Wray, L. (1998), *Understanding modern money: the key to full employment and price stability*, Edward Elgar, chapter 3, pp. 39–73.

3 An Introduction to a History of Money

TALLIES AND COINS

Most money and banking texts begin with a story about the origins of money, according to which early exchange was based on barter until humans discovered that certain commodities could be used as a medium of exchange to eliminate the 'double coincidence of wants' required for barter to take place. An early caricature of this belief is presented by A. Mitchell Innes (1913); while it is somewhat long, it cannot be improved upon:[1]

> The fundamental theories on which the modern science of political economy is based are these:
>
> That under primitive conditions men lived and live by barter;
>
> That as life becomes more complex barter no longer suffices as a method of exchanging commodities, and by common consent one particular commodity is fixed on which is generally acceptable, and which therefore, everyone will take in exchange . . . ;
>
> That this commodity thus becomes a 'medium of exchange and measure of value'.
>
> That many different commodities have at various times and places served as this medium of exchange, – cattle, iron, salt, shells, dried cod, tobacco, sugar, nails, etc.;
>
> That gradually the metals, gold, silver, copper, and more especially the first two, came to be regarded as being by their inherent qualities more suitable for this purpose than any other commodities and these metals early became by common consent the only medium of exchange;
>
> That a certain fixed weight of one of these metals of a known fineness became a standard of value, and to guarantee this weight and quality it became incumbent on governments to issue pieces of metal stamped with their peculiar sign . . . ;
>
> That Emperors, Kings, Princes and their advisors, vied with each other in the middle ages in swindling the people by debasing their coins . . . and that this

> situation produced serious evils among which were a depreciation of the value of money and a consequent rise of prices . . . ;
>
> That to economize the use of the metals and to prevent their constant transport a machinery called 'credit' has grown up in modern days, by means of which, instead of handing over a certain weight of metal at each transaction, a promise to do so is given, which under favourable circumstances has the same value as the metal itself. Credit is called a substitute for gold. (Innes, 1913, p. 377)

However, 'modern research in the domain of commercial history and numismatics' demonstrates that 'none of these theories rest on a solid basis of historical proof – that in fact they are false' (ibid., p. 378). Briefly, there is no evidence that markets operated on the basis of barter (except in extraordinary circumstances such as prisoner-of-war camps), there is no evidence that 'many different commodities' have exchanged hands as media of exchange (that is, to purchase commodities on the market), there is no evidence that the value of early coins was determined by certain fixed weights of precious metals, and there is no evidence that credit 'has grown up' as an 'economizing' substitute for precious metal coins for use as a medium of exchange.

In this chapter we will outline an alternative to the conventional view. It is of course impossible to present an adequate 'history of money' in one chapter. We will instead provide a few anecdotes and alternative interpretations of well-known folklore regarding the origins and evolution of money. In some respects it might have been sufficient to simply ignore the history of money and to focus only on money as it stands at the end of the twentieth century. However, as Keynes argued, 'Chartal' or modern money is at least 4000 years old, and it is our proposition that the analysis contained in this book is not merely of a 'special case' to be applied only to the US at the end of this century, but rather that it can be applied much more generally to the entire era of Chartal, or state, money. Instead of trying to locate the origins of money in a supposed primitive market originally based on barter, we find the origins in the rise of the early palace community, which was able to enforce a tax obligation on its subjects. We thus believe that a brief examination of the history and evolution of money does shed light on the nature of modern money.

Historical evidence suggests that virtually all 'commerce' from the very earliest times was conducted on the basis of credits and debits. Innes writes of the early European experience: 'For many centuries, how many we do not know, the principal instrument of commerce was neither the coin nor the private token, but the tally[2]' (ibid. p. 394). This was a 'stick of squared hazel-wood, notched in a certain manner to indicate the amount of the

purchase or debt', created when the 'buyer' became a 'debtor' by accepting a good or service from the 'seller' who automatically became the 'creditor' (ibid.). 'The name of the debtor and the date of the transaction were written on two opposite sides of the stick, which was then split down the middle in such a way that the notches were cut in half, and the name and date appeared on both pieces of the tally' (ibid.). The split was stopped about an inch from the base of the stick so that one piece, the 'stock' was longer than the other, called the 'stub' (also called the 'foil'). The creditor would retain the stock (from which our terms capital and corporate stock derive) while the debtor would take the stub (a term still used as in 'ticket stub') to ensure that the stock was not tampered with. When the debtor retired his debt, the two pieces of the tally would be matched to verify the amount of the debt.

Of course, wooden tallies were not the only records as there was nothing unique about hazelwood (indeed, it appears to have been used because it was common in England and Northern Europe). Pieces of copper dating from 1000 to 2000 BC have been found in Italy which appear to be tallies, purposely broken at the time of manufacture so that creditor and debtor would have their stock and stub (Innes, 1913, p. 394). Some of the earliest records of tallies come from Babylonia, on clay *shubati* ('received') tablets; these indicated a quantity of grain, the word *shubati*, the name of the person from whom received, the name of the person by whom received, the date, and the seal of the receiver or of the king's scribe (when the king was the receiver). Unlike the wooden tally, these tablets would not be split to give the debtor a stub. This problem was solved in two ways: the tablets were either stored in temples where they would be safe from tampering, or they were sealed in cases which would have to be broken to reach them. All the inscriptions listed above would be repeated on the case, but the enclosed tablet would not contain the name and seal of the receiver. Thus if the case were broken, the tablet would not be complete. Only when the debt was repaid would the case be broken (allowing the debtor to observe that the inscription on the case matched that of the enclosed tablet). Unlike the tablets stored in temples, the 'case tablets' could circulate.

And, indeed, the tallies did circulate as 'transferable, negotiable instruments'. One could deliver the stock of a tally to purchase goods and services, or to retire one's own debt. 'By their means all purchases of goods, all loans of money were made, and all debts cleared' (Innes, 1913, p. 396). A merchant holding a number of tally stocks of customers could meet with a merchant holding tally stocks against the first merchant, 'clearing' his tally stub debts by delivery of the customers' stocks. In this way, great 'fairs' were developed to act as 'clearing houses' allowing merchants 'to settle their mutual debts and credits'; the 'greatest of these fairs in England was that of St. Giles in Winchester, while the most famous probably in all

Europe were those of Champagne and Brie in France, to which came merchants and bankers from all countries' (ibid.). Debts were cleared 'without the use of a single coin'; it became common practice to 'make debts payable at one or other of the fairs', and '[a]t some fairs no other business was done except the settlement of debts and credits', although retail trade was often conducted at the fairs. While conventional analysis views the primary purpose of the fairs as retail trade, Innes postulates that the retail trade originated as a sideline to the clearing house trade.[3] He also notes that clearing house fairs were held in ancient Greece and Rome, and in Mexico at the time of the conquest.

Even if one accepts that much or even most trade took place on the basis of credits and debts, this does not necessarily disprove the story of the textbooks. Perhaps coins existed before these tallies (records of debts), and surely the coins were made of precious metals. Perhaps the debts were made convertible to coin, indeed, perhaps such debt contracts were enforceable only in legal tender coin. If this were the case, then the credits and debts merely substituted for coin, and net debts would be settled with coin, which would not be inconsistent with the conventional story. There are several problems with such an interpretation.

First, the tally debts (in the form of clay tablets) are at least 2000 years older than the oldest known coins.[4] It seems very unlikely that clay tablets would outlast coined precious metal. Second, it has long befuddled economic historians that the denominations of all the early precious metal coins (even the least valuable) were far too high to have been used in everyday commerce. For example, the earliest coins were electrum (an alloy of silver and gold) and the most common denomination would have had a purchasing power of about ten sheep, so that 'it cannot have been a useful coin for small transactions' (Cook, 1958, p. 260). They might have sufficed for the wholesale trade of large merchants, but they could not have been used in day-to-day retail trade.[5] Furthermore, the reported nominal value of coins does not appear to be closely regulated by precious metal content (see below). It is also quite unlikely that coins would have been invented to facilitate trade, for 'Phoenicians and other peoples of the East who had commercial interests managed satisfactorily without coined money' for many centuries (ibid. p. 260). Indeed, the introduction of coins would have been a less efficient alternative in most cases.

Finally, while we are accustomed to a small number of types of coins (always issued by government, with perhaps one coin for each denomination), the typical case until recently was a plethora of coins, sometimes including many with the same face value but different exchange value, issued by a wide variety of merchants, kings, feudal lords, barons, ecclesiastics and others. Indeed, 'in [feudal] France there were beside the

royal monies, eighty different coinages . . . each entirely independent of the other and differing as to weights, denominations, alloys and types [and] twenty different monetary systems' (Innes, 1913, p. 385). According to MacDonald, in Merovingian Gaul there were '1200 different moneyers', the great majority of whom were private individuals; this 'epoch of private coinage' seems to have been 'brought to an end by Pepin and Charlemagne' (MacDonald, 1916, pp. 29–35).

