PROBLEMS

*Capital, Credit and Enterprise in the Industrial Revolution**

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Introduction.[1]

Considerable revaluation has recently occurred in assessing the role of capital in the Industrial Revolution in late-eighteenth century Britain. Although much of the present article is concerned with microeconomic relationships, in the firm or the locality and region, these reassessments have also applied to more aggregative judgments about capital in the economy. Expressed very crudely, much of this revision stems from the implications of two contrasting features of the eighteenth-century economy, which the flow of research has been revealing: the extent of savings being produced in the economy, both prior to industrialisation and during its initial phases, and the modest capital demands made by the new technology for investment.

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1 The most important new evidence on this topic is to be found in the major research of the following scholars: L. S. Pressnell, *Country Banking in the Industrial Revolution* (Oxford, 1956), pp. 289-365 and F. Crouzet (ed.), *Capital Formation in the Industrial Revolution* (Methuen, London, 1972) which reprints various recent contributions, including F. Crouzet, *La formation du capital en Grande Bretagne pendant la révolution industrielle*, « 2nd International Economic History Conference » (1962) (The Hague, 1965); S. Pollard, *Capital Accounting in the Industrial Revolution*, « Yorkshire Bulletin of Economic and Social Research » XV (1963) and S. Pollard, *Fixed Capital in the Industrial Revolution in England*, « Journal of Economic History » XXIV (1964). Individual citations from these sources are too numerous to be mentioned separately below. See also, P. Mathias, *The First Industrial Nation* (Methuen, London, 1969), ch. 5, pp. 144-151, 165-178 and R. E. Cameron, *Banking in the Early Stages of Industrialization* (London, 1967); chapters II and III.

A long intellectual tradition emphasised that capital was the critical factor of production and that shortage of savings, and hence capital, was a critical constraint upon the growth of an economy. This certainly was the main emphasis of classical economists, led by Adam Smith, who emphasized that expansion was limited by the powers of ' accumulation '; and that capital was created by ' parsimony ' — sparing resources from consumption. The possible limits upon growth brought by the failure of effective demand to rise, although not completely absent from the debate, was given very much less prominence, and was denied by definition in the main stream of classical economics.

The Marxist tradition of scholarship then elaborated this emphasis on capital constraints in parallel to its elaboration of the labour theory of value, also taken over from classical economic tought. Particular emphasis was then focussed on the primary accumulation of capital, in the pre-industrial economy (or non-industrial sectors in the industrialising economy) from which the extra resources demanded for investment could be extracted; and also upon the pressure exerted upon levels of consumption. It was assumed to be inevitable that the greatly increased rate of capital investment involved in industrialisation would be largely found at the expense of current consumption — in short that the masses of the nation would be supplying these capital requirements through one transfer mechanism or another, via taxes or inflation, by a fall in the standard of living.

In turn, much stress in the modern literature of development economics, concerned with the problems of generating economic growth in the underdeveloped countries, was laid upon the absolute shortage of savings and the incremental demands made upon rates of investment to sustain even a modest rate of growth. The simple quantification proposed by W. A. Lewis, received wide currency: that to increase the rate of growth of an economy from below 1 per cent per annum to above two per cent required a more than doubling of the rate of capital investment from 5 per cent of G.N.P. or below, to above 10 per cent.[2] When this was adapted by W.W. Rostow in *The Stages of Economic Growth* and applied specifically to the British economy in the late eighteenth century, it became the dominant interpretation. When Miss Phyllis Deane made detailed investigations to quantify increments to capital, however, she discovered that rates of capital investment rose only slowly, taking a century to rise from 5 per cent to 10 per cent of G.N.P. and reached over 10 per cent only with the unprecedented laying down of fixed capital in the railway construction boom of the 1840's.[3] The alternative estimates of Professor Pollard, revising upwards some of these calculations (but for *gross*, rather than net, investment rates), do not significantly alter this conclusion.

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[2] W. A. Lewis, *The Theory of Economic Growth* (London, 1955), pp. 201-203, especially pp. 201-204; 207-208, 225-226.

