

THE THREE FUNCTIONS OF MONEY: ACCOUNTS, EXCHANGES, AND ASSETS

*"No, they cannot touch me for coining;
I am the king himself"*

Shakespeare, *King Lear*, IV, vi

Many things have passed as money: salt in Abyssinia, tea-bricks in Asia, sugar in the West Indies, barrels of oil in Texas . . . and metals everywhere. The list seems endless. However, as transactions increased, wealth accumulated, and states levied taxes, such proto-moneys moved from the simple "double coincidence of wants" into more rational and complex forms. They catered for a market or hierarchy of markets. "Money," said Carl Menger, "is not a political invention."¹

That said, few would now wish to disagree with Voltaire that the value of money is "the pulse of a State, and a fairly sure way of assessing its strength."² As the largest single users of monetary systems, governments set the necessary framework of laws and institutions, and everywhere political decisions mark the characteristic forms assumed. The reconciliation of political obligations with the concerted needs of individuals and cor-

¹ Carl Menger, *Grundsätze der Volkswirtschaftslehre*, Vienna, 1871, p. 259.

² François-Marie Arouet de Voltaire, *Essai sur les mœurs et l'esprit des nations*, ed. R. Pomeau, 2 vols., Paris, 1963, I, p. 540.

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porations formulates three central functions for all such systems: that money must provide a scale of measurement, a means of exchange, and a store of value.

As a scale of measurement, the requirement is clear. Every market has a list of prices, and common knowledge for buyers and sellers implies a common scale. For this, there are moneys of account, sometimes called ideal or imaginary moneys.³ Every country has such tables of reference and they are first and foremost national.

Next, money must offer a means of exchange. Every transaction requires something to give or receive in return for goods, services, or settlements of obligations, that is, currency. And since transactions come in all sizes and cross frontiers, this currency is both national and international.

Thirdly, money must store value. Some transactions are immediate, but others are delayed; and markets in their own way combine this purpose. The element of time means that whatever serves as money must preserve value during the payment interval. "Correre la moneta" was for Ferdinando Galiani⁴ both acquisitive activity and the consolidation of wealth in the process of accumulation. Money offers a reservoir in which accounting systems, currencies and assets converge. How have these three functions developed?

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MONEYS OF ACCOUNT

Moneys of account in principle are the simplest of all, belonging to a whole range of weights and measures: "an arbitrary scale of equal parts," explained Sir James Steuart, which "performs the same office with regard to the value of things, that degrees, minutes, seconds, etc., do with regard to angles, or as scales do to geographical maps."⁵ Everyone can refer to such a scale.

³ Luigi Einaudi, "Teoria della moneta immaginaria nel tempo da Carlomagno alla rivoluzione francese," *Rivista di storia economica*, I (1936).

⁴ Ferdinando Galiani, *Della Moneta* (1750), ed. Fausto Nicolini, Bari, 1915, p. 227.

⁵ Sir James Steuart, *An Inquiry into the Principles of Political Economy*, 1767, ed. A. Skinner, 2 vols., Edinburgh, 1966, II, p. 408.

In the language of trade, buyers and sellers ask a common question, "what is the price?"

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Such devices have a very long history, and it is not proposed here to elaborate their intricate evolution.⁶ Suffice it to say that when Europe achieved an identity under Charlemagne, a part of his universal empire consisted in the adoption, or rather re-formulation, of moneys of account. The *pound* of Charlemagne refurbished a system salvaged from the legacies of Rome: 1 *libra* = 20 *solidi* = 240 *denarii* (abbreviated as £., s., d.). It assumed different forms in different countries. Thus, in France there was the *livre*, in Italy the *lira*, in England the *pound sterling*, not the least significant since it survived so long, also divided into 20 *shillings* and 240 *pence*.

Nevertheless it would be wrong to imagine this pattern as universal. For historical reasons, other systems emerged. In Spain, where Ferdinand and Isabella achieved the final conquest of the Peninsula with the capture of Granada in 1492, the unit adopted was the small *maravedí*, copied from the Muslim *dinar*. So, too, in Russia; there the *ruble* divided into 100 *kopecks*. And other countries had other systems.

As political pressures altered the frontiers of Europe and economic expansion changed the rôle of markets, these moneys of account were modified. Variety rather than simplicity was the result. Eighteenth-century Europe groaned under a plurality, a superabundance of monetary systems. Sometimes several could exist in the same state. The Dutch Netherlands, for example, used the *florin or guilder*, but the province of Zeeland continued the customary pound of the southern Netherlands. The *Zeeuwse pond* had a permanent value of 6 Dutch florins, and so the two systems co-existed at a fixed rate of exchange.⁷ Venice had the *ducato* and the *lira*;⁸ France the *livre tournois* (of Tours) and

⁶ In the following discussion, the number of illustrations cited has been severely reduced in order to conform to the limitations of space.

⁷ N.W. Posthumus, *Inquiry into the History of Prices in Holland*, 2 vols., Leiden, 1946-1964, I, LIV.

⁸ Fernand Braudel, *La Méditerranée et le monde méditerranéen à l'époque*

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the *livre parisien* (of Paris); the latter was a quarter more valuable and survived until the reign of Louis XIV.⁹ In the political patchwork of Europe elaborate manuals were necessary to guide the uninitiated. Everywhere variety was the order of the day: *cuius regio, eius moneta*, prolonging customs which survived from the mists of time.

As the eighteenth century drew to a close, this extraordinary diversity came under review. The United States fresh from the Declaration of Independence (1776) gave a lead in replacing the British *pound* with the *dollar* (based on the Spanish silver piece of eight reals) and divided it into 100 *cents*.¹⁰ For Europe, the old diversities crumbled before the successive waves of Revolutionary ardour and Napoleonic authority. In France, the decisions of 7 October 1793 and 6 May 1799 established a metric system from which emerged the *franc*, with sub-divisions of 100 *centimes*, and roughly equal to the old *livre*. Napoleon confirmed it as the *Franc Germinal* in the famous reform of 1803. Gradually, the style spread throughout Europe,¹¹ demolishing the old systems. A last survivor, the *pound sterling*, succumbed in 1971 when Britain entered the Common Market.

This brief review of national moneys of account is not complete without mentioning two further aspects of the problem. First, the international question of foreign exchanges. The simplest way of converting currencies is of course by means of exchange rates: one currency is worth so many units of another currency; for example, the French *franc* is valued at so many Spanish *pesetas*. However, in international settlements, super-moneys sometimes make their appearance, and special institutions encourage the creation of moneys of accounts with universal application. Thus, in the fairs of Lyons (the quarterly fairs were established in 1464), merchants agreed on exchange rates in terms of a unit of gold, the *écu de marc*. In the fairs of Piacenza (established in Besançon in 1534 and later moved to Piacenza

de Philippe II, 2 vols., Paris, 1966, II, Part II, Section II; N. Papadopoli, *Le Monete di Venezia*, 4 vols., Bologna, 1893-1914, III, p. 7; Ugo Tucci, *Le monete in Italia*, in *Storia d'Italia*, V, Turin, 1973, pp. 535-579; Carlo M. Cipolla, *Le avventure della lira*, Milan, 1958.

⁹ Abot de Bazinthen, *Traité des monnoies*, 2 vols., 1764, II, p. 669.

¹⁰ Dickson H. Leavens, *Silver Money*, Bloomington, 1939, pp. 2, 18-19.

¹¹ René Sédillot, *Le Franc*, Paris, 1953, pp. 167-173.

and Novi), the Genoese used a gold unit, the *scudo*, based on the *escudo* of Spain.¹² In Holland, a similar sort of distinction emerged when the *guilder* or *florin* used in the Exchange Bank of Amsterdam was quoted at a premium over the real or “current” money circulating in the city,¹³ then a focal market in European finance. Since these super moneys were used to clear bills of exchange from the four corners of the continent, they could rightly be called international moneys of account. But they existed alongside those used in domestic circulation. Difficulties arose when the domestic currencies of the countries concerned depreciated. In 1602, the *livre* was devalued by about 8 percent, but France continued to use the *écu* for foreign exchanges, fixed at the old rate of three *livres*.¹⁴ This system lasted until the French Revolution.