Note that the textbook story relies on choice of a particular precious metal by 'common consent' to be used as money precisely to reduce the transactions costs of barter. However, in reality, the poor consumer (if such existed) was faced with a tremendous number of coins of varying weight, denomination, alloy and fineness with which he would not be able to cope.[6] Indeed, it is difficult to believe that the typical member of these societies would be more able to assess the value of a coin than he would be able to assess the value of, say, a cow.[7] Rather than reducing transactions costs by using precious metals, it would probably have reduced transactions costs to use cows! And it does no good to argue that cows are less divisible, for as noted above, the precious metal coins were far too valuable to have been used in daily transactions anyway. That at least some were not used in frequent transactions is evidenced by 'the excellent state of preservation in which they are usually found' (Grierson, 1965, p. 536). We know that 'wear and tear' on coins in circulation is quite high – perhaps 1 per cent per year (Munro, 1979, pp. 181–2) – but 'Carolingian coins seem to have circulated surprisingly little' (Grierson, 1965, p. 536). Finally, Grierson notes that it was frequently necessary to impose 'legislation forcing people to use coin; if they refused it they laid themselves open to severe penalties, a heavy fine if they were free men or a flogging if they were unfree' (ibid.). This hardly seems consistent with the textbook story of 'common consent'.[8]

It is also difficult to understand why precious metal coins were virtually always 'worth more' than would be dictated by their precious metal content if it is true that the value of the precious metal determines the value of the coin. Indeed, it would be strange if the value of coined metal were no more than the value of the metal coined. If the nominal value of the coin were below the relative value of precious metal contained therein, the coin would be removed from circulation to be used as metal. Further, given the costs of coinage, if the mint were to issue coins whose value were little more than that of the embodied metal, this would provide very little purchasing power to the mint. While the textbook story argues that paper 'credit' developed to economize on precious metals, we know that metal coins were a late development. In other words, lower-cost alternatives to full-bodied coin were already in use. Surely hazelwood tallies or clay tablets had lower non-monetary value than did precious metals. Thus it is unlikely that metal coins

would be issued to circulate competitively (for example, with hazelwood tallies) unless their nominal value were well above the value of the embodied precious metal.[9]

What then are coins, what are their origins, and why are they accepted? Coins appear to have originated as 'pay tokens' (in Knapp's colourful phrase), as nothing more than evidence of debt. It is possible that these originated in the 'private sector', perhaps derived from medals that were common in some traditional societies. The earliest 'coins' then, may have been nothing more than gifts with an imprint to signify the giver; it is conceivable that these were given to recognize a personal debt to the receiver.[10] We will return below to this view, although it seems to be an unlikely source for the earliest coins.

Many believe that the first coins were struck by government, probably by Pheidon of Argos about 630 BC (Cook, 1958, p. 257). Given the large denomination of the early coins and uniform weight (although not uniform purity – which probably could not have been tested at the time), Cook argues that 'coinage was invented to make a large number of uniform payments of considerable value in a portable and durable form, and that the person or authority making the payment was the king of Lydia' (ibid. p. 261). Further, he suggests 'the purpose of coinage was the payment of mercenaries' (ibid.).[11] This thesis was modified 'by Kraay (1964) who suggested that governments minted coins to pay mercenaries only in order to create a medium for the payment of taxes'[12] (Redish, 1987, pp. 376–7). Crawford has argued that the evidence indicates that use of these early coins as a medium of exchange was an 'accidental consequence of the coinage', and not the reason for it (Crawford, 1970, p. 46). Instead, Crawford argued that 'the fiscal needs of the state determined the quantity of mint output and coin in circulation', in other words, coins were intentionally minted from the beginning to provide 'state finance' (ibid.). So, early governments did, indeed, understand that '[m]inting and taxing were two sides of the same coin of royal prerogative' (Davies, 1997, p. 146).

Similarly, Innes argued that '[t]he coins which [kings] issued were tokens of indebtedness with which they made small payments, such as the daily wages of their soldiers and sailors' (Innes, 1913, p. 399). This explains the relatively large value of the coins – which were not meant to provide a medium of exchange, but rather were evidence of the state's debt to 'soldiers and sailors'. The coins were then nothing more than 'tallies' as described above – evidence of government debt – and not deserving of the inordinate concern shown by modern economists. And, relative to the quantity of hazelwood tallies, and other forms of money, the quantity of coins was quite small:

> [i]ndeed so small was the quantity of coins, that they did not even suffice for the needs of the Royal household and estates which regularly used tokens of various kinds for the purpose of making small payments. So unimportant indeed was the coinage that sometimes Kings did not hesitate to call it all in for re-minting and re-issue and still commerce went on the same[13] (Innes, 1913, p. 389).

Let us step back for a moment and ponder the implications. In our view, coins are mere tokens of the Crown's debt, a small proportion of the total 'tally'.

> Just like any private individual, the government pays by giving acknowledgments of indebtedness – drafts on the Royal Treasury, or some other branch of government. This is well seen in medieval England, where the regular method used by the government for paying a creditor was by 'raising a tally' on the Customs or some other revenue-getting department, that is to say by giving to the creditor as an acknowledgment of indebtedness a wooden tally. (Ibid., p. 397–8)

The 'tallia divenda' developed to allow the king to issue an exchequer tally for payment for goods and services delivered to the court.[14] But why on earth would the Crown's subjects accept hazelwood tallies or, later, paper notes or token coins?

> The government by law obliges certain selected persons to become its debtors. It declares that so-and-so, who imports goods from abroad, shall owe the government so much on all that he imports, or that so-and-so, who owns land, shall owe to the government so much per acre. This procedure is called levying a tax, and the persons thus forced into the position of debtors to the government must in theory seek out the holders of the tallies or other instrument acknowledging a debt due by the government, and acquire from them the tallies by selling to them some commodity or in doing them some service, in exchange for which they may be induced to part with their tallies. When these are returned to the government Treasury, the taxes are paid. (Ibid., p. 398)

Innes went on to note that the vast majority of revenues collected by inland tax collectors in England were in the form of the exchequer tallies:

> [p]ractically the entire business of the English Exchequer consisted in the issuing and receiving of tallies, in comparing the tallies and the counter-tallies, the stock and the stub, as the two parts of the tally were popularly called, in keeping the accounts of the government debtors and creditors, and in cancelling the tallies when returned to the Exchequer. It was, in fact, the great clearing house for government credits and debts.[15] (Ibid.)

Each taxpayer did not have to seek out individually a Crown tally, for matching the Crown's creditors and debtors was accomplished 'through the bankers, who from the earliest days of history were always the financial agents of government' (Innes, 1913, p. 399). That is, the bank would intermediate between the person holding Crown debt and the taxpayer who required Crown debt in order to pay taxes. The exchequer began to assign debts owed to the king whereby 'the tally stock held in the Exchequer could be used by the king to pay someone else, by transferring to this third person the tally stock. Thus the king's creditor could then collect payment from the king's original debtor' (Davies, 1997, p. 150). Further, a brisk business developed to 'discount' such tallies so that the king's creditor did not need to wait for payment by the debtor. Note, also, that use of the hazelwood tallies continued in England until 1826. Ironically, the tallies went out in a blaze of glory, or of ignominy, depending on one's point of view. After 1826, when tallies were returned to the exchequer, they were stored in the Star Chamber and other parts of the House of Commons. 'In 1834, in order to save space and economize on fuel it was decided that they should be thrown into the heating stoves of the House of Commons. So excessive was the zeal of the stokers that the historic parliament buildings were set on fire and razed to the ground' (Davies, 1997, p. 663).

The inordinate focus of economists on coins (and especially on government-issued coins), market exchange and precious metals, then, appears to be misplaced. The key is debt, and specifically, the ability of the state to impose a tax debt on its subjects; once it has done this, it can choose the form in which subjects can 'pay' the tax. While government could in theory require payment in the form of all the goods and services it requires, this would be quite cumbersome. Thus it becomes instead a debtor to obtain what it requires (and note that this is no different from the way in which most buyers became debtors), and issues a token (hazelwood tally or coin) to indicate the amount of its indebtedness; it then accepts its own token in payment to retire tax liabilities.[16] Certainly its tokens can also be used as a medium of exchange (and means of debt settlement among private individuals), but this derives from its ability to impose taxes and its willingness to accept its tokens, and indeed is necessitated by imposition of the tax (if one has a tax liability but is not a creditor of the Crown, one must offer things for sale to obtain the Crown's tokens).

If money did not originate as a cost-minimizing alternative to barter, what were its origins? In the next section we will summarize research into the origins and early development of money. This is, of course, a difficult task. As Grierson notes,

> Study of the origins of money must rely heavily on inferences from early language, literature, and law, but will also take account of evidence regarding the use of 'primitive' money in modern non-western societies. Such evidence, of course, has to be used with care. (Grierson, 1977, p. 12)

Grierson also recognizes that the history of money is much more complex than the history of coins, for there is the danger that one might try to find money in societies which did not even use it. 'Some systems, while employing shells or other commodities frequently used as 'money', may not necessarily be monetary at all'[17] (ibid. p. 13). It is difficult for modern economists to agree even on a definition for money, and most economists recognize several different functions of money. It is possible that one might find a different 'history of money' depending on the function that one identifies as the most important characteristic of money. While many economists (and historians and anthropologists) would prefer to trace the evolution of the money used as a medium of exchange, our primary interest is in the unit of account function of money.[18] In the next section, we will speculate on the origins of money, and specifically, on the money of account.

ANCIENT MONIES

In the previous chapter, we noted Keynes's claim that state money is 'at least' four thousand years old. In his analysis of ancient currencies, Keynes argued that even as early as the third millennium BC, one finds 'very advanced indeed' the Babylonian use of money. He examined in detail the monetary 'reforms' of Solon (*circa* 590 BC) and Pheidon (seventh century BC) which set the values of coins. However, these values were based on weight units that could be traced back to approximately 3000 BC, if not earlier. Keynes noted that the

> mna, or mina, which Dungi prescribed for Ur in the middle of the third millennium BC is, within the limits of our positive knowledge, the earliest standard of weight. Recent discoveries have, however, thrown back the genesis of organised economic life to a date so much earlier than was previously supposed, that weights must have existed centuries, and, perhaps, even millennia before Dungi, in whose reign money, interest, contracts, receipts, and even bills of exchange are fully established . . . (Keynes, 1982, p. 232)

Indeed, Keynes argued that 'the fundamental weight standards of Western civilisation have *never* been altered from the earliest beginnings up to the introduction of the metric system' (ibid., p. 239); without exception,

'All weight standards of the ancient and also of the medieval world in Babylonia, the Mediterranean Basin and Europe have been based on either the wheat grain or the barley grain as their monad' (ibid.).[19] The basic 'monad' was then '60 x 60 x 3' grains of wheat for the mina of the 'Egyptian system', or 60 x 60 x 2 barley grains for the 'Lydian or Euboic system' (ibid., p. 236). 'Similarly, the avoirdupois grain is by contemporary definition the medieval wheat grain and the troy grain is the medieval barley grain' (ibid., p. 237). Whether we speak of the mina, shekel or pound, all the early money units were weight units based on either wheat or barley grains, with the nominal value of gold usually measured in wheat units, and the nominal value of silver usually measured in barley units.[20]

That Solon and Pheidon could proclaim the number of grams of metal that would henceforth be equal to the mina, talent or drachma is proof that the age of 'state money' had already arrived. It could not have been the case that the 'value of the precious metal' contained in the coins could have determined the value of the money, for the reforms changed the value of the metal relative to the money units of account.[21] Further, just as Knapp and Keynes had argued, the state is free to change the money of account; Solon's 'reform' was to switch from the 'Egyptian' iron standard to the earlier 'Lydian – Euboic' silver/copper standard (that is, the reform consisted of a 'rewrite' of the 'dictionary'). (Keynes, 1982, p.267) However, once a king had established a new money of account, setting a nominal value for a precious metal, he was usually powerless to maintain the value of the metal. Rather, the price of the precious metal tended to rise relative to the money of account (although it could fall); when faced with the choice of allowing the money unit to depreciate relative to the gold price or of trying to fix the money price of gold, the Crown until quite recently almost always chose to let the money depreciate – for reasons we will discuss below.

