

Propositions respecting the coinage of gold, silver, and copper.

PROPOSITIONS respecting the Coinage of Gold, Silver, and Copper.

First. **THE** value of silver compared with gold. Second. The weight or size of the several pieces of money that are to be made. Third. The money arithmetic, or the mode in which it is to be counted; and fourth, The charges for coinage are to be considered.

I. In France, 1 grain of pure gold is counted worth 15 grains of silver. In Spain, 16 grains of silver are exchanged for 1 of gold, and in England $15 \frac{1}{5}$. In both of the kingdoms last mentioned, gold is the prevailing money; because silver is undervalued. In France silver prevails. Sundry advantages would arise to us from a system by which silver might become the prevailing money. This would operate as a bounty to draw it from our neighbours, by whom it is not sufficiently esteemed. Silver is not exported so easily as gold, and it is a more useful metal.

Certainly our exchange should not be more than 15 grains of silver for one of gold. It has been alledged by the late financier, that we should not give more than $14 \frac{1}{2}$; perhaps $14 \frac{3}{4}$ would be a better medium, considering the quantity of gold that may be expected from Portugal.

2. The weight, size or value of the several pieces of money that shall be made, or rather the most convenient value of the money unit, is a question not easily determined, considering that most of the citizens of the United States, are accustomed to count in pounds, shillings and pence; and that those sums are of different values in the different states: hence they convey no distinct ideas. The money of the United States should be equally fitted to all. The late financier has proposed to make gold and silver pieces of particular weight; and there is a very simple process, by which the imaginary money of

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the several states may be translated into such pieces, or vice versa. He proposes that the money unit be one quarter of a grain of pure silver. That the smallest coin be of copper, which shall be worth 5 of those units. The smallest silver coin to be worth 100 units; another to be worth 500; another of 1000; and thus increasing decimally.

The objections to this plan are, that it introduces a coin unlike in value to any thing now in use. It departs from the national mode of keeping accounts, and tends to preserve inconvenient prejudices. Whence it must prevent national uniformity in accounts; a thing greatly to be desired.

Another plan has been offered, which proposes, that the money unit be one dollar; and the smallest coin is to be of copper, of which 200 shall pass for one dollar. This plan also proposes, that the several pieces shall increase in a decimal ratio; and that all accounts be kept in decimals, which is certainly by much the most short and simple mode.

In favour of this plan it is urged, that a dollar, the proposed unit, has long been in general use. Its value is familiar. This accords with the national mode of keeping accounts, and may in time produce the happy effect of uniformity in counting money throughout the union.

3. The money arithmetic, though an important question, is one that can admit of little dispute. All accomptants must prefer decimals.

4. What is the best mode of defraying the expence of coinage? Different nations have adopted different systems. The British value their silver when coined, no higher than bullion. Hence it follows, that the expence of the mint, increasing the civil list, must be paid by a general tax; and tradesmen are disposed to work up the current coin, by which the tax is increased and continued. In some other countries silver or gold when coined, are valued above the price of bullion; whence tradesmen are discouraged from melting or working up the current coin, and the mint is rather profitable than burdensome. Certainly there are good and conclusive reasons, why we should value the national coin above the

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price of bullion; but there is a certain point beyond which we may not proceed, lest we encourage counterfeits, or private imitations of our coin. It has been proposed to make a difference of 2 1/2 per cent. nearly, as an allowance for the coinage of gold, and of 3.013 per cent. for the coinage of silver. It is probable that 3 per cent. would more than defray the expence of coining silver, in which case it would be a temptation to private imitation, and would operate against the free circulation of the money, as being valued too high. It is to be remembered that silver coin ought to be encouraged, and probably 2 per cent. or 2 1/4 per cent. would be a proper difference between silver coined and bullion. The same difference to be made in the price of gold. If this does not fully pay the expences of the mint, there will be a much larger gain on the coinage of copper; and if there should remain a small balance against the mint, its operation will not be unfavourable.

The coinage of copper is a subject that claims our immediate attention. From the small value of the several pieces of copper coin, this medium of exchange has been too much neglected. The more valuable metals are daily giving place to base British halfpence, and no means are used to prevent the fraud. This disease, which is neglected in the beginning, because it appears trifling, may finally prove very destructive to commerce. It is admitted that copper may at this instant be purchased in America at 1/8 of a dollar the pound. British halfpence made at the tower are 48 to the pound. Those manufactured at Birmingham, and shipped in thousands for our use, are much lighter, and they are of base metal. It can hardly be said that 72 of them are worth a pound of copper. Hence it will follow, that we give for British halfpence, about six times their value. There are no materials from which we can estimate the weight of halfpence that have been imported from Britain since the late war. But we have heard of sundry shipments being ordered, to the nominal amount of 1000 guineas; and we are told, that no packet arrives from England, without some hundred weight of base halfpence. It is a very moderate computation which states our loss on the last twelve months, at 30,000 dollars, by the commerce of vile coin. The whole expence of a mint would not have amounted to half of that sum, and the whole expence of domestic coinage would remain in the country.

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The following forms of money are submitted.

[table] The quantity of pure silver being fixed that is to be in the unit or dollar, and the relation between silver and gold being fixed, all the other weights must follow.

When it is considered, that the Spaniards have been reducing the weight of their dollars, and that instead of 385.5 the grains of pure silver in the old Mexican dollar, the new dollars have not more than 365 grains, it will hardly be thought that 362 grains of pure silver to too little for the federal coin, which is to be current in all payments for one dollar. Some of the old dollars will admit of a second coinage; but the new ones will not. If the value of gold compared to that of silver, be fixed at 15 to one, and the alloy in each be 1/12, the weight of the several denominations will be readily determined.