The need for an international unit remained unabated: it appeared on the agenda at Bretton Woods (1944) when Lord Keynes proposed *Bancor* linked to a unit of gold; and Harry Dexter White suggested *Unitas* equal to ten dollars in gold.¹⁵ The outcome ended in compromise largely in favor of the latter: the great powers preferred the dominant United States dollar, and produced a solution based on a national currency with international acceptance. The problem surfaced again in Washington (June 1974), when the International Monetary Fund decided to value the Special Drawing Rights (in their own way, an international money of account) in terms not of gold but of a “standard basket” of the currencies of sixteen nations.¹⁶ Once more the international economy acquired a unit of reference.

Finally, moneys of account opened the way for business development and government budgetary controls. The perfection

¹² Richard Gascon, *Grand commerce et vie urbaine au XVI^e siècle: Lyon et ses marchands*, 2 vols., Paris, 1971, I, pp. 240-251; Henri Lapeyre, *Une Famille de Marchands: les Ruiz*, Paris, 1955, p. 289; Giulio Mandich, *Le Pacte de Ricorsa et le marché italien des changes au XVII^e siècle*, Paris, 1953, pp. 29-44; Giuseppe Felloni, in G. Pesce and G. Felloni, *Le Monete Genovesi*, Genoa, 1975, pp. 201 et seq.

¹³ J.G. van Dillen, *Bronnen tot de Geschiedenis der Wisselbanken*, 2 vols., The Hague, 1925, II, pp. 949-950.

¹⁴ Frank C. Spooner, *The International Economy and Monetary Movements in France, 1493-1725*, Cambridge, Mass., 1972, pp. 161, 169.

¹⁵ Shigeo Horie, *The International Monetary Fund*, London, 1964, p. 64.

¹⁶ See below, p. 133.

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of double entry ledgers, first explained by Luca Pacioli in his *Summa* (1494),¹⁷ became a tool indispensable for management techniques. Without them, it would be difficult to explain the great commercial and industrial concerns: the United East India Company of the Netherlands (1602), for example; the huge United Steel Corporation (1901); or even the present-day multinational corporations with their back-up of computers. Although very different the one from the other in scope and structure, each has its place in a straight line of development. Accounting is a language in the expanding competence of business and state. But such manipulations were for experts and technocrats; for the majority of people, as Malestroit said in 1566, money was “a mystery”.¹⁸ It was first and foremost something to touch and hold, to use in everyday transactions.

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MONEY AS MEANS OF EXCHANGE

During much of the known history of money, the exchange function appeared uppermost. For this, money had to be convenient, divisible, and readily acceptable. Convenience meant a material of relatively high value and low bulk, and durable enough to resist everyday wear and tear; divisibility met the needs of a market for transactions of all sizes; and acceptability called for the easy recognition of good coin and the rejection of forgeries. A circulation of cattle or bags of salt clearly did not satisfy such constraints, and this may explain why markets discarded cumbersome moneys so quickly in favor of those superior commodities gold and silver and the coins made from them. Precious metals had visual appeal but they were also superior for working, attracting through the centuries the highest skills of precision and artistry. Gold and silver were valuable enough in real terms, that is, in exchange for other goods, to

¹⁷ Luca Pacioli, *Summa de Arithmetica, Geometria, Proportioni et Proportionalita*, Venice, 1494.

¹⁸ Sieur de Malestroit, *Mémoires sur le fait des Monnoyes*, in *Paradoxes inédits*, ed. Luigi Einaudi, Turin, 1937, p. 105.

have exceptional convenience. Yet, they too could pass their prime and as the volume of transactions grew, gold and silver currencies have given way to paper money and credit. Money as a means of exchange has evolved through stages: from commodities to metal currencies, and on to notes and banking services. Final victory lay with moneys of account.

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The provision of metallic currencies was a service under strict State control. Kings, seigneurs, bishops, and republics claimed the right to issue coins as an attribute of feudal overlordship. This in part satisfied a need for money: but it was also a form of taxation, since coinage was not free. Mints produced profits. The service charge—the difference between the costs of production (metals, fuels, equipment, wages) and the face value of the coin issued—was called *seigniorage*. When countries had extensive trade with less well-provided regions, this service became a veritable industry, as in the case of the mint in Venice, the Zecca; in Dordrecht; and in the Tower of London. On other occasions, monarchs hard-pressed for ready cash could not resist the temptation of increasing this profit margin by debasing the currency. Henry VIII of England tried it in the 1540s and the disastrous results remained until the recoinage in 1560 by his daughter Elizabeth. This could happen when the State ran the mints; in other countries mints were farmed out to entrepreneurs. In France, for example, there were 30 separate mints in 1730,¹⁹ and two still survived when the State finally took over in 1880. In the Netherlands under the Republic, each province sported a mint, and in addition towns sometimes coined money. Nevertheless, as governments became more centralized, the numbers of mints in Europe fell. Gradually the service was provided without charge: it was already accepted policy in London in 1666.²⁰

¹⁹ Anon., *Prix des monnoyes de France et des matières d'or et d'argent depuis la déclaration du 31 mars 1640*, Rouen, 1736, p. 114.

²⁰ Abot de Bazinthen, *op. cit.*, II, pp. 588-9; Sir Albert Feavearyear, *The Pound Sterling*, 2nd ed., Oxford, 1963, p. 96.

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The state also commanded superior techniques. Metal currencies—without too much exaggeration—were the first important examples of interchangeable parts, long before Eli Whitney and his contracts for muskets (1798); and of the assembly line, centuries before that of Henry Ford (1913). The separate operations—melting gold and silver, assaying the metal, producing sheets, discs and finally coins stamped with the imprint of authority—all were strictly supervised, an excellent example of the division of labor. The “industrialization” of the mints came with the introduction of rolling-mills and the press. The first important trial was in Paris (1550-1585), and again after the reform of 1639, so successful in fact that the best coins were made in Paris. It even passed into common parlance: according to Etienne Pasquier, to be “marked with an A”—the distinguishing mark for Paris—denoted a person of highest quality.²¹ The mill could produce a superior coin, with a “milled” edge or “graining”: this deterred coin-clipping and forgery and added to the quality of the product. The most important control by government was nevertheless the system of sampling, that is, taking so many coins out of each batch produced. These were subjected to strict analysis: for example, at the trial of the Pyx by the Goldsmiths of London; by the *Cour des Monnaies* in Paris; by the *Raden en Generaalmeesters* in The Hague; and so on. By the eighteenth century, such techniques and strict controls provided increasingly high levels of acceptability.

The prime metals used were gold and silver. Their real value in terms of goods and labor gave them high utility; that is, they could be used extensively in transactions. Pure gold and silver did not immediately satisfy the requirements of durability, and so a base metal was introduced to harden the coins. This third metal was usually copper, but from time to time other metals and alloys were used for currency. In France, the mint used nickel in 1903, cupro-aluminium in 1920, stainless steel in 1959. The proportion of gold or silver in the alloy—called the “finess”—became one of the important decisions of government in establishing currencies of wide acceptance.

