

6. The Primacy of Trade Debts in the Development of Money

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IN THE opening sentences of his paper *What is Money*, Mitchell Innes reminded his readers that the accepted theory of political economy was that 'under primitive conditions men live by barter,' but '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 ... this commodity thus becomes a medium of exchange and measure of value.' This same theory is the major theme of the first four chapters of Adam Smith's *The Wealth of Nations*.

Innes suggests that Smith's explanation of the probable progression is not entirely sound. Innes is right, as this chapter endeavours to demonstrate; Smith's perspective needs, as Innes stated, some correction.

We accept, however, that Adam Smith is right in suggesting in the same chapters that human progress was rapidly advanced once specialisation of function was adopted, the 'division of labour' as he calls it. The very first paragraph of his book reads:

The greatest improvement in the productive power of labour, and the greater part of the skill, dexterity, and judgement with which it is anywhere directed, or applied, seem to have been the effect of the division of labour (Adam Smith, 1776).

Having thus divided up the necessary tasks between them, humans need to exchange the results of their labours one with another, and barter is an obvious means of doing this. Smith does not pay much attention to the possibility that when division of labour first began, the division was the result of arbitrary authority, and that the allocation of the product of labour was by an authoritarian rationing, not by free exchange. He declares without hesitation that the division of labour is 'not originally the effect of any human wisdom.' Instead he proposes a 'certain propensity in

128

129

human nature, ... the propensity to truck barter and exchange one thing for another.'

Smith is only partly right: human beings do have a propensity to barter, but they also have a propensity to cooperate with fellow humans under the authority of a leader, a chief, or a council of elders. The surviving records of an early agricultural/industrial society, that of Bronze Age Mesopotamia, show an organisation of economic activity very tightly regulated by the state, or by the local temple, which in turn was controlled by elite local families. It is at its least reminiscent of 'cooperative socialism,' and perhaps amounted to full-blooded 'centralised socialism,' to use modern terminology. On the other hand there may have been similarities with the mediaeval guild systems whose elite, powerful leaders persuaded the political authority to authorise them to establish controls, standards and protection from competition.

The merchants in Bronze Age society were not completely free agents, but appear to have been a body of people authorised by the state or temple to undertake

some specific trading on behalf of the community, to which, human nature being what it is, they may have added unrecorded private deals. At the very least they were always nominally servants of the community. Even in 1800 BC a trading partnership would operate under state regulation. The word 'merchant' (*tamkarum*) appears as an official title, not merely a freely chosen activity which anyone could assume whenever it suited. Records found on the edge of the Assyrian sphere of influence show that merchants operated as members of what we might today call 'limited partnerships' which had to be authorised by the government in distant Assur.

If there was free trade of a more informal kind, its records have not survived. Despite the absence of surviving evidence, one should not however totally dismiss the possibility that free market - 'trucking and bartering' - took place, for even today the 'black' or 'grey' economies do not keep extensive records, and in ancient days they certainly would not have wanted to go to the vast expense of the complex process of making permanent records on baked clay tablets, the only form of record which has survived in quantity. Unfortunately the majority of records we have from the very early period, that is before 1500 BC, are obviously those of a palace or temple bureaucracy, which, just like modern bureaucracies, did not pursue cost containment: the bureaucrats' main concern was doubtless to protect themselves from accusations of embezzlement. From the later Babylonian period, which continues to produce cuneiform records until about 200 BC, there are records of private transactions. But that era was in many ways as advanced as any society before the railway age.

130

Most scholars, rightly or wrongly, prefer to assume that the earliest trade was conducted by command economies, closely controlled by the state, if it existed, or by the clan elders in more primitive conditions. In the days when mankind was exclusively 'hunter-gatherer,' one can assume that the organisation of division of labour was an extended family affair, with a 'pater familias' in firm charge, as hunter/gatherers must surely have lived in very small groups, all closely related.

Regulation was needed at a very early stage for trade. The idea that barter, that is the direct free exchange of goods and services, was a viable basis for an economy is unrealistic for two reasons. First, due to the seasonal nature of many products, the things which people need to exchange may not be produced at the same time of the year. Second, and even more important, is the fact that most productive activities involve a sequence of stages from the production of the primary raw material to the sale of the finished product. The producer of the finished article has nothing to exchange with the producer of the raw material: the latter has to supply on credit terms, that is on trust that at some future time he will be reimbursed in some way.

The word *credit* is derived, very appropriately, from the Latin word for 'to trust'. The opinion of modern economists, and of course of Innes, is that the division of labour, from the very first moment it was applied, required the creation of a credit system of some kind. It was absolutely necessary to be able to trust one's fellow workers' promises to reward one appropriately at some future moment for one's own products or services. It would have helped to have an enforcing authority, and that makes it all the more likely that trade was conducted in a regulated way, not by free individual option. There seems little point in disputing that contention, as it is obvious that a completely

free market economy has rarely, if indeed ever, existed. We all rely on the existence of an enforcement system. We rely on the rule of law. Mitchell Innes made this point forcefully and correctly.

Credit and law are therefore the basic essentials of economic progress. It is necessary to be able to enforce a promise. Promises are just as freely 'trucked, bartered and exchanged' as are physical goods. The commonest kind of bargain must always have been an exchange of a present physical product or a present service in return for a promise of something of equal worth in the future. But there surely would have been other bargains in which one party traded a promise of future supply against the other party's promise of a future action. It is the trading of promises which is the hallmark of an advanced stage of social organisation.

131

STANDARDISED CREDIT ARRANGEMENTS AS A STORE OF VALUE

We can explain the need for credit more clearly by elaborating the same example which Adam Smith uses in Chapter 2 of *The Wealth of Nations* (1776), for there he mentions 'a particular person makes bows and arrows.' In more refined practice there might be two people, the bowyer (maker of bows) and the fletcher (maker of arrows). Another might act as woodsman, coppicing the trees to produce the material for arrows. A second, more specialised woodsman might seek out the special woods, such as yew, which made the best bows. A specialist huntsman used the weapons. Yet another skilled technician knapped the flints to make the ultra-sharp arrowheads, the invention of which turned mankind in the Mesolithic Age into the most dangerous and destructive of all animals.

Let us assume that the huntsman is in need of a supply of arrows, but until he can hunt he has nothing to give in exchange. So he promises the fletcher ten haunches of venison in exchange for a supply of arrows. In modern terminology he is asking for 'trade credit.' In evidence of his promise he notches ten bones and gives them to the fletcher. These are his 'markers.' The fletcher needs wood, so he asks the woodsman for trade credit, promising haunches of venison when the hunter has been successful. He could hand over some of the markers of the huntsman as evidence of his promise.

The various deals might be notified to the headman, who, we may confidently assume, will also require a reward of venison in return for a promise to enforce the deals. The huntsman gets his arrows, and goes off to the hunt. Having been successful, he pays off his debts to the holders of his markers. The chief gets his reward too.

We cannot be sure that such arrangements ever happened exactly as thus surmised, but notched bones do survive from hunter-gatherer settlements of the Stone Age. Indeed some are very elaborately notched, suggesting to some scholars quite sophisticated accounting. Others claim that the earliest notched bones are calendrical in character. This scholarly dispute may be of no great significance as accounting techniques must at some stage absorb calendrical technology, as time is an important factor in accounting, and the transition from astronomical notation to a notation of obligations is, we are informed, documented by c. 9000 BC (Schmandt-Besserat 1992).

The long established tendency to think of Stone Age people as mere savages, incapable of such sophistication, is surely quite wrong. Mesolithic and Neolithic peoples may have lacked the accumulation of technical knowledge of modern people, but they did not lack their

132

intelligence. Indeed there is the evidence of the complexity of ancient languages to suggest a decline in some intellectual abilities in modern times, not a rise. It has been further assumed that the settlers in the remotest and most barren places were the most savage. There are few places as remote and so infertile as the Applecross Peninsula in the Highlands of Scotland, yet an investigation of the oldest known settlement there, more than 8,000 years old,¹ shows that the inhabitants were capable of deep-sea fishing, a remarkable achievement, and indicative of the mobility of early man on water. A display in a little museum at Dingwall on the opposite coast of Scotland emphasises that the seas around Scotland were not a barrier to ancient mankind, but a highway to Scandinavia and other places.

Sticks are easier to notch than bones, and the notched stick was the main method of keeping permanent accounts in places with ample supplies of wood until the end of the 18th century. In Chapter 5 of *The Universal History of Numbers* (1994) Georges Ifrah introduces his readers to the mode of using notched sticks. In the first sentence of the English edition of this comprehensive work of impressive scholarship he tells his readers that notched sticks - tally sticks - were first used at least 40,000 years ago. He states that as a method of accounting the notched stick has stood the test of time. He suggests that only the invention of fire is older technology than the accounting tally. In the first part of the chapter Georges Ifrah describes notched sticks merely as a means of counting, but on the second page he explains how the tally can be used as a form of bill and receipt, and then likens it to a wooden credit card, nearly as efficient and reliable as the plastic ones with magnetic stripes and microchips with which people today are so familiar.

We have already seen from our example that a promise given from clan member A to clan member B could in principle be assigned to clan member C. Rules have to be worked out to provide for this. A formal law of contract is needed. The law may say that the benefit of a promise can only be assigned if the person who has given the promise agrees. The Common Law of England took the view that a promise could always be assigned so long as assignment was not excluded by the specific terms of the original promise, and provided that the person who has given the promise is notified of the assignment. Later legal developments allow for the creation of promises that can be assigned without notice to the promisers, and also of promises which can be enforced by the bearer of the marker which evidences the promise.

Another circumstance which is implicit in our account is that if the benefit secured by a promise can be transferred to another party, it can be traded, that is exchanged for some other commodity or for a service, or

133

for another promise for the same. Something which can be traded can therefore also be used as a medium of exchange. For a means of exchange to be most convenient, it

helps if a standardised promise is used. As described in Chapter 5 by Professor Michael Hudson, an example from early Sumer is the promise of a 'gur' of barley. The gur of barley was later equated, either by custom or by the command of the ruling body, to a shekel of silver. A written promise to supply a gur of barley could be used as a medium for exchange. As barley was at that time an essential of life, it was surely acceptable by almost everyone as a means of settling debts.

The three commonly recognised characteristics of money are that it should be a medium of exchange, a measure of value and a unit of account, and a store of value. We can readily see that promises are also 'stores of value.' So a tradable promise or 'debt' has the first and the third of the three characteristics which economic theory applies to money. Is not the second characteristic of money, that it should be 'a measure of value,' implicit too? Is not a promise of any kind capable of being a measure of value? It is however inconvenient to have multiple measures of value, and the tendency is to use one commodity alone as the basis of the common measure of value. For reasons we have to guess, silver became a popular standard at a very early date, and was the predominant standard in one location or another for at least 4,000 years.

Trade credit is the essential foundation of the whole economic system, and the essential financial problem of economic development is to monetise trade credit, to turn it into an instrument for transferring value, for measuring value and for storing value.