The price of bullion is immediately determined by the per centage that is charged towards the expences of the mint.

If the United States determine to adhere to the dollar as their money of account, and to simplify accounts by the use of decimals, there is nothing to prevent the immediate commencement of a coinage of copper.

Let the copper pieces, of which 100 are to pass for a dollar, contain each 131 grains of pure copper, or 44 of them weigh one pound. In this case our copper coin, when compared with the money of account, will be 6 per cent. better than that of Great-Britain. There will remain a sufficient profit on the coinage.

Copper of the best quality in plates, may be purchased in Europe at 10d.1/2 sterling. In cutting blanks there will be a waste of 22 per cent. Those clippings are worth 7d.1/2 per pound. Thence the blanks will cost 11d.1/2 nearly; it may be stated as 1s.9d. New-York money per pound, exclusive of the expence of cutting them, which is not great, as one man can readily cut 100 weight in a day.

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The operation, improperly called milling, by which the sharp edges are worn off from the coppers, is not more expensive than cutting the blanks.

In the process of coining copper, eight artists or labourers may be required.

One engraver, 1 labourer for the blank press.

One smith, 5 laboureres for the coining press.

By those people 100 weight of copper may readily be coined every day, or the value of 44 dollars. Deducting the necessary expences, there may be saved 30 per cent.

OFFICE OF FINANCE, *January 15, 1782.*

SIR,

FINDING by the act of the United States in Congress, of the seventh instant, that I am instructed to prepare and report a table of rates at which the different species of foreign coins most likely to circulate within the United States shall be received at the treasury, I have been induced again to turn my attention to an object which has employed my thoughts very frequently, and which would have been long since submitted to Congress, had I not been prevented by other business, and much delayed by those things relating to this business, which depended upon others. I shall now pray leave to deliver my sentiments somewhat at large on this subject.

The United States labour under many inconveniences, and even disadvantages, which may at present be remedied; but which, if suffered to continue, would become incurable, and lead to pernicious consequences. It is very fortunate for us, that the weighs and measures used throughout America are the same. Experience has shewn in other countries, that the efforts of the legislator to change weights and measures, although fully seconded by the more enlightened part of the community, have been so strongly

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opposed by the popular habits and prejudices, that ages have elapsed without producing the desired effect. I repeat therefore, that it is happy for us to have throughout the union, the same ideas of a mile and an inch, a hogshead and a quart, a pound and an ounce. So far our commercial dealings are simplified, and brought down to the level of every capacity. With respect to our money the case is very widely different. The ideas annexed to a pound, a shilling, and a penny, are almost as various as the states themselves. Calculations are therefore as necessary for our inland commerce, as upon foreign exchanges; and the commonest things become intricate where money has any thing to do with them. A farmer in New-Hampshire, for instance, can readily form an idea of a bushel of wheat in South Carolina, weighing sixty pounds, and placed at one hundred miles from Charlestown; but if he were told that in such situation it is worth twenty-one shillings and eight pence, he would be obliged to make enquiries and form some calculations before he could know that this sum meant, in general, what he would call four shillings; and, even then, he would have to enquire what kind of coin that four shillings was paid in, before he could estimate it in his own mind according to the ideas of money which he had imbibed. Difficulties of this sort do not occur to farmers alone, they are perplexing to most men, and troublesome to all. It is however, a fortunate circumstance, that money is so much in the power of the sovereign, as that he can easily lead the people into new ideas of it; and even if that were not the case, yet the loose state in which our currency has been for some years past, has opened the way for receiving any impressions on that subject. As we are now shaking off the inconveniencies of a depreciating medium, the present moment seems to be that, in which a general currency can best be established, so as that in a few months the same names of money will mean the same things, in the several parts of the United States.

Another inconvenience which admits of the same easy remedy, and which would indeed be cured by the very same act, is the want of a legal tender. This is as necessary for the purposes of jurisprudence, as a general currency is for those of commerce. For although there is great impropriety, not to say injustice, in compelling a man to receive a part of his

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debt in discharge of the whole, yet it is both just and proper that the law should protect the honest debtor who is willing to pay, against the vexatious suits of an oppressive creditor, who refuses to receive the full value. The nature, value and use of money have always occasioned strong temptations to the commission of fraud; and of consequence the practice of counterfeiting is coeval with that of coining. No government can guard its subjects entirely against the wicked ingenuity which has been exercised in this respect; but it has always been the object of every wise government to take all the precautions against it which are within the compass of human ability. These precautions will be most effectual, where the coins are few and simple; because they, by that means, become familiar to all ranks and degrees of men; but where the coins are so numerous, that the knowledge of them is a kind of science, the lower order of citizens are constantly injured by those who carry on the business of debasing, sweating, clipping, counterfeiting and the like. It is therefore to be lamented that we have so many different coins in the United States.