In other words, the king might establish the 'mina' monetary unit by initially setting it equal to so many grains of gold, but as the price of gold rose, the market price of that quantity of gold would rise without causing official proclamation to set a new monetary standard.[22] The 'mina' would remain defined as the same number of grains of gold regardless of the actual price of gold in terms of any particular mina money. Note also that, as Innes argued, 'The monetary units, the *livre*, *sol*, and *denier*, are perfectly distinct from the coins and the variations in the value of the latter did not affect the former' (Innes, 1913, p. 386). That is, coins could also depreciate (or appreciate) relative to the monetary unit (by 'crying down' the coins, as will be discussed below). In some cases, the monetary unit might never be coined.[23] It is thus quite difficult to maintain that metal determines the value of things used as money.

To recap: the state announces the money unit and may define its value as so many grains of gold. The actual coins, even though they may contain precious metal, do not necessarily carry a nominal value that is fixed relative to either the nominal value of the embodied gold nor even to the money of account. Indeed, the nominal value of the coin would almost always exceed the value of the embodied gold – except in the case when it was no longer a 'token' of the debt of the issuer (in which case, the coin might be taken from circulation and melted for the bullion). And, for reasons discussed below, the coin could depreciate relative to the unit of account by proclamation of the issuer. Finally, if the price of the precious metal changed, this would not necessarily change the nominal value of either the coin or the unit of account.

Monetary units, then, appear to be derived from weight units but do not derive their value from precious metal. Why weight units? It is possible that the weight units were just taken over because they offered well-known and objective standards. However, we know, for example, that 'there is plenty of evidence for corn-wages and corn-rents from the Babylonian age onwards' (Keynes, 1982, p. 258), and for barley taxes in Mesopotamia (Hudson, 1998). Is it possible that the choice of the wheat and barley grains as the bases of monetary units had a more concrete origin? And did they arise out of barter exchange or out of early debt relations?

The measurement units may have first developed in the elaborate rules governing *wergeld*, the practice of paying a compensation for injuries inflicted on others.[24] 'The general object of these laws was simple, that of the provision of a tariff of compensations which in any circumstances their compilers liked to envisage would prevent resort to the bloodfeud' (Grierson, 1977, p. 19). 'Compensation in the Welsh laws is reckoned primarily in cattle and in the Irish ones in cattle or bondmaids (*cumhal*) . . . In the Germanic codes it is mainly in precious metal . . . In the Russian codes it is silver and furs' (ibid., p. 20). The compensations required were quite specific, with different compensations for different offences.[25] These compensations 'were established in public assemblies, and the common standards were based on objects of some value which a householder might be expected to possess or which he could obtain from his kinsfolk' (ibid.).

However, even though payment of compensation required social consensus on the form of payment, there was no need to settle on a 'universal equivalent', for each specific injury inflicted put a specific debt on the individual transgressor. Thus while *wergeld* may have been the original source of the notion of debt and measurement of indebtedness, it probably could not have directly generated monetary payments because there was little private incentive for standardization of the terms.[26] If our monetary standards came from the practice of measuring wealth, paying

compensations for injuries, or paying bride wealth, then it is not surprising that the units would be large (for example, representing the value of six sheep).

As these compensatory payments do not appear to have been originally measured in a unit of account, it seems more likely that money as a unit of account first appeared as a means of standardizing tribute or taxes levied by rulers.[27] The first evidence of writing, on clay tablets, appears to be records of taxes levied and collected. 'This combination of a) writing (e.g. farmer's name), b) numerical quantities and c) an accounting record offers the possibility that writing, numbers, and money . . . all have a common origin in these tablets' (John Adams, private correspondence, 27 January 1998). If so, the 'origins' of money may have been in the tax levies of the palaces of the great granary empires, eventually standardized in the wheat, or barley, weight units of account. The practice of paying in order to 'pacify' or eliminate one's debt for injuries inflicted on another seems to have accustomed the population to the notion of measuring value and the palace would have had a great incentive to standardize the measure of value (even though neither individuals nor even 'social consensus' would have had such an incentive). While the palace could have obtained whatever it needed by imposing 'in-kind' taxes with a list of every item it wished and imposing specific taxes on specific producers (for example a sheep tax on the sheep producer, and so on), imposing a 'five mina' head tax on each, then using mina-denominated state money to purchase needed items while accepting the same mina-denominated state money in payment of taxes would be a far simpler process.

The wheat or barley money of account, then, long pre-dates the use of precious metals. Indeed, evidence suggests that Pheidon's coins replaced earlier iron spits (*oboloi*) that had been used as currency.[28] These had been issued in the barley or wheat weight units of account with a stamp to indicate the issuing temple. Moving to precious metals seems to have been done to reduce counterfeiting – since scarce metals would be harder to obtain (Heinsohn and Steiger, 1983). The precious metal 'veil' that has clouded monetary thought ever since apparently resulted from this purely technical consideration. Coinage was a later development still, often with a stamp to indicate the issuer but only very rarely (at least until recently) with a stamp to indicate nominal value. As Innes notes,

> What has really happened is that the government has put upon the pieces of gold a stamp which conveys the promise that they will be received by the government in payment of taxes or other debts due to it . . . . In virtue of the stamp it bears, the gold has changed its character from that of a mere commodity to that of a token of indebtedness. (Innes, 1913, p. 402).

Similarly, Mommsen argued that in the case of Roman coinage,

> It may be regarded as a law which gives the . . . piece of metal its conventional value by legal decree, quite irrespective of whether the effective value corresponds with this or not. In this, so to speak, statutory validation, the coin of the realm . . . is already enshrined in republican law: only this coinage is money – all others are commodities of trade. (Mommsen, 1860, quoted in Heinsohn and Steiger, 1983, p. 22)

Heinsohn and Steiger argue that 'In the ancient world, at all events, there was a full awareness of this gold fog obscuring the true nature of money. Aristotle, for instance . . . writes: "In some respects, however, money is a pure sham, a creature of convention established in law" ' (ibid. p. 23).

Much of this is, admittedly, speculative. However, we do have a lot of evidence of the financial transactions from Mesopotamia from 2500–1200 BC. From this evidence, Michael Hudson concludes that 'debts preceded money, not the other way around. The first obligations calling for settlement were fines for inflicting personal injury' (Hudson, 1998, p. 7). With the development of large palace communities, heavy taxes in the form of barley were imposed on producers (initially on villages rather than on individuals).[29] At this time, Mesopotamia had a dual standard, barley and silver, although the silver was not coined; the 'ruler' announced the conversion rate of silver to barley and accepted either in payment of taxes. However, normally producers did not have access to silver, so typically only merchants paid taxes in the form of silver.

It is suspected that the temples played a further role by acting as neutral witnesses, recorders and enforcers of private wheat or barley transactions (including compensation for damages and payment of bride wealth), and by acting as depositories for grain.[30] At first these actions would have been recorded on the clay tablets in the wheat or barley or cow that they directly represented, with a wheat or barley fee imposed for the functions provided by the temple. Over time, however, the units would have become standardized (in either the wheat or barley unit), so that transactions in cows would have been recorded in wheat or barley equivalent, and with fees recorded in wheat or barley units (but payable in their equivalents).

To sum up, early money units appear to have been derived from weight units which probably developed from the practice of *wergeld.* Palaces created the money units to standardize payment of taxes. Use of money in private transactions derived from tax debts, encouraged by the palaces which could record and enforce private transactions. Once a money tax was levied on a village, and later on individuals, the palace would be able to obtain goods and services by issuing its own money-denominated debt in

the form of tallies (initially, clay tablets and later wooden tallies). Coins came much later, but were, like the tallies, evidence of the Crown's debt. Use of precious metals in the coins was adopted simply to reduce counterfeiting.

DEBASEMENT OF THE CURRENCY

Throughout history, devaluation of coins, rising prices of precious metals and attempts to restore 'strong money' have been commonplace. This is often linked to efforts of the Crown to obtain 'seigniorage' by purposely 'debasing' the coin (reducing the precious metal content in order to produce more coins per ounce of metal). The problem is said to have been resolved through rigorous enforcement of a gold standard, whereby 'full-bodied' coin (or notes with full precious metal backing) was minted. However, this interpretation may be incorrect, perhaps suffering from the 'veil of gold' to which we alluded above.

Innes argued that, until recently, there was little relation between the nominal value of a coin and its precious metal content. Even

> [i]n Amsterdam and in Hamburg in the eighteenth century, an exchange list was published at short intervals, and affixed in the Bourse, giving the current value of the coins in circulation in the city, both foreign and domestic, in terms of the monetary unit . . . The value of these coins fluctuated almost daily . . . Coins of similar weight and fineness circulated at different prices, according to the country to which they belonged'. (Innes, 1913, p. 388)

He offers both earlier examples (France during the reign of Saint Louis, ancient Gaul and Britain, ancient Greece) and later examples (the US in 1782 before adopting the dollar) to demonstrate that 'there never was a monetary unit which depended on the value of a coin or on a weight of metal; that there never was until quite modern days, any fixed relationship between the monetary unit and any metal' (ibid., p. 379).

