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The Numismatic and Antiquarian  
Society of Philadelphia

SOME  
MODERN MONETARY QUESTIONS

VIEWED  
BY THE LIGHT OF ANTIQUITY

A PAPER READ BEFORE THE SOCIETY APRIL 1, 1880

BY  
ROBERT NOXON TOPPAN



PHILADELPHIA  
PRINTED FOR THE SOCIETY  
1880

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INTERNATIONAL COINAGE.

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Stater of Alexander the Great.	Aureus of Augustus.	Half Eagle of United States.	Sovereign of England.	25 Franc Piece of Spain.	20 Mark Piece of Germany.	5 Yen Piece of Japan.
						
Weight } 8.500 Grammes }	7.800	8.350 (10 fine.)	7.996 (12 fine.)	10.64 (10 fine.)	7.065 (10 fine.)	8.383 (10 fine.)

### PROPOSED INTERNATIONAL UNIT. 8 GRAMMES 10 FINE.

Such a piece would conciliate the American, English, French and German systems. It would retain its different national names, just as in the Latin Union the franc is called lira in Italy, drachma in Greece, and peseta in Spain. It could be divided according to the customs and wishes of the different countries. It would be of an even metric weight, and at 125 pieces would be coined from a kilogramme. National jealousies would be avoided, as all would contribute to the desired result. The changes required are slight compared with the reductions and modifications that have taken place in all monetary systems of the past. For instance, the English pound weighing in Queen Elizabeth's time 174.845 grains, has been gradually reduced to 123.774 grains, its present weight.

The value of the half-eagle would be reduced by 22 cents, the sovereign by 1 penny, the twenty-five franc piece by 20 centimes, the twenty mark piece increased by 8 pfennigs.

To prevent injustice between creditors and debtors, the gold piece should be established as was done by Greece in 1867, when the weight of the drachma was increased from 4.777 grammes to 5 grammes, in order to equal the value of the franc, and a legal rate was fixed for the payment of debts.

ROBERT NOXON TOPPAN.

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# The Numismatic and Antiquarian Society of Philadelphia.

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FOUNDED JANUARY 1st, 1858.

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SOME  
MODERN MONETARY QUESTIONS

VIEWED

BY THE LIGHT OF ANTIQUITY

*Mr. President and Members of the Numismatic and Antiquarian Society of Philadelphia:—*

The two pieces of money of antiquity exhibited this evening—one the gold *stater* of Alexander the Great, the other the gold *denarius*, or as it is generally called the *aureus*, of Augustus—suggest some facts in regard to ancient coinage, which it will be well for us to consider with attention, as they have a practical bearing upon some of the monetary questions of the present time. As is well known to the members of this Society, the progressive steps in commercial intercourse were, first, direct barter, then a selection of a common medium of exchange, such as cattle or food of some kind, and finally the adoption of a metal which, being in its nature durable, easily divisible and of intrinsic value, was found by experience to be the best medium. The selection of the metal depended, of course, upon the locality. In Lydia, where gold abounded, that metal was naturally used and became the standard of values. In Greece, where the silver mines were worked for many centuries, silver became the medium of exchange. In Sicily and Italy, where copper was very abundant, that metal was used and became, of course, the standard of values.

When commerce between nations was developed—between nations having different metallic systems of money—the relative values of the different metals adjusted themselves, from time to time. The intrinsic value of gold was found to be superior to that of silver, and the value of silver superior to that of copper. A pound of gold was worth several pounds of silver, and a pound of silver many pounds of copper. The relation, however, between the three metals was never permanent, as was natural. Sometimes the gold mines produced more, sometimes less metal. Sometimes the demand was greater, sometimes less. The same rule applied to silver and to copper. Where there is only one metal as the standard, there are only two elements of disturbance—the demand and supply. Where a bi-metallic system prevails, there are four elements of disturbance. Where a tri-metallic standard exists or could exist, there would be, of course, six elements to disturb the relation; it could therefore never be fixed. Only, with all the variations, gold was always more valuable than silver, and silver more valuable than copper. This is a matter of so much importance at the present time, and the experience of antiquity bears so directly upon the monetary question that has agitated the country for the past few years, that I venture to give an extract from the recent publication of M. François Lenormant, the French savant and authority in numismatics. In his work, published in 1878, called “*La Monnaie dans l’Antiquité*,” Vol. I, page 173, he says: “On peut poser en principe que les anciens ne connurent pas la prétention irréalisable de ce qu’on a appelé de nos jours la monnaie bimétallique ou le double étalon. Chez eux l’on constate, au contraire, toujours le choix d’un seul métal adopté comme étalon fondamental et régulateur de tout le système monétaire. Seulement le métal choisi a varié, comme il devait arriver nécessairement, suivant les circonstances particulières des contrées et des époques.”