It is not necessary to mention what is in every bodys mouth, that the precious metals were first used as bullion; and that the inconvenience of weighing, and the difficulty of assaying, introduced the practice of coining, in order that the weight and fineness might be known at the first view, and of consequence the value be instantly ascertained. It is equally unnecessary to observe, that the great privilege of declaring this value, by particular marks, has among all nations been vested, exclusively, in the sovereign. A trust so important could not indeed be vested any where else; because the danger of abusing it was too great: And history informs us, that sovereign themselves have not on this occasion behaved with that integrity, which was alike due to their subjects and to themselves, to the interest of their people, and to their own personal glory. Experience has already told us, that the advantage of gold as a coin is, in this country, very considerably diminished: for, every distinct piece must be weighed before it can be safely received. Both gold and silver coins are indeed preferable in one respect to common bullion, that the standard is presumed to be just, and consequently they are received without the delays and expences of assaying. It must however be remembered, that they are all foreign

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coins, and of course we are not only exposed to the tricks of individuals, but should it suit the interest or convenience of any sovereign to make base money for us, there is nothing to prevent it. If, for instance, the king of England, or any of his Birmingham artists, should coin guineas worth but sixteen shillings sterling, our citizens would readily and freely receive them at twenty-one shillings sterling. It is my duty to mention to Congress, information I have received, that guineas of base metal are coined at Birmingham so well, as to escape any common attention. Now there can be no doubt but that every such guinea received here, would be a national loss to us of an English crown. How much we suffer in this way at present, it is impossible to estimate. What I have already had the honor to observe, contains some of the reasons why it appears to me highly necessary that an American coin should be adopted without delay; and to these reasons it may be added, that there is a want of small money for the common occasions of trade, and that it is more felt by our soldiery than any other persons. For the little pay which they do receive, being either in gold or at best in dollars, the suttlers and others with whom they have dealings, continually take advantage of their want of change, and rate the prices of their goods accordingly.

Shortly after my appointment, finding that there was a considerable quantity of public copper at Boston, I ordered it round to this place. It has safely arrived, and will, when coined, amount to a considerable sum. The necessary machinery of a mint can be easily made, and there are persons who can perform the whole business. I must pray leave therefore, to submit to Congress, some few more particular remarks on the subject, as introductory to a plan for an American coin.

Although most nations have coined copper, yet that metal is so impure, that it has never been considered as constituting the money standard. This is affixed to the two precious metals, because they alone will admit of having their intrinsic value precisely ascertained. But nations differ very much in the relation they have established between gold and silver. In some European countries, an ounce of pure gold passes for fifteen ounces of pure silver. In others for fourteen. In China it passes for much less. The standard therefore

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which is affixed to both metals, is in reality affixed to neither. In England, gold is to silver nearly in the proportion of one to fifteen; and in France nearly of one to fourteen. If a man carries fourteen ounces of gold from France to England, he receives two hundred and ten ounces of silver, which in France purchases fifteen ounces of gold; so that he gains on that exchange one ounce of gold. In like manner he who carries from England fourteen ounces of silver to France, receives one ounce of gold, which in England purchases fifteen ounces of silver, wherefore he gains on that exchange one ounce of silver. If it be then supposed that the coins of these two countries were alike pure, it must follow that in a short time all the gold coin of full weight would be in England, and all the silver coin of full weight in France. But the light silver circulating in England, and the light gold in France, the real standard of coin in each would be different from the legal, and seek a medium of fourteen and an half of silver for one of gold, although the legal standard might still be in the one place fifteen, and in the other fourteen.

The demand which commerce might make for any one of the precious metals in preference of the other, would vary this real standard from time to time, and in every payment a man would get more or less of real value for his debt, according as he were paid in the coin of greater or lesser value, in relation to the real standard. If, for instance, the debt were contracted when the silver was to gold, as one to fifteen, and paid when as one to fourteen; if the debt were paid in silver he would gain one thirtieth, and if in gold he would loose one thirtieth. In England the money standard is rather affixed to gold than to silver, because all payments are made in the former, and in France it is rather affixed to silver than to gold.

Arguments are unnecessary to shew that the scale by which every thing is to be measured ought to be as fixed as the nature of things will permit of. Since therefore, a money standard affixed to both the precious metals will not give this certain scale, it is better to make use of one only. Gold is more valuable than silver, and so far must have the preference, but it is from that very circumstance the more exposed to fraudulent practices. Its value rendering it more portable is an advantage, but it is an advantage which paper

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possesses in a much greater degree, and of consequence the commercial nation of England has had recourse to paper for the purposes of its trade; although the mass of circulating coin is gold. It will be always in our power to carry a paper circulation to every proper extent. There can be no doubt therefore that our money standard ought to be affixed to silver.

But silver is liable like everything else, to a change of value; if there is a demand for it, to export, the value will rise, if the contrary, it will fall; and so far it cannot be considered as a fixed measure of value. Before this objection be considered, it will be proper to make a few reflections on another part of the present subject; but in this place I remark, that if the objection cannot be removed, we must not suffer it to preponderate, because it weighs alike against every other metal.

To coin money is a certain expence and of course it is an expence which must be borne by the people. In England, the coin when melted, will fell as bullion for just as much as it weight in other coin. The expence of coinage is paid by the crown; and of course it is raised by taxes from the people. In France, the coinage instead of being expensive yields a profit. The price given for metal at the mint, is about eight per cent. less than the same quantity will yield when coined at the French standard. Both of these methods are liable to objections. When commerce demands an exportation of bullion from England, the coin of the kingdom goes out in common with others; this increases of course the national expence of coinage. Laws to prevent the exportation or importation of any thing so valuable as money, are always nugatory; because they always CAN be eluded; and therefore when private interest requires, they always WILL be eluded. That the guineas of England therefore are not continually going away, is to be attributed to the extraordinary value affixed to gold, which has just been mentioned, and which banishes silver continually. In France, the people are not liable to this inconvenience, because their money passing for more than its value in bullion, bullion will always be exported in preference of coin: but for the same reason there is always a strong temptation to imitate their coin, and send it for the purchase of their commodities. It would be both impossible

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and unnecessary to distinguish the true from the false; because both would be of equal intrinsic value; the place at which they were struck would be indifferent to the receiver, of consequence the foreigner who made French coin would gain by his trade, and the French nation would loose proportionately.