But first it was necessary to standardise the common unit of account. The *gur* of barley has a great weakness as a standard of value; the yield of the barley fields varies dramatically from year to year, and therefore supply as a ratio of demand is never the same from year to year. Naturally that affects the value of the barley relative to other products. Ideally a medium of exchange should be something which cannot readily vary in value in terms of other products. The ideal medium for the purpose is one which is of itself comparatively useless, is fairly permanent, and which can by convention be given a set value. Innes suggested that there never was a monetary unit which depended on a metallic standard, by which we take him to mean that the monetary unit never was related to the intrinsic value of the metal as a commodity. Instead, the relationship was arbitrary and/or customary. Can we not go further and suggest that, to be usable as a means of exchange, the commodity chosen as the measure of value must be given an exchange value substantially above its intrinsic value as a commodity, so that its value is immune from the effects of supply and demand on its price? At that point, barley and other foods and essential

134

raw materials cease to be an ideal means of exchange. It is not a good idea to enhance the value of the chosen commodity of exchange beyond the true commodity value if the commodity is a necessity of life. Luckily silver and gold are not necessities of life.

THE POVERTY OF ACCOUNTING INFORMATION

It is clear that any promise to provide goods or services can, if it is trustworthy, be traded, and therefore can be used as a virtual means of exchange. It is money in all but name. But a conventional medium of exchange is more useful. The most popular

medium of exchange for the last 5,000 years has been silver, or, to be more accurate, a promise to provide a quantity of silver, measured by weight, has been the commonest medium of exchange. However the actual silver itself quickly became irrelevant in established communities, especially so if they were peaceful. Bullion is the accessory of war, not of peaceful trade.

Few or no records survive from most of the places in the world where early trade took place. From mediaeval Europe one comprehensive set of records of a trader exists, those of Francisco di Marco Datini of Prato in Italy, dating to the late 14th century. Of course the existence of Mediterranean trade from very early times has long been assumed, but prehistoric trade must also have been extensive along the coast of the *Atlantic Facade* of northern Europe, the area which even in hunter-gatherer times carried large populations, thanks to the abundance of fish, the principal food for Mesolithic peoples. It seems to have experienced an explosion of population once agriculture developed. Even West Shetland is thought to have supported 10,000 people from farming (V. Turner, personal communication 2003). Today the population of all the Shetland Islands is only 21,000. Populations shrank when the climate changed, about 1500 BC.

We have no accounting records from the widespread Megalithic Culture of the Neolithic Age which built Stonehenge and Carnac, and which extended from Malta, and via the Straights of Gibraltar as far as Finland. The popular idea of the European Neolithic Age in North West Europe² is of savagery and lack of any wide authority. Why should this be so? The Incas of South America were no more advanced technologically, yet they established a great empire over much less hospitable territory. There are evidences of extensive trade links across Europe, but scholars tend to explain the trade as mere gift exchange, not true trade. Tribal chieftains, they surmise, might do a deal to obtain some rare luxury or decorative item. They are believed to have acquired gold and silver for

135

prestige, not for any intrinsic value, or for use in exchange. A jurist might suggest to anthropologists that in practice the distinction between gift exchange and trade has never been easy to make. The overlap could be nearly total.

Archaeological evidence exists in abundance from Bronze Age Mesopotamia.³ When a great river flows through an alluvial desert, it often changes course and leaves some cities high and dry, and therefore immune from nature's most destructive forces. Lacking other convenient materials, Mesopotamia's inhabitants created permanent records on an indestructible material, baked clay, which enhances infinitely the chances of worthwhile records surviving.⁴

Bronze Age records, as Innes remarks,⁵ show the development of credit for trade, and even more important the development of what modern banker's jargon calls 'documentary credits.' The alluvial plains of the Tigris and Euphrates rivers may have been very fertile but they lacked many useful raw materials, besides the wherewithal to make bronze. The societies which lived there had to be well organised and to cooperate closely as much of the land was useless without irrigation. The temples were the main instrument to supervise this cooperation, and they also became the instruments of industrial development.

We tend nowadays to think of religion as the non-material activity of mankind. Did not Jesus expel the moneychangers from the Temple? Does not Islam forbid the charging of interest on loans? Did not a similar Christian prohibition of usury hold back mediaeval Europe's economic development for centuries? Yet when Jesus took his action against the money-changers he must have been reversing the tradition of several millennia. The temples were the source of commercial law and practice. They had developed writing for the keeping of their accounts. They imposed the moral code which made promises inviolable. In Mesopotamia temples employed the poor, the widows and the orphans in factories which produced textiles to be traded abroad for the commodities the region lacked, including silver, copper, tin and lead. They were, it seems, the major business centres.

In the earliest records scholars find that Babylonian merchants accepted advances of cloth from the temple workshops, in return for which they promised to supply a fixed quantity of silver at a later date. No interest is prescribed in the extant tablets, but that is not really surprising for even modern trade credit rarely states a rate of interest. The interest element is built into the price, and becomes an issue only if the debt is not paid on the due date.

We do not know what happened to the silver the merchants paid to the temples. We assume that it must have been used to buy something for the

136

community. The merchants who traded down the Persian Gulf certainly brought back copper. They probably sold this on their return, perhaps to the temples, in order to acquire the silver to honour their debts. They may not have needed actual silver but only a promise to deliver it.

We can make this presumption because we know that documentary credits were issued which represented amounts of silver. The British Museum in London holds over 600 such documents from a very early period. Each document is in the form of a clay envelope which holds hidden within it a clay tablet. These are similar to the 'case tablets' which Innes described. They present a problem for the Museum which understandably does not want to destroy ancient artefacts to see the insides. So the Museum does not know for sure what is in most of these envelopes. The text on the outside surface is clear: it is a receipt by the temple for a quantity of silver. The inner document from the examples which were opened directs the temple to pay the silver to the bearer.

As Professor Michael Hudson (2002) points out:

As so many of these documents are unbroken, it looks as though they were used as semi-permanent stores of value, at least in the sense of a viable claim or record of such value. What would have been needed for them to have been used as money would have been for them to have passed freely from hand to hand.

The transfer would have been in exchange for commodities, fulfilling Innes' assertion that a sale or purchase is an exchange of a commodity for a promise. If one looks upon the temple as a sort of bank, as Innes suggests, one could then describe the documents in modern terms as bankers' acceptances. They would be, effectively, bills of exchange

payable to bearer, and the receipt on the outside seems to have exactly the same effect in law as a modern acceptance by a banker of a bill of exchange. Klaas Veenhof (1999) has found this to have been the case among Assyrian merchants. In a recent article he mentions cuneiform tablets that represent:

[p]romissory notes which do not mention the creditor by name, but refer to him as *tamkarum*, 'the merchant/creditor.' In a few cases such notes at the end add the phrase 'the bearer of this tablet is *tamkarum*' (*wabil tuppim sut tamkarum*). This clause suggests the possibility of a transfer of debt-notes and of ceding claims, which would make it a precursor of later 'bearer cheques'

Such tablets would have facilitated the flow of money and especially the collection of debts when creditor and/or debtor were in different places.⁶

137

However, the temples in those early days seem not to have fulfilled all banking functions. In the later Babylonian period, after 800 BC, the Egibi family accepted deposits and made loans, but the rate of interest was the same in both cases. Dr Cornelia Wunsch, who has studied the Egibi archive, accepts (Wunsch 2002, p. 247) the view expressed by Bogaert (1996) that as there was no interest rate spread from which to make a profit, this was not true banking. Perhaps we can speculate that there was some other source of profit from the transactions, of which there is no record. There might have been an *arrangement fee* or some other payment on the side. But there would have been no need to make a record of the supplementary transaction if the fee were taken in cash or, more likely, deducted from the loan, a common practice in later ages.⁷

What records did the temples keep of the issuance of these case tablet receipts for silver? Did they know how much they owed in total? To keep proper track of debts and their redemption required a very sophisticated technique, that of double entry bookkeeping. Scholars who can read cuneiform tablets are not normally skilled accountants, but they have looked at the ancient records from the second millennium BC onwards for evidences of double-entry bookkeeping. When the scholars met in conference in November 2000 at the British Museum, Professor William Hallo of Yale presented a paper in which he gave the evidence he had discovered to show that precursors of double-entry bookkeeping had been used in the second millennium BC to keep track of amounts due to a temple and the redemption of those obligations. The accounts were not of transactions in money or silver but of physical items like sheep. (Hallo 2004) Double-entry bookkeeping is just as useful to keep track of physical things as it is of money, and it is perfectly logical that the technique should have first been used to account for them.

There are also documents in which a merchant promises to pay a certain quantity of silver to a named payee, but some are guaranteed by a prestigious local merchant and are assignable. These documents seem to be the ancestors of modern bills of exchange, as Veenhof (1999) has noted. Some documents simply use the term *tamkarum* (merchant) as the payee. Perhaps the effect is that the debtor will pay what is owed to anyone who holds this official designation. It is unlikely to mean just anyone

who happens to be doing deals. The society was bureaucratic, and the merchant was virtually a palace or temple official, or had some institutional authorisation, somewhat like a British chartered company in the 18th century or a statutory company in the 19th century and later.

In sum, not only was trade credit in use from the very earliest time, but very sophisticated means were found to monetise trade debts, that is to make them tradable for other things.

138

COINS VERSUS DOCUMENTARY CREDITS

Although silver, by becoming a medium of exchange, must have acquired a value higher than its intrinsic value as a not very useful commodity, the Babylonians did not invent anything like modern coinage, which has, as Innes suggests, a value in exchange even further above its intrinsic value as metal. Even after the people of Asia Minor had invented coins and they had been adopted by the Greek world, the Babylonians still preferred to measure silver by weight, under the illusion no doubt that that mattered! It was not until Alexander the Great conquered the region that coins were commonly used. It seems quite likely that in the area which was the heartland of the great Persian Empire, documentary credits were used in preference to physical silver. Was the silver merely stored as a reserve, just as in the modern era gold has been accumulated in the Bank of England and in Fort Knox in the USA? Alexander certainly found vast hoards of gold and silver in the palaces and temples of Persia, and the Greeks thought it was odd it had just been stored. Classical scholars have also been puzzled by the phenomenon. The Greeks probably did not realise that the Babylonians had found a convenient way of monetising precious metals, and had minimised the expensive and risky movement of precious metals by the use of an accounting system. But with the conquest came no doubt the breakdown of the legal system, together with its religious backing, on which the documentary credits were founded. Alexander coined (monetised) the gold and silver he found, no doubt to pay his soldiers who would have had little use for documentary credits issued by foreign merchants or strange temples. It appears that trade increased dramatically between the nations in the eastern part of Alexander's empire after the monetisation by coining of the precious metals he found. (Ingham 2004). This and other experience suggests that coins which contain a high proportion of the precious metals did facilitate foreign trade, even though they are unnecessary in a more parochial society. Modern communication systems have made it possible to use documentary credits worldwide, and the case for coins made of precious metals hardly now exists.

Such was the fame of the coins issued in the area now called Afghanistan that when the great archaeologist, Sir Aurel Stein, visited the area in 1907 he found that the old Arsacidian and Bactrian coins were being forged to sell to collectors (Stein 1912). Strangely, when he reached Dunhuang (he called it 'Tunhuang'), 1,000 miles or so to the east, and the ancient gateway of China to the west, he found the merchants were reluctant to accept silver coins, but insisted on payment by weight in the traditional

Chinese horseshoes of silver. A recent insurrection had

139

wrecked the normal political control, and the merchants, though in a society well acquainted with paper money, had reverted in the troubles to bullion, not to coins. Stein called the process 'archaic,' and noted that the merchants used two slightly different sets of scales, one being for buying and the other for selling. The difference gave the merchant a small profit. Stein clearly considered the practice of using bullion by weight as an emergency measure, the result of political instability. The store of silver he had equipped himself with had been bought by weight measured with a third set of scales, which were not correct for Dunhuang use. He was £3 short by the Dunhuang measure. The incident shows the inconvenience of using actual silver, instead of some documentary substitute for it, such as the Babylonians of the second millennium BC had learned to use.