Finally, governments decided the size of the coins. This was

²¹ F.C. Spooner, *op. cit.*, p. 109.

done by weight, and instructions to the mints specified the number of coins to be produced from the standard weight. The mint-masters were allowed a certain margin of tolerance—called the “remedy”—and since this formed part of their profit, they produced as close to the margin as possible. If they “tickled” the remedy and exceeded the limit, they had to pay. In such circumstances, when coins circulated from country to country, standard weights were important. Charlemagne had re-organized the *mark* weight, equal to half a pound. The *mark* of Cologne was a standard, but for technical reasons with the passage of time the *mark* began to differ from one country to another. When officials in Paris paid the ransom of Francis I in 1530, they found to their chagrin a discrepancy with the mark used by the Spanish authorities in Brussels.²² When the mark of the Dutch Netherlands changed to the metric system, it was assumed that the mark weighed the same as that in Paris, namely 244.75 grams; but the marc in the Austrian Netherlands, with which it had originally been linked, weighed 245.87 gram.²³ Universal standard weights were not available until the adoption of the metric system. In such uncertainty, money-changers flourished. With their manuals and scales they were the experts of the market and any differences soon appeared in the particular rates they offered for each type of currency. Coins had to be of the right weight and tip the scales; and they had to be of the right fineness, and so “ring.” As good coin, they could meet the requirement of money as a means of exchange.

What were those functions in transactions? Briefly, we can isolate three out of the many levels of payments, which conformed to the structure of trade and the distribution of incomes. A circulation could be composed of gold, silver, and coins or small change (called *billon* in France or *vellón* in Spain). In day-to-day transactions in local markets, small change was a necessity, and in its absence, traders often made their own tokens. Then, beyond the local market, silver coins were more useful. For large payments and international transactions, heavy gold and silver coins were used. This is, of course, a simplification,

²² *Ibid.*, p. 129.

²³ K.M.C. Zevenboom and D.A. Wittop Koning, *Nederlandse Gewichten*, Leiden, 1970, p. 28.

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but it serves to emphasise different levels of circulation and the links between real coins and the moneys of account.

In monetary reforms, governments usually decided to issue a fresh range of coins to conform to the units of the money of account. Thus, the gold *guinea* of Charles I was originally equal to one pound sterling; and so also was the gold *sovereign* of 1816. In France, the gold *écu* of 1561 equalled three livres tournois; the gold *louis* of 1725 appeared on the market at 20 livres. These were “full-bodied” coins, so that the value of their gold content was close to the face-value at which they circulated. Going down the scale to the heavy silver coins, we notice that the same considerations prevailed. These also had a high intrinsic value and first appeared in round units of the money of account. The silver *franc* of Henry III of France first came out equal to one *livre*. In the “golden age” of the Netherlands, the silver *dukaat* or *rijksdaalder* was set at $2\frac{1}{2}$ *guilders*, and still survives today. Finally, at the bottom levels of currency came fractional money. These small coins were coined at first of a mixture of silver and copper: a small amount of silver and a large amount of copper, so that the color darkened—the *pennies* of England, the *duiten* of the Netherlands, the *deniers* of France. They were the semi-fiduciary coins of Europe. When the price of silver rose, the silver content of these coins sometimes became more valuable than their face-value, and they disappeared into the melting-pot. Time after time, new series of these coins appeared containing less and less silver, until at last came the final solution: pure copper. For Europe, the sixteenth century marked an important departure. France made copper coins from 1574: single *deniers*, but also *liards* worth three deniers. After 1599, Spain had copper *maravedís* and *quartilos* (worth 4 maravedís). The Netherlands had copper *korte* from the early sixteenth century and later in 1573 turned from silver *duiten* (worth 2 penningen) to those of copper: in the seventeenth and eighteenth century they were the smallest of the Dutch coins.²⁴

As the gap gradually widened between full-bodied coins (gold

²⁴ F.C. Spooner, *op. cit.*; Sir Albert Feavearyear, *op. cit.*; Earl J. Hamilton, *American Treasure and the Price Revolution in Spain, 1501-1650*, Cambridge, Mass., 1934, p. 75; H. Enno van Gelder, *De Nederlandse munten*, Utrecht, 1976; pp. 69, 78.

and silver) and fiduciary coins (copper), the problems of convenience and acceptability became more complex. Copper coins offered convenience in small transactions, for they differed very little from the tokens of metal or leather already widely used by traders. But what about acceptability? When larger payments were required, and sufficient gold and silver coins were not available, the rôle of copper extended and became more significant. In the seventeenth and eighteenth centuries it was quite common in some parts of France for payments to be made with bags or "rolls" of copper coin, passing from hand to hand without being opened.²⁵ In Sweden high-grade copper was mined under the royal monopoly of the *Kopparkompaniet* and in 1624 already slabs of metal stamped with the royal seal at each corner were circulating as currency. Later, larger and larger plates of copper appeared. Eighteenth-century engravings show the worthy citizens of Stockholm going about their affairs with "small change" carried in back-packs or stacked on sledges.²⁶ Little wonder at the success of the first bank-note of Europe issued by the Bank of Stockholm (1661); or at the subsequent exodus of copper money to be sold as metal by weight in Amsterdam. The problem nevertheless remained the same: fiduciary money made of base metal supplemented the circulation of full-bodied gold and silver coins.

Before leaving this review of small change, a distinction in devaluation must be noted between full-bodied and fiduciary currency. For the former, it was usual to raise the face-value; for the latter, the solution was sooner or later in re-coinage. This meant that in effect the money of account was represented by the least valuable coins. In the early days of coinage, they appeared to be the stable currency, which Jean Trenchant (1571) could contrast with the "mobile" and unstable full-bodied coins of gold and silver.²⁷ This was a far cry indeed from the later development of the gold standard; but it emphasizes that fiduciary coins were similar to fiduciary paper in being closely tied to the money of account.

²⁵ F.C. Spooner, *op. cit.*, p. 186; see also A. Justice, *A General Treatise of Monies and Exchanges*, London, 1707, p. 99.

²⁶ Eli Heckscher, *An Economic History of Sweden*, ed. Göran Ohlin, Cambridge, Mass., 1954, pp. 88-92, and illustration p. 150.

²⁷ Jean Trenchant, *L'Arithmétique de Ian Trenchant*, Lyons, 1571, pp. 331-2.

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The expansion of banking and credit carried the system of fiduciary money to a higher level. From the achievements of merchant bankers, such as the Peruzzi and Bardi in fourteenth-century Florence and the Fuggers in sixteenth-century Augsburg, and through the first public banks of deposit—in Barcelona (1400-01), Genoa (1406 and 1457) and Venice (1587)—a fresh perspective began to open in Europe from which the western world has not looked back. When the flows of gold and silver did not match the rising demand for means of payment, public banks assumed a more prominent rôle in extending international liquidity. In the seventeenth century, their growth was remarkable. Amsterdam (1609); Hamburg (1619); Nuremberg (1621); Delft (1621); Rotterdam (1635); Stockholm (1656) . . . and the Bank of England (1694).²⁸ By the end of the century some thirty or more public banks functioned in Europe.

These banks were not all the same. Some offered security and convenience by taking money on deposit; others earned money by dealing in bills of exchange or government bonds. However, it remained for the Bank of England, chartered as a private joint-stock company to lend money to the government, to combine the three prime functions of public banks: receiving money on deposit, discounting bills of exchange, and issuing bank-notes. It was not the first to do any of these things, but it brought them together into one corporation. The initial charters (1694 and 1708) gave it a monopoly of joint-stock banking in England and Wales,²⁹ and, with the growing commercial rôle of London, the Bank became in the nineteenth century a central institution for Europe and in turn for the world.

The first aspect to strike the observer would of course be the expansion of paper-money. The bank-notes of Stockholm did not survive for long; but those of the Bank of England were successful. The notes were usually large units, often of £20, but

²⁸ In the extensive bibliography of the history of public banks, see J.G. van Dillen, *History of the Principal Public Banks*, The Hague, 1934; Abbot Payson Usher, *The Early History of Deposit Banking in Mediterranean Europe*, Cambridge, 1944.