The money paid for coining, or the coinage of France, has however this advantage, that the money is standard which does not fluctuate with the price of bullion. This coinage is, as has been said, about eight per cent. When bullion is below ninety-two, it is carried to the mint, when above ninety-two to the broker or silversmith. The coin still continues fixed, nor will it bear exportation until bullion rises to an hundred, when the French coin would be as liable to exportation as the English. In that case it would be exported on one hand, while on the other no more would have been coined for a considerable period because to make the eight per cent. coinage, it is necessary that the mint price should be ninety-two. The coin therefore could not long be exported, if at all, but would soon resume its value. The price of bullion must float between ninety-two and an hundred, while the coin would preserve its fixed quality as money.

Hence then it appears proper, that the price of coining should be defrayed by the coinage, because first it is natural and proper, that the price should be paid when the benefit is received, and that the citizen in return for the advantage of being ascertained in the value of the medium of commerce by the sovereign, should pay for ascertaining it, just as that he should pay for the fashion of the plate he uses, or the construction of the cart he employs. Secondly, it is right that money should acquire a value as money, distinct from that which it possesses as a commodity, in order that it should be fixed rule whereby to measure the value of all other things; and thirdly, it is wise to prevent the exportation of the coin, which would involve an unnecessary national expence, and also to prevent the imitation of it abroad, so as to create a national loss; for both which purposes it is proper that the coinage should only defray the expence, without making any considerable profit. The laws usual in all countries with respect to the money will then fully operate the effect intended.

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In order that a coin may be perfectly intelligible to the whole people, it must have some affinity to the former currency. This therefore, will be requisite in the present case. The purposes of commerce require that the lowest divisible point of money, or what is more properly called the money unit, should be very small; because by that means the price can be brought in the smallest things to bear a proportion to the value. And although it is not absolutely necessary, yet it is very desirable that money should be increased in a decimal ratio, because by that means all calculations of interest, exchange, insurance and the like, are rendered much more simple and accurate, and of course more within the power of the great mass of people. Wherever such things require much labour, time and reflection, the greater number who do not know, are made the dupes of the lesser number who do.

The various coins which have circulated in America, have undergone different changes in their value, so that there is hardly any which can be considered as a general standard, unless it be Spanish dollars. These pass in Georgia at five shillings, in North-Carolina and New-York at eight shillings, in Virginia and the four eastern states at six shillings, in all the other states, except South-Carolina, at seven shillings and six pence, and in South-Carolina at thirty two shillings and six pence. The money unit of a new coin to agree without a fraction with all these different values of a dollar except the last, will be the fourteen hundred and fortieth part of a dollar, equal to the sixteen hundredth part of a crown; of these units twenty four will be a penny of Georgia; fifteen will be a penny of North-Carolina or New-York; twenty will be a penny of Virginia and the four eastern states; sixteen will be a penny of all the other states except South-Carolina; and forty eight will be thirteen pence of South-Carolina.

It has been already observed, that to have the money unit very small is advantageous to commerce; but there is no necessity that this money unit be exactly represented in coin, it is sufficient that its value be precisely known. On the present occasion, two copper coins will be proper; the one of eight units, and the other of five. These may be called an eight and a five: two of the former will make a penny proclamation or Pennsylvania money,

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and three a penny Georgia money; of the latter three will make a penny York money, and four a penny lawful or Virginia money. The money unit will be equal to a quarter of a grain of fine silver in coined money: Proceeding thence in a decimal ratio, one hundred would be the lowest silver coin and might be called a cent. It would contain twenty five grains of fine silver, to which may be added two grains of copper, and the whole would weigh one pennyweight three grains: Five of these would make a quint or five hundred units, weighing five pennyweight fifteen grains; and ten would make a mark or one thousand units, weighing eleven pennyweight six grains.

If the mint price of fine silver be established at 22,237 units per pound; this being coined, would be four times 5,760 grains, or 23,040 units; the difference is 803 units, and therefore the coinage is 803 on 23,040, or somewhat more than $3 \frac{48}{100}$ per cent, which would be about the expence attending it. A dollar contains by the best assays which I have been able to get, about 373 grains of fine silver, and that at the mint price would be 1,440 units. In like manner if crowns contain from 414 to 415 grains of fine silver, they would at the mint price be worth 1,600 units.

When such a coin shall have been established, the value of all others would be easily ascertained; because nothing more would be necessary than to have them assayed at the mint. The advantage of possessing legal money in preference of any other, would induce people to carry foreign coin to the mint, until a sufficiency were struck for the circulating medium, the remainder of the foreign silver, together with the gold, should be left entirely to the operations of commerce as bullion.

In the present moment it is by no means of such consequence to establish the relative value of different coins, as to provide a standard of our own by which in future to estimate them. If the value were now sought they must all be estimated in dollars, because dollars are called for in the several requisitions of Congress. Without noticing the preference thus given to one foreign coin over another, it is sufficient to observe, that if greater alloy should be introduced by the Spanish government into their dollars, our interior regulations as to

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money would be overturned, and certainly we have no security that this will not happen. There is not any great inconvenience from leaving matters on their present footing until they can be remedied by the operations of a mint; for it is not to be supposed that all the money raised by taxes in a state is to be brought out of it. I expect that there will be very little occasion to transport money from place to place. It is much easier to negotiate than to carry it; and if any species of money is generally received within a state at the same rate in which it is paid in taxes, there will be no difficulty in expending it at its value. Whenever money shall be struck by authority of the United States, then indeed it will be proper to receive in taxes no other coin.