The growth of the use of coins had earlier been a feature of the Athenian Empire, and they seem to have very greatly facilitated trade between the cities of the Mediterranean seaboard, for their use coincided with a considerable expansion of seagoing trade. When the Dark Age descended on Western Europe, the use of coins declined and so did seaborne trade in the Mediterranean. The Dark Age was very dark indeed. England was in some technologies briefly set back in development to 3,500 years earlier. When trade again got going in England at the end of the Dark Age, documentary credits must have again become the main means of exchange over shorter distances, for coins, though they existed, were not common until the 9th century AD when the Saxon Kingdom of Wessex started producing vast quantities of silver coins (Sinclair 2000). There were about 90 mints, about 75 being operative at any one time. They are said to have produced 40,000,000 silver pennies a year, but not for local use: they were used to buy off the Danes who had occupied much of the north of England. The payments were therefore named *danegeld*.

Innes approved the theory that a means of exchange becomes the recognised money of a state when the state is prepared to accept that means of exchange in payment of amounts due to the state for taxes and other burdens. As Viking leaders like Erik Bloodaxe had no intention of paying any taxes to Saxon Kings why was Erik prepared to accept the coins? There are two probable answers. One is that coins are always acceptable if their bullion value is reliable; this coinage was mostly full bodied, very sound. Erik would doubtless not have accepted it otherwise. The second answer could be that Erik and his men spent many of the coins on English merchandise, and the English merchants could use the coins to pay their taxes to the English rulers. If this is what happened, the payment of *danegeld* must have had the effect of vastly strengthening the English economy, the same effect which Maynard Keynes later warned would be the effect of forcing Germany to pay reparations after World

140

War I. Perhaps that is why the English kings were eventually able to defeat the Danes. In 1919 Maynard Keynes made the important point that to acquire the gold for reparations payments, Germany would have to build up its export industries and run a

huge trade surplus. Fundamentally the only way to transfer value from one person to another, or from one country to another, is in the form of goods and services. Therefore a country which is obliged to pay tribute, whether called *reparations* or *danegeld* or *tribute*, must become a far stronger industrial force as a result of producing the goods which earn the money to pay tribute or reparations. Keynes' lesson was learned by the United States in time to adopt a different policy after World War II. After that war, the United States not only waived the debts owed to it, but instituted *Marshall Aid*, huge gifts to European nations and elsewhere, with the purpose, besides altruism, of keeping the United States' workforce fully occupied and preventing the return of the Depression of the 1930s.

That coins were still being valued in Saxon times in some places by their weight is evidenced by a tiny set of scales now in The Manx Museum on the Isle of Man. The scales were specifically designed to weigh Irish coins of the early era. That does not prove that their exchange value really depended on the bullion value; it merely illustrates that some people thought it did!

After the flurry of coin production to pay danegeld, England under the Normans must have reverted to the use of documentary credits as the main means of exchange, tally sticks being used. At the end of the 12th century, a royal treasurer, Richard Fitzneale, set out the principles of fiscal control in a book popularly known as *Liber de Scaccario* (*The Book of the Exchequer*). It was widely read in Europe.

At much the same time the Knights Templar were providing for travellers, at any rate those who were pilgrims, a credit card as a substitute for cash.

MONETISING TRADE DEBTS

Despite the antiquity of the practice of monetising debts, it was still not sufficiently highly developed when the Industrial Revolution started. It is very strange that the importance of trade credit is ignored by economists, yet it is by far the commonest form of credit, and has for most of history been the normal way of capitalising a trade. Nowadays we think of a bank loan as the normal way of financing production, of financing work-in-progress and debtors, but in practice trade credit is still the major

141

source of credit, and in earlier times it was even more important, as can be seen from a case study.

This case study also highlights the need for a better system: conveniently it is related to the personal well-being of the famous economist Adam Smith, author of *The Wealth of Nations*, published in 1776. Smith held the post of Professor of Moral Philosophy at Glasgow University, but in 1764 the diplomat/politician, Charles Townshend persuaded him to give up the post and take on the task of acting as tutor to Townshend's stepson, the young Duke of Buccleugh. In return the Duke promised to give Smith £300 a year for life. The Duke was a very large landowner in Scotland, though much of the land was not very fertile. At one very bleak location, Wanlockhead in south-west Scotland, there were valuable minerals, lead and silver, plus a little gold. An earlier Duke had granted mining leases to the London Lead Company. The leases

were themselves an example of trade credit, a facility offered in return for a promise, for there was no immediate monetary reward to the Duke: his reward was one ingot of lead in seven, and all the silver which was extracted from the lead ore. Silver is normally found with lead, but if it is left in the lead it makes it friable, so it should be removed. The Company did not employ miners for wages, but paid them for the amount of good ore they extracted and cleaned. The miners worked in teams, each team constituting an independent contractor. The lead was sold once a year, so credit was most important to the miners and the company. One can readily envisage that local traders had no alternative but to give credit to the miners for supplies of groceries and the like, and the debts would only be cleared once a year. The miners' debts were almost certainly recorded 'on the slate.' The 'slate' was, if childhood experience of the 1930s is valid, sometimes a public document, so that everyone might know who was in debt to a particular trader, and for how much.

Thus the 'capitalist system' is based on a chain of debt, and even the most humble workman is a capitalist if he is granting credit to the organiser of the production.

When Adam Smith became famous and richer he offered to give up the £300 annuity. The Duke refused the offer, as he regarded his bond as binding, an example of how seriously obligations were taken.

SOLVING THE PROBLEM OF LIQUIDITY

There proved to be several ways of providing a community with transferable debts for use as money. One was for the state to provide it. State debts, commonly in the form of tallies, were the one way of doing it.

142

The other method was for tallies issued by merchants to be used. As Innes describes, there seems to have been an active trade in both throughout the mediaeval era. But state debt was not regarded as reliable. Adam Smith in Chapter 2 of Book II of *The Wealth of Nations* wrote that in 1696 tallies for government debt were trading at 40, 50 and even 60 per cent discount to face value. Consequently an attempt was made to found a bank whose capital base was invested in land, not government debt. Surprisingly it failed, and the Bank of England, whose capital base was invested entirely in government debt, was the winner, perhaps because to start with a very generous 8 per cent was paid on the Bank's loan to the government, plus a huge management fee. But the real significance of the Bank of England was that it put behind the government credit the full weight of the might of the great merchants of England. As Innes explains so well, thereby the government was enabled to use the stronger credit of the merchants to pay its way. *Monnaie faible* was replaced by *forte monnaie*. Strangely most economic historians still prefer the opposite interpretation.

Elementary economic textbooks tend to ignore both government and private tallies, and to concentrate instead on the issue of coins, which can take the form of both private and state debt, though the former also tends to be ignored by textbooks. The minting of coins is a valuable privilege, and in the mediaeval era the right to mint coins was much prized by feudal magnates.⁸ A powerful ruler monopolised that privilege for

himself, and it gradually became a royal prerogative. Yet coinage was commonly in short supply. The Duke of Buccleuch may have found it quite difficult to get hold of coins with which to pay Adam Smith's annuity for during the reign of King George III there was a strange reluctance to issue coins. At one time the shortage became so urgent that a large number of Spanish silver coins were overstruck and issued as British coins. The use of privately issued brass tokens also became more common at about that time. Thousands of tons of tokens were produced in Birmingham, many for The Parys Mountain Company and made with copper from its huge mine in North Wales.

Coins were no doubt equally rare in the British North American colonies. British policy towards North America was foolishly restrictive, being designed to discourage the colonies from becoming industrialised. The purpose was to restrict the colonies to the function of being suppliers of raw materials for British industry. The Americans showed their lively inventiveness by developing the use of the debts of the colonial governments as paper currency. Benjamin Franklin, commonly regarded as the cleverest man of the 18th century, was enthusiastic for paper currencies. In 1729 he published a paper in their praise, and even had a business, started when he was only 20 years of age, for printing the bonds

143

which were used as paper money by the colonial governments. Some states and cities overdid the issues with catastrophic results. Adam Smith thought them totally unsound. The bonds paid no interest and were not redeemable for 15 years from issue. Smith urged that they should be valued by discounting them at 6 per cent to their redemption date. It did not occur to him, despite his theories of the free market, that so long as the supply and demand for the bonds as a means of exchange was kept balanced, there was no reason why they should yield interest. In 1764 the British Government acted to ban the paper currencies. The effect was doubtless catastrophic. It must have ruined the credit base of the colonies. Franklin later told the British Government that their act in banning the paper currencies was the cause of the American Revolution. It was not very sensible to follow up the destruction of a credit system by raising taxes, but that was what was done by the British Chancellor of the Exchequer, no other than Adam Smith's friend and patron, Charles Townshend.

Banknotes were another convenient substitute for money, but there were problems with them. The Scots were pioneers of banking and the issue of banknotes. That may have been partly prompted by the fact that Scotland had very little government debt that could be used as money. At the time of the Act of Union (1707) between England and Scotland the Scottish government had debts totalling only £100,000; the English crown owed £20,000,000. The best-known Scottish monetary theorist of the time was John Law, who published a paper which set out a system for monetising the value of land. Another Scot named Paterson put forward the idea of founding a Bank of England, which could issue banknotes.

A popular view among economists is that the founding of the Bank of England monetised the government debt. Although it may have had the capability to monetise government debt, its primary action seems to have been the very opposite: it took government debt out of circulation, for government debts, doubtless evidenced by tallies, with perhaps short redemption dates, were replaced by a large bank loan

secured on an irredeemable government annuity. If the structure which was created in 1694 were being founded today, it would be described as principally an investment trust of government loans, not as a bank. The arrangement the Bank of England made with the government would be described as a funding of the government debt, that is the replacing of short-term liabilities with long-term ones. That reduces the amount of government debt which can circulate as money, so the common academic view of the purpose of the creation of the Bank of England looks mistaken. The circulating money which the Bank could create was its notes, but these were commonly issued to private individuals in exchange for commercial

144

bills of exchange. They were therefore mostly a means of monetising private debt, not government debt. Details of the early issues of notes are hazy, but in 1697 the Bank was being criticised for having, in modern terminology, a capital adequacy ratio of less than 50 per cent. When the Bank of England was created in 1694, it was given a monopoly of banking for 65 miles around London. Its position was further strengthened by a law which forbade any banking partnership of more than six people, so the Bank of England had a monopoly of joint stock banking. That rule was not as restrictive as it might have been as there was nothing to stop a person being in several partnerships at once. Moving around East Anglia one would have noticed the names of several Quaker businessmen appearing regularly among the list of partners in the local banks. The names most often seen were Barclay, Bevan, Braithwaite, Gurney, Tritton, Birkbeck, Buxton, Tuke, Gibson and others. These banks issued banknotes, mostly for local use, against the security of bills of exchange.