²⁹ Sir John Clapham, *The Bank of England*, 2 vols., Cambridge University Press, 1946, esp. I, pp. 63-65; Raymond de Roover, *The Origins of Discounting*, Cape Town, 1956.

later of £10 and £5.³⁰ Even so they had relatively limited use. Outside London, other commercial banks also put notes into circulation. The function of this money can be seen after 1797 when England abandoned payments in gold. The Bank of England issued £1 notes (reluctantly, since they were easily forged); and the number of country banks (also issuing notes) soared. Once more paper covered the shortage of full-bodied gold and silver coins. On the return of peace, gold payments were restored with the gold sovereign (1816) and the £1 note was abandoned; it did not reappear until the First World War. The Act of 1844 provided for the fiduciary issue of notes upon securities up to a maximum of £14 millions; above that sum all notes issued had to be covered by bullion. Before 1914 it set the limits for currency in England.

Other countries in Europe quickly developed along the same lines, but none matched the United States. Paper money had been the bane of the thirteen colonies and the reforms of the young Republic did not alter the basic propensity to expand credit and paper. Private and State banks all issued notes, and during the Civil War the volume grew almost unchecked, both under the Confederates (whose paper and debts were renounced in 1865); and under the Federal government (which raised funds on government paper and notes, the famous Greenbacks). These were not brought under control until the return to gold payments in 1879.³¹

So far, we have looked at the paper currency issued by the banks, which had relatively limited scope. However, another path opened which transformed the flow of currency almost beyond recognition. This was the growth of bank deposits. In the nineteenth century it became revolutionary and complex, on the one hand providing for an expansion of credit and the rôle of banking institutions and services; and on the other hand, creating a hierarchy of banks and the function of central banks to control the monetary sector.³²

³⁰ Sir John Clapham, *op. cit.*, I, pp. 156-160.

³¹ Wesley C. Mitchell, *A History of the Greenbacks*, Chicago, 1903; Milton Friedman and Anna Schwartz, *A Monetary History of the United States, 1867-1960*, Princeton, 1963.

³² Alexander Gerschenkron, *Economic Backwardness in Historical Perspective*,

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The instruments and institutions which serviced this huge expansion had a long but slow development. The bill of exchange, for example, an Italian innovation of the thirteenth century, developed slowly into an instrument of credit. By the end of the sixteenth century endorsement was no longer a novelty. In seventeenth century England discounting bills of exchange assumed new dimensions but these were not widely used on the continent until the late eighteenth century.³³ The flow of government payments was another opportunity. The early deposit banks offered transfers from one account to another, and soon receipts and bonds were passing from "hand to hand," as in Venice in 1593.³⁴ Similarly, receipts for government purchases sometimes served as money. In London, the diarist Samuel Pepys referred to tallies, those receipts on slips of wood notched to indicate the sum of money and split for each party to keep a record. Such tallies often bore interest, as in 1667, in payment for naval supplies; and thirty years later, they were already at a heavy discount.³⁵

The seventeenth century saw further developments in the use of paper. In London between 1630 and 1670, the system of checks emerged. This grew out of the "debentures" or government promises to pay fees or pensions. At first they were in the form of a letter which became transferrable, and they came to be used in settling accounts between London and the provinces. As the market of London expanded, these money orders, in the form of internal bills of exchange, contributed to the flow of funds between the agricultural, commercial, and industrial sectors of Britain. By the time of the famous Bullion Report of 1810, it was already an accepted device for converting the seasonal movement of farming profits into a continuous flow of funds for trade and industry.

Finally, there was the problem of control. Again, seventeenth

in B. Hoselitz, *The Progress of Underdeveloped Countries*, Chicago, 1952; Rondo Cameron, *Banking in the Early Stages of Industrialization*, New York, 1967.

³³ Raymond de Roover, *L'évolution de la Lettre de Change*, Paris, 1953; and *The Origins of Discounting*, pp. 19-20.

³⁴ Gino Luzzatto, *Les banques publiques de Venise (XVI^e, XVII^e, XVIII^e siècles)*, in J.G. van Dillen, *History of the Principal Public Banks*, p. 49.

³⁵ Samuel Pepys, *Diary*, ed. H.B. Wheatley, 8 vols., London, 1949, V, p. 20; A. Smith, *op. cit.*, II, p. 301.

century London played a crucial rôle. At the time of Charles II, bankers—the goldsmiths, jewellers, brokers, scrivenors or solicitors dealing in real estate—offered a full range of services,³⁶ but two of the more important, Edward Bakewell and Sir Robert Vyner, began to hold money for others and acted in some measure as bankers' bankers. This, of course, was only a beginning: full monetary authority had to wait for the central banks. The Bank of England gradually developed such policies of control to co-ordinate the market. In the 1820s the public balances were greater than private in the Bank, but by 1834 this position had been reversed. The Act of 1844 was crucial in recognizing this evolution by separating the banking operations from the issue of bank-notes into two departments.³⁷ Soon afterwards emerged the policy of Bank Rate, that is, raising the interest rate to reduce the volume of currency and credit; lowering it to encourage inflation. The frequent changes in the next half century meant that the domestic value of sterling was made to conform to its trading value abroad.

What had emerged in Britain soon appeared in other countries. In France Napoleon founded the Bank of France (1801), with branches in the provinces. In the United States, the National Banking Act (1864) co-ordinated the growing number of state banks, but without creating in the strict sense a central bank. This had to wait until the establishment of the Federal Reserve Banking System (1914), with its twelve member regions and central Board in Washington, which in effect isolated the domestic circulation from international pressures. The U.S. Treasury held the gold reserves and controlled the situation abroad.³⁸

When did the banking "revolution" achieve its full effect? Robert Triffin has suggested the period after the crisis of 1873, when trade became "the great engine of growth." By the outbreak of the First World War, credit dominated the supply of money. In 1873, in the United States, the United Kingdom, and France, credit and fiduciary money provided three fifths of the total; by 1913, the share was 87 percent—19 percent for cur-

³⁶ S.W. Shelton, *The Goldsmith Banker*, in A.C. Littleton and B.S. Yamey, *Studies in the History of Accounting*, London, 1956.

³⁷ Sir John Clapham, *op. cit.*, II, pp. 177-181.

³⁸ M. Friedman and A. Schwartz, *op. cit.*, p. 9.

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rency and coin and 68 percent for demand deposits.³⁹ Hard cash had been overtaken by credit in the silent transformation of banking. The changes reformulated the concept of money supply as the sum of currency, demand deposits, and time deposits. And they functioned entirely within the framework of moneys of account.

All these changes served to widen the "competence" of money, and in turn aggravated the problems of control. Gold and silver coins had been manufactured under the watchful eyes of kings and officials with the built-in regulation of government. Charlemagne ordered money to be coined in his own palace and nowhere else. The Royal Mint of London followed the commands of Parliament. The provincial mints of the Netherlands conformed to the regulations of the States-Generaal in The Hague. Paper money and credit, however, did not have these same controls. Commercial banks could extend credit for clients, and the potential of the private sector soared. Hence, the growing rôle of central banks, either state-owned or closely tied to government. Credit opened the sluice-gates to finance projects and further expectations, but it also brought uncertainties. Who was to create money, and who control? And what assets should money represent?

* * *

MONEY AS A STORE OF VALUE

So far we have looked at some of the different monetary forms and institutions. On the one hand, moneys of account clearly represented debits and credits phased over intervals of time. And on the other hand, money as a medium of exchange used currencies of gold and silver, of which the prices also fluctuated over time. The time factor thus introduces the third rôle of money, as a store of value. The acceptability of money relates in part to the efficiency with which it can conserve and transmit

³⁹ D.H. Robertson, "The Future of International Trade," *Economic Journal*, XLVIII (1938); Robert Triffin, *The Evolution of the International Monetary System: Historical Reappraisal and Future Perspectives*, Princeton, 1964, Table 2.

value. If it merits confidence, then it will be kept without regret; if there is doubt, then it will be discarded in favor of some other asset. Bad money drives out the good, said Sir Thomas Gresham; and the aphorism applies equally now as then. How has this third monetary dimension developed?