“We can lay down the principle that the ancients knew nothing about the unattainable pretension of what is called at the present time bi-metallic money, or the double standard. On the

contrary, we always find that they adopted *one* metal as the fundamental standard, upon which was based their whole monetary system. The metal selected, however, varied, as must necessarily happen, according to the particular circumstances of the countries and of the periods."

Language could hardly be stronger to condemn, by the light of experience, the attempt made recently to reinstate in its former position a metal which the force of circumstances has driven to a subordinate place, and if persisted in, it must lead to financial trouble.

The same process that has been going on in Europe and America since the addition to the amount of gold in the world by the products of California and Australia—the substitution of a gold basis for a silver one—can be distinctly traced in the monetary history of Rome, where the old copper standard was slowly displaced by silver as that metal became more abundant, from conquest and by commercial intercourse, and silver in turn yielded to gold when that metal became sufficiently abundant to supply the demands of commerce, so that silver became subsidiary to gold, just as copper had become subsidiary to silver.

Another lesson applicable to the present day can be learned from the weights of the ancient coins. The old idea of money being a valuable commodity, selected as a medium of exchange, its weight was naturally regulated by the standard weight of the country. Before the invention of what is called coinage, irregular pieces of metal were used as a medium of exchange, which passed by weight. At each transaction it was necessary to weigh the pieces, which were definite parts of the standard weight of the country. The same custom still prevails in some of the Oriental countries. For instance, where the Babylonian standard of weights existed, the pieces of metal used as money were definite unfractional parts of the Babylonian mina and talent. So many drachma pieces weighed a mina, and so many a talent. In all the various systems of antiquity we find the same rule. In Athens a hundred drachma

pieces of silver weighed a mina, and six thousand a talent. We find the same thing in the Sicilian and Italian systems. Taking Rome as an example, the Aes, or As, as it is most generally called, which was the unit of the old system, weighed originally one libra or pound, divided into 12 ounces, and the subdivisions weighed 6, 4, 3, 2, 1 and  $\frac{1}{2}$  ounces. When the successive diminutions took place, the rule of adhering to a definite part of the pound was still followed. The first reduction is supposed to have taken place after the battle of Allia (390 B.C.) when the As became  $\frac{1}{2}$  of a pound, owing to the scarcity of money. During the war with Pyrrhus and Tarentum (279 B.C.) it was again reduced to  $\frac{1}{4}$  of a pound. In 269 B.C. to  $\frac{1}{6}$ , and in 217 B.C., when Hannibal threatened Rome itself, it was again reduced to  $\frac{1}{12}$  of the pound. There were two other reductions up to the time of Augustus, one in 89 B.C., making the As  $\frac{1}{24}$ , and the other  $\frac{1}{36}$  of a pound.

The same rule can be seen in the silver coinage. In the beginning 72 denarii were coined out of a pound of silver; then 84; and afterwards Nero reduced the weight of the denarius so as to make 96 to a pound.

In the gold coinage the same thing can be observed. Sylla issued an aureus, thirty of which weighed a pound, then 36, which rule Pompey followed. Cæsar issued a lighter aureus, divided into 100 sestertii, 40 of which made a pound. Augustus diminished the weight slightly, so that 42 made the pound. The aureus of Nero weighed  $\frac{1}{5}$ , and that of Caracalla  $\frac{1}{6}$  of a pound. Constantine made his aureus, or as it is generally called the solidus (from which come the words sol and sou), of the same weight as the original silver denarius, so that 72 weighed a pound. The Merovingian kings, who built up their monarchy upon the ruins of Rome, made their solidus the  $\frac{1}{4}$  part of the Roman pound. It will be seen from these examples that the old idea of money, corresponding to definite parts of the standard weight of the country, still prevailed, notwithstanding the fact that the silver money was constantly more and more debased, until finally even a trace of silver

had almost entirely disappeared, and the imperial despotism had gradually accustomed men to consider the imperial effigy as alone giving value to the pieces of metal.

If we now examine the monetary systems of modern times, we will find that the idea of coinage corresponding to the standard weight of the country was almost entirely lost sight of, until the French established their new metric system. For instance, the English sovereign, which is their unit, weighs 123 grains and  $\frac{274}{1000}$  of a grain—a fractional part of the Troy pound, which is the standard weight for coins—so that it takes 46 sovereigns and  $\frac{89}{100}$  of a sovereign to weigh one Troy pound. To obtain an even number we have to take 40 Troy pounds, which are coined into exactly 1869 sovereigns. The American silver dollar of  $412\frac{1}{2}$  grains is also fractional, so that out of the 5760 grains forming the Troy pound, 13 and  $\frac{33}{100}$  of a dollar are struck. The gold dollar, which was made the unit in 1873, weighing  $25\frac{8}{10}$  grains, it requires 223 dollars and  $\frac{11}{100}$  of a dollar to make a pound. It is needless to give further examples.