Further, 'the general idea that the kings wilfully debased their coinage, in the sense of reducing their weight and fineness is without foundation' (ibid. p. 386).[31] Instead, kings were quite protective of the 'quality' of their coinage – not because this determined the value of the coin, but because 'towards the end of the thirteenth century, the feeling grew up that financial stability depended somehow on the uniformity of the coinage' (ibid.). According to Innes, coins were devalued not by reducing precious metal content, but by royal proclamation that consisted of 'crying down' the nominal value of the coin.[32] When a king wanted to increase his purchasing

power, 'he decreed a reduction of the nominal value of the coins. This was a perfectly well recognized method of taxation acquiesced in by the people, who only complained when the process was repeated too often'[33] (ibid. p. 385). It is a method of taxation because by reducing the nominal value of the coins, the king would increase the number of coins that had to be delivered in payment of taxes, which would increase the quantity of goods and services offered by subjects in order to obtain the king's coins to pay the tax. Note that the king would not change the monetary unit, but would only change the monetary value of his 'tokens', thereby avoiding disruption of private markets (which for the most part were carried-on using tallies, bills of exchange or other debts denominated in the money of account). Further, although the nominal value of the coins would now be lower, whether or not this would result in a general inflation would depend on the prices paid by the king. If nominal spending and taxes were held constant, the so-called debasement of the currency could occur without affecting prices significantly.

However, as a result of crying down the coins, as well as the general upward trend of prices (sometimes called the 'price revolution') and the rising price of precious metals (only relieved with discoveries in the new world), a belief developed in late – medieval times that there was a connection among 'the fall in the value of money', 'the rise of the value of the metals', and the 'deplorable condition of the coinage' (Innes, 1913, p. 400). It came to be believed that if only the price of the precious metals could be controlled and the 'quality' of the coins improved, might the steady rise of prices be averted. Until the nineteenth century, however, governments were not able to stabilize gold prices. This could not be done by proclamation, but only by an active 'buffer stock' policy (and an enormous increase in production of gold). Nor were they able to stabilize the value of coins – even through imposition of legal tender laws (or floggings). As Chief Justice Chase recognized in a Supreme Court case of 1872, '[r]eceivability for debts due the government', and not legal tender laws, determines the nominal value of coins (Innes, 1913, p. 406).

During the nineteenth and early twentieth centuries, governments finally adopted gold standards and intervened to fix gold prices.[34] Because they established a gold standard that fixed the value of coins and all other state 'tokens' and debts relative to the unit of account, which in turn was fixed relative to a quantity of precious metal, they could no longer 'cry down' the value of a coin. Thus, we finally achieved an approximation to the monetary system that the textbook hypothesized for the origins of money – by the purposeful intervention of government rather than by the 'common consent' of our bartering forebears.

This is a quite brief summation of the 'origins' of money, much of it relying on speculation because of its ancient origins. However, we can also examine a few more recent cases of attempts to develop a monetary system. We will look at cases of the colonial governor, colonial America, and America during the Civil War to further examine the relation between money and taxes.

A HYPOTHETICAL GOVERNOR

We will begin with a stylized, hypothetical example of the way in which an economy can be monetized. In this section, we are not attempting to present 'history', but rather we are showing how money might be introduced to an economy while at the same time demonstrating some propositions that will be discussed again in following chapters. In the real world, as we will discuss in sections below, monetization of an economy is much more difficult and complex.

Let us suppose that a woman were appointed governor of a colony that had not been previously introduced to money, prices and markets. This colony has a fully functioning, although traditional (that is, tribal), economy that is able to provide more than sufficient food, clothing and shelter for its inhabitants. The new governor arrives with her chequebook and several bags of paper money and coin. Her charge is to organize the indigenous peoples to build the governor's mansion, to provide the necessary food and services for the governor and her family, and to accomplish a few tasks enumerated by the home office (a new road, for example). The governor announces various job openings and pay scales. To her surprise, no one shows up for work; higher wage offers still produce no takers. She calls the home office for troops and uses the threat of violence to induce the indigenous peoples to provide labour. However, she finds the indigenous population to be 'lazy, untrustworthy, unmotivated' (although they had been quite successful at providing for themselves before she arrived!).

It did not have to be this way. As real-world colonial governors discovered, the way to introduce money into the economy (and, in particular, to generate a supply of labour offered for money wages) is to impose a monetary tax. In many cases, the indigenous population would already have been familiar with the payment of taxes or tribute, albeit in non-monetary form. Once taxes have been imposed, the governor need only define what must be done to obtain 'that which is necessary to pay taxes'; she announces that so much 'twintopt' can be obtained for construction work on the mansion, so much 'twintopt' for delivery of food to her family, so much 'twintopt' for work on the new road, and so on. Note also that

there is no need to carry bags of paper money and coin from home, for the indigenous peoples would readily accept anything the governor paid, provided she would accept the same in payment of taxes. For example, the governor could photocopy a picture of herself to use as paper money, which could be called 'govs'.

The govs would not require any precious metal 'backing', nor would the governor have to hold any home currency reserves against govs. The govs need not be legal tender 'acceptable in payment of all debts, public and private', for all that is necessary is that they are acceptable in payment of taxes. Note, finally, that it does not matter whether the indigenous population is accustomed to 'market mechanisms', to 'financial contracts', to use of 'money', nor does it matter whether there is 'trust' in the governor or the gov. That is to say, all the explanations normally given in economic textbooks for public use of government's money do not apply to our example. The only requirement is that the governor imposes and enforces a tax, payable in govs.

The governor could set the value of the govs at any level she liked: whether it is one gov per hour of construction work or one thousand govs per hour of construction work is entirely irrelevant to the indigenous peoples. What matters, of course, is to set the rate of remuneration relative to the tax liability in a manner that will call forth the amount of work 'effort' required by the governor. Note that if the governor did not get as much effort as she desired, it would do no good to raise the rate of pay – that would merely 'devalue' the gov and she would find fewer hours of work supplied by the indigenous peoples, at any given tax liability. Instead, she should increase the tax liability or lower the rate of remuneration to increase the amount of labour offered.

Finally, the governor would realize that she did not 'need' the govs provided by indigenous peoples in payment of taxes; rather, the indigenous peoples needed the govs to pay taxes. This also means that the governor would never worry about 'financing' her spending (through tax revenues); nor would she ever worry about her 'deficits' that would result if the indigenous peoples decided to earn more govs than required to meet tax payments. Indeed, she would expect that the indigenous peoples would normally want to hold some extra govs (for example, to pay taxes in the future, or just in case some govs are 'lost in the wash'), so that she would normally run deficits. And she could perhaps encourage them to accumulate govs as saving by offering to pay interest on gov hoards.

This could be done, for example, by offering to trade one interest-paying 'govbond' for every ten govs saved, paying one gov interest each year and promising to return the ten govs principal at the end of five years. Over time, her outstanding govbond 'debt' would grow to the extent the

indigenous population desired to save govs and exchange them for govbonds. She would not lose any sleep about her 'growing indebtedness' to her subjects; indeed she would have no reason even to keep track of her deficits and outstanding govbond debt. Nor would she ever be deluded into believing that 'financial markets' dictated to her what interest rate she would have to pay on her govbonds, for it would be obvious that she, alone, set that rate. She would realize that no useful information could possibly come from the interest rate she paid on govbonds, from her annual deficits, from her debt, or even from the prices she paid for the goods and services obtained. All that would matter to her would be the quantity of real goods and services offered by the indigenous population. If insufficient (for example, if her own needs were not being met), she could raise the tax liability; if in excess of her requirement (for example, if the indigenous population was not producing enough for its own survival), she could lower taxes and reduce her purchases to reduce the 'work effort' of the indigenous peoples.

Of course, the govs could also be used in private exchanges, or what Knapp called the 'private pay community'. An individual with a tax liability might agree to perform services for his neighbour to obtain govs that neighbour might have accumulated. Private markets could develop to allow producers of goods and services to obtain govs needed for payment of taxes. A greater proportion of each individual's day might come to be devoted to market activities in search of govs, not only to pay taxes, but also to purchase on the market goods and services that raise the standard of living. (As we will discuss below, 'real-world' traditional economies might require much greater 'inducement' to produce for the market.)

Once the governor has introduced gov money over which she has the monopoly of issue, unemployment can develop when individuals offer labour to her but find no work.[35] It would be pretty silly to leave the unemployed begging the governor to allow them to provide goods and services to her so that they might obtain govs; after all, the cost to the governor of issuing govs would be nearly zero (consisting of the photocopying costs of govs). The clever governor should quickly realize that the solution is to accept the offers, that is, to hire the unemployed labour.

If she found that too much labour was offered (for example, the indigenous peoples were working sixteen-hour days and neglecting their families), she could always reduce taxes and her spending to reduce the supply of labour. She would find that 'government spending' can be too large and too small, as indicated by excessive effort devoted to obtaining govs at one extreme, or by excessive numbers of offers to work that are not met by job offers at the other extreme. The governor would not be able to

judge whether government spending were too large (or too small) merely by adding up the govs she had spent, nor by tallying the size of her deficits, nor even by measuring total government spending as a percentage of the colony's 'gross national product' – these data provide no useful information to her. Again, the governor needs only to determine that she is able to obtain the goods and services required to fulfil the functions her office is supposed to perform, while ensuring that the population is neither working too much nor too little, as evidenced by neglect of other activities at one extreme, or by queues of unemployed seeking jobs at the other.