[3] See references cited below for Section IV, *The Growth of Provincial Wealth and Savings.*

This research brought into new perspective the extraordinarily percipient comments of Professor M. M. Postan in 1935, when he asserted that no shortage of aggregate savings for productive investment afflicted the British economy in the eighteenth century.[4]

Capital shortages resulting from inadequate internal savings relative to the great demands made for productive investment may indeed be a profound constraint upon industrialisation in very poor countries in the twentieth century — where technology is now massive in a wide range of industries; where massive demands on social overhead capital are made for urbanisation, transport, public utilities, national health and education programmes; and where governments demand very high rates of growth to catch up with the neglect of centuries. But none of these characteristics was true of the British economy in the eighteenth century; nor of the processes of growth in England during the industrial revolution. England was a rich country, with a fertile, commercialised agriculture and extensive internal and foreign commerce. To the extent that such comparisons over great differences in context and time mean anything at all, per capita wealth at the end of the eighteenth century was probably two or three times greater than post-1945 Nigeria, itself one of the richer of the African States.[5] Rates of growth were slow, moving up gradually from 1 per cent per annum, to 3 per cent per annum over fifty years. Britain, we can say with some historical assurance in the 1970's, has always been a slow growing economy, growing more slowly at some times than others. Technology was simple, social overhead capital expanding at a modest rate, and the demands of productive investment, given all these conditions, very modest in relation to the savings already being generated in the economy. This is the background to the modest rates of growth in investment actually charted by Miss Deane.

Productive investment probably absorbed less than a quarter of total investment, which was dominated by domestic building. The evidence for the assertion that there was no aggregate shortage of savings for the requirements of productive investment in eighteenth century England are manifold. The extraordinary efflorescence of new building, whether in the countryside or the towns, showed the prosperity of those groups in whose pockets much of the nation's savings were accumulating — landowners and prosperous tenant farmers, merchants, professional groups. Unprecedented sums flowed into the permanent national debt during the eighteenth century and were expended for war purposes — with only modest repercussions in inflation and slower rates of growth. The very rapid rebuilding of London after the great fire in 1666 and speculative manias, such as the South Sea Bubble, showed the plentifulness of money on offer at these times. The steady fall

[4] M. M. Postan, *Recent Trends in the Accumulation of Capital*, « Economic History Review » VI (1935); reprinted in F. Crouzet, *op. cit.*

[5] P. Deane, *The First Industrial Revolution* (Cambridge, 1965), pp. 6-7.

in the rate of interest on government stock from 6% in 1700 to 3½% in the 1750's, indicating changes in the general structure of interest rates, evidenced the progressive availability of savings in relation to investment opportunities, on the assumption that conditions of risk and institutional arrangements did not counter this in the sector where increased productive investment was required. The usury laws prohibited commercial borrowing at above 5% p.a. between 1714 and 1832, which seemed to have been the standard conventional rate for private lending. The scale of military expenditure during the French Revolutionary and Napoleonic wars is particularly significant. It cost £1000 m. in direct costs of the armed forces alone to beat France between 1793 and 1815, with £500 m. added to the permanent national debt in those years. Yet the total accumulated capital in the entire canal system of the country in 1815, one of the 'lumpiest' pieces of productive investment required for industrialisation in this period, spread out over a much longer time-span since the 1750's, reached only c.£20 m. The economy was able to absorb and adjust to the imposition of these vast military costs with only a very modest effect upon rates of growth, and (judged by twentieth-century wartime examples) only modest rates of inflation, most of which was occasioned by rising food prices which were not directly a result of financing the war. Rapidly growing industries like cotton and iron, with technical innovations making high demands on capital for investment in fixed assets and stock, were concentrated in a small enclave in the economy until the closing years of the century.

All these considerations do not mean that there were no problems, difficulties or constraints about capital accumulation for productive enterprise and the supply of credit to business during the Industrial Revolution; just that such problems did not stem from an aggregate shortage of savings in the economy. Many gaps had to be spanned between those groups receiving most of the savings and those requiring most of the credit. There was no national capital market in eighteenth-century England, in the sense of a coherent, nationally organised entity with flows responding quickly throughout the economy to changes in the supply and demand for funds. The nearest that conditions approached to this was in the capital market for government securities, which did call on a national (indeed international) catchment area, with adequate information and accepted security, apart from isolated years of crisis. A national market with correspondingly narrow differentials in interest rates, was also approached in mortgages on the first-class security of free-hold land and buildings. The law governing such transactions was clear and effective, for both creditor and debtor. London acted as a clearing house for larger mortgage deals, within what approached a national market, but local mortgage markets flourished. Equally with short-term credit for business based on the bill of exchange. This was an effective legal instrument, giving creditors unambiguous and rapid recourse in law. Much traffic in bills of

exchange flowed through London (see below p. 130), superimposed upon the equation of supply and demand in countless local commercial centres across the country. Sensitive movements in the ' bill rate ', over time and between different centres also suggest the operation of an effective market, even though subject to many interruptions.