If Congress are of opinion with me, that it will be proper to coin money, I will immediately obey their orders, and establish a mint; and I think I can say with safety, that no better moment could be chosen for the purpose than the present: neither will any thing have a greater tendency to restore public credit; for although it is possible, that the new money will at first be received with difference by some, yet when it has been fairly assayed, it will gain full confidence from all, and the advantage of holding the only money which can pay debts or discharge taxes will soon give it the preference over all, and indeed banish all other from circulation. Whereas fixing a relation of value now, on whatever principles attempted, might give offence to the power whose coin should in any instance be reduced from its present numerary value among us.

These sentiments are submitted with all possible deference to the United States in Congress assembled, in expectation of their further instructions on the subject. With great respect, I have the honor to be, **SIR**, Your most obedient, And humble servant, **ROBT. MORRIS**. His Excellency the **PRESIDENT OF CONGRESS**

If one member of Congress from Georgia, another from Massachusetts, a third from Pennsylvania, and a fourth from North-Carolina, were a committee to decide on the general currency of America, each would prefer that of his own particular state. If a fifth member were added from South-Carolina, he (not being particularly attached to the new

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adopted sterling of that country) might wish for an expedient to reconcile the litigants. He would therefore seek a currency which though different from either, would coincide with all. —The present currencies are in the following proportions to each other. As 1/50 to 1/72 to 1/90 to 1/96 of a dollar, that is as 24 to 20 to 16 to 15. Suppose then we take the following currency. C. 1 crown, or 10 dollars, 1.0000 1 dollar, or 10 bits, 1000 1 bit, or 10 pence 100 1 penny, or 10 qrs. 10 1 qr. (i.e.) a quarter of a grain of fine silver, 1

This currency may (by means of a small profit taken to defray the expence of coining) be so adjusted, as to be in the proportions above mentioned; and then The penny of Georgia will be 24qrs. of Virginia and the four eastern states, 20 of Maryland, Delaware, Pennsylvania and New Jersey, 16 of North-Carolina and New-York 15

To accomplish this matter, Let the crown be made of gold, 22 carrats fine, and weigh 188 grains. Let the dollar be made of silver, and contain 250 grains pure, and 10 of alloy, 260 grains. Let the mint give for every pound of standard gold, brought in for sale 29.9000 for every pound of pure silver, 2.2340

On this state of things let it be asked, 1st. What is the coinage or profit on coining? and 2dly, What is the proportion resulting from thence between the precious metals? To answer first, say, As 188 grains of standard gold, the proposed weight of a crown, to 1.0000 the proposed value; so is 5760 grains, the quantity in a pound, to 30.6383, the value when coined — And as 29.9000 the mint price, to 30.6383; so is 100, to 102.47, nearly. The coinage of gold therefore will be about $2 \frac{47}{100}$ per cent. Say again, as 2.2340 the mint price of fine silver, to 2.3040, the value of 5760 grains, at 4 qrs. each; so is 100 to 103.13, nearly. The coinage of silver therefore will be about $3 \frac{13}{100}$ per cent. These per centages will about defray the expences of the mint.— And note here, that since the expence must be paid, no tax for the purpose can be more equitable than one which is raised on the money itself.

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To answer the second question, since a pound of gold at 22 carrats, contains 5280 grains of pure metal, and this is worth as above, 30.6383 quarters of a grain of fine silver, say, as 21120 qrs. of fine gold, to 30.6383 qrs. of fine silver; so is one of fine gold, to $14 \frac{10703}{21120}$ of fine silver, being somewhat more than $14 \frac{1}{2}$ of silver of 1 of gold.

It remains next to see what are the values of this money, but a previous observation must be made, viz. That by the currency of clipt gold, the value of American money has been considerably depreciated. Thus the par between sterling and Pennsylvania currency was $166 \frac{2}{3}$ currency for 100 sterling. But 3 dwt. of gold are current for 20s. A pound of gold is therefore equal to £ 80 currency; and two pounds or 89 guineas, to £ 160. Therefore £93: 9: 0 sterling, equals £160 Pennsylvania currency. And as £93: 9: 0 is to £160; so is £100 to £171: 4: 3 $\frac{1}{2}$ the present par, instead of £166: 13: 4, the former par.

To return to the value of the money proposed. A guinea ought to contain $129 \frac{1}{2}$ grains; therefore say, as 5760 grains, or 1lb. of gold, to 29.9000 the mint price; so is $129 \frac{1}{2}$ to 6722, which divided by 16 to reduce it to Pennsylvania currency, gives 420d. $\frac{1}{8}$ or 35s. The French crown ought to contain $412 \frac{1}{2}$ grains pure silver; therefore say, as 5760 grains, to 2.2340 the mint price; so is $412 \frac{1}{2}$ grains, to 1600, or 8s.4d. Pennsylvania currency. Lastly, the dollar contains about 372 grains of fine silver; but there is much difference between the old and new dollars: say then, as 5760 is to 2.2340; so is 372 to 1442, or 7s. 6d. $\frac{1}{8}$ Pennsylvania currency. The value of the dollar, therefore, may be stated at 1440; and this divided by the proportional numbers before mentioned, gives the different values. Thus Divided by 24, it gives the value in Georgia, 60pence. by 20, that of Virginia and the four eastern states, 72 by 16, that of Pennsylvania, Maryland, Delaware and New-Jersey, 90 by 15, that of North-Carolina and New York 96

And the same thing will appear from a similar operation upon the value of a guinea or French crown as about specified. Hence results a corollary of some importance towards simplifying the complex subject of money, viz. That in the proposed currency, a quarter of a grain of pure silver (the smallest fractional part) would serve as a common expression

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or denominator, to all the different currencies now in use; and any sum on a merchant's books might be reduced to that expression with ease and exactness. Suppose for instance £151: 13: 4. C. qrs. This sum would in Georgia be expressed by 87 36 in Virginia and the four eastern states, 72 8 in Maryland, Pennsylvania, Delaware and New-Jersey, 58 24 in North-Carolina and New York, 54 6

So far we have rather had in contemplation the money of account. Let us now proceed to the coins. These may be as follows.