That may strike readers as a nice story, but did real-world colonial governors really create a labour supply willing to work for money wages by imposing taxes? As we will show below, they did indeed. Still, this does not prove that this is the way that money originated; it is one thing to argue that a governor who is accustomed to use of money might discover that taxes provide one means to help monetize an economy, but it is quite another matter to argue that this is the way economies were first monetized. Further, as we will note, there is no evidence to support an extreme position that taxes alone will be sufficient to create a monetary economy out of a traditional economy. Real-world governors also relied on force. Even though taxes would generate a supply of labour, development of 'private' markets required destruction of the traditional economy. Note, also, that it is not apparent that any real-world governor fully understood the implications of the taxes-drive-money view, even though many of them did explicitly acknowledge that taxes were imposed to induce indigenous populations to offer goods and labour services in exchange for 'twintopt'. In the next section we will briefly examine a few historical examples that appear to be consistent with our general argument.

REAL WORLD COLONIAL GOVERNORS

William Henry Furness reported the case of the island of Uap (part of the Caroline Islands), which came under the control of Germany in 1898. The islanders used *fei*, 'large, solid, thick stone wheels, ranging in diameter from a foot to twelve feet, having in the centre a hole sufficiently large and strong to bear the weight and facilitate transportation' in ceremonial exchange[36] (Furness, 1910, p. 93). In any case, the only background that is necessary is to understand that the islanders placed great ceremonial value on the *fei*, and that the German government used this as a means of obtaining labour services.

> There are no wheeled vehicles in Uap, and consequently, no cart roads; but there have always been clearly defined paths communicating with the different settlements. When the German Government assumed ownership of the Caroline Islands . . . many of these paths or highways were in bad condition, and the chiefs of the several districts were told that they must have them repaired and put in good order. The roughly dressed blocks of coral were, however, quite good enough for the bare feet of the natives; and many were the repetitions of the command, which still remained unheeded. At last it was decided to impose a fine for disobedience on the chiefs of the districts. In what shape was the fine to be levied? It was of no avail to demand silver or gold from the chiefs – they had none – and to force them to pay in their own currency [*fei*] would have required, in the first place, half the population of the island to transport the fines; in the second place, their largest government building could not hold them; and finally, *fei* six feet in diameter, not having been 'made in Germany', were hardly available as a circulating medium in the Fatherland. At last, by a happy thought, the fine was exacted by sending a man to every *failu* and *pabai* throughout the disobedient districts, where he simply marked a certain number of the most valuable *fei* with a cross in black paint to show that the stones were claimed by the Government. This instantly worked like a charm; the people, thus dolefully impoverished, turned to and repaired the highways to such good effect from one end of the island to the other, that they are now like park drives. Then the Government dispatched its agents and erased the crosses. Presto! the fine was paid, the happy *failus* resumed possession of their capital stock, and rolled in wealth. (Furness, 1910, pp. 98–100)

Thus the simple act of 'fining' (or, taxing) generated the labour supply desired by the colonialists; the indigenous peoples worked to remove the 'tax liability' in order to restore their wealth.[37]

Mat Forstater recently argued that colonial Africa offers an excellent source of examples of monetization of economies through imposition of taxes because these are recent cases with accurate records. As he said,

> One of the goals of the colonial policy of demanding taxes be paid in a government-issued currency was to compel Africans to offer their "labor" power for sale in exchange for wages denominated in that currency (as well as to force movement from subsistence to cash-crop production and to create new markets for European goods). (Mathew Forstater, PKT, 25 September 1996)

We will examine a few cases that are particularly clear demonstrations of this.

Throughout colonial Africa, colonists found it difficult to draw the indigenous peoples into the 'labour force'. 'The difficulties faced by early settlers and other employers in securing wage labour are well known . . . The chief mechanisms in the creation of a semi-proletariat may be simply listed. First, the conquest and active administration of African societies was

usually accompanied by a) taxation' (Stichter, 1985, p. 25). Walter Neale examined the specific case of the British colonial government of Central Africa.

> The immediate needs of the Pioneers were for land and the labor to make that land productive. Conquest provided the Pioneers with the land . . . Labor was another matter. Slavery, seizing local people and forcing them to work on the land, had become reprehensible in European eyes . . . In any case, in the beginning the Pioneers assumed – it seemed obvious to them – that labor would be forthcoming to work the land if wages were offered. Wages were offered, but Bantu did not come forth to work the land. (Neale, 1976, p. 79)

This African society was not monetized, so the question was how to do this. 'The solution imposed by the Pioneers was a requirement that a head tax be paid in money, thus requiring that Bantu work to earn the money to pay the tax' (ibid.). This was a nearly universal experience throughout Africa. For example, Magubane examined the case of South Africa:

> H.J. and Ray Simons, in their book *Class and Colour in South Africa, 1850–1950* point out that after the Anglo–Boer War, . . . Every adult African male was required to pay a labour tax of two pounds, with another two pounds for the second and each additional wife of a polygamist . . . (Magubane, 1979, p. 48)

As another example, a huge labour force was needed to work in the gold mines in the Cape, but the Africans refused to work, so 'the 1893 Commission of Labour in the Cape Colony suggested that every male African should be taxed, with full remission if he could show he had been employed away from home during the year' (ibid., p. 78). Similarly, in West Africa, the French imposed a monetary tax to create wage labour (Stichter, 1985, p. 40). In the Belgian Congo, 'direct force tended to be used in the early stages of labour recruitment before the indirect but powerful effects of taxation' (ibid., p. 94). A colonial administrator in South Africa noticed

> they have nothing but their grain for subsistence and the payment of their taxes. Corn, when they are able to sell it, brings about 5 shillings a bag and in many cases a woman or man will have to travel 20 miles with a bag of corn on their heads for which they will receive 9 pence or 1 shilling and then have to travel back again for 20 miles and thus raise their tax. (Colonial Administrator of Ciskei, South Africa, 1865, quoted in Iliffe, 1987, p. 73)

As still another example,

> In 1922, to increase the economic pressure on the African peasants, the Native Taxation and Development Act (number 41 of 1922) forced all African males between the ages of eighteen and sixty-five to pay a poll tax of £1 per annum and every male occupant of a hut in the reserves to pay a local tax of ten shillings. (Magubane, 979, p. 83)

According to figures supplied by Colin Leys for post-WWI Kenya, taxes averaged approximately three-quarters of annual money wages (Leys, 1975, pp. 31–32). As the colonial administrators seemed to recognize, the purpose of the taxes was not to provide revenue to the colonial government, but rather to 'increase economic pressure' on the indigenous population.

Returning to the case of Central Africa, as Neale notes, imposition of taxes to obtain labour 'was not a happy solution'; the indigenous peoples ran off 'as soon as they had earned the money required to pay the tax'; the pioneers 'quite rightly as they saw the world, thought the Bantu shiftless, lazy, dishonest, incompetent, and irresponsible', while the Bantu 'quite rightly as they saw the world, thought the Pioneers threatening, brutal, and at least somewhat crazy' (Neale, 1976, pp. 79–80). Over time, tribal life was destroyed. As Neale argues 'to "blame it all on money" would be wrong', but the indigenous people increasingly 'came to need and then to want money and the things money would buy . . . money was certainly an important element in changing the lives of the descendants of both white and black in Central Africa' (ibid., 1976, pp. 80–81).

Thus taxation in the form of money in the colonies not only destroyed the traditional economies, but helped in the development of monetary economies. This is not meant to imply that taxation alone would be sufficient to induce market production for money. Colonists sometimes found it necessary to eliminate alternatives to markets, for example, by destroying crops that allowed self-sufficiency. Or, colonists created a demand for luxury or status goods that could be obtained only from markets by destroying egalitarianism in order to create an upper class. That other means were used in addition to imposition of monetary taxes shows just how incorrect the textbook story is. Far from a 'social consensus' to use money as an efficient alternative to barter, in reality development of a monetary economy required imposition of taxes and use of force. As Rodney argued only a 'minority eagerly took up the opportunity' (Rodney, 1974, p. 157) to produce cash crops in order to obtain European goods – and this is after they have been exposed to them. It is far more difficult to believe that individuals in a traditional society would hit upon the idea of producing crops for market to obtain money in order to obtain goods which did not even exist!

In conclusion, the colonial authorities were faced with the problem of inducing indigenous populations to supply labour; they realized that simply offering money – even if in the form of gold or silver coins – would not call forth the required labour. Nor was enslavement, or other forms of compulsion, generally acceptable or successful at this time. Thus they relied on imposition of taxes, payable (usually) in the form of the European currencies that could only be obtained from the colonizers. This would not only generate the labour needed by the colonialists, but it would also help lead to the destruction of tribal society and the creation of a monetary economy.[38] Furthermore, while it is clear that colonial governors understood that taxes would monetize the economy, it is not clear that they understood all the implications of this. They did understand that higher taxes would induce more work effort, and that tax increases should be used to increase labour supply rather than to raise more revenue. Clearly, as the European money had to come initially from the colonists, taxes could, at best, only return money the governor had spent; however, later, with the development of production of cash crops for export, money could flow from the home country, modifying this result. In any case, the purpose of the tax was not to raise monetary revenue, but to provide real goods and services to the governor (and, eventually, to induce cash crop production).

Finally, the case of the colonial governors may be a more powerful test of the taxes-drive-money thesis than is readily apparent, for here is a case in which taxes are imposed by an external authority whose only legitimacy in the eyes of the population might be threat of use of force. The transition might have been smoother if the state's authority to levy taxes had been seen as derived from democratic principles. However, the power to tax and to define the form in which the tax would be paid set in motion the process of monetization of the economy. The important point is that 'monetization' did not spring forth from barter; nor did it require 'trust' – as most stories about the origins of money claim.[39]

AMERICA: COLONIALS, FISCAL PRUDENCE, AND THE CONFEDERATE MONEY

Finally, let us examine the case of the US, which is quite interesting because of its tumultuous monetary history. Except during periods of war, the American government adopted 'fiscal prudence' as its guiding principle during the late eighteenth and throughout the nineteenth centuries. Very large deficits would be run during war, generating substantial public debt; this would then lead to an attempt to run fiscal surpluses after the war in order to retire the debt, which, in turn, would generate severe contractionary

forces, problems for the banking system, and deep recessions or depressions that restored government deficits – thwarting the effort to retire the debt. Only once (1835) did 'fiscal prudence' succeed in eliminating the interest-paying government debt, and this was followed by a particularly severe depression.

