 1787, and the circulation having been suspended for ten years, they could not have suffered more than ten years' abrasion. We see that on one thousand guineas the loss from the standard weight had been eighteen shillings and eleven-pence per cent., or that one part in a thousand and fifty had been lost. We see that on the half-guineas the loss from the standard weight had been two pounds two shillings and seven-pence per cent., or one part in four hundred and sixty. The proportion of the half-guineas to the guineas was, as recently, nearly as one to ten<sup>1</sup>, not on the number of the pieces but on their value. The average wear in the two sizes of coin would then be shown to be at the rate of one part in nine hundred and fifty.

Such appears to be, as nearly as can be known, the loss in English gold coin, which was even at that time the most durable of any in existence. It will have been observed, that the loss on the half-guineas was more than double the proportion to that on the guineas. It is indeed clear,

<sup>1</sup> See Appendix, No. 3, B.



by all experiments, that the smaller the pieces are, the greater loss do they suffer by abrasion.

The gold coin of the ancients certainly approached nearer to the weight of the half-guineas than to that of the guineas. The aureüs and the bezant were but little heavier than the former, and some of their coins were very much less; and thus the loss from abrasion must have been much greater than on the average of our coin.

It is true that a small portion of the existing gold among the ancients was actually in coin or in that kind of circulation which would cause it to wear excessively; but, on the other hand, if the effect of the alloys they used was, as is shown by the experiments of Messrs. Cavendish and Hatchet, to increase the wear in a fourfold degree, instead of the annual loss being one part in nine hundred and fifty, it would have been at the rate of one part in two hundred and thirty-seven.

Making due allowance, then, for the inferiority of the metal, for the size of the pieces, and for the inferiority of the fabrication on the one hand, and on the other, for the less degree of circulation, it may be assumed that a medium rate of loss was most proper, and that taking it at one part in six hundred would be as near an approximation to the loss of gold by abrasion as is likely to be obtained. It is upon that scale that the general rate of the consumption of the precious metals up to



the beginning of the eighteenth century has been calculated in this inquiry.

We come now to the other metal, silver, which is of larger amount, and has been so at all periods of the world, and which is subject to much more loss than gold suffers. In examining this part of the subject it becomes necessary to refer again to the Mint experiment in Appendix, No. 1, A. It will be remarked by that account that the same difference in loss in proportion to the weight of the pieces occurs in silver as in gold. In this case, it will only be necessary to consider the case of the shilling pieces, which nearly equal in amount the crowns, half-crowns, and sixpences<sup>1</sup>, and may be taken as showing the average loss on the whole<sup>2</sup>; the greater loss on the sixpences balancing the less loss on the larger description of pieces. Though the pieces were coined in 1816 and 1817, the great issue of them did not take place till 1818, and then not more than one-third of them were issued. It appears, then, that the loss in eight years on the shilling pieces had been at the rate of two pounds five shillings and eleven-pence of their value, which would show a loss at the rate of one part in three hundred in each year. This is, however, on the supposition that the whole had been issued at the time, and that the whole had continued in constant circulation; but it is well

<sup>1</sup> See Appendix, No. 3, B.

<sup>2</sup> Appendix, No. 3, A.



known that more silver was coined than the circulation could absorb,—that much was left in deposit at the Bank which could not be issued,—that the bankers, especially in the country, were full of complaints of the dead weight of the silver coins that were accumulated in their coffers, of which they could make no interest until they incurred the expense of sending it to London, where only it could be exchanged for better money which could be used in discounting or lending out on securities. There was no outlet for it in foreign countries from the high value affixed to it. It was issued at the rate of sixty-six shillings to the pound weight of silver, and as that pound was not worth quite sixty-two shillings in gold, it was considered, and very properly, not as money, but as a token of money, and no one, even in the country where the fictitious value of it was enforced by law, would keep more of it than was necessary in small transactions to make payments of fractions of a pound.

It is neither the design to blame or to applaud the conduct of members of the government which fixed our present silver coinage, and the circumstance does not come under consideration here further than as it may lead to a calculation of what may be deemed the fair rate of its loss by wear.

If we estimate, as we are fully justified in doing, that one-third of the silver coin was in a constant state of rest, either with the Bank of England or



country bankers, and that two-thirds of those pieces on which the experiment was made had scarcely or at all circulated, we shall come to the conclusion that the wear of the silver coin is about one part in two hundred annually; but this regards English standard silver alone, and not the coins of inferior fineness.