Although the Bank of England contributed to liquidity it seems that what it supplied was nowhere near enough for the needs of the economy. The fact that the only note which survives from the early era is for the sum of £555 and is made out in favour of a named individual may be an indication that the Bank did not then see itself as the provider of a national currency. When the state fails to provide a medium of exchange, the public has to invent its own. This it did. The means it adopted was the bill of exchange, the improved paper version of the mediaeval wooden tally stick and the Babylonian baked clay tablet. The extent to which the bill of exchange became the main means both of monetising debts, and of providing a means of exchange, is illustrated by figures prepared in the late 1830s by a Mr. Leatham, and quoted by Henry Tooke in his 1844 *An Enquiry into the Currency Principle*. Tooke writes:

That transactions to a very large amount are adjusted by bills of exchange has long been known and admitted in general terms; but the vastness of the amount was not brought distinctly under the notice of the public till the appearance of a pamphlet by the late Mr. Leatham, an eminent banker at Wakefield. According to a computation, which he seems to have made with great care, founded upon official returns of bill stamps issued, the following are the results.

Mr. Leatham gives the process by which, upon the data furnished by the returns of stamps, he arrives at these results; and I am disposed to think that they are as near an approximation to the truth as the nature of the materials admits of arriving at. And some corroboration of the vastness of the amounts is afforded by a reference to the adjustments at the clearing house in London, which in the year 1839 amounted to

£954,401,600, making an average amount of payments of upwards of £3,000,000 of bills of exchange and

145

RETURN OF BILL STAMPS, FOR 1832 TO 1839 INCLUSIVE		
	Bills created in Great Britain and Ireland, founded on returns of Stamps issued from the Stamp Office.	Bill Average amount in circulation, at one time in each year.
1832	£356,153,409	£59,038,852
1833	£383,659,585	£95,914,896
1834	£379,155,052	£94,788,763
1835	£405,403,051	£101,350,762
1836	£485,943,473	£121,485,868
1837	£455,084,445	£113,771,111
1838	£465,504,041	£116,316,010
1839	£528,493,842	£132,123,460

cheques daily effected through the medium of little more than £200,000 of bank notes.

As illustrative of the position for which Mr. Leatham contends, and conclusively, as I think, that bills of exchange perform the functions of money, he observes,

For a great number of years, it had been the custom of merchants to pay the clothiers in small bills of £10, £15, £20, and so up to £100, drawn at two months after date on London bankers. I have always considered this the best part of our paper currency, ranking next to gold; the bills existing only for limited periods, and acquiring increased security as they pass from hand to hand by endorsement. From the unreasonably high stamp laid on small bills in 1815, the merchants have ceased to pay in bills, but pay notes instead, requiring 2d. in the pound for cash from the receiver; and I find the revenue has much decreased in consequence in this class of stamps, pp. 44, 45.

The use of bills of exchange as popular currency is unknown in modern times, and consequently their importance in earlier times is missed by modern economists, and especially by monetary theorists. The most common bill of exchange is an instruction by the seller of goods to the buyer of goods to pay a fixed sum at a future date, usually 30, 60 or 90 days hence. The buyer, or his bank, signs the bill to show he or it accepts the liability. The benefit of the bill can be transferred to a third party, to a fourth, to a fifth and so on without limit. Each new transferor endorses

146

the bill and thereby becomes liable upon it if the original debtor defaults. An endorsement is, as its name suggests, a signature on the reverse of the bill. If one runs

out of space, an attachment called an *allonge* is made to hold further signatures. A bill which has a string of endorsements by reputable traders is better than gold, better than the notes of a small country bank, and even better than a Bank of England note in that it carries interest, for the price at which it changes hands is determined by discounting the period to maturity at an appropriate rate of interest.

It will, one trusts, occur to monetary theorists that the capability for the creation of money in the form of bills of exchange is potentially infinite, but of course in practice the need for acceptable names to appear on the bills limits the free creation of bills. Correctly used the bills will never exceed the amount of trade credit outstanding. The total amount will tend therefore to reflect the level of economic activity. We can see glimmering before us the monetary theorist's ideal, a money supply which reflects economic activity exactly and therefore is not inflationary. Unfortunately bills were not always correctly used. There is no perfect system.

The period covered by Leatham's figures was one of great economic advance. The first passenger railway had opened two years before his first figure, and the railway age was in full swing. We can note that in seven years the amount of bills outstanding more than doubled. Yet the bullion reserves of the Bank of England did not double. Tooke quotes figures produced by a Mr. Pennington for some of the years included in Leatham's figures. They show the bullion held by the Bank as £6,283,000 in July 1834, £7,026,000 in January 1836, £9,336,000 in January 1839 and a mere £3,785,000 in July 1839. Economic activity could not therefore be closely related to the bullion reserves of the Bank of England. During the same period, the Bank of England was not, it seems, increasing the supply of its bank notes at the same rate as the expansion of the economy for Pennington's figures show the value of notes in circulation with the public as £18,283,000 in July 1834, £19,076,000 in January 1836, £21,336,000 in January 1839 and £18,049,000 in July 1839. The bank put the security of its notes above all other requirements, and continued its cautious attitude until 1917 when the Treasury lost patience with the Bank's caution, and took over the issue of low-value notes. The Treasury notes had no gold backing.

147

SOME DEBT BECOMES MONEY

If an obligation is assignable, it can be used both as a medium of exchange and as a store of value. If the obligation is not only assignable but is expressed in terms of the standard measure of value, it can properly be regarded as money.

As Innes makes clear, by nature all money is assignable debt. A pound note is theoretically a debt of the Bank of England. A bank deposit is a debt of the bank. A holding of gold is a portable form of debt. It may be argued that modern coins do not fit into the category of assignable obligations. They are issued, usually by the state, in return for value given, but the state has no intention of making a reverse exchange. Admittedly it could commandeer goods from other citizens in order to redeem coins offered to it by a holder, but it never does so. At one time, but not nowadays, the state accepted coins in payments to itself, and that sufficed to make them acceptable to all.

That acceptability has continued even though the British Treasury no longer takes any coins back.

Obviously the holder of a coin is a creditor, because he has obtained it by a supply of goods or services, but who is the debtor? As Adam Smith puts it in Chapter 2 of Book 3 of *The Wealth of Nations* : 'A guinea may be considered as a bill for a certain quantity of necessaries and conveniences upon all the tradesmen in the neighbourhood.' By *bill* he means a bill of exchange, the normal debt instrument of his time.

If a person holds such coins, he or she got them by providing goods and services to the community, and consequently is morally entitled to goods and services in return. He or she is not a creditor of any specific person or institution, but is recognised as a creditor by anyone who provides him or her with goods in return for his or her gold. Although the nominal debtor is the issuer of the coins, in practice anyone who accepts them in payment has volunteered himself as the debtor *pro tent*. With forms of money other than gold and silver or those currencies deemed to be legal tender by statute, the fact that money is by nature assignable debt is more obvious.

Mitchell Innes is categorical on this point. In his summary at the end of his paper he states, 'A sale and purchase is an exchange of a commodity for a credit' (1914, p. 168). The coins or banknotes the seller receives for his supply are the measure of the credit he has given to the purchaser, and, more widely, they reflect the debt society as a whole owes him.

The modern practicality is that the state has no intention of redeeming currency notes, but will accept them in payment of debts to itself, or for exchange into its own bonds. We mentioned earlier that Adam Smith objected to the North American Colonies use of 15-year bonds as

148

currency, and wanted them to be valued at a discount to maturity of 6 per cent. Yet modern governments issue notes with no maturity date at all. The notes of the Bank of England do bear the legend 'I promise to pay the bearer on demand the sum of ...' and this promise is signed by the Chief Cashier. However if one tries to present one of these notes at the Bank and demands payment, the payment takes the form of another note bearing exactly the same promise! In reality, therefore, with modern banknotes too, the real debtor is anyone who accepts them in exchange for supplying goods or services. By accepting the notes, the vendor/recipient has acknowledged by his action that the holder of the notes is a creditor of society, and the recipient in turn expects to acquire the same privilege. So long as he or she does so, the banknotes are acceptable currency. To paraphrase a remark of Aristotle 'From customary practices, moral rights develop.' As with coins, a holder of banknotes has acquired them by supplying goods or services in exchange, and therefore has an undoubted moral right to an equal value of goods and services from the community.

But the Bank of England, like other central banks, goes through the motions of keeping a stock of assets to balance the notes outstanding. Since 1844 the Bank had been divided into two departments, *The Banking Department*, which holds the accounts of the institutions which bank there, and *The Issue Department*, which publishes a balance sheet showing the issued notes as liabilities, and on the other side of the balance sheet are the assets in which the proceeds of the note issue have been

invested. Mostly the assets are government debts, but often the assets will include commercial bills of exchange. The income earned by the assets is handed over to the British Treasury, less the cost of managing the note issue. It may sound like a bureaucratic farce, but the practice at least makes it clear that banknotes are a debt, and the asset backing gives confidence though only psychologists might be able to explain why.

Although most commercial bills of exchange reflect sales of goods and services, they can easily be manufactured to reflect no worthwhile movement of value. One fraudulent practice was known as 'kite-flying.' What happened was that two collaborators would issue bills to each other and discount them with banks. When the time came for payment they would repeat the process. There would seem to be no limit on the amount of credit which could be created by the unscrupulous, but the restraining factor was the need for at least one 'good name' to appear on a bill-Without it the discount rate could be horrific. Nor was the discount rate on bills affected by usury laws which restricted the rate of interest chargeable, or the total prohibition on interest which the mediaeval church tried to enforce. One of the suggested reasons for the popularity of

149

bills was that they were exempt from such religious restrictions. The reason for the exemption was supposed to be the fact that the discounter of a bill of exchange was taking a risk. Reward for risk was approved; receiving interest, supposedly without risk, was condemned. In real life situations the rate of interest reflects the degree of risk. The church's total ban on interest was unrealistic, and the existence of a devious way of avoiding it was an economic necessity.

It has been observed time and time again in the last 400 years that banks can create credit very freely, because they know that the drawing down of a loan automatically creates the deposit which balances the lending. When a bank has agreed to lend, the moment that the loan is drawn down by the payment of a cheque drawn upon it, a deposit to match it is also created at the receiving bank. Therefore the moment a borrowing takes effect, the saving to match it must arise as well. Even if the borrowing is to finance a capital project, the saving to match that capital investment must come into being automatically the moment the loan is drawn down to make a payment. As all money is effectively transferable debt, then money can be created by creating debt. Once it is realised that all money is some form of debt, it becomes obvious that money can only be created by creating debts. This has been understood by good economists for hundreds of years, but is rarely understood by the public. But, as Innes makes clear, although all money is debt, not all debt is money.

DOUBLE-ENTRY BOOKKEEPING

All financial matters, like that just described, become easier to understand when the reader is conversant with the principles of double-entry bookkeeping. That is harder than it sounds as most of the world's accountants seem to be unsure of the reasons for the procedures they have learned to follow. Double entry is used because of the basic

fact that every movement of value has two aspects, and both should be recorded in a proper set of accounts. For the giver of value the transaction is a credit, for by giving value he has earned a credit, he is owed the equivalent. For the receiver the transaction is a debit, because he is a debtor for the value.

The basic rules of double-entry bookkeeping are as follows:

- 1) debit value in, credit value out;
- 2) debit receipts, credit payments;
- 3) debit assets, credit liabilities;
- 4) debit losses, credit profits.