America to the Civil War

A wide variety of monies circulated in the American colonies, including 'official' British coin and 'unofficial' foreign coin (primarily Spanish and Portuguese coins). Only one colonial mint of any consequence operated, in Massachusetts from 1652 to 1684, when it was forced to close.[40] Even though frowned upon by Britain, and periodically prohibited, the colonial governments also issued large quantities of paper notes, denominated in the pounds, shillings, and pence of the imperial system. These were often declared legal tender (in 1775 alone, North Carolina declared 17 different types of money legal tender) and accepted in payment of taxes (Davies, 1997, pp. 458–60). However, colonial note issue was, in almost every case, greatly in excess of tax liabilities that could be imposed by the colonial governments. As Adam Smith recognized at the time, it was this mismatch that generated the 'inflation' or devaluation of colonial notes relative to British coin. A series of Acts by Parliament finally banned the issue of legal tender paper money by the colonies in 1764.

At the start of the Revolutionary War, the new American government believed it literally had no choice but to 'finance' it by 'printing money'. 'Taxation was hated by the Americans, for that had been a major cause of the revolt' (Davies, 1997, p. 464). In addition, the American governments did not have in place 'appropriate administrative machinery' for tax collection, and in any case the 'British army occupied much of the land while the Royal Navy blockaded the ports' (ibid.). Besides, the Continental Congress did not have the power to impose taxes; only the individual colonies could do so. Further, it was not possible to borrow enough: at most $100 million was raised by domestic borrowing, with almost $90 million of this raised in the form of paper notes, and perhaps less than $8 million was raised from foreign borrowing. The central government issued $241 million in 'Continentals', with state governments issuing another $210 in their own notes (ibid., p. 465). Without a sufficient tax liability, the notes depreciated quickly in spite of attempts to fix prices in terms of the notes. Continentals eventually fell to one one-thousandth of their face value, leading to the phrase 'not worth a Continental'.

Happily, the war effort was more successful than its finance would have suggested. After the war, although the Continentals were still considered

legal tender, merchants refused to accept them at face value. When the Constitutional Convention was held in May 1787, one of the important items considered concerned the state of the new country's money and finances. The Constitution, ratified in 1789, is noteworthy in that Article 1 links by proximity, if not in theory, money and taxes in two clauses: 'Congress shall have power to coin money, regulate the value thereof and of foreign coin' and Congress will have 'the power to lay and collect taxes, duties and excises, and to pay the debts . . . of the United States' (Davies, 1997, p. 466). As we now understand, these powers are inextricably linked (Congress could not regulate the value of the money without the power to levy taxes), although it is not clear that the framers of the Constitution linked the two (as we argued in the previous chapter, Adam Smith did make the connection, at least in passing). For his part, Alexander Hamilton argued that 'A national debt, if it is not excessive, will be to us a national blessing' in part because 'the taxes needed to pay and service the debt would . . . force the masses to worker harder to pay those taxes', an 'argument made often at the time' (Stabile and Cantor, 1991, p. 16).

It was not until the Coinage Act of 1792, however, that the dollar, based on the decimal system, was officially adopted and successfully coined.[41] Reflecting the current belief that a strong currency had to be based upon precious metals, the dollar was defined as equivalent to 371.25 grains of silver or 24.75 grains of gold (the ratio was thus 15:1), valuing silver somewhat higher than abroad. The Act set up a national mint, made gold and silver coins legal tender (with some legal tender status also given to copper coins), and would remove legal tender status for foreign coins after three years (Davies, 1997, p. 467). However, in practice, legal tender status of foreign coin was not completely and finally removed until 1857 because of a perceived severe shortage of coins.

In spite of Thomas Paine's 1776 proclamation that 'No nation ought to be without a debt', for 'a national debt is a national bond', and in spite of Hamilton's earlier recognition of the desirability of national debt, in America, as Davies argues 'monetary quarrels have right from the start been deeply divisive and almost never ending' (Davies, 1997, p. 471) and have almost always been decided on the side of 'prudent finance', with a severe distrust of credit, banks and national debt. Thomas Jefferson advocated 'taking from the federal government the power of borrowing' (Stabile and Cantor, 1991, p. 29), while Andrew Jackson labelled the public debt 'a national curse', promising 'to pay off the national debt' (ibid., p. 37). And, indeed, Jackson accomplished this by January 1835, when 'for the first and only time, all of the government's interest bearing debt was paid off' (ibid.). A budget surplus continued for the next two years, which Secretary of the Treasury Levi Woodbury thought 'should be maintained as a fund to meet

future deficits'. (Stabile and Cantor, 1991, p. 41) However, a deep recession began in 1837, and over the next three years the government issued $20 million in debt.

Even at the time, the Treasury understood the problem created by surpluses. Private banks held specie as reserves and payment of taxes drained coin from the banking system. When the government ran a surplus, by definition it was removing more coin than it was injecting through government spending.[42] The Treasury would then advocate retirement of outstanding debt, not only to eliminate the debt but also in full recognition that this would return specie to the banking system (generally, it was the Treasury's policy to pay interest and retire debt only with specie). However, it was frequently the case that there would be an insufficient quantity of government debt coming due. So the Treasury would seek special permission to purchase the debt on the open market; often the debt would be selling above par which meant that the Treasury had to buy it at a premium. For example in 1850, 'Secretary of the Treasury James Guthrie asked Congress for permission to buy government bonds on the open market' to 'put some of these funds [specie] back into circulation'; permission was granted and he paid as much as a 21 per cent premium 'to help avert a banking panic' (Stabile and Cantor, 1991, p. 46). In support of his policy, Guthrie testified that the Treasury had the potential to 'exercise a fatal control over the currency . . . whenever the revenue shall greatly exceed the expenditure' (ibid.).

Clearly, the Treasury was engaging in a 'central bank' open market operation to relieve pressure on the banking system. However, such an impact on private banks had long been recognized; Biddle had argued in 1832 that Treasury accumulation of specie in anticipation of debt retirement could destroy most state banks. Treasury Secretary Robert J. Walker had engaged in a 'repurchase' operation in 1847 to inject reserves, buying bonds and agreeing to resell them to their previous owners at the same price. In the 1850s as a new budget surplus developed, Treasury Secretary Charles Fairchild bought bonds, paying premiums as high as 29 per cent (Stabile and Cantor, 1991, p. 63). After the Civil War, surpluses were the norm, with large surpluses in the late 1880s leading to debt retirement and deep depression in the 1890s; the country would close out the century with persistent deficits.

We will skip over the tumultuous history of attempts to establish a national bank and national paper currency. By 1859, there were 9916 different kinds of banknotes as well as 5400 different counterfeit banknotes, circulating mainly at a discount from face value and requiring 'not only every banker but every trader of any importance' to 'make constant reference to one or other of a series of banknote guides' (Davies, 1997, pp.

480–1). However, the federal government was prevented from issuing paper money between the Revolution and the Civil War. This fact is often believed to be the source of the long-term stability of prices in the nineteenth century. However, in reality, it was the persistently 'tight' fiscal policy: except during war or deep recession, the budget was perennially in surplus, with the government taking in more specie than it paid out, exerting a deflationary influence on the economy.[43] The surpluses were only made possible by the deficits (and outstanding debt) run up during war and recession, which permitted the government to inject the coin back into the economy as it purchased its debt. Thus the US entered the twentieth century with prices similar to those that existed at the beginning of the nineteenth century and with total government debt of less than $2 billion (of which half was interest-paying and the remainder consisted of Treasury notes) (Stabile and Cantor, 1991, p. 65).

Civil War Period and After

Let us close this historical chapter with an examination of the Civil War, which offers a useful comparison of the financial outcomes of the two sides. The North was able to impose a significant tax liability and resorted to a much smaller extent to 'printing money' (deficit spending on the basis of issuing notes) than did the South, which was never able to impose and enforce taxes. In the North, for example, total spending on the war effort has been estimated at about $4 billion; taxes were equal to 21 per cent of expenditures and bond sales were equal to 62 per cent; only $450 million of 'greenbacks' were issued, and other sources were equal to 4 per cent of expenditures[44] (Lerner, 1954, p. 507). Inflation over the course of the war caused prices in the North to more than double. In contrast, prices in the South increased 28-fold. While it is true that the South was on the losing side, as we will discuss, much of the inflation appears more likely to have been a result of its inability to tax, rather than disappointments on the front.

The Confederate states faced a monumental task: how to create a currency and issue sufficient fiat money to prosecute the Civil War. While wars present unusual economic circumstances, it is possible that war finance can shed some light on the nature of state money. Like the colonies during the Revolutionary War, the Confederacy tried to impose taxes payable in kind. However, the taxes 'were avoided by the farmers and businessmen who sold their goods (or hid them) before collection time' (Lerner, 1954, p. 506). Further, '[n]either the right goods nor the right quantities of goods were collected, and the supplies that were obtained often rotted, became damaged, or were stolen before they could be transported to

the areas where they were needed' (ibid.). All these problems should have been (and, indeed, were) expected with in-kind taxes. As a result, the Confederacy, 'like any government, purchased the bulk of its supplies'. (ibid., p. 507).

However, taxes equalled less than 5 per cent of the South's spending, which totalled about $2.7 billion, with bond sales equal to 30 per cent, notes issued by 'the printing press' equal to 60 per cent, and other revenue sources equal to 5 per cent of spending (ibid.). This is in contrast to the North's financial situation, discussed above. Christopher Memminger, Secretary of the Confederate Treasury, advocated higher tax receipts; however, the Congress argued for lower taxes, the Confederacy did not have the '[m]achinery for collecting large amounts of taxes' (ibid.), the Southern states strongly resisted centralized state power, and, at least initially, the South expected a speedy victory. Secretary Memminger

> saw two immediate and indispensable benefits from levying taxes payable in government notes. First, taxes created a demand for the paper issued by the government and gave it value. Since all taxpayers needed the paper, they were willing to exchange goods for it, and the notes circulated as money. Second, to the extent that taxation raised revenue, it reduced the number of new notes that had to be issued. Memminger's numerous public statements during the war show that he clearly realized that increasing a country's stock of money much faster than its real income leads to runaway prices. They also show that he believed a strong tax program lessens the possibility of inflation. (ibid., p. 508)

If taken out of context, this might appear to be no more than the belief that 'inflation is caused by too much money chasing too few goods', but it is clear that Memminger's understanding went far beyond this. He believed that if the state were merely to 'print up' notes to buy needed goods and services without creating sufficient demand for those notes, inflation would result. What was needed, therefore, was to impose sufficient tax liabilities to create a demand for the notes so that goods and services would be offered at relatively stable prices.