[table] Hence it appears that these coins would agree with the currency of nine states out of the thirteen, with like precision as the money of account represented, would agree with them all.

Let us next examine the state of exchanges which would result from the adoption of such a plan. And here we should confine our view to those three countries with whom we have exchange-dealings, viz. England, France and Holland. As to Spain and Portugal, we barter our produce for theirs, among the articles of which are silver and gold.—It has already been noted, that 2lb. of standard gold, are 89 guineas, or 1,869 shillings; and that 1lb, of coined gold is 30.6383, consequently 2lb. are 61.2766: Therefore say, as 1869, is to 61.2766; so is 20 to 6556, the value of a pound sterling. It has also been mentioned, that the French crown or 6 livres, contains 412 1/2 grains of pure silver, that is 1650qrs. Therefore say, as 6 is to 1650; so is 1 to 276, the value of a livre.—The exchanges with Holland are taken upon the bank florin, which is merely a money of account, and the current money varies from it at the rate of from 2 to 5 per cent. advance. The bank guilder or florin, must therefore be taken at a medium value, and will be found worth 600.—On these values we shall find the following par-exchanges among those countries, viz.

[table] The advantages of coining money in this country are, first, those which arise from the same operation in all other countries; and secondly, that of reducing all our currencies to one. The advantages from the coin here proposed are, first, that none other will effect

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the object already mentioned of banishing other currencies, because that alone applies without fractions to them all. Secondly, that the minuteness of its lowest denomination would render it an accurate measure of the smallest variations of quantity or quality in any commodity. Thirdly, that the decimal proportion of its parts would render all calculations in it easy, as appears in the calculations and consequent rates of exchange above mentioned: And lastly, that few figures would be used for the largest sum, while at the same time the smallest sums would be comprehended. For if the lowest denomination be of considerable value, recourse must be had to fractions, as in England, where the penny is divided into fourths, eights, and sometimes sixteenths, and even then without sufficient accuracy; whereas the lowest denomination of the coin here proposed will be about $\frac{1}{27}$ of a penny sterling.

Lastly, as to the names above chosen, they, like all other names, are arbitrary, and better may perhaps be substituted. The word crown occurred from the following idea of an impression for the gold coin — An Indian, his right foot on a crown, a bow in his left-hand, in his right-hand thirteen arrows; and the inscription MANUS INIMICA TYRANNIS.

NOTES on the Establishment of a **MONEY MINT**, and of a **COINAGE** for the **UNITED STATES**. By Mr. Jefferson.

IN fixing the unit of money, these circumstances are of principal importance. 1. That it be of convenient size, to be applied as a measure to the common money transaction of life. 2. That its parts and multiples be in an easy proportion to each other, so as to facilitate the money arithmetic. 3. That the unit and its parts or divisions be so nearly of the value of some of the known coins, as that they may be of easy adoption by the people.

The Spanish dollar seems to fulfil all these conditions.

I. Taking into our view all money transactions, great and small, I question if a common measure, of more convenient size than the dollar, could be proposed. The value of 100, 1,000, 10,000 dollars, is well estimated by the mind; so is that of the tenth, or the

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hundredth of a dollar. Few transactions are above or below these limits. The expediency of attending to the size of the money-unit will be evident to any one, who will consider how inconvenient it would be to a manufacturer, or merchant, if instead of the yard for measuring cloth, either the inch or the mile had been made the unit of measure.

2. The most easy ratio of multiplication and division is that by ten. Every one knows the facility of decimal arithmetic. Every one remembers that when learning money arithmetic, he used to be puzzled with adding the farthings, taking out the fours and carrying them on; adding the pence, taking out the twelves and carrying them on; adding the shillings, taking out the twentieths and carrying them on; but when he came to the pounds, where he had only tens to carry forward, it was easy and free from error. The bulk of mankind are school-boys through life. These little perplexities are always great to them, and even mathematical heads feel the relief of an easier substituted for a more difficult process. Foreigners too, who trade or travel among us, will find a great facility in understanding our coins and accounts from this ratio of sub-division. Those who have had occasion to convert the livres, sols, and deniers of the French, the gilders, stivers and pennings of the Dutch, the pounds, shillings, pence and farthings of these several states, into each other, can judge how much they would have been aided, had their several sub-divisions been in a decimal ratio. Certainly in all cases where we are free to choose between easy and difficult modes of operation, it is most rational to choose the easy. The financier therefore, in his report, well proposes that our coins should be in decimal proportions to one another. If we adopt the dollar for our unit, we should strike four coins, one of gold, two silver, and one of copper, viz. 1. A golden piece equal in value to 10 dollars. 2. The unit, or dollar itself, of silver. 3. The tenth of a dollar, of silver also. 4. The hundredth of a dollar, of copper.