150

People whose only experience of accounts is their bank account are always puzzled by rule 2. That a payment is credited to cash, and a receipt of money is debited, sounds very odd to them, as on their bank accounts exactly the opposite happens. But the bank account is how the customer's transactions appear in the bank's accounts, not the customer's. A bank statement is a copy of the bank's books. When a customer has a credit balance that means the bank owes money to the customer. Any additional deposit in the account increases the bank's liability to the customer, so his account is credited. The customer's record in his own books of his banking transactions - if he keeps any - must show the items on the opposite sides to those shown on the bank's statement.

That an asset is a debit is also puzzling, but it represents 'value in.' If I buy an asset, my payment will be credited to my cash account, and the balancing debit will be to the asset account. If I sell the asset to a customer, I will credit the asset account, and debit the customer with the cost. When the customer sends me a cheque in payment I will credit his account in my books with the sum, and debit the money to my cash or bank account. But by bank account I mean the bank's account in my books, not my account in the bank's books.

Every transaction has to be recorded twice, or a multiple of twice, in any set of accounts, each as a debit and as a credit. There are no exemptions to this rule. The need to record things twice seems to have occurred to those responsible for accounts at least 4,000 years ago. When a sheep was due to the temple from a peasant, the temple would record the sheep as owed by the peasant, and list it as a part of the income of the temple. When the sheep actually appeared, the peasant's record would be credited, the debt wiped out, and the temple would add the sheep to the list of the sheep it owned. The accounts of that era went no further along the road of developing the full sophistication of a modern accounting system, but, as has been mentioned earlier, the basic element of a double record seems to have been there.

Of course double entry serves another purpose. As the debits and credits must always add up to the same figure there must be an error if they do not. When computers came into use, those who programmed them were not always properly conversant with accounting principles, but they were sure a computer could not make a mistake. Some therefore devised single-entry systems of computer accounts, with predictably disastrous results.

There is a huge body of evidence of the existence of an earlier accounting system, practised over a very wide area. It was based on a system of tallies in the form

of clay tokens, or other objects, and existed from at least as early as 8,000 BC. The possibility that these tokens were

151

part of an accounting system was first publicised by an American scholar, Denise Schmandt-Besserat. The British anthropologist, Richard Rudgley, has implied in Chapter 3 of his book *Lost Civilisations of the Stone Age* (1999) that she was too conservative in her view of the accounting abilities of Palaeolithic and Mesolithic peoples. George Ifrah (1994) in his book on Numbers also suggests that accounting techniques go back to the Old Stone Age. Ifrah reveals the great arithmetical skills of the ancients, but there is still some misapprehension as to the ease with which numbers were handled. There is a popular assumption that only the advent of Arabic numerals into western Europe allowed easy calculation.⁹ The fact that Roman numerals remained in common use in Britain till the end of the 17th century is explained by textbook writers as due to the reluctance of the Church to allow an infidel numbering system with its Satanic 'zero.' The Arabic zero was of use on paper, but the normal weapons of calculation were beads ('calculi')? the hand, and the abacus, all of which are equipped with a zero. The closed hand is zero, and the abacus shows zero when the beads are at the inactive end of the wire. As for Roman numerals, they have a great advantage in that they require no mental effort to do additions and very little to do subtractions. For addition one just shuffles the numerals together and rearranges them. Moreover there were methods of doing long multiplication and long division which were easier though slower than those now taught. They are not described in Ifrah's book. The ancients could do any calculations except those which required decimals or used negative numbers.

THE CREATION OF MONEY

We have seen how easy it was to turn trade credit into money. Strangely economists have rarely noticed that this facility to create credit could be inflationary. Instead they have concentrated on the ability of banks to create money, and tried to find ways of limiting that. As we have seen, when a bank grants a loan, the drawing down of that loan creates a debt, and when the amount drawn down is paid into the account of the recipient of the payment which drew the loan down, it creates a credit. In the aggregate the accounts of banks are always in balance. So in theory a bank can grant unlimited loans in the knowledge that the amount lent will always appear somewhere as a deposit to balance the lending. The snag for the bank granting the loan would seem to be that the deposit might be made in another bank. Actually this is no problem at all. If one bank has a loan not backed by a deposit, another bank will have a deposit which is unlent. The two have to meet up; the bank with the excess lending will

152

borrow, directly or indirectly, the excess deposit from the other bank. As Mitchell Innes says on page 168 of his second paper, 'A banker is one who centralises the debts of mankind and cancels them against one another. Banks are the clearing houses of

commerce.'

To put it in the simple words of the treasurer of a large modern bank, 'If we are short, we know the money has to be somewhere. Our only problem is to find it, and pay the price asked for it.'

The problem of finding the money is made much easier for a bank if it is a member of a clearing system. For those financial institutions which are not in clearing systems the problem is more difficult. Those institutions are more likely to restrict their lendings to the amount of deposits they already have, for if they do not, making up the deficit might cost more in interest than was obtainable on the loan made. In Britain building societies were at one time not members of the bankers' clearing system, and if they were in deficit they would have to borrow from a clearing bank which had easy access to unlent balances.

In theory there were factors restricting the unlimited creation of credit. Economic textbooks usually concentrate on the need which banks have to pay out cash. The customer granted a loan may want banknotes, and in that case the amount lent does not turn up in the banking system as an unlent deposit. In such a case the bank's credits in respect of lending go up, and its credit in respect of cash goes down. What if the amount of cash it holds is not enough to meet all demands? Then it will have to buy notes from the Issue Department of the Bank of England. If the Bank of England puts a limit on the amount of notes it will issue, surely this will be a restraint on lending.

In the 19th century the Bank of England put severe restraints on the issue of notes, but as we have seen the public circumvented that restriction by turning bills of exchange into money. In those days the Bank was under an obligation to redeem its notes in gold, if required, so it had an incentive to restrict its note issue. We have seen above from Mr. Leatham's figures that the prejudicial effect on the economy was limited, though it did have an influence. After the ending of the 'Gold Standard' Parliament tried to achieve a similar effect by putting restrictions on the issue of bank notes. The 'Fiduciary Issue' was the name given to the total of Bank of England notes in issue, and Parliament required that the amount issued should not exceed what it had authorised. But whenever an increase was asked for, it was automatically granted. The exercise of asking Parliamentary authority became a farce, and it was dropped. It was realised that the issue must be exactly what the public demanded at any one time.

153

One idea for restricting the creation of credit was a remarkable example of the lack of understanding by politicians and some economists of the principles of double-entry bookkeeping. It was popular on or off for 30 years. It was called *special deposits*. The idea was that banks should be obliged to deposit extra amounts with the Central Bank, amounts over and above the working balances they need, and any other prescribed amount required as a formal reserve.

A close look at the detailed bookkeeping of special deposits reveals that the only way a bank can make a deposit at the Central Bank is to obtain, directly or indirectly, some form of financial instrument drawn on the Central Bank. That financial instrument could be banknotes, but they are an unlikely payment medium because, as currency does not earn interest, the banks keep only sufficient to enable them to cover their customers' day-by-day demands for it. It is pointless for a bank to give to the Central

Bank a cheque drawn on itself: that can only force the Central Bank to lend the money back to the originating bank. If the bank has money owing to it by another bank, it can draw on that bank instead. This would cause the second bank to draw on its own balance at the Central Bank at the very time when the Central Bank is probably requiring it also to make special deposits.

Therefore the only practicable way in which the banks can increase their aggregate deposits at the Central Bank is to pay into the Bank cheques, or other forms of payment, drawn on the Central Bank (i) by the government, (ii) by some other customer of the Central Bank, or (iii) by the Bank on itself. The actual process might well be a little more roundabout than that, but the effect is the same.

Special deposits were a very popular instrument of policy with British governments from about 1960 onwards, and the events that resulted make excellent case studies to illustrate the folly of the procedure. Analysis shows that, when British banks increase their deposits at the Bank of England, the Bank lends or invests the deposited money. It has the usual options: (i) to lend to the British government; (ii) to buy British government stocks ('gilts'); (iii) to buy commercial bills of exchange. Sometimes it will lend money to the government which will itself use it to buy investments. It is, of course, likely, if not inevitable, that the investments bought either by the Bank or by the government will be the same ones as those which have been sold by the banks in the first place. The procedure looks ridiculous, as indeed it is! Put at its simplest the procedure is: (i) the Bank of England lends money to the government which (ii) uses it to buy government stocks or bills of exchange from the banks. With the money received (iii) the clearing banks make special deposits at the Bank of England. The effect of special deposits is (iv) to

154

transfer lendings (government stocks or bills of exchange) from the commercial banks to the Bank of England. All that has happened is that there has been a change of lender. Nothing more significant has taken place.

The real effect therefore of special deposits is to transfer some loans to the Central Bank, and that leaves the commercial banks free to replace what they have lost by making yet more loans. The economic effect is the opposite of that intended.

CAPITAL ADEQUACY RATIOS

A bank mostly lends other peoples' money, that is its depositors' money, but it is obliged to have a reserve of its own shareholders' funds which is related to its total assets, and in particular for those assets which are loans to its customers. The rule is that the reserve must be not less than 8 per cent of the 'weighted assets.' We will explain 'weighting' later. The amount of funds available for calculating the reserve is called 'the capital base' of the bank. Not all of shareholders' funds necessarily qualify for the capital base as they may be balanced by assets which are not readily realisable. On the other hand the capital base can be provided by some loan capital of the bank (and therefore not constituting shareholder's funds). These loans have to rank lower than customers' deposits in a liquidation, and are therefore referred to as 'deferred liabilities.' The

percentage of the capital to weighted loans to customers is called 'the capital adequacy ratio.'

In the 19th century the capital adequacy ratio was as high as 35 per cent (Collins 1988). Gradually the proportion reduced and in the early 20th century it is thought to have been nearer 10 per cent. The banks were allowed to keep their true financial position secret, so one cannot be sure of the true ratio. During World War II the capital adequacy ratio of British banks as a percentage of all loans fell to a mere 2 per cent. But 80 per cent of bank loans and investment at that time were to the government, and therefore considered risk-free. It is permissible to 'weight' such loans, so that for the purpose of calculating the capital adequacy ratio their value is reduced.

In 1988 an international agreement was made which defined the weightings of loans and set the minimum capital adequacy ratio. The agreement, known as the Basel Capital Accord, came into full effect in fiscal 1993. The weightings range from nil for short-term loans to OECD governments, through 50 per cent for loans for domestic mortgages, to 100 per cent for unsecured loans. The minimum capital adequacy ratio is

155

8 per cent, of which no more than half may be in the form of deferred loan capital. The agreement is under revision at the time of writing.

Superficially the Basel Capital Accord sets a maximum to the amount of lending a bank can do, and therefore limits its ability to create money. The restriction is only superficial, as if a bank goes over its limit it can always force some borrowers to fund their loans via the bond market, and thereby take their borrowings out of the banking system altogether. In recent times additional measures have been found to get the loans off the balance sheet, and the general term for the process is called 'securitising bank lendings.' There are a number of other techniques which have been devised which are supposed to restrict bank lending, but in practice none have much effect, and many do the opposite of what is intended. 'Overfunding' is one of the latter. Overfunding is when a government borrows more money than it needs. It does not reduce the overall credit supply as the money raised by the funding has to be lent!