Memminger proposed to levy money taxes primarily on property whose future yield would depend on Southern victory, in order to make best use of 'patriotic' sentiment, and provided incentives for states to collect the taxes. Unfortunately, the states did not cooperate. Some merely confiscated the property owned by people in the North (counting the value as tax revenue), floated bonds and collected as taxes the money that would have gone as interest, or borrowed the amount required from state banks. This is partly to be explained by the feeling of citizens that they were already paying tremendous human costs to prosecute the war; thus there were strong local feelings against the taxes. However, given our understanding of the taxes-

drive-money principle, it is clear that confiscating property of Northerners, or selling bonds to banks, cannot create demand for the currency. Throughout the war, Memminger would propose measures to increase tax revenues, only to find that Congress preferred to issue notes to 'finance' the war; even when tax rates were raised, it was easy to evade taxes, and the states tended to side with their citizens against the Confederate tax collectors.

As a result, Memminger was forced to rely on bond sales and note issues. Indeed, Memminger often issued bonds used by the Treasury as currency, forcing sellers to accept the bonds; however, he also allowed tax payments in the form of bonds – which means that bonds were essentially interest-paying currency. Memminger wrote to President Davis: 'When it is remembered that the circulation of all the Confederate States before the present war was less than 100 millions, it becomes obvious that the large quantity of money in circulation today must produce depreciation and final disaster' (Lerner, 1954, p. 520). By February 1864, well over $1.5 billion notes had been issued by the Confederacy.

Indeed, Memminger found that even with a staff of 262 in the note-signing bureau (each note was signed by hand in an effort to reduce counterfeiting) it was impossible to issue notes quickly enough to meet Treasury spending. When Congress refused to allow him to simply print a signature on notes (to increase speed of issue), he responded by recommending that the South resort to honouring counterfeits in an attempt to increase the money supply! Legislation to that effect was passed, which led banks openly to count as assets counterfeit notes held. Counterfeits could be turned over to the Treasury in return for a 6 per cent call certificate, whereupon the counterfeits would be stamped 'valued' by the Treasury, then reissued to finance government spending. (Lerner, 1954, pp. 120–21)

In light of our discussion above, the consequences of Confederate finance should not be difficult to guess. If a government determines the value of the currency by dictating the terms on which 'twintopt' may be obtained, and as well by ensuring that taxes are indeed paid, then the Confederacy set a low goalpost, indeed. Enforcement of taxes was virtually non-existent, while levies, even if enforced, were not even close to what would have been required to move needed resources to the government sector. Further, when Congress agreed to accept counterfeits, it essentially reduced the value of money to printing costs (the 'effort' involved in obtaining 'twintopt' was reduced to that associated with printing counterfeits).

Runaway inflation should have been the expected result, and, indeed, was the result expected by Memminger: 'The currency continues rapidly to

grow in quantity. This increase causes a daily advance in prices . . . which if not arrested must result in consequences disastrous to the best interests of the country' (Lerner, 1954, p. 520). Inflation rose to 23 per cent per month by March 1864. Currency 'reform' in May 1864 repudiated the old currency and temporarily slowed inflation, but by 1 August $170 million of new notes had been issued while less than $10 million was collected in taxes, making renewed inflation inevitable. By November, the new Secretary Trenholm declared the currency reform a failure. The result, as they say, is history.

Certainly, wars present unusual economic circumstances (particularly when one is on the losing side!), and some inflation is just about inevitable given the probable gap between the quantity of goods and services the government requires and the taxes that can be imposed. One might also expect that even patriotic citizens might become less willing to accept currency (and government bonds) on negative news from the war front – thus the South's inflation might have resulted from doubts that it would win the war, since its currency surely would not be accepted if the North won. Surprisingly, Lerner reports that that was not the case: 'Strange as it may seem, military victories and defeats, to say nothing of changing political events, passed by without affecting the bond market' (Lerner, 1954, p. 518). Indeed, bond prices rose (interest rates fell) in both the North and the South throughout the war, with this trend reversing in the South only during 1864, when 'military supply lines had deteriorated so badly that General Lee's men were living from hand to mouth' (ibid.). Even then, only a small decline of bond prices resulted. Thus it seems unlikely that much of the inflation in the South was due to pessimism about its long-term prospects (which should have affected the demand for bonds even more than it would affect the demand for currency), but was due rather to its inability to enforce tax payments.

After the war, annual federal government spending fell from $1.3 billion in 1865 to an average of $365 billion for the rest of the century. The 1863 National Bank Act had set up charters for national banks, allowing them to issue notes against government bonds. During the war, the Treasury had built up from customs receipts a large gold reserve which was used after the war to retire greenbacks and bonds, becoming a 'sounder' reserve for the banking system. However, the Treasury found that the gold kept returning in the form of customs payments, and its redemption of bonds reduced the bonds available for use as reserves. As a result, few greenbacks were redeemed. In 1869 the Supreme Court ruled that they were not legal tender, but this ruling was reversed in 1870, and a ruling in 1884 declared that Congress generally had the authority to declare fiat money legal tender. Unlike the case with the 'Continentals', given the extremely tight fiscal

policy that generated continual, large government surpluses, greenbacks remained 'as good as gold' during the following decades. Prices fell rapidly after the Civil War, and severe recessions of the 1870s and 1890s kept inflation at bay for the remainder of the century.

CONCLUSION

In this chapter we briefly examined the origins of money, finding them in debt contracts and more specifically in tax debt that is levied in money form. Similarly, we argued that coins were nothing more than tokens of the indebtedness of the Crown. Significantly, even though coins were long made of precious metal, it was only relatively recently that it came to be believed that the precious metal content determined the value of the coin. The gold standard attempted to stabilize gold prices in the belief that this would stabilize the value of money. However, we have argued that the relatively stable prices on the gold standard probably have more to do with the tight fiscal policy adopted. To some extent, a rigorously enforced gold standard would generate tight fiscal policy precisely because state spending would depend on the state's ability to obtain and coin gold. However, as we have shown, the temptation to go off the gold standard proved too great during war (and, indeed, during financial crisis). Thus at least in the case of the US, it was really the persistent state surpluses between wars that deflated the economy.

In truth, we can probably never discover the origins of money. Nor is this crucial for the purposes of this book, for we are most concerned with developing an understanding of modern money, that is, of the use of money in the modern economy. As we have discussed in the previous chapter, all modern economies do have a state money that is quite clearly defined by the state's 'acceptation' at 'public pay offices', even though our modern real-world government officials probably understand even less about money than did the colonial governors. In the next two chapters, we turn to an examination of modern fiscal and monetary policy.

NOTES

1. One need look no further than Paul Samuelson's famous textbook to find a relatively recent exposition that is in all essential aspects exactly like the 'fundamental theories' caricatured by Innes:

> Inconvenient as barter obviously is, it represents a great step forward from a state of self-sufficiency in which every man had to be a jack-of-all-trades and master of none. . . . If we were to construct history along hypothetical, logical lines, we should naturally follow the age of barter by the age of commodity money. Historically, a great variety of commodities has served at one time or another as a medium of exchange: . . . tobacco,

> leather and hides, furs, olive oil, beer or spirits, slaves or wives . . . huge rocks and landmarks and cigarette butts. The age of commodity money gives way to the age of paper money . . . Finally, along with the age of paper money, there is the age of bank money, or bank checking deposits. (Samuelson, 1973, pp. 274–6)

2. Davies (1997) also notes the 'ancient' origins of tallies and quotes Anthony Steel to the effect that 'English medieval finance was built upon the tally' (Davies, 1997, p. 147). The word tally seems to have come from the Latin *talea* which means a stick or a slip of wood; notches in sticks had long been used for recording messages of various kinds (Davies, 1997, p. 147). Note that one of the most common 'notches' was the score, which indicated 20 pounds; a one pound notch was a small groove the size of a barley grain – see the discussion below.
3. Some merchants may have brought goods to the market to use to settle accounts, with a retail trade developing from this practice. Admittedly, the view expounded by Innes is controversial and perhaps too extreme. What is important and surely correct, however, is his recognition of the importance of the clearing house trade to these fairs.
4. It is possible that the early Egyptian empires had taxes, debts and money; papyrus paper did not survive. It is fortunate that Mesopotamia was so rich in clay (and little else in the way of raw materials)!
5. It is true that there are coins of base metal with much lower nominal value, but it is difficult to explain why base metal was accepted in retail trade when the basis of money is supposed to be precious metal.
6. Even if there were institutions that published exchange rates for the myriad of coins (as in Amsterdam or Hamburg in the eighteenth century), it is difficult to believe that such information would have been at the fingertips of the typical market transactor.
7. Early coins did not normally have a stamped, nominal value but, rather, indicated the issuer. Not only would it be difficult to assess the real value of a coin, it would be difficult to assess the nominal value by looking at the coin.
8. However, it is possible that only in the case of seriously debased coin would floggings be required, which could be reconciled with the textbook story.
9. It is often asserted that coins were invented to facilitate long distance trade (as precious metal coins would have high value relative to weight). As Grierson notes 'The evidence, however, is against the earliest coins having been used to faciliate trade of such a kind, for the contents of hoards points overwhelmingly to their local circulation' (Grierson, 1977, p. 10).
10. As Grierson notes, it is frequently difficult to distinguish a coin from settons (or reckoning counters), tokens, medals and related objects (Grierson, 1975, p. 162).
11. Grierson also advances this thesis: 'The alternative view is that since coins were issued by governments – the supposed issue of the earliest coins by merchants is unproven and unlikely – it was administrative rather than economic needs they were intended to serve. Such needs would have included the payment of mercenaries . . .' (Grierson, 1977, p. 10).
12. Crawford suggests that '[c]oinage was probably invented in order that a large number of state payments might be made in a convenient form and there is no reason to suppose that it was ever issued by Rome for any other purpose than to enable the state to make payments . . .' (Crawford, 1970, p. 46). Further, '[o]nce issued, coinage was demanded back by the state in payment of taxes' (ibid.).
13. Recoining would be a strange activity if the value of the coin were determined by the value of the embodied precious metal. The modern equivalent is to call in the coins and knock three zeros off the reissue – an activity that is easy to explain in the case of a fiat money.
14. The wooden tallies were supplemented after the late 1670s by paper 'orders of the exchequer', which in turn were accepted in payment of taxes (Grierson, 1975, p. 34).