* * *

The original characteristic of primitive moneys, which gave them acceptance, was their close relationship to commodities of known quality and standard value. This continued when metals, especially precious metals, became the chief components of monetary systems. Thus, it would be difficult to separate money as a means of exchange from the commodity which stored value. As economic growth gradually transformed the networks of market economies into national economies in which governments had increasing direction and planning, so the rôle of money as a store of value became closely associated with moneys of account representing those national economies. The commodity aspect of money as a means of exchange has been gradually redefined as an asset value; and that asset value dependent on accumulated wealth and expected economic performance.

However, we must begin by examining briefly the early developments related to precious metals. Gold and silver became the great moneys of Europe, and they have not entirely lost their rôle as commodities with immediate resale value. As such, precious metals compete with other assets: bonds, land, diamonds . . . to name only a few, and retained their asset value as long as they were available in the right quantity at the right time.

Gold and silver have, of course, very different qualities the one from the other: gold—highly malleable and admirable as coins; silver—more an industrial material. These factors have helped to shape the effective demand for each of the two metals; but in the long-term it was not these demand factors but rather the inelasticities of supply which guided their rôle as monetary metals. Over the centuries, a large part of the gold came from alluvial deposits in river beds, and this explains the sometimes fortuitous nature of gold output, and the “rushes” associated

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with it. There was always an element of discovery. A few acquisitive miners with shovels, pans, and knowhow were often enough to produce spectacular results. Silver had a different story. Of greater bulk, it required mines with capital outlays in equipment, pumps, lifting machinery, props, and danger. A great deal of this metal came mixed with lead or copper, and so demanded refining techniques. The lead process in Saxony in 1451, and amalgamation in Mexico in the 1540s and in Peru in the 1570s were early examples of the technical contribution to large-scale production.⁴⁰ By contrast, gold acquired an industrial structure only in the nineteenth century, with the quartz-crushing plants in Australia (in the 1850s) and the application in the South African mines of the cyanide process discovered by Mac Arthur and Forrest (1890). The mass of precious metals has in consequence grown slowly through the centuries, but the flow of new supplies has often been discontinuous, both in total quantity and in the proportion between the two metals. These considerations have profoundly affected their monetary rôles.

First, gold. When Europe was based on the Mediterranean, gold came from a wide area—the river valleys of the continent, but mostly from Africa. The gold of West Africa came in the caravans from Timbuktu, Kano or Kanem to the shores of north Africa. The Portuguese tapped this trade on reaching the island of Arguin (1443); and the Guinea Coast (1471) where they built the fortress of São Jorge da Mina to protect their interests.⁴¹ Then came a second supply with the discovery and settlement of America (1492). The men of Columbus scoured the islands asking for gold, and for the first quarter of a century this metal alone arrived in Seville. The Portuguese in Brazil produced the next notable inflow into Europe. The output of Minas Gerais began to arrive in Lisbon, probably after 1700; but by the 1750s, with about 15 tons annually crossing the Atlantic, this too reached its peak. The decline continued until the 1820s and 1830s, when output began to revive in Mexico

⁴⁰ F.C. Spooner, *op. cit.*

⁴¹ E.W. Bovill, *Caravans of the Old Sahara*, London, 1933, esp. Chap. XIII; V.M. Godinho, *L'économie de l'empire portugais aux XV^e et XVI^e siècles*, Paris, 1969, esp. Part I, Chaps. 2 and 3.

and Chile, but mostly in Russia. In the latter, annual production averaged some 8 tons in the 1840s, with a peak in 1847.⁴²

The mid-nineteenth century opened a new chapter for gold, and it lasted for more than a century. In January 1848, at Coloma in a sandy valley in California, Johan Sutter's mill-race turned up the first gold of the "rush." From across the Pacific in Australia, the discovery of gold was publicly announced in June 1851 at Clunes, and further strikes followed in Bendigo and Ballarat. These two sources, America and Australia, raised the supply of gold some twelve times (annual world output in the early 1850s averaged about 200 tons). But the spurt did not last, and total output gradually fell to a low level in 1883. The closing years of the century brought further spectacular finds, in South Africa at Witwatersrand (1886); Colorado at Cripple Creek (1893); the Yukon (1896); Alaska (1898); Ontario at Porcupine Creek (1909); and Western Australia at Coolgardie (1892) and Kalgoorlie (1893).⁴³ World production by the 1910s was running at some 572 tons annually, four times the level of the 1880s. Since the First World War the history of gold production has become one of industry rather than discovery. In January 1934 Franklin D. Roosevelt raised the price of gold from 20.67 to 35 dollars an ounce and output increased by half. After the Second World War output continued to rise, with South Africa (the largest producer), the United States, Canada and Australia delivering three-fifths and the Soviet Union (for which there is little accurate information) a quarter. But the mines have gone deeper into the earth's crust, facing increasing production problems and costs: in 1970, the estimated total world production culminated with 1478 tons, but within five years, output had fallen to 1192 tons, a drop of 19.4 percent.⁴⁴ The fact has critical significance for international liquidity.

For silver, the story was in some ways more dramatic. Initially, the high real value of silver meant that, in spite of the heavy costs of extraction and refining, marginal resources could be mined with profit. Mines were dotted across the continent, but

⁴² R.H. Ridgeway, *Summarized Data of Gold Production*, Washington, 1929.

⁴³ Henrich Quiring, *Geschichte des Goldes*, Stuttgart, 1948.

⁴⁴ Statistics from the *Minerals Yearbooks* published by the U.S. Bureau of Mines.

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the greatest supplies probably came from Germany: in the Middle Ages from the Harz mountains and Goslar; and in the fifteenth century from the Erzgebirge and the Tyrol.⁴⁵ The latter provided Europe's main source of supply until the discovery of the mines of the New World. There the pioneers soon changed everything. For the first half century of conquest, some silver came from plunder and small-scale mining. The big break came in the 1540s, when prospectors in the brown hills north of Mexico City found the huge deposits of Zacatecas, and in 1545 in Peru came the silver "mountain" of Potos.⁴⁶ Europe had at last found a substantial supply of the secondary monetary metal. The new silver soon arrived in Europe where Mexico and Peru became synonyms for fabulous wealth.

The output of silver, nevertheless, fluctuated. Deliveries to Europe peaked in the 1590s, and the decline which followed was probably substantial after 1640. For a while, European traders looked for other supplies—for example, in Japan; but the falling trend in output probably continued until the 1720s. At that point, the mines of Mexico began to revive, and the "eighteenth century" of silver mining continued to 1804, when annual production averaged some 550 tons. A further downswing set in, lasting until the 1820s.⁴⁷

The year 1825 marked a turning point in the silver industry from which, as far as production goes, it has not looked back. Output doubled by the time of the gold rush of 1848. Then after the late 1850s came the discoveries of Nevada (the Comstock Lode), Colorado (Eureka and Leadville), Australia (Broken Hill and Mount Isa), Canada (Sudbury). Output accelerated and the total for the decade before the first World War was six times that of the 1850s; in the 1930s, at peak output, it was seven and a half times greater. The bulk came from North America; the United States, Canada, and, above all, Mexico, the world's largest producer.

⁴⁵ John U. Nef, "Silver Production in Central Europe, 1450-1618", *Journal of Political Economy*, XLIX (1941).

⁴⁶ P.J. Bakewell, *Silver Mining and Society in Colonial Mexico: Zacatecas 1546-1700*, Cambridge, 1971.

⁴⁷ C.W. Merrill, *Summarized Data of Silver Production*, Washington, 1930.

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Output, however, is one thing and value another. After all, precious metals were both monetary metals and commodities subject as other commodities to the laws of supply and demand. The side of supply, as we have seen, fluctuated; but so did demand, in response to both the level and the direction of trade and transactions. Such fluctuations underscored the basic need for a standard. The problem was in reality a double one: firstly, which precious metal to use as a standard; and secondly, whether precious metals should constitute a standard at all.