The favourite technique of all is to raise interest rates. The short-term effect of that is to increase the money supply, as any set of bank statistics will demonstrate, and the longer-term effect, if it does not completely wreck the economy, is to cause stagflation, a combination of continuing inflation with stagnation of the economy. The theory that raising interest rates causes prices to fall is believed to originate with the answer given by J. Horsley Palmer, Governor of the Bank of England, to question number 678 of the Althorp parliamentary committee of enquiry into the monetary system in 1832. The questions and answers were preserved as the minutes of *The Secrecy Committee* of the Bank of England and the minutes are in its archives. Altogether over 5,300 questions were asked by the committee of people with names like Mr. Baring and Mr. Rothschild, but the first 913 questions were put to Governor Horsley Palmer. His answer implies that if money is made more expensive, which was assumed to mean that interest rates are raised, fewer loans will be sought, demand for goods will consequently fall, and prices will fall.

The odd thing is that earlier in the questioning Horsley Palmer was asked about the consequences of a specific occasion in 1825 when the Bank's discount rate was

raised, and in his answer he said that discounts -that is lending - increased. The empirical evidence he revealed was therefore at odds with the theory he enunciated, but his theory was accepted by most academic economists from then onwards. A few economists objected that if interest rates were higher than in other countries, credit would be attracted from abroad and prices would rise. The empirical evidence suggests that this is true. However it was not until January 1923 that the full evidence was collated. A. H. Gibson, author of a standard textbook on Bank Rate, published an article in *The Bankers*

156

Magazine of London. In it he gave data for 131 years from 1791 to show a close positive correlation between wholesale prices and long-term interest rates. The article came to the notice of J. Maynard Keynes who did further research to show a significant correlation between short-term rates and prices as well. In 1930 Keynes published his *Treatise on Money*, and in the second volume he republished Gibson's data. He named the phenomenon *The Gibson Paradox*, and fiercely criticised professional economists 'for preferring to ignore it.' Wars are always inflationary, but Keynes relied on low interest rates as part of his very successful anti-inflationary strategy during the war years 1940 to 1945.

'Interest is a cost like any other and will be reflected in my prices,' said a businessman in response to a question about his reaction to a rise in the official discount rate. But high interest rates bring recession and unemployment, so the consequence of high interest rates is a combination of stagnation, if not recession, and some continuing inflation, a phenomenon which caused the word 'stagflation' to be invented. The phenomenon was unknown until the policy of raising interest rates to fight inflation was introduced and regularly followed. In Britain that turning point came in November 1951.

To summarise, there seems to be no truly effective way, short of physical controls, of curbing the creation of credit. Realising that fact, in July 1946 the British Government passed the Borrowing (Control and Guarantees) Act which forced every borrower of more than £ 10,000 to seek government permission, but the Act omitted to cover trade credit. The physical controls were not therefore fully effective, nor were they well implemented. The Act was abolished in 1985.

VARYING CAPITAL ADEQUACY RATIO

Varying capital adequacy ratios, and the weightings of assets, could be a strong system of control of the quantity and quality of bank loans, and therefore on the level of money creation. The level of bank capital would also have to be controlled in order to make the system effective. Thus permission would have to be sought for the raising of new capital for banks, and the capitalisation of profits would also need permission. The need to apply restrictions fairly would surely inhibit free competition between banks, so it would not be a popular system. It is also unlikely that the controls would be operated with sufficient wisdom, and they would be subject to political interference. Both defects were apparent in the borrowing controls established by the 1946 Act.

PRIMARY AND SECONDARY CREDIT

Percipient economists like to point out that supply and demand for goods and services are always equal. In a sense therefore the economy at any one point in time is in a state of equilibrium. On the other hand there are always disturbances taking place, so one could say that equilibrium is an ideal which never happens. Whether we agree with the first of these viewpoints will depend on the meaning of the words 'supply' and 'demand.' Surely what they have to mean in this context is the volume of goods and services actually traded. 'Supply' does not mean 'available for sale,' but the total actually sold. Implemented demand is the reciprocal of that, so by definition they are equal and in equilibrium. This equality led the French economist Jean Baptiste Say to propose a *Law of Outlets* which says that 'Supply creates its own demand.' To most students the law sounds like nonsense because they instinctively think of supply as the availability of goods and services, not the actual supply of them to purchasers.

Is the true meaning of Say's Law that in the worldwide aggregate the proceeds of sale of all goods and services sold provide the purchase money for all goods and services acquired? That sounds logical. It could indeed be described as a fundamental principle of double-entry bookkeeping, and consequently it should be the first axiom of economics. Surely it is a truism that in a given period the value of sales of goods and services must equal the value of goods and services bought. The proceeds of sale equal the purchase price. Does Say's Law of Outlets therefore indeed mean that the one finances the other? It can mean that with one proviso: as we have seen earlier in this paper, there must be a credit system to bridge the time gap between production and sale. With the proceeds of sale of my goods, I can buy yours. With the proceeds of your sales you can buy my goods. But the money for neither purchase is available at the time it is needed, as each purchase is dependent on the other having taken place.

In a barter economy, which has no money, one overcomes the problem by a direct exchange of the goods and services, if that is possible.

Once credit is available to make a sale for money possible, it would seem that Say's Law ceases to be relevant: the total of all purchases is no longer financed by the proceeds of all sales, as some are financed by credit, which may in some cases never be repaid. But if credit for a purchase is not repaid, then the effective sale price falls to nil, and in an indirect way Say's Law is still fulfilled. The loss is born, however, by the giver of the credit, who may not be the same person as the seller. There is

however a circumstance which can wreck the operation of the Law. It is best explained by a theoretical example.

Manufacturer, John Doe, borrows from his bank newly created credit and he uses it to pay his workers for their production. One worker, Richard Roe, does not spend his wages, but deposits them in a bank. Thus his deposit at the bank is balancing, indeed financing, that part of John Doe's bank loan which equals the wages

paid to Richard Roe. Richard Roe is thus financing his own production. He is lending his employer the money with which to pay his own wage! Say's Law cannot operate unless Richard Roe's wages are spent with someone who will buy Richard's produce. Richard does not have to spend it himself: he may lend his deposit to someone who will buy his produce.

This is, one admits, a curious situation, and probably beyond the comprehension of anyone not well versed in the principles of double-entry bookkeeping. Keynes in his attacks on saving was fumbling his way towards understanding it. 'One man's saving is another man's unemployment,' he said. Major Clifford H. Douglas, the founder of the Social Credit movement, came nearest to understanding it, for he was sure there was a gap between the price of all products and the capability to buy them all. But he did not correctly perceive why that gap existed. He saw its cure clearly enough, which was to create the purchasing power for someone to buy Richard Roe's production. He may have wrongly described the aetiology of the disease, but his remedy - a handout by the state to every citizen - would have been effective to cure it by increasing demand. An alternative cure is the establishment of a consumer finance industry which creates the credit/money needed to buy all demanded produce. Douglas's solution has not come into being in the precise manner he suggested, but whenever the state retirement pension is paid from government borrowing, in effect his plan is at least partly functioning.

It may seem odd that we should advocate that Richard must lend his bank deposit to someone, for is it not already lent to the Bank, which in turn has lent it to his employer, John Doe? True, but it can be lent again, and indeed has to be lent again. So let us call the lending which creates new credit 'primary lending,' and any further lending of the sum thus created can be called 'secondary lending.' So let Richard Roe make a loan directly to someone who will spend the money Richard has saved.

Once a deposit has been created it can be used as money, passing from purchaser to seller, and then the seller also becomes a purchaser from another seller. This can extend to infinity. To use the normal terminology, once money is created it can 'circulate.' It will circulate until it is used to pay off a loan. When that happens money equal in amount to Richard

159

Roe's savings ceases to exist, because a debt has ceased to exist. Mitchell Innes understood this effect perfectly.

Because a loan becomes money which can circulate, we can say that an initial grant of credit which is drawn down has a multiplier effect. A simple loan ends up financing transactions of far greater value than the original loan. Political economists (and even Maynard Keynes) used to say that $M=IOUs$ of entrepreneurs, 'M' being the total of money. That was far too limited. The IOUs can be from anybody. The concept of the circulation of money led to the statement by the mathematician, Professor Irving Fisher of an equation which he wrote as $MV=PT$ 'PT' is the value of all transactions in a given period. 'M' is the total of debt that is in use as money, and 'V' is the speed at which the money circulates. Mathematicians get so used to talking in symbols that they do not always observe that their symbols form an equation which is incapable of calculation. How does one multiply money by speed? What Fisher should have said is that $Mf=PT$,

'f' being the frequency with which the total of money has circulated in the given period.

The understanding that the creation of a debt can have a multiplier effect is of vital importance. It reveals that Maynard Keynes' trusted friend, Richard Kahn, was not being fully percipient when he said that 'investment' had a multiplier effect. The mere act of drawing down a loan can have a multiplier effect on the economy, regardless of whether the loan is spent on investment (by which Kahn meant what statisticians now call 'fixed capital formation') or on consumption. If the loans are directed to create a demand only for consumer products, that demand will in turn create a need for loans to finance the real investment in plant and equipment which will supply the additional consumer goods. These loans may be financed by the secondary credit available as a result of the original loan. That is the true multiplier, a credit multiplier.

We all know that the level of demand can vary from time to time, and economists are in the habit of talking about a 'trade cycle.' Is it not likely that what is behind the trade cycle is a credit cycle? The credit supply is expanded, and there is a consequent boom. But credit cannot be expanded for ever. At some point the borrowers try to consolidate and pay down their loans. At that point 'money' becomes scarce, and trade declines. Worse still prices may decline, making it more difficult to earn the money to pay off debts. Price deflation is the greatest curse that can befall any economy, for it makes people become yet more cautious, and a recessionary downward spiral becomes unstoppable.

160

THE BRUNEL EFFECT'

Kahn's assumption, and that of most economists, is that 'investment,' by which is meant in this context the creation of new productive equipment, will automatically bring economic growth. This assumption is invalid, as another case study will show.

In 1801 a Mr. Kingdom visited Mr. Samuel Taylor in Portsmouth. Taylor was one of the partners in the firm of Fox and Taylor whose business was the making of wooden rigging blocks for the Royal Navy. It employed 110 skilled men in the manufacture of the blocks, 100,000 of which were required by the Navy every year. Kingdom made the visit as a result of a meeting between his brother-in-law, Marc Isambard Brunei, and Brigadier General Sir Samuel Bentham,¹⁰ the Inspector General of Naval Works. Marc Brunei was born in France in 1769 and served as an officer in the French Navy, but the French Revolution had caused him to leave France and settle in America. He became an American citizen. In 1798 he went to England to marry Miss Sophia Kingdom. Her brother was Under-Secretary to the Navy Board (Gilbert 1965).

While still in America Marc Brunei had developed an interest in block-making machinery. In 1801 he took out British patent number 2478 for a suite of machines designed to make rigging blocks automatically. Bentham was very interested in Brunei's ideas but Samuel Taylor was not. A letter to Kingdom survives in which Samuel Taylor flatly refused the machinery. Bentham therefore persuaded the Royal Navy to set up its own block-making factory and to use Brunei's machines. By 1808 130,000 blocks were being made by just ten unskilled operatives. It is claimed that this was the first time that machine tools made entirely of metal were used for mass production. Brunei's reward

was one year's savings in costs. That was calculated at £17,663.95. The cost of making the machines was three times as much.