15. Davies similarly notes the importance of the tallies for payment of taxes and the development of a clearing system at the exchequer (Davies, 1997, pp. 146–8).
16. That is, even most private transactions took place on credit rather than through use of coin as a medium of exchange. McIntosh notes in a study of London of 1300–1600:

    > Any two people might build up a number of outstanding debts to each other. As long as goodwill between the individuals remained firm, the balances could go uncollected for years. When the parties chose to settle on an amicable basis, they normally named auditors who totaled all current unpaid debts or deliveries and determined the sum which had to be paid to clear the slate. (McIntosh, 1988, p. 561)

17. We do not have the space to examine the controversy over the possible use of money and possible existence of exchange and markets in traditional or tribal society. For a summary, see Wray (1993).
18. This is also the direction taken by Grierson, who argues 'I would insist on the test of money being a measure of value' (Grierson, 1977, p. 16), as well as by Keynes, who noted 'for most important social and economic purposes what matters is the money of account . . .' (Keynes, 1982, p. 252) and 'Money-Proper in the full sense of the term can only exist in relation to a Money-of-Account' (Keynes, 1976, p. 3).
19. In contrast, 'the currency grain of China was rice instead of wheat or barley' (Grierson, 1975, p. 56).
20. The *yuan* was 'both a unit of weight and a monetary demonination' in southern China (Grierson, 1975, p. 56).
21. There would be no point in doing this if the value of a coin was determined by the amount of precious metal contained therein.
22. For a modern example, we need look no further than the dollar in the US. It is still officially defined as 0.0231 ounces of gold, 'implying a gold price of $43.22 per ounce, about one-eighth of the free market price'. (Tobin, 1998. p. 27)
23. Confusion on this issue led to the debate over so called 'ghost monies'. See Wray (1993).
24. This appears far more likely as a source of a measure of monetary value than does the conventional story in which social consensus chooses a particular object as numeraire. As Grierson argues,

    > Units of value, like units of area, volume, and weight, could only be arrived at with great difficulty, in part because natural units are absent, in part because of the much greater diversity of commodities that had to be measured and the consequent difficulty of finding common standards in terms of which they could reasonably be compared . . . In any case, the generalized application of monetary values to commodities could scarcely have come about before the appearance of market economies, and monetary valuations were already in existence in what Sir John Hicks has felicitously christened 'customary' and 'command' pre-market societies. (Grierson, 1977, pp. 18–19)

    In other words, monetary units of account pre-existed market society so that it is quite unlikely that these came out of primitive barter exchange (if such ever existed).
25. Compensations were graduated down to injuries to one's pets and 'It would cost one four times as much to deprive a Russian of his moustache or beard as to cut off one of his fingers' (Grierson, 1977, p. 20).
26. These *wergeld* payments appear to be the source of some of our terminology. For example, the verb 'to pay' comes from *payer* and *pacare*, 'to pacify' or 'to make peace with'; 'the idea of appeasing your creditor lies in the more revealing *pacere*, to come to terms with the injured party'. (Grierson, 1975, p. 162) The word 'worth' comes from Wert, which when combined with Geld denotes the idea of measuring wealth and seems to have come from the practice of paying 'bride price' or 'bride wealth' compensation to a household for the loss of a daughter to marriage.

27. As such, it seems likely that the money of account first appears with the breakdown of traditional, tribal, forms of society that relied on reciprocity and with the rise of the temple or palace societies that could exact tribute. Grierson (1977) prefers to trace the origins of a money of account to either bride wealth or commerce in slaves, both of which grew out of the practice of wergeld. As discussed, the first of these does not appear to be the likely origin since payments of bride wealth would not require a universal equivalent. Grierson's argument in favour of commerce in slaves is more persuasive; however, it is based primarily on the case of the Germanic peoples. If it is true that the notion of valuation came from the practice of wergeld, then that practice must have been widespread. While Grierson argues 'the practice of wergeld, and the construction of related penalties, is a very widespread one', he admits that the existence of such systems is 'difficult to demonstrate in the case of past societies. It was only very exceptional circumstances that caused the European codes to be written down . . .' (Grierson, 1977, pp. 25–26). Indeed, if we are correct in supposing that writing, taxes and money evolved together (see below), then it will be very difficult to uncover any evidence of wergeld that predates money in the case of the granary empires of Egypt and Mesopotamia.
28. However, as Cook notes, iron 'could not have provided a currency until the Iron Age began about the eleventh century BC' (Cook, 1958, p 259). Thus other metals such as copper and bronze preceded iron.
29. So long as the tax was placed on the village, coins would not have been necessary. It would be relatively easy to record the tax debts on clay tablets held in the temples, and to record tax payments as they came in. However, later, when for example a king hired mercenaries and imposed individual head taxes, a large number of payments of similar size would have to be made, and coins would have greatly facilitated this process while eliminating the need for tedious book-keeping.
30. 'The function of witnessing requires the temple to overlook and – if necessary – enforce the obligations written in the contracts . . . This circumstance would provide an explanation for the name *Juno Moneta* – from *monere* = warn, induce, chastise: *admonitory* Juno – for the first recorded temple bank in Rome which minted its own money . . . from its function of reminding debtors of outstanding debts' (Heinsohn and Steiger, 1983, p. 19).
31. Here Innes may be exaggerating. There are many accounts of intentional debasement (see Grierson, 1975, for example); however, these do not appear to deal with the objections raised by Innes. Among other problems, one wonders how the population would recognize debasement as even modern numismatists have great difficulty in assessing the fineness of coins.
32. Medieval coins typically did not have a stamped face value, which is indicative of their 'token' nature.
33. For example, an old coin that had been worth a shilling in payment of taxes became worth only half a shilling; the new coins that were worth a shilling in payment of taxes would be worth two of the old coins. Sometimes 'a "cours volontaire", a voluntary rating, was given by the public to the coins, above their official value. In vain Kings expressed their royal displeasure in edicts which declared . . . that their coins should only circulate at their official value' (Innes, 1913, p. 387). This would be quite strange behaviour on the part of the public if it were true that debasement occurred because the king surreptitiously reduced gold content to obtain seigniorage!
34. Sometimes the government simultaneously adopted similar silver standards and silver prices, although this could lead to the 'two-price' problem – see below.
35. In non-monetary economies, ties of reciprocity, customary rights and obligations laid on individuals, and direction of labour through command ensured that labour remained fully employed. As Paul Davidson notes, '[R]eal economies that do not use money and money labour contracts to organize production (e.g., feudalism, slave economies, South Sea Islanders discovered by Margaret Mead, etc.) may . . . [face] an uncertain future – but there

is never an important involuntary unemployment problem' (Paul Davidson, PKT archives, quoted in Mosler 1997/1998, p. 167). Whether or not this causes a real hardship for the population depends on the degree to which it has become monetized; if there were still ample opportunity to satisfy wants outside of markets, then 'unemployment' would cause hardship only if individuals were unable to come up with the govs required for taxes.

36. Furness, almost certainly in error, called these 'stone currency' and imagined that they were used as some sort of primitive 'medium of exchange'; however, his description uncovers no evidence that there were any markets.
37. In early Greece, stones were used to mark the property of a farmer who had gone into debt. They were 'paid off' by the farmer providing labour to the debt holder. Thus much like the black crosses, the stones were sufficient to draw forth a labour supply.
38. As Neale and others emphasize, this was not always a happy, smooth process even when colonizers might have had good intentions.
39. A similar story could be told about the creation of a monetary economy out of the feudal European economy. While money and markets had existed for many centuries, the feudal economy of Europe was largely 'non-monetized', with most production done by peasants for their own consumption or to be provided as an in kind payment of rent to feudal lords. Just as in the case of the African colonies, taxation payable in money form (and imposition of rents in money form) induced production for markets and helped to destroy the traditional economy. (See Aston and Philpin, 1987, and Hoppe and Langton, 1994.)
40. The earliest paper money issued in America 'was a total of £7000 in units of between 5s. [shillings] and £5 issued by the Massachusetts Bay Colony to pay the soldiers on an expedition against Canada in 1690' (Grierson, 1975, p. 36).
41. The dollar was modelled on the Spanish dollar and was a pointed rejection of the British pound.
42. If, however, the Treasury purchased gold by minting new coins, this would replace coins drained by running budget surpluses. Gold purchases are not counted as government expenditures, but can compensate for the deflationary impacts of government surpluses by providing the means with which taxes can be paid.
43. Except in time of war, most revenue came from customs duties. The government typically received taxes in the form of specie and paid out specie. However, as mentioned above, foreign coins were accepted as legal tender until just before the Civil War. Thus importers needed specie to pay the duties, but could use foreign coins. As noted above, federal government purchases of gold also injected specie, partially offsetting the persistent surpluses.
44. Note that the North accepted state banknotes, greenbacks and specie in payment of taxes. Estimates of total spending by the North and South differ. Stabile and Cantor (1991, pp. 58–9) estimate total direct cost of the Civil War at $5.2 billion, with $3.2 billion for the North and $2 billion for the South. According to Stabile and Cantor, in the North taxes contributed 22 per cent of the cost, with borrowing at $2.8 billion.