Compare the arithmetical operations on the same sum of money expressed in this form, and expressed in the pound sterling, and its divisions. [table]

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A bare inspection of these operations will evince the labour which is occasioned by subdividing the unit into 20ths, 240ths, and 964ths, as the English do, and as we have done; and the ease of sub-divisions in a decimal ratio. The same difference arises in making payment. An Englishman to pay £8 13 11 1/2 must find by calculation what combinations of the coins of his country will pay this sum; but an American, having the same sum to pay, thus expressed, 38.65D. will know by inspection only that 3 golden pieces, 8 units or dollars, 6 tenths and 5 coppers, pay it precisely.

3. The third condition required is that the unit, its multiples and sub-divisions, coincide in value with some of the known coins so nearly, that the people may by a quick reference in the mind estimate their value; if this be not attended to, they will be very long in adopting the innovation, if ever they adopt it. Let us examine in this point of view, each of the four coins proposed.

1. The golden piece will be 1/5 more than a half joe, and 1/15 more than a double guinea. It will be readily estimated then by reference to either of them, but more readily and accurately as equal to 10 dollars.

2. The unit, or dollar, is a known coin, and the most familiar of all to the minds of the people. It is already adopted from south to north; has identified our currency, and therefore happily offers itself as a unit already introduced. Our public debt, our requisitions and their apportionments, have given it actual and long possession of the place of unit. The course of our commerce too will bring us more of this than of any other foreign coin, and therefore renders it more worthy of attention. I know of no unit which can be proposed in competition with the dollar but the pound; but what is the pound? 1547 grains of fine silver in Georgia, 1289 grains in Virginia, Connecticut, Rhode-Island, Massachusetts and New-Hampshire; 1031 1/4 grains in Maryland, Delaware, Pennsylvania and New-Jersey; 966 3/4 grains in North-Carolina and New-York. Which of these shall we adopt? To which state give that pre-eminence of which all are so jealous? And on which impose the difficulties of a new estimate for their corn, their cattle and other commodities? Or shall we hang the pound

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sterling as a common badge about all their necks? This contains 1718 $\frac{3}{4}$ grains of pure silver. It is difficult to familiarize a new coin to the people. It is more difficult to familiarize them to a new coin with an old name. Happily the dollar is familiar them all; and is already as much referred to for a measure of value as their respective provincial pounds.

3. The tenth will be precisely the Spanish bit, or half pistereen in some of the states, and in the others will differ from it but by a very small fraction. This is a coin perfectly familiar to us all. When we shall make a new coin equal in value to this, it will be of ready estimate with the people.

4. The hundredth, or copper, will be very nearly the penny or copper of New-York and North-Carolina, this being $\frac{1}{96}$ of a dollar, and will not be very different from the penny or copper of New-Jersey, Pennsylvania, Delaware and Maryland, which is $\frac{1}{90}$ of a dollar; it will be about the medium between the old and the new coppers of these states, and therefore will soon be substituted for them both. In Virginia coppers have never been in use. It will be as easy therefore to introduce them there of one value as of another. The copper coin proposed will be nearly equal to three fourths of their penny, which is the same with the penny lawful of the eastern states.

A great deal of small change is useful in a state, and tends to reduce the prices of small articles. Perhaps it would not be amiss to coin two more pieces of silver, one of the value of two tenths, which would be equal to the Spanish half bit. We should then have four silver coins, viz. 1. The unit, or dollar. 2. The double tenth, equal to $\frac{2}{5}$ or 1-5th of a dollar, or to the pistereen. 3. The tenth, equal to a Spanish Bit. 4. The five copper piece, equal to .05, or $\frac{1}{20}$ th of a dollar, or to the half bit.

The plan reported by the financier is worthy of his found judgment. It admits however of objection in the size of the unit. He proposes that this shall be the 1440th part of a dollar; so that it will require 1440 of his units to make the one proposed. He was led to adopt this by a mathematical attention to our old currencies, all of which this unit will measure,

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without leaving a fraction; but as our object is to get rid of those currencies, the advantage derived from this coincidence will soon be past, whereas the inconveniences of this unit will forever remain, if they do not altogether prevent its introduction. It is defective in two of the three requisites of a money-unit.

1. It is inconvenient in its application to the ordinary money-transactions; 10,000 dollars will require 8 figures to express them, viz. 14.400.000. A horse or bullock of 80 dollars value will require a notation of 6 figures, viz. 115.200 units. As a money of account this will be laborious, even when facilitated by the aid of decimal arithmetic; as a common measure of the value of property, it will be too minute to be comprehended by the people. The French are subjected to very laborious calculations, the livre being their ordinary money of account, and this but between a 5th and 6th of a dollar; but what will be our labour, should our money of account be 1-1440th of a dollar?

2. It is neither equal nor near to any of the known coins in value.

If we determine that a dollar shall be our unit, we must then say with precision what a dollar is. This coin as struck at different times, of different weights and fineness, is of different values. Sir Isaac Newton's assay and representation to the lords of the treasury, in 1717, of those which he examined, made their value as follows, viz. dwt. grs. grains.
The Seville piece of eight 17 12 containing 387 of pure silver. The Mexico ditto 17 10
5-9ths 385 1/2 The Pillar ditto 19 9 385 3/4 The new Seville ditto 14 308 7/10

The financier states the old dollars as containing 376 grains of fine silver, and the new 365 grains. If the dollars circulating among us be of every date equal, we should examine the quantity of pure metal in each, and from them form an average for our unit. This is a work proper to be committed to the mathematicians as well as merchants, and which should be decided on actual and accurate experiments.