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The French law of 1795, conforming the coinage to the new metric system, was confirmed by the decree of 1803, when Napoleon was First Consul. The change was not simply metric, but also decimal, as before that time the duodecimal prevailed, 24 livres making a Louis d'Or. A five-gramme piece  $\frac{1}{10}$  fine was declared to be the unit, and was to be called a franc. In order to obtain an even 5 grammes, the livre tournois was slightly increased in weight and in value about  $\frac{1}{10}$ . All the silver coins were made to conform. The five-franc piece, for instance, weighs 25 grammes. The half franc 2.50 grammes. The copper coins were also made to conform; the two-centime piece weighed 4 grammes, the three-centime piece 6, and the five-centime piece 10 grammes. In 1852 the weight of the copper coins was reduced one-half, but still conforming, so that now one centime weighs 1 gramme, five centimes 5, and ten centimes 10 grammes. The French having adopted an arbitrary ratio between gold and silver, making one pound of gold

always to be equal to  $15\frac{1}{2}$  pounds of silver, could not make their gold coins conform to the system. The twenty-franc piece weighs  $6.1\frac{3161}{100000}$  grammes and the five-franc gold piece  $1.6129\frac{9}{100000}$  grammes.

Experience having demonstrated that the arbitrary ratio of  $15\frac{1}{2}$  to 1 is incorrect, there is no reason why the gold coins should not be adjusted to the metric system, or at least that the fractions should not be made simpler. The United States, generally ready to accept views of progress, ordered, in 1873, that the half dollar piece and other subsidiary silver coins should be struck according to the metric system, and the half dollar now weighs 12.50 grammes, exactly half of the five-franc silver piece, and the five-cent-nickel piece weighs 5 grammes, so that the people can gradually become accustomed to the gramme system. An attempt to alter this law, it is understood, will probably be made by Congress, which ought to be strenuously resisted by all friends of progress.

An important lesson can also be learned from the ancient idea of coining. It having been found that the weighing of the money at each transaction was very inconvenient, the irregular pieces of metal were shaped so as to receive a mark upon them, and the government placed its seal on them, to testify that they conformed to the standard weights. The stamping was simply a guaranty of the weight and purity. The coining did not give the value, it simply testified that the value existed in the piece. This was the true and old idea of coining. The ancients never supposed, for an instant, that the official seal gave the value, and it was not until Roman Imperial despotism had accustomed men to almost complete slavery that the Imperial effigy stamped on a coin was considered as alone giving value. Through the middle ages this false idea has come down to us, and there are many even at this day influenced by it, who believe that the government stamp not only gives currency, but also value to money.

In conclusion, I wish to speak very briefly of the subject of an international unit, suggested by the coins before us. The gold stater of Alexander the Great was the unit of his system, which

was carried by his conquests to remote countries, and can be considered as the international unit of later Grecian times. This stater was the successor of the gold daric of Persia, which, in turn, was the successor of the gold stater of Croesus, King of Lydia. The aureus of Augustus, which was the unit of his system, may also be considered as the international unit of Imperial Rome, which dominated many nations. Both of these coins weigh about eight grammes. This fact is mentioned by Brandis, the eminent German scholar, who says that the daric, the stater and the aureus may be looked upon as the precursors of the present English sovereign.

As the metric system has already been adopted by the principal civilized nations, and must eventually be adopted by all, not, perhaps, with the French nomenclature, it being difficult to suppress national terms, but by making national weights conform to the metric system—for instance, by making the avoirdupois pound exactly equal to half a kilogramme, retaining the name of pound—and as coins will be eventually weighed by this system, in proposing an international unit it is necessary that the piece selected should be of an even metric weight. It is for this reason that I suggested last year, to the American Social Science Association, that an international unit ought to weigh 8 grammes  $\frac{9}{10}$  fine. Such a piece would conciliate the English, German, French and American systems, as the sovereign  $\frac{11}{12}$  fine weighs  $7.\frac{998}{1000}$ , and if  $\frac{9}{10}$  fine would weigh  $8.\frac{136}{1000}$  grammes, the German twenty-mark piece  $7.\frac{965}{1000}$ , a twenty-five franc piece, such as Spain issues,  $8.\frac{964}{1000}$ , and the American half-eagle  $8.\frac{359}{1000}$  grammes. The eight-gramme piece would still be called a half-eagle, a sovereign, twenty-five francs and twenty marks, and the changes demanded are slight, compared with the various reductions and modifications that have taken place, without exception, in all the monetary systems of the past.