This rate corresponds with that reported in the experiments related in Lord Liverpool's letter to the King<sup>1</sup>. It appears that the officers of the Mint, in 1787, had made an experiment on the silver coins of the kingdom which were then in circulation, and which were much depreciated by wear. The deficiency was ascertained to be at the following extraordinary rates, viz. :—on the crown pieces,  $3\frac{1}{5}\frac{6}{3}\frac{1}{1}$  per cent.; on the half-crown pieces,  $9\frac{9}{1}\frac{9}{1}\frac{1}{1}$ ; on the shillings,  $24\frac{1}{3}\frac{9}{2}\frac{6}{3}\frac{4}{0}$ ; and on the sixpences,  $38\frac{9}{8}\frac{9}{0}\frac{9}{3}\frac{4}{7}$  per cent.<sup>2</sup>

The same experiment was repeated again eleven years after, in 1798, when the additional deficiency in weight was found to be, on the crowns,  $\frac{1}{5}\frac{0}{1}\frac{0}{3}$ ; on the half-crowns,  $1\frac{3}{3}\frac{3}{6}\frac{3}{7}$ ; on the shillings,  $5\frac{5}{3}\frac{5}{2}\frac{5}{8}\frac{9}{9}$ ; and on the sixpences,  $3\frac{1}{8}\frac{1}{0}\frac{8}{3}\frac{9}{7}$  per cent.

The less increased deficiency on the crowns and half-crowns may be accounted for from the rarity of those pieces, especially of the former, which had become so scarce that whoever got one of them was disposed rather to retain it as a pocket-piece

<sup>1</sup> Lord Liverpool's Letter, p. 187.    <sup>2</sup> Appendix, No. 1, C.

or curiosity than to put it in circulation. The less additional loss on the sixpences may be accounted for from the circumstance that most of those pieces had by wear become so thin that they would have broken in two when they had lost more than forty per cent. of their standard weight, and instead of being worth, as bullion, their original value of sixpence, were not worth more than three-pence halfpenny. The shillings, as being the commonest pieces, are the coins on which the greatest reliance may be placed in any calculation. Their value far exceeded that of all the other pieces, and may therefore be assumed as the fittest scale of depreciation by wear.

The loss on the shillings in this last experiment was at the rate of about five per cent. in ten years, which agrees with what has been before estimated as the loss on the new coinage since 1816, or about one part in two hundred in each year.

It is to be observed that this wear on the silver coin between 1787 and 1798, was a proof of the degree of loss produced on that particular description of silver coin which was in circulation at that period. Now every one whose recollection carries him back to that time will bear testimony to the fact that the shillings by wear had almost all lost the faintest traces of any impression having been made upon them. No legend was visible, nor could the outlines of the head enable the reign to be determined. They were for the most part



merely smooth pieces of silver. The wear on them therefore must have been less than on such pieces as, from being more recently stamped, had more raised surfaces.

Practical men to whom the subject of the loss on the metals has been one of much consideration, from being of importance in their several branches of the gold, silver, and jewellery manufactures, commonly calculate a much greater degree of loss on silver than is here shown. One gentleman of great accuracy and acuteness, and much conversant in the application of those metals in his manufactory, communicates his opinion thus. "The loss on coined silver is full one hundredth part or one per cent. per annum. If one hundred pieces of 1815 and 1816, and upwards to the last date on the silver coin be examined, it will give this result. Though this loss is much greater than on gold, it is easily accounted for; for first, the same degree of friction will produce a greater diminution of weight, and secondly, the constant and never ceasing circulation of the silver coinage far exceeds that of gold, since it never will be hoarded or kept in a state of rest, it not being a measure of value in this country, but a token or representation of value."

These experiments on silver having been made on coins of the English standard, are not adapted to form a scale by which to measure the effect of abrasion, either on the silver coin of the ancients



or on that of the modern continental kingdoms, whose silver money was of far inferior fineness. For on silver as on gold coins the rate of loss will increase in the same proportion as the fineness of the silver in the pieces is diminished: and the rate will be farther increased as the size and weight of the pieces, as is the case with the continental coin, is less.

It may now be proper to advert to the grounds on which the rate of loss by friction on the money of ancient times has been assumed to be one part in three hundred and sixty annually. In remote antiquity gold coins were unknown till long after silver coins had been fabricated, and, descending lower, when such coins had been introduced, the amount of the silver very far exceeded that of the gold money. It is impossible to form an accurate or even an approximate estimate of the relative amount of the two kinds of money. It becomes, therefore, necessary for the purposes of calculation to frame a supposititious relation. We assume then that the proportionate amount of the gold money to the silver money was as one to five, or that five times as much silver as of gold circulated. This rate has not been fixed upon without much consideration of the low prices of all commodities which required for their exchange only the lower kind of money; of the product of the mines through the several ages, and of the relative value of gold to silver in the different periods of history.



If, then, the rate of loss by wear on gold money was at the rate of one part in six hundred, and that money was one sixth of the circulating medium, and if the rate of loss on the silver money was at the rate of one part in one hundred and fifty, the mean rate of depreciation would be as near to one part in three hundred and sixty as can be calculated. The silver is estimated at one fourth greater degree of friction than our standard silver, because it was at no time equal in fineness to our standards, and in most periods, and sometimes for generations, vastly inferior.