One hundred skilled men had lost their jobs as a result of the invention, but before that happened perhaps three times as many got one year's work from the making of the machines. They were the employees of the engineer, Henry Maudslay. So there may have been a temporary increase in employment from 110 to 410, followed by a reduction to ten. The final effect was highly deflationary. The capital investment in new productive equipment had the effect of lowering the incomes of the factors of production. This must be a common result of capital investment in more cost-effective means of production. It is this consequence of capital investment which I suggest ought to be named 'The Brunei Effect.' To celebrate the 300th anniversary of its foundation, the Bank of England produced in 1994 a graph of inflation covering the whole 300 years of its

161

existence. From 1694 to 1938 the graph can be seen to show a slight long-term tendency to deflation in peacetime, though inflation was often very evident in wartime. The deflationary tendency appears to accelerate after 1801. It seems rational to assume that this was partly¹¹ the result of the increased use of automatic machinery driven by steam power, and it justifies the naming of the phenomenon after Marc Isambard Brunei.¹²

ALL THE FINANCIAL SCENARIOS

It is most enlightening to speculate on the effects of all the possible scenarios in which the investment in the block-making machinery took place. There are several.

Let us assume as the first scenario that the government paid for Brunei's automatic machines by raising taxation. Taxation is a diversion of purchasing power from the public to the government. If increased government expenditure is balanced by increased taxation the effect on gross domestic product is nil. Some suppliers lose their market because public spending power is artificially reduced, but others who are supplying the government increase their sales.

The same effect would result if the government borrowed the money to purchase the machines and that borrowing was financed by saving by the public, using saving in the sense that the public has not spent all its income, but has placed some in financial assets, the financial asset in this case being a loan to the government.

If, however, the extra expenditure is financed by newly created credit and therefore does not in any way reduce existing demand, there is an increase in employment of resources. The savings which balance the loan come from the additional income arising from the expenditure. There is a rise in gross domestic product. Moreover the created money may circulate rapidly enough to generate further demand, over and above the original expenditure it was created to finance, so that gross domestic product goes up by more than the government's borrowing. The rate of circulation of created money is a vital factor in deciding the effect of a loan in expanding the economy.

All these scenarios concern the period during which Brunei's machines are under construction but not yet producing. Let us look at the succeeding scenarios once the machines are producing. They are extremely complex and varied. Not all bear out Richard Kahn's thesis.

Henry Maudslay's men who built the machines may have no further orders; therefore 300 of them are redundant. The machines come into use and all Fox and Taylor's 110 men are redundant. Ten men get work at

162

the Navy Yard¹³ using the new machines. Four hundred men are without incomes, having been earning the previous year. Although the rigging blocks are cheaper, that does not increase demand for them to any great extent. In fact production went to 130,000 blocks in 1808 from 100,000 in 1800. That may have been due to the Battle of Trafalgar which damaged a lot of ships even on the winning side.

In nominal terms the gross domestic product has declined because rigging blocks are 90 per cent cheaper. It may also have gone down because 400 men have no income to spend. On the other hand the government is spending £17,663.95 less and may require that much less in taxation, or may borrow that much less from the public. If that were true, the public would have sufficient extra money to buy the product of 100 extra workmen. There would be disruption but equilibrium should return to produce the same employment except for Henry Maudslay's men. They had a year's temporary work producing capital items which will not need replacing for a long time. Indeed the machines still exist and could still work if wooden rigging blocks were needed. But although employment remains the same as before the investment, the output of physical goods and services is slightly increased.

A further scenario is that the government could have raised additional taxes to pay Maudslay's men to make the machines. In that scenario the additional taxation would have reduced demand (and thereby demand for labour) by exactly the amount by which it was raised at Maudslay's. The ending of the work at Maudslay's and the lowering of taxation in consequence would reverse relative demands.

It can be seen from these scenarios that it is only when a project is financed by newly created credit that employment is increased, and even in that case the effect can be temporary, and indeed even reduce employment in the long run. The extent of the increase in labour requirement will be determined by the speed with which the newly created money circulates. If it circulates not at all, the increase will be only that financed directly by the new credit. This might happen if the recipients of the payments financed by the credits used the money to pay off debts. In all other circumstances there is a multiplier effect. The machines are made and add to the wealth of the nation; the workers who made them spend their wages on goods and services; the producers of those goods and services do the same. The effects can be dramatic, but they come to an end the moment the circulation ceases, that is when someone 'saves' the money he has received, instead of spending it. No one can predict when that point will be reached. No computer programme could ever be devised to make an accurate estimate of the effect. Hopefully the knock-on effects will be great enough to raise the economy

163

to a new equilibrium level in which a higher level of production, consumption and employment is sustained. But it can easily relapse. If it does, then another injection of credit into the system will be required to get things moving again.

But one cannot go on injecting credit into the system indefinitely. The public's borrowing capacity is finite, being a prudent multiple of its income. What happens when the public tries to repay its borrowing from its income? Demand is automatically reduced; so is production; so is the public's income. Also, the balances of money capable of circulating are reduced. A deflationary spiral is induced. It is made worse by psychological effects. Faced with recession the public tries harder to save, and the government is urged to reduce expenditure because its revenues are falling.

The lesson to be learned from the Brunei incident is that no new capital investment in labour-saving equipment will increase the overall demand for goods and services unless other new credit is created to finance the bringing back into production of the resources freed up by the earlier capital investment. The Brunei machines were financed by new credit. All new credit creation, for whatever purpose, has a multiplier effect. Richard Kahn's belief that 'real investment' alone had a multiplier effect is defective. He was some distance from a full understanding of how an economy works.¹⁴

CREDIT HAS MANY FORMS

Enough should by now have been said to show that a credit system is the foundation of a civilisation. The failure of a credit system is the worst thing that can happen to any economy. Credit comes in many guises and disguises. Indeed at any moment in time someone is doubtless inventing some new quirk to a form of credit, if not a new form altogether. One can however identify four major ways of supplying credit. The oldest is trade credit, which we can define as a supply of goods or services which are to be paid for later.

The second form is the provision of risk capital, normally called an 'equity investment,' which is rewarded by a share of the profits earned, the capital not normally being returned except by (1) a reduction of capital, (2) a purchase of the shares by the company, or (3) the liquidation of the enterprise. The third form of credit is the bond, which is most commonly a fixed loan which pays interest, and which is usually stated to be repayable on a fixed future date, or on a date between two fixed dates,

164

the actual time being at the option of the debtor. The fourth form of credit is the bank loan.

Bank loans belong to what we can call 'the intermediated credit supply,' or perhaps more simply, 'the indirect credit supply.' These terms imply that the bank is not the primary source of the money; it is mostly lending money which belongs to its depositors. (It must however be remembered that the drawing down of a loan granted by a bank automatically creates the deposit which balances it.) All other forms of credit belong to the 'disintermediated credit supply.' But that ugly phrase could be substituted by the simple expression, 'direct credit supply'

New credit creation takes place in the form of trade credit or of bank loans, so

that these are the most important forms of credit in relation to the control of the economy.

Having seen the ease with which banks can create new credit, and thereby new money, some commentators have been led to make two rather wild statements: the first is that the creation of money is cost-free, and the second is that 'credit can be created at the touch of a button on a computer.' Both statements are hyperbole.

Bankers make statistical analyses of the percentage risk which is attached to each category of lending, and modern banking practice is to make a reserve against profits immediately a loan is drawn down, the reserve being for the amount which experience has indicated to be the potential average loss for that category of lending. Moreover the necessity to maintain a capital base as required by both sensible prudence and the terms of the Basel Accords is also a cost. That capital base is provided by the shareholders, and they require a return on that investment consonant with the risk they are taking. The creation of money by banks is therefore not cost-free.

An increase in lending only takes place at the touch of a button when banks pass entries through their books for the periodic charging and allowing of interest. If the debiting of interest increases the loan, then the credit supply total goes up, and the balancing credit is mostly to the accounts of depositors and the rest to the profit and loss account. In theory, if interest can only be charged by lending the borrower the money with which to pay it, the loan is categorised as non-performing, and a reserve should be made against the risk both of being unable to collect the interest, and of being unable to get repayment of the loan. Practice doubtless varies as to how seriously non-payment of interest is taken by regulatory authorities.

Granting a loan is not a 'press the button' operation, though initially the loan may be created by crediting the borrower's current account, and debiting a loan account in his or her name. That operation appears

165

immediately to increase the money and credit supplies, but the crucial moment is when the amount loaned is paid over to a third party. That payment is very likely to be in respect of some transfer of value, a sale of goods or services, or of an asset. The creation of credit is dependent therefore on three factors, firstly on the permission of the banker, secondly on the willingness of the borrower to buy, and thirdly on the willingness of some seller to sell. Thus the creation of credit usually reflects exactly some real transaction, some transfer of real value from one person to another. The creation of credit is not an independent act but results from a supply of goods and services unless the payment reflects a gift. What this means is that the credit supply and the domestic product grow together. A banker cannot assist the creation of money unless there is an associated economic benefit passing from a party to another party. Rather than say that bankers create credit we should more correctly say they enable others, their borrowers and depositors, jointly to create it. Bankers are only intermediaries in the creation process.

A payment may be for the acquisition of some part of the current production of goods and services; alternatively it may be for the acquisition of an item which is an existing asset, a part therefore of the past, not current, production of goods and services. In the latter case the payment is for the acquisition of part of society's existing

capital, for the only satisfactory working definition of 'capital' is that which remains in existence from some past economic activity. 'Income' by contrast is the product of current economic activity.

If someone sells a capital asset, he or she is in the position of having money to spend or lend. The proceeds may be spent on some product of current economic activity. If however the vendor of a capital asset buys another capital asset with the proceeds, then the vendor in the new transaction in turn acquires the capacity either to buy another capital asset, to lend or to buy some of the product of current economic activity. Although there may be a very long chain of capital transactions, there will very likely, one might even say inevitably, be someone at the end of the chain who either buys some new product himself, or lends his money to some other person to do the same.

A loan of newly created credit which is spent by the purchase of a capital asset is innocuous if the vendor retains the proceeds as a cash investment, in effect lending the purchaser the wherewithal to make the purchase, but if the vendor spends on current production, or lends to someone else to do that, the effect is potentially inflationary. Loans for asset purchases can therefore cause asset price inflation. It is a truism that the price of major assets such as houses is entirely dependent on what a purchaser is allowed to borrow, for few people have the free cash to make

166

such a big purchase. If banks create credit too freely for house purchase, then house prices will inevitably rise. But because there is likely to be someone at the end of the chain of capital transactions who becomes a purchaser of some new product or service, and which is therefore part of the income of society, not capital, asset price inflation always spills over in the end into general inflation.

To restrain asset price inflation requires interference in lending by state regulators. At the time of writing the Irish government has acted to restrain house price inflation by making it illegal to lend someone the money to pay the deposit on a house purchase. As Irish house prices are half the British level the action may have been partly effective. There is vast empirical evidence of the effect of lending on house prices. Back in the 1950s British mortgage lenders (called *building societies*) had an agreement not to lend on any house built before 1919. The prices of such properties were very low, and the poor were able to buy them. By 2001 such properties were fetching astronomical prices, as the reluctance to lend on them has been replaced by enthusiastic lending. The difference in price over 40 years or so - not adjusted for inflation - was that between £1,000 and £400,000.