In the first case, the evolution was fairly simple. The two metals were again officially in circulation with the decision in Florence in 1252 to make a gold coin, the florin; and so medieval Europe "returned to gold."⁴⁸ As both metals could be in circulation, their relationship was measured by the bimetallic ratio, that is one unit weight of gold was worth so many units of silver. At the discovery of America the average ratio in Europe was hovering in the region of 10½ (that is, one ounce of gold was worth 10½ ounces of silver). The slow changes in stocks and the high real values of the two metals meant that the monetary systems of Europe did not have a clear view of a single standard and silver was often hoarded along with gold. However, the mines of Zacatecas and Potosí radically transformed this situation. Men became painfully aware of a new version of Gresham's law that bad money drives out the good, and this applied to the two precious metals. A standard based on two metals always brought difficulties, for in reality one metal was the real standard and went into "store," while the other remained in circulation. So it was with the bullion from America. The abundant inflow of silver meant that gold appreciated in terms of silver, and this shift became rapid in the first half of the seventeenth century. The bimetallic ratio soon moved to an average of about 14½ to 15, and it remained more or less at this level until the last quarter of the nineteenth century.⁴⁹ In 1717, Britain for all

⁴⁸ Robert Lopez, "Back to Gold, 1252", *Economic History Review*, IX (1956); Andrew Watson, "Back to Gold—and Silver", *Economic History Review*, XX (1967).

⁴⁹ Dickson H. Leavens, *op. cit.*, p. 9.

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intents and purposes moved onto a gold standard, but this became official only with the monetary reform of June 1816.

A second step, more a stride, was taken in the second half of the nineteenth century, when the gold standard received wide acceptance. A large part of the story seemed to lie not so much in the gold discoveries of California and Australia, as in the way the new stocks of metal became available in Europe. Initially, France appeared to play a key rôle, acting, according to Michel Chevalier, as an “umbrella” by absorbing much of the excess gold. Before 1848, the Bank of France had only 2 percent of its reserves in gold; after 1848 the new gold changed this substantially⁵⁰ and France saved Europe from many of the possible disturbances. Even so, contemporaries were by no means clear about the eventual outcome. Experts such as Baron Rothschild and Monsieur Rouland were not convinced that there was enough gold for France to move openly onto a gold standard.

Although the discoveries seemed to play a leading rôle in the development of the gold standard, the real moment of decision came from the rising output of silver. This put an end to any uncertainties about which standard to accept. As more silver flowed onto the markets of Europe, the bimetallic ratio began to weaken and one nation after another went for gold. Industrializing Germany set the pace initially in 1871 and finally in 1873. By 1880, no mint in Europe accepted silver for unlimited coinage. At the “great” crisis of 1873, the bimetallic ratio had approached 16; by 1886, it was over 20; and then in 1893, it collapsed completely and soon went over 30. In the débâcle, a further wave of nations moved finally onto gold: Austria-Hungary (1892), India (another of the “parachutes” of the 1850s) closed its mints to silver in 1893, Russia and Japan (1897), and even the prime silver producer, Mexico (1905). Among the great nations, only China clung resolutely to the secondary metal.

And so gold became the accepted standard, a classic store of value. Western Europe and North America formed a club of nations, with rapidly developing industrial economies and ac-

⁵⁰ Michel Chevalier, *De la Baisse probable de l'or, des conséquences commerciales et sociales qu'elle peut avoir et des mesures qu'elle provoque*, Paris, 1859, Section III, Chap. II, which first appeared as an article in the *Revue des Deux-Mondes* (Oct./Nov. 1857); D.H. Leavens, *op. cit.*, Chap. IV.

cumulating wealth. Gold coins circulated from hand to hand. The mechanism of the gold standard was at its optimum in providing the necessary liquidity to regulate trading balances between nations. Before 1914, free convertibility seemed the cure for all commercial ills, but in the hey-day of success there were two flaws: firstly, the gold standard was selective, for not every nation managed to make the grade; and secondly, it was no sooner established than it was swept away.

It was selective in the sense that the industrializing and trading nations which moved onto the gold standard formed an elite. There were undoubted advantages in this since it promoted exchange stability but such advantages should not conceal the fact that the world as a whole remained bimetallic. When analyzed by regions, the industrial expansion of the western economies created a "frontier" of development, with gold users at the center and silver users at the periphery. The long expansion of international trade had always been accompanied by establishment of standard silver coins, and these earlier techniques continued. The silver of America produced the famous piece of eight reals, which was widely used in trade in the Mediterranean and Asia; and so was the Dutch silver rijksdaalder in the Baltic, and the Maria Theresa taler in Ethiopia and the Arab countries. In the late nineteenth century, silver flowed into the Far East, onto the market of Bombay as into the ports of China. The silver dollars of Mexico became standard currency; in Shanghai "dollars Mex" even became the money of account.

Two further examples of this "frontier" can be found in the monetary history of Europe and the United States. The instabilities among silver-standard countries of Europe led to the establishment of the Latin Union (1865) under the leadership of France and based on the French silver 5-franc piece (weighing 5 grams at .900 fine). As we have seen, the trends were against this currency as a standard and in 1878 the Union suspended the coinage of silver.⁵¹ The other example, from the United States, is more striking. The Coinage Act of 1873 meant that the country was virtually on a gold standard. But that did not stave off a bitter controversy over the relative merits of gold and of bi-

⁵¹ H.P. Willis, *A History of the Latin Monetary Union*, Chicago, 1901.

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metallism which broke out during the last quarter of the century. The silver lobby of miners and farmers in the West confronted the gold supporters and bankers of the East, among them John Pierpont Morgan, the magician of security capital with his eyes on Europe. At first the silver lobby went for bi-metallism and prevailed with the Bland-Allison Act (1878) and the Sherman Silver Purchase Act (1890). However, the matter was finally settled in the Presidential election of 1896 when William McKinley, the Eastern and Republican candidate, defeated William Jennings Bryan standing for the West and Democrats. The gold standard was confirmed in the United States with the Act of 1900.

The conflict underlined both the inherent simplicity of the gold standard and the strains which could develop. These strains increased when more nations joined the club, and when the gold-mines were unable to satisfy the growing demand. The upheaval of the First World War in 1914 destroyed the happy balance. Britain, along with other belligerents, went off the gold standard and finally emerged from war loaded with debt, but grimly determined to restore the grand old days. The return to gold in 1925 was a brief respite and then only to a "bullion" standard rather than to free convertibility. Even that disappeared in 1931, to be followed by other countries, not least the United States (1933). By 1936, all the trading nations had left the gold standard. The future of gold seemed unstable, without firm prospects. Its value "has become exposed to so many incalculable influences", said Gustav Cassel in 1932, "that it is impossible now in any true sense to speak of gold as a fixed standard of value."⁵² But it enjoyed a reprieve, for as domestic currencies abandoned gold coins in favor of bank-notes and bank-deposits, gold retired into the bank-vaults as reserves and for a while improved international liquidity. Gold thus still remained a point of reference and a store of value. The unit was represented by the United States dollar and backed by the huge gold reserves of the U.S. Treasury. At the price of \$35 per fine ounce (set by President Roosevelt, 31 January 1934), the dollar was equivalent

⁵² Gustav Cassel, *Memorandum of Dissent*, in League of Nations, *Report of the Gold Delegation of the Financial Committee*, Geneva, 1932, p. 75.

to 0.88867088 grams of fine gold. During four decades this remained a unit of account widely used throughout the world. It was the unit of reference for the European Unit of Account introduced in the early 1960s for the transactions of the Common Market.⁵³ It became the unit initially used for the Special Drawing Rights (SDR) of the International Monetary Fund (1968), sometimes called “paper gold” and virtually an international money of account created to improve international liquidity and overcome the excess demand for gold. That unit was abandoned by the IMF (in Washington, June 1974) in favor of a “standard basket” composed of the currencies of sixteen countries. Once more, gold remained a satisfactory store of value only when it was available in the right quantity at the right time. Before 1914 it had been in its prime and provided stability. The real purchasing power of gold remained stable. In other words, as a store of value, it found support in the long-term movement of prices.