With long-term credit requirements the situation was different. Being family-owned, except for a few insurance and mining companies, business did not seek equity capital through a public capital market; but took long-term credit in the form of personal borrowings, raising mortgages, or accepting such creditors as partners, with full legal responsibilities for the debts of the concern. Here, even more than with the supply of short-term credit many institutional rigidities and imperfections operated in the capital market. These rigidities were such that one cannot speak of them simply in terms of « transaction costs » adding to the price of obtaining accommodation: they were more rigid in price and less certain in supply, with the usury laws putting a ceiling of 5 per cent upon commercial interest rates after 1714. With local pools of savings being accumulated and local accumulations of demand for credits, many conduits and intermediaries had to be evolved to link demand and supply. In the institutionalisation of such conduits between savings and those demanding credit lay the resolution of the main restraints on economic growth occasioned by capital in eighteenth-century England. The gaps were manifold. There was a geographical gap involving inter-regional transfers (particularly between the industrialising regions of Lancashire, the West Riding of Yorkshire, industrialising countries in the Midlands, and the agricultural regions of the east, south and west of England). There was a gap in time which had to be spanned; with seasonal unbalance or where credit demands were out of phase with offers of credit; and where long-term needs conflicted with short-term offers (raising a ' funding ' problem). Above all there was a sociological gap between landed, commercial and professional wealth and entrepreneurs in humble stations in life, without face-to-face contact. The spending habits and attitudes of those groups receiving surpluses also becomes crucial for the disposition of available savings in relation to the demand for capital and credit by productive enterprise. All these gaps required mechanisms, intermediaries, progressively specialised financial middlemen and firms eventually to resolve. This gives the institutional development of the financial structure of eighteenth-century England, as new intermediaries specialised out, a new significance. They institutionalised the means by which gaps between savers and borrowers became linked, drawing the threads of the capital market together. The line runs from goldsmiths and scrivenors, to local attorneys, London bankers, jobbers and brokers of different styles in the London capital market and the Stock Exchange, country bankers, bill brokers by 1800 and even the incipient provincial ' offices ' which canal companies opened to sell shares.

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Almost all decisions governing investment in productive enterprise in the eighteenth-century economy were taken by private individuals, families and firms. It was also the ' private sector ', the collectivity of the same individual enterprises, which generated most demands for short-term credit. With so much of this enterprise conducted at a local level, with its catchment areas for capital and credit local, or at the most regional rather than national, the consideration of these financial problems at the macro-economic level of national aggregates must lead into their analysis in the micro-economic context. It is also at this level that most research is being done, and from which, in recent years, much re-assessment has come. The present paper seeks to evaluate some of these re-assessments, and to report recent research, more than to provide a general coverage of the rôle of capital in the industrial revolution. For the latter, readers are urged to turn to Professor Crouzet's new publication.

I. Asset Structure and Credit Needs.[6]

Several lines of research have converged to reveal several new facets about the credit requirements of eighteenth century British business and their relationship to available credit supplies, as well as to confirm some traditional assumptions. The capital structure of eighteenth-century firms is now being studied in detail from business archives; a steadily growing number of business histories is adding more primary data about the sources of credit; research into banking history is bringing more data from the side of suppliers of credit; regional investigations are showing the intricate local patterns of credit flows and the mobilisation of capital.

One of the most important conclusion of the analyses of capital structure of firms is to show how small a proportion of their total assets, even for the most capital-intensive business such as a large iron-works or a London porter brewery, lay in fixed assets. The more that production processes used handicraft methods and took place as « outwork » in the private dwellings of the workmen the less fixed capital was owned by the entrepreneur.

Indeed, the merchant employer might well only own a warehouse as the total fixed capital in his business; although stocking frames were often owned and rented to workers, unlike looms. The assets requiring short-term credit were usually at least four or five times greater — sometimes much more than this — than the fixed assets in large-plan industry.

6. The reference and authorities for the following sections of this paper are grouped in the documentation which follows the text.