The effect of such unrestrained lending is to make life hard for the first time house buyer, and to enrich the heirs of the elderly who owned these properties. The reaction of the young who are faced with inflation of house prices is to seek higher wages, and this gives rise to cost-push inflation. Once one owns a house one is insulated for life against any rise, real or inflationary, in the cost of such a house, so the young who started their careers as property owners with a grievous burden of debt find it dissipated by time. In an age in which inflation has been caused by excessive lending for house purchase, the ownership of a house becomes a protection against inflation. Once this mentality is established, inflation, for good or ill, becomes embedded in

society. In Britain the urge to try to end inflation became so strong that the government was willing to contemplate extreme measures to combat it, and unconcernedly destroyed industries and the happiness of hundreds of thousands in the pursuit of their object. One must seriously question whether the objective was worth the distress inflicted to achieve it.

During the period of the campaign to end inflation, the attention of government economists was entirely concentrated on the money supply. That they equated with bank lending. Raising interest rates would, they reckoned, discourage borrowing from banks and the money supply would fall. It did not. It rose, and for a very simple reason.

There are numerous ways of borrowing, and for industry there are two major alternatives, the bond market and bank loans. Industry needs a lot

167

of longer-term capital, and when interest rates are low it will seek to raise money by the issue of long-dated bonds, that is from the direct credit supply. But if interest rates are high, and in a period of inflation longer-term rates of interest can be very high, they prefer to borrow short term from the banks, that is from the intermediated credit supply (indirect credit supply). Consequently in any period of high interest rates, the money supply, however defined, will rise spontaneously. When interest rates are low, it will fall spontaneously.

Faced with a demand for loans, the banks raise additional capital to provide the necessary capital base required by the Basel Accord. High interest rates make it easier for them to be profitable, a phenomenon known as 'the endowment effect.' This is because banks pay little or no interest on the balances on checking accounts (current accounts.) Indeed in many countries they are forbidden to pay interest on such accounts. As a result when interest rates rise, the income of the banks rises far faster than their costs. Banks at such times have little difficulty in raising the capital to form the base for huge increases in lending. The most notorious example was that of Barclays Bank, which in May 1988 raised £920 million of new capital by way of the biggest rights issue ever made in Britain up to that date. On the base of that additional equity capital and some additional deferred loan capital, it was able to raise its lending in the next 19 months by £41 billion. It doubled its mortgage lending. Naturally house prices spiralled. In the subsequent crash Barclays Bank lost the whole £920 million, and more.¹⁵

Banks perform an essential service by facilitating the creation of credit. However like all useful human inventions, the capability to create credit can be abused. The amount created can be too little, leading to unemployment, or it can be too much, leading to boom and then bust. In either extreme one financial failure can have a knock-on effect. Because trade credit often extends along a chain of transactions, a failure at any point in the chain can bring disaster to all who are upstream on the flow of credit. One businessman gets his calculations wrong and is unable to pay his debts; the suppliers who have allowed him credit may find that their resultant loss, due to no fault of their own, makes it impossible for them too to pay their debts, and so on up the chain.

Because of this domino effect it is the duty of government to do nothing foolish which might precipitate default for no good purpose. Unfortunately political economy has been ruled since 1968 by those who are obsessed with the prevention of inflation, the *Monetarists*. Monetarist theory has been very unsound, and measures which were

thought to reduce inflation have proved to have the opposite result. Universally they have had the effect of destroying productive businesses quite

168

unnecessarily. The economic damage normally attributed by theoretical economists to the phenomenon of inflation is in truth caused by the remedies they propose for the cure of the disease of inflation, not by the disease itself. The analogy has often been drawn with the process of bloodletting, used by doctors for the treatment of fever for centuries before it was realised that it killed the patient.

A government whose economic inspiration is from monetarist economics is unlikely to have the ability to regulate correctly the money-creating process of the banks. Nor is it likely to see that as components of the intermediated credit supply (that is bank lending) can readily be replaced by non-intermediated lending (that is bonds or equity finance), the control of bank lending alone is only a part of the story. A wise government will study and regulate the whole credit supply. But it will do so with the knowledge, skill, gentleness and care of a neuro-surgeon, not with the macho brutality of a radical economic theorist. With remarkable unconcern, hawkish academics have been singularly destructive. In 1946 the post-war Labour Government in Britain passed The Borrowing (Control and Guarantees Act) with the purpose of controlling all credit creation - bar trade credit, an oversight -over £10,000. The purpose, no doubt, was to encourage quality investment. A Capital Issues Committee was set up to supervise capital issues by private industry. The Treasury supervised the public sector industries, and local government. Both supervisory bodies were disasters, partly because populist pressure for new housing was conceded by the Conservative Government from 1951, and partly because Labour and Conservative Governments could not relinquish ambitions to be a world power, ambitions which took priority over industrial renewal.¹⁶ The governments of other countries, Germany, France and Japan, have been much more successful in directing capital to quality investment.

The study of the whole credit supply is the domain of '*Creditary Economics*.' The term is new, but the idea is not. Mitchell Innes called it the *Credit Theory of Money*. He did not claim to be originator of the concept, which is not surprising as it must have occurred to many in the long history of credit. Indeed when one reads the older writers one sees immediately that for them the money supply consists largely of endorsed bills of exchange which are clearly documentary credits.

There is but one statement in Innes' paper which is puzzling. In his summary he states, 'There is no such thing as a medium of exchange.' One can see what he means by this. He wishes to make it clear that all money is some form of debt, and there is no means of exchange which is not debt-based. This is true, so one should define a means of exchange as being a debt which can serve as a medium of exchange. The process of

169

converting a debt into a means of exchange can be called 'monetising debts.' If one looks at the history of economics one can surely see that the monetising of debts, usually trade debts, has been the most important process, the most important invention, in the history of commerce, ever since differentiation of labour first took place sometime in prehistory. One must agree with Mitchell Innes that gold and silver were not the

essentials of a money system. That role was fulfilled by the documentary credit which originated in trade credit.

We should be happy to proclaim ourselves his disciples.

SUMMARY OF MAIN PRINCIPLES

Credit is the lifeblood of civilisation.

There are two forms of credit, primary credit, that is newly created credit, and secondary credit, loans made through the use of assignable debts.

There are two parts to the overall credit supply, direct credit (disintermediated credit), and indirect credit (the intermediated credit supply).

The level of economic activity is determined by three factors:

1. The amount of new credit created.
2. The speed with which credit, newly created or otherwise, circulates, either by being spent or lent.
3. The rate at which credit is destroyed by the repayment of debt.

There is a limit on the amount of new credit which can be created safely, so it is impossible to keep an economy booming by the unlimited expansion of credit. When the prudential limit on the creation of new debt is reached, savers should be encouraged to spend so that workers can earn the money they need for their wants, instead of borrowing.

If savers refuse to spend, their savings should be allowed to diminish through inflation. Experience has shown that mild inflation is the least damaging method of curing an excessive build up of debt.

The trade cycle is fundamentally a phenomenon of credit creation. It reflects a credit cycle.

The discovery of the means of monetising of debt was a very great step in the economic development of human beings.

170

NOTES

1. This information came from press reports near the site of the research, and before the formal publication of results.
2. The term Mesolithic is now applied to late hunter/gatherer societies, and Neolithic to early farmers.
3. To learn how theories of the development of civilisation have been distorted by ideology as well as by the extreme asymmetry of archaeological evidence, see Colin Renfrew and Paul Bahn (2000), *Archaeology*, third edition, London: Thames and Hudson, p. 476 *et passim*.

4. The asymmetry of both archaeological and geological evidence is described by the geneticist, Professor Steve Jones in his book *Almost Like a Whale* (1999), London: Doubleday. On page 229 he mentions that 'at Passchendaele, the slate of history has been wiped clean.' The evidence of the vast military operations of the 1914-18 conflict have almost vanished.
5. Since the time when Innes wrote about Babylonian financial documents, far too little study has been made of the documents in the British Museum. Too many archaeologists have shown more interest in the religious and sexual practices of ancient peoples than in their economic organisation. The promotion of international conferences on ancient Near Eastern economics has been revived largely by the efforts of Dr. Michael Hudson and the International Scholars Conference on Ancient Near Eastern Economies (ISCANEE) under the auspices of the Institute for the Study of Long-term Economic Trends (ISLET) which Dr Hudson directs. Their colloquia have been published by Harvard University's Peabody Museum, and others.
6. Klaas R. Veenhof, 'Silver and Credit in Old Assyrian Trade,' in J. G. Dercksen, ed. 1999, *Trade and Finance in Ancient Mesopotamia*, Leiden: MOS Studies, pp. 55-83. Veenhof discusses this tablet in detail in 'Modern Features in Old Assyrian Trade,' *Journal of the Economic and Social History of the Orient*, 40, pp. 336-66, esp. 35 lff. (Many thanks to Michael Hudson for supplying these references.)
7. This point is made by Marc Van De Mieroop, in his article in Hudson/Mieroop, (2002), *Debt and Economic Renewal in the Ancient Near East*. Dr Cornelia Wunsch's discussion appears in this same ISLET colloquium. See bibliography.
8. An entertaining as well as instructive way of studying mediaeval finance can be found in the early books of the series of six historical novels written by French academician, Maurice Druon (1970), under the general title, *Les Rois Maudits*. The books, which are very well researched, cover much of the first half of the 14th century when the Lombard bankers were filling the banking void which had been created by the destruction of the Knights Templar by the French King, Phillip Le Bel (died 1314).
9. Arabic numerals appear to have first arrived in South-West France in AD 990, but the great publicity for them came about in AD 1202 with the publication of the *Liber Abaci* of the mathematician Fibonacci. They enable calculations to be done on paper, and therefore allow the workings to be audited, something which cannot be done with calculations done on the fingers or the abacus. Paper was not freely available in western Europe in earlier times.
10. Brigadier General Sir Samuel Bentham, a shipwright by training, was the youngest brother of the economist, Jeremy Bentham. His military title originated from the grant of a commission in the Russian Army by Potemkin. He created two navies for the Empress Catherine the Great and Potemkin in the 1780s. Bentham had himself invented woodworking machinery in 1793, British patent 1838.

171

11. The return to the Gold Standard six years after the end of the Napoleonic Wars also caused a severe one-off deflation.
12. The editor tells me the name Domar Effect could also be used. I prefer Brunei, one

- of the most important innovators in industrial history.
13. The Portsmouth Naval Yard became for a while the largest factory in the world, exceeding therefore Boulton and Watt's Soho Foundry in Birmingham where coins were minted and Watt's steam engines were built.
 14. Maynard Keynes' faith in Kahn's ability is mystifying. Kahn and I were briefly in contact over the administration of Maynard Keynes' estate and our relationship was difficult. I found him arrogant and lacking in the necessary expertise. The ultimate beneficiary of Keynes' estate was King's College, Cambridge, and Kahn was a Fellow of the College. Kahn's treatment of Keynes' widow, who had a life interest, was in my view not properly impartial. He was opposed by another Fellow of King's, Dr Maurice Neville Hill, the son of Keynes' sister and Professor A. V. Hill, Nobel Laureate and President of the Royal Society. Details of Kahn's dealings with Keynes' widow, Lydia Lopokova, will be found in Skidelsky. R. (2000), *John Maynard Keynes: Fighting for Britain 1937-46*, London: Macmillan, p. 479 and following. Whether the conflict had any bearing on Maurice Hill's later suicide I have not discovered.
 15. My authority is a personal letter from the next chief executive of the bank who had the task of restoring profitability.
 16. The sorry story is fully described by Professor Corelli Barnett in *The Lost Victory* (1995), London: Macmillan, and *The Verdict of Peace* (2001), London: Macmillan.

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172

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