* * *

In the nineteenth century, as the gold standard won adherents, most of the nations undergoing industrialization enjoyed relative price stability, even in some instances price recession. That does not mean, however, that there were not fluctuations: there was, for example, the mid-century boom roughly from 1848 to the crisis of 1873, but the subsequent down-swing in prices and interest rates to the 1890s restored the levels of fifty years earlier. In the case of Britain, which led in the adoption of the gold standard, the nineteenth century brought deflation rather than mere stability, so that by 1896 the price-level had fallen well below that of eighty years before.⁵⁴

These long-term trends made the nineteenth century an exceptional case in the history of Europe. In earlier periods, economic expansion had been associated with inflation. The Middle Ages (late eleventh to early fourteenth century), the Age

⁵³ T. Josling and S. Harris, “Europe’s Green Money,” *The Three Banks Review*, CIX (1976).

⁵⁴ E. Victor Morgan, *The Study of Prices and the Value of Money*, London, 1950.

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of Discoveries (late fifteenth to early seventeenth century), and early industrialization (eighteenth century to beginning of nineteenth century) had been periods of rising prices. The nineteenth century as a whole was different, and, so it, seems, unlike anything which preceded it: economic growth was accompanied by relative price stability.⁵⁵ The causes were complex, and no doubt must be sought in the greater supply of goods in Europe, either produced by industrial methods, or brought by improved transport from overseas. The conditions were extraordinary enough to suggest to Gustav Cassel that a 3 percent increase in the supply of gold could underwrite price stability.⁵⁶ Until the 1890s, the secular trends formed powerful arguments in favor of the fixity of monetary values.

At this point we should enter a *caveat*, for the monetary systems which enjoyed relative stability were gradually tied to gold. By contrast, those nations which received silver both demonetized in Europe or produced from the new mines, appeared to have had inflation. India and China, for example, experienced progressive inflation from the mid-nineteenth century, and in the end they did not make the transition to full gold convertibility but only to a gold exchange standard. The trading nations undoubtedly profited from this situation in which, during the last quarter of the nineteenth century, domestic prices could be stable or falling in Europe (when quoted in gold) but rising in countries using silver. The key to profit lay in the settlement of trading balances with depreciating currency and in taking advantage of the lag in domestic prices in silver-using countries. In these conditions the engine of growth turned without difficulty.⁵⁷

Since 1896, the story has been very different. Inflation and

⁵⁵ Frank C. Spooner, *Secular price movements and problems in capital accumulation*, in *Congrès et Colloques*, VIII, Paris, 1965.

⁵⁶ Gustav Cassel, *The Theory of Social Economy*, 2 vols., London, 1923, II, pp. 438-458; Byron W. Holt (ed.), *The Gold Supply and Prosperity*, New York, 1907, pp. 75-190.

⁵⁷ Yeh-chien Wang, "The Secular Trend of Prices during the Ch'ing Period (1644-1911)", *Journal of the Institute of Chinese Studies of the Chinese University of Hong Kong*, V (1972); F.J. Atkinson, "Silver Prices in India," *Journal of the Royal Statistical Society*, LX (1897); C.N. Vakil and S.K. Muranjan, *Currency and Prices in India*, Calcutta, 1927, pp. 134 et seq.; Sir Compton Mackenzie, *Realms of Silver*, London, 1954, esp. Chaps. IV and VI; F.H.H. King, *Money and Monetary Policy in China, 1845-1895*, Cambridge, Mass., 1965.

rising prices marked the two decades before the First World War; and long-term inflation in all its forms has been the subsequent experience of the twentieth century. One example will suffice: in Britain, whose monetary system had been the lynchpin of the nineteenth century, the purchasing power of the pound sterling in 1975 reached a low of only 8 percent of what it had been in 1913. And what was true for Britain has prevailed to a greater or lesser degree in other countries. The twentieth century has been a century of inflation, in which the monetary experiences of nineteenth century Europe remain but a happy memory.

What did all this mean in the search for a store of value? Evidently, the developed countries of Europe and North America enjoyed a wide choice of assets.⁵⁸ If monetary values in real terms tended to be stable or even appreciated in the nineteenth century, then small savers and big investors could put their funds into savings banks or other assets with fixed rates of interest, in the sure expectation that their deposits would be relatively safe. Public debts could be attractive: consols in England, rentes in France, bonds in the United States, the Imperial debt in Russia. Savings banks flourished. Rentiers and coupon-clippers, small and large, enjoyed the attractions of thrift with security. At the same time, it is also clear that investment in equities in the industrial countries of the world also provided opportunities to profit from economic growth. Speculation and risk brought dividends and these were often declared in sterling, and so assured of stability. In the nineteenth century, investors enjoyed the best of both worlds: on the one hand, gains from fixed return assets and, on the other hand, gains from equities. These double forms of investment opportunities gave nineteenth century capital a special but vintage character.

Inflation gradually brought disillusionments to investors. Nevertheless, if assets quoted in money no longer offered the same measure of security, there still remained economic growth. Hence the popularity for a time of mutual funds and unit trusts which provided management to spread risks and hedge against

⁵⁸ The discussion in the following pages leaves aside the important problem of the Soviet Union, now a major gold producer.

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inflation. How should savings and investment contend with the erosion of the real value of money? And what monetary system could provide stability? The discussion must now turn to the third panel in the triptych of value: economic growth and government policy.

* * *

Although the search for a standard in the nineteenth century focussed on gold, it is now generally agreed that it was in fact a sterling standard. The "high resale value" of sterling derived in part from a long history of stability. From 1717 until 1931 and with few intermissions, the ounce of fine gold sold officially at £4-4-11½, so that £1 = 7.3221 grams. During this period, early industrialization gave Britain a substantial position of accumulated wealth, and this slowly made its presence felt. In 1816, when the gold standard was officially adopted, the lead was not all that clear. National income was about £300 million; but the National Debt scaled about £834 million, and credits accruing abroad, if any, were very modest. However, the economy had potential. Progressive industrialization and international trade changed the apparently gloomy picture. By 1913, GNP was about £2,087 millions, but the National Debt had fallen to £649 million, with about £4000 millions in credit abroad.⁵⁹ In other words, the international monetary standard, which on the surface was based on gold but in reality on sterling, had the backing of strong economic performance and accumulated wealth. The dominant economy and the principal creditor in the international economy, Britain, underwrote stability and her monetary system provided an effective store of value.

The inflation and debts of the First World War demolished much of this edifice although the facade remained imposing. In 1925 when Britain returned briefly to gold, the National Debt had risen to £7646 millions—the service charge alone was well over half the principal of the debt in 1913—while GNP stood at £4091 millions. In monetary terms output had doubled

⁵⁹ Phyllis Deane and W.A. Cole, *British Economic Growth, 1688-1959*, Cambridge, 1962; E.L. Hargreaves, *The National Debt*, London, 1930; Albert Imlah, *Economic Aspects of the Pax Britannica*, Cambridge, Mass., 1958.

but the funded debt increased by twelve times. The depression years, a second World War and its aftermath, a transition from Commonwealth to the Common Market meant a weakened pound, and the growing problem of the sterling balances in London. Those balances, convenient for settling trading debts, had been relatively small until the expansion in the Second World War and more recently through surplus oil-revenues. Their very size (some £6000 million in 1976) aggravated further the doubts over the rôle of sterling as a long-term international store of value.