The quantum of alloy is also to be decided. Some is necessary to prevent the coin from wearing too fast. Too much fills our pockets with copper instead of silver. The silver coins,

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assayed by Sir Isaac Newton, varied from 1 1/2 to 76 pennyweight alloy, in the troy, of mixed metal. The British standard has 18 dwt. The Spanish coins, assayed by Sir Isaac Newton, have from 18 to 19 1/2 dwt. The new French crown has in fact 19 1/2, though by edict it should have 20dwt. that is 1-12th.

The taste of our countrymen will require that their furniture plate should be as good as the British standard. Taste cannot be controuled by law. Let it then give the law, in a point which is indifferent to a certain degree. Let the legislatures fix the alloy of furniture plate at 18dwt. the British standard; and Congress that of their coin at one ounce in the pound, the French standard. This proportion has been found convenient for the alloy of gold coin, and it will simplify the system of our mint to alloy both metals in the same degree. The coin too being the least pure, will less easily melted into plate. These reasons are light indeed, and of course will only weigh, if no heavier ones can be opposed to them.

The proportion between the value of gold and silver, is a mercantile problem altogether. It would be inaccurate to fix it by the popular exchanges of a half joe for 8 dollars, a Louis is for 4 French crowns, or 5 Louis for 23 dollars. The first of these would be to adopt the Spanish proportion between gold and silver; the second the French; the third a mere popular barter, wherein convenience is consulted, more than accuracy. The legal proportion in Spain is 16 for one, in England 15 1-5th for 1, in France 15 for 1. The Spaniards and English are found in experience to retain an over proportion of gold coins, and to lose their silver. The French have a greater proportion of silver. The difference at market has been on the decrease. The financier states it at present as at 14 1/2 for 1. Just principles will lead us to disregard legal proportions altogether; to enquire into the market price of gold, in the several countries with which we shall principally be connected in commerce, and to take an average from them; perhaps we might with safety lean to a proportion somewhat above par for gold, considering our neighbourhood and commerce with the sources of the coins, and the tendency which the high prices of gold in Spain has to draw thither all that of their mines, leaving silver principally for our and other markets;

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it is not impossible that 15 for 1 may be found an eligible proportion. I state it however as conjectural only.

As to the alloy for gold coins, the British is an ounce in the pound; the French, Spanish and Portuguese, differ from that only from a quarter of a grain to a grain and an half. I should therefore prefer the British, merely because its fraction stands in a more simple form, and facilitates the calculations into which it enters.

Should the unit be fixed at 365 grains of pure silver, gold at 15 for one, and the alloy of both be 1-12th, the weights of the coins will be as follow. The golden piece, containing 243 1/3 grains of pure metal, 22.12 grains alloy, will weigh 11 dwt. 1.45 grains. grs. grs. alloy dwt. grs. The unit or dollar, 365 33.18 16.14.18 The 5th or pistereen, 73 6.63 3. 7.63 The 10th or bit, 36 1/2 3.318 1.15.818 The 20th or half bit. 18 1/4 1.659 19.9

The quantity of fine silver which shall constitute the unit being settled, and the proportion of the value of gold to that of silver, a table should be formed from the assay before suggested, classing the several foreign coins according to their fineness, declaring the worth of a pennyweight or grain in each class, and that they should be lawful tenders at those rates, if not clipped or otherwise diminished; and where diminished, offering their value for them at the mint, deducting the expence of recoinage. Here the legislatures should co-operate with Congress in providing that no money should be received or paid at their treasuries, or by any of their officers, or any bank, but on actual weight; in making it criminal in a high degree to diminish their own coins, and in some smaller degree to offer them in payment when diminished.

That this subject may be properly prepared, and in readiness for Congress to take up at their meeting in November, something must now be done. The present session drawing to a close, they probably would not choose to enter far into this undertaking. The Committee of the States however, during the recess, will have time to digest it thoroughly, if Congress will fix some general principles for their government. Suppose then they be instructed.

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To appoint proper persons to assay and examine, with the utmost accuracy practicable, the Spanish milled dollars of different dates in circulation with us.

To assay and examine in like manner the fineness of all the other coins which may be found in circulation within these states.

To report to the committee the result of these assays, by them to be laid before Congress.

To appoint also proper persons to enquire what are the proportions between the value of find gold and fine silver, at the markets of the several countries with which we are or probably may be connected in commerce; and what would be a proper proportion here, having regard to the average of their values at those markets, and to other circumstances, and report the same to the committee, by them to be laid before Congress.

To prepare an ordinance for establishing the unit of money within these states; for subdividing it; and for striking coins of gold, silver and copper, on the following principles.

That the money-unit of these states shall be equal in value to a Spanish milled dollar, containing so much fine silver as the assay before directed shall shew to be contained on an average in dollars of the several dates in circulation with us.

That this unit shall be divided into 10ths and 100ths.

That there shall be a coin of silver, of the value of an unit.- One other, of the value of one 10th of an unit.- One other of copper, of the value of the 100th of an unit.

That there shall be a coin of gold, of the value of ten units, according to the report before directed, and the judgement of the committee thereon.

That the alloy of the said coins of gold and silver, shall be equal in weight to 1-11th part of the fine metal

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That there be proper devices for these coins.

That measures be proposed for preventing their diminution, and also their currency, and that of any others, when diminished.

That the several foreign coins be described and classed in the said ordinance; the fineness of each class stated, and its value by weight estimated in units and decimals parts of units. And that said draft of an ordinance be reported to Congress at their next meeting, for their consideration and determination.