Although the amount of silver in circulation as money at all times must have been greater than that of gold, yet, as the gold has six times the durability of silver, the relative value of the two metals to each other could not be maintained unless the mines produced the two metals in proportion to the loss on them by wear respectively. It seems probable that the due proportion was kept up during the existence of the Roman power, and through the dark ages which succeeded, till the discovery of America, and till the dispersion over the world of the excessive surplus produce of silver above that of gold. The value of gold to silver had varied but little before the mines of Potosi were discovered. Among the Romans gold to silver seldom varied more than from nine to eleven for one, that is, a pound of gold was rarely worth either more than eleven or less than



nine pounds of silver; nor did the relative value of the metals fluctuate more in the long course of centuries to the time when the new sources of mineral wealth in the western world were in full activity. Since that period the relative value of the two kinds of metal has been gradually changed, and gold is become near fifteen times as valuable as silver, or one pound weight of gold is nearly equal to fifteen pounds of silver. Humboldt has estimated the quantity of gold and silver produced from the whole of America, since the discovery up to the year 1803, to be one hundred and sixty-two million pounds weight of the former, and seven thousand one hundred and seventy-eight million pounds of the latter. The weight of silver to that of gold has been thus about as forty-four to one.

Thus the value of the silver produced since the discovery of America is three times that of gold; but the loss by wear on silver is four times that of gold. In process of time, therefore, it is clear that, from its durability, gold would gain in value upon silver; that is, a pound of gold would become worth more than fifteen pounds of silver. This effect was produced at first in part from the greater proportionate quantity of silver that was procured, and in part by a less quantity of the gold which existed at the time of the discovery of America having been lost by wear than of the silver then in use. In what degree each of these causes tended to preserve the equable proportionate



value of gold to silver during the two past centuries it would be difficult to determine. But one thing is certain, that as prices rose with the increased quantity of both precious metals, there would be a larger portion of gold used as coin to make large payments, for which silver antecedently was used, and of silver to make those payments for which copper or other inferior metals had sufficed.

From hence it may be concluded that the proportionate value of the gold in the form of coin had changed its relation to that of silver. Both had vastly increased, but gold in rather the greater degree. There was action and re-action. The metallic wealth acted on material wealth by raising the prices of it; and that re-acted on the precious metals by requiring a larger portion of them to effect the necessary exchanges.

Taking into the calculation the superior value of the gold which was used for ornamental purposes on the one hand, and which must have been withdrawn or withheld from its application to coinage, as will be hereafter shown in detail; and adverting to the vastly superior value of the silver which came from America in the form of coined money on the other hand; it seems fair to presume that the proportion of one coin to the other in circulation had been changed towards the end of the seventeenth and beginning of the eighteenth



century. As far as various considerations unite to enable a judgment to be formed, it may be assumed that the value of the silver money in existence, including the dollars of the American coinages, was as four to one of that of the gold money.

If the wear of the coined money was the same through the time that passed from the year 1700 to 1810, the loss by friction on both kinds of metal would be at the rate of one part in four hundred and twenty annually. In the remaining calculations the rate of loss will be estimated upon this principle, and it will be extended to the whole mass of coin of Europe and of America.

One reason for making a change in the estimated loss at this particular period is that a general reformation in the state of the coinage was then introduced. In England the evil of a debased coinage was severely felt and loudly complained of during the reign of William III., and it appears that the silver coin which was by far the greatest in nominal amount had from clipping and other causes become so very deficient, that upon weighing a large quantity at the Exchequer in 1695, it was found that which should by tale have weighed two hundred and twenty-one thousand four hundred and eighteen ounces, did in fact weigh no more than one hundred and thirteen thousand seven hundred and seventy-one ounces, thus show-



ing that the debasement or deficiency was at the rate of forty-eight pounds twelve shillings and fourpence per cent.<sup>1</sup>

It became impossible to proceed farther without a renovation, and though opposed by some powerful factions in both houses of parliament, the measure was resolved on by small majorities, although the country was at the time in the midst of an extended and expensive war.

The restoration of the coin to its due purity and weight in England seems to have produced an improvement in the state of the coin on the continent. In France many changes were introduced, with the express purpose "*pour être en proportion avec les états voisins, et pour empêcher qu'ils n'enlevassent l'or et l'argent du royaume*".—In Germany several of the smaller states formed conventions, by which it was agreed that the money should circulate through the allied dominions upon condition that each sovereign should coin it of the same degree of purity. This was the origin of the best kind of money generally known by the name of *Conventions geld*. In Italy improvements also took place in the money of most of the states, and on almost the whole of Europe (for the exceptions are few): an increased degree of durability was given to the coins in circulation about the same period.

*Conventions  
Münz*

<sup>1</sup> Ruding, vol. ii. p. 387.

<sup>2</sup> Abot de Bazinghen, vol. ii. p. 207.