Thus the chapter on sterling began to close in stages, but another opened *pari passu* for the U.S. dollar. From the turn of the nineteenth century, the dollar emerged as a “strong” currency; and after the crisis of 1907, the United States moved increasingly from a debtor into a creditor position. The First World War confirmed this departure in a number of important ways. When peace returned, the United States was the world’s major creditor, with private and government assets abroad total-ling \$12,562 million.⁶⁰ A second important development was the establishment of the Federal Reserve Banking System by the Act of 23 December 1913. This created a two-tiered monetary structure, with the Federal Reserve System handling domestic monetary affairs; and the U.S. Treasury directing the international flows of gold and funds. In effect, *mutatis mutandis*, the mon-etary affairs of the U.S. seemed to have arrived at a stage similar to that of the Bank of England when the Act of 1844 divided the issue department from that of banking. The *mise en scène* of the dollar as an international currency had the backing of strong economic performance: in the 1920s the United States had about two-fifths of the world’s manufacturing capacity and was easily the dominant economy of the world. This strength permeated the agreements of Bretton Woods (July 1944) which formally buried the gold standard to resurrect it again as a gold exchange standard.⁶¹ Each of the participating nations agreed to declare its currency in terms of gold or the dollar (that is equivalent to 0.88867088 grams of fine gold). This became the

⁶⁰ Cleona Lewis, *America’s Stake in International Investments*, Washington, 1938.

⁶¹ S. Horic, *op. cit.*, pp. 87-91.

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international standard of exchange, and it lasted some thirty-five years.

The reasons for the demise of this stable system are clearly complex. Part of the story lies of course in the fact that there was no longer enough gold to go round. The production of the mines did not match demand, even after the increased total output following the Second World War. From 1,086 tons in 1950 world production reached a peak of 1,478 tons in 1970. Since then it has declined, with the fall most striking in the case of South Africa, the major producer in the western world: it mined 1,000 tons in 1970 but only 713 tons in 1975.

Secondly, the post-war recovery of Europe and widening economic development increased the demand for gold. In December 1958, the continent returned to convertibility, and this combined to raise the pressure for international liquidity. A further sign of this demand can be seen in the establishment of a free gold market in Singapore (1969).

Finally, there was the erosion of the prime position of the U.S. dollar. In 1950, the vaults of the U.S. Treasury held 20,178 tons of gold, which represented 63.4 percent of the official gold reserves of the western world; in 1968 the total had been halved; 9,679 tons or 27.0 percent of western reserves. In addition, in the 1960s, the U.S. Federal Government ran repeated deficits. Dollars flowed in the direction of Europe to be handled largely by the London market. These with other reserve currencies became the "Eurodollars" and now form a veritable European currency. After the decision of President Johnson in 1965 to escalate the Vietnam war uncompensated by tax levies, dollars also flowed in the direction of the Far East. In 1968, with tax advantages in mind, the Bank of America organized the flow of funds into banks in Singapore. These with other currencies are termed "Asian dollars," and underwrite loans for development and trade.⁶² The combined outflow of gold and currency soon brought a moment of truth.

The first serious gold crisis came in 1968 when the ratio of notes and deposit liabilities in the Federal Reserve system to

⁶² S.A. Pandit, "The Asian Dollar and Free Gold Markets in Singapore", *Finance and Development*, XIII (1971); P. de Grauwe, "The Development of the Euro-currency Market," *ibid.*, XII (1975).

gold reserves reached the statutory limit of 25 percent. In March that year, at Stockholm, the threat to international liquidity was staved off by creating "paper gold," the Special Drawing Rights of the International Monetary Fund. Three years later came the famous "dollar crisis" of 1971, when fixed exchange rates temporarily broke down and the United States suspended convertibility. In 1973, fixed exchange rates were finally abandoned and the dollar officially devalued. Gradually, the new situation evolved. In Washington (June 1974), the International Monetary Fund redefined the Special Drawing Rights in terms of a "standard basket" of sixteen major world currencies.⁶³ The Common Market followed suit in 1975 and redefined the European Unit of Account in terms of a "standard basket" of currencies of the nine member states. Then, in Jamaica (January 1976) the International Monetary Fund agreed to end the rôle of gold as a central standard of value, and dispose as necessary of its stock of gold. The wheel had indeed turned, almost full circle.

What can be deduced from the histories of the two major international moneys of the last century: the pound sterling and the U.S. dollar? Inevitably, the discussion must turn to economic performance and accumulated wealth. In both cases, those performances are complex, responding to population growth and age profiles, social structures and distributions of income and wealth, sums of expectations in an acquisitive world, the volumes of trade, the availability of resources and energy, and, perhaps most of all, inputs of technology, all summarized in "best-practice techniques."⁶⁴ They have combined to bring higher productivity and, in turn, strong economies.

However, successful economic performance cannot be dissociated from the ease with which money is supplied or the skill with which it is managed. Lord Keynes in a speech to the House of Lords (May 1944) noted perceptively that, different from the past, the value of sterling abroad would in future conform to whatever internal value resulted from domestic pol-

⁶³ An index based on the currencies of Australia, Austria, Belgium, Britain, Canada, Denmark, France, Italy, Japan, Netherlands, Norway, South Africa, Spain, Sweden, United States, and West Germany.

⁶⁴ For this see the classic study of W.E.G. Salter, *Productivity and Technical Change*, 2nd ed., Cambridge, 1966.

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icies. The statement was prophetic. Has the dollar, following the 1968 crisis, also moved towards a similar stage?

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Here we must conclude and return to the focal rôle of government. As the economies of the world pursued industrialization, the three functions of money—as unit of account, means of exchange, and store of value—have become closely interwoven and interacting. Slowly, the earlier concepts of money as a commodity, concerned with currency and means of exchange, have given place to huge and more complex programs of debits and credits emphasizing units of account. The banking revolution, in all its forms from notes to credit-cards, has revised the definition of money as the total volume of circulating currency, current accounts, and deposit accounts, in other words, the triumph of the money of account. Two and a half centuries ago, John Law pointed out in *Money and Trade Considered* (1706) that money was not just a commodity but derived value from increased use. And he promoted, albeit unsuccessfully, the idea of managed currencies as instruments of growth. Yet, in the time of Law, the difficulty of increasing the supply of money dominated the market, since it remained largely tied to the outputs of goldfields and silver mines. Even after the “rushes” of the nineteenth century, these basic inelasticities remained. However, and this must be one of the concluding themes of this article, industrialization brought a subtle but nevertheless profound change in these concepts. The development of banks and bank deposits rapidly expanded the effective supply of “checkbook” money, and indeed an outstanding feature of present day monetary systems is the relative ease with which banks can increase deposits to meet the needs of the public. Over the long-run, as Milton Friedman has acutely observed, a stable relationship exists between the demand for money and permanent income or wealth.⁶⁵ That demand is now the focus of attention. Just as Jean-Baptiste Say propounded a law of markets based on a rising supply of goods, can it be said, in the groundswell

⁶⁵ Milton Friedman and Anna Schwartz, *op. cit.*, esp. Chap. 13.

of material expectations, that money supply creates its own demand?

Finally, money has moved a long way from the days when it was thought that the king had the monopoly of supply and setting its value. Today governments balance on a knife-edge of policy. On the one hand, persistent budget deficits swell the supply of "high-powered" money and fuel the fire of inflation. On the other hand, curbing money supply and reducing inflation push up levels of unemployment, and present that unpleasant choice featured in the Phillips curve.⁶⁶ For decision-making by governments in conditions of uncertainty, these are the horns of dilemma and the resulting policies bear the mark of hesitation. What controls can governments exercise in a converging but multipolar world to stabilize money and conserve its value? Who shall control these governments? *Quis, quid, ubi, quibus auxiliis, cur, quomodo, quando?* Quintilian put the accusations but to-day, the replies are not so simple.

⁶⁶ A.W. Phillips, "The Relation between Unemployment and the Rate of Change of Money Wage Rates in the United Kingdom, 1861-1957", *Economica*, XXV (1958), and "Employment, Inflation and Growth," *ibid.*, XXIX (1962); P.A. Samuelson and R.M. Solow, "Problem of Achieving and Maintaining a Stable Price-level", *American Economic Review*, L (1960); K. Brunner and A.H. Meltzer (eds.), *The Phillips Curve and Labor Markets*, Amsterdam, 1976.