7 Although the absolute value of fixed assets rose as technology at the single plant became more massive, increasing productivity and the intensity of use of plant meant that capital costs *per unit of output* could fall; and raw materials as a percentage of total costs of the final product increase. This certainly happened in the London brewing

These short term credit needs mainly covered the purchasing of raw materials, the financing of stocks in course of manufacture and the provision of the customary credit period to customers for goods in course of being sold. The relative slowness of the distribution system in the eighteenth century meant that a very high level of stocks had to be financed relative to turnover. Historians have had a tendency to over-emphasise the importance of fixed capital, fascinated (as contemporary commentators were) by the physical presence of dramatic new machines and large buildings. A salutary truth has been reinforced by the study of the account books of firms in re-emphasising the dominance of ' circulating ' capital in the financing of business.

II. Short-term Credit Supplies.

Various implications arise from this structure of assets:

(*a*) Even if the banks did not usually provide regular long-term credit for industry in England (a generalisation which is subject to growing qualification — see below pp. 135) through supplying short-term credit, particularly by discounting bills of exchange, they were supporting by far the largest credit demands of industry.

(*b*) In turn, by supplying short-term credit to merchants selling materials to industry, they were also supporting the credit requirements of industry in a very important indirect way — because the credit-period enjoyed by industrialists with their purchases of raw materials meant that often they did not have to pay cash for these inputs until they had been made up into final products and sent off for sale several months later. Once a contract for sale had been struck, equally, the industrialist could hope to avoid bearing the capital requirements involved in the credit period he had to grant to his customers by discounting the bills of exchange with his banker for cash and maintaining liquidity.

(*c*) The importance of mercantile credit for the industrialist, or ' ledger credit ', provided with his purchases of materials is very sharply enhanced.

(*d*) The smallness of the actual cash requirements of eighteenth-century business is remarkable, given the web of credit supporting business in its normal day-to-day functioning. Ready cash was needed mainly to pay wages; and many devices were available by which businessmen economised in the use of cash in wage payments — payment could be made only at long intervals; payment might consist in giving claims on others (truck payment, tickets or vouchers to authorise purchasing from shops, etc., the provision of

industry. The steam engine, in this sense, was capital saving as well as increasing productivity through lowering working costs from inputs of raw materials and wages relative to output. The capital costs of horses, stables etc. as well as the costs of maintaining horses were both higher than the capital costs and current costs of a steam engine.

private notes and tokens). The relative unimportance of access to ready cash in normal circumstances (i.e. in the absence of a general liquidity crisis in the monetary system or a particular liquidity crisis facing a firm when rumours were circulating about its soundness or liquidity) above this minimum, explains the ability of the economy to tolerate complete confusion and inefficiency in the supply of regal silver and copper coin from the Mint during the eighteenth century — particularly during the second half of the century when the pace of industrial and commercial growth was rising.

III. Economies in Fixed Assets.

The modesty of the demands made on capital for fixed assets, particularly when a firm was setting up for the first time in industry, was also remarkable. Coupled with the wide availability of modest amounts of capital for long-term lending (see below pp. 131) this had major implications for the strength of competitive forces operating in eighteenth-century industries in Britain, even the most capital-intensive, and for the recruitment of new entrants. They did not need great personal wealth (implying high social status and large family resources) provided that they had a good enough local reputation to command credit and access to a modicum of long-term capital.

Various features of eighteenth-century enterprise explain why the capital demands for fixed-assets were so small.

(*a*) Technology was simple and individual productive units could be small until the end of the century — even for the largest indivisible ' lumps ' of capital embodied in a piece of technology such as for a blast furnace. A large multi-storey cotton spinning mill of the ' Arkwright ' type cost perhaps £5,000 in the 1790's but it was possible to become a principal in the trade in a very much smaller establishment. Between 1780 and 1800 £2,000 was the average insurance valuation for the larger cotton mills. Of course, £2,000 in buildings and plant was still a large sum to collect for a man without savings of his own, or access to savings. However efficient the institutional means of acquiring capital, even in the most sophisticated industrial economies of the twentieth century, the initial requirements pose a problem for the would-be new entrant to an industry. The multi-millionaire can acknowledge that his only real problem lay in making his first million.

(*b*) Local investigations are demonstrating how extensive were the capital-economising techniques employed by new entrants to industry. It was very unusual to set up in business for the first time in a large new mill full of machinery. Buildings, particularly existing water mills, could be bought and then adapted for a new function in a very makeshift way; often buildings were rented or leased, with the owners offering to make the necessary alterations from their own capital. Even power and machinery could be leased, or the fixed plant in a water-powered mill (with the necessary

embankment works and reservoirs) rented with the building. It was standard practice to sub-lease just a floor of a building with machinery and power. In many rising commercial localities a flourishing local property market existed for renting industrial buildings, which enabled aspiring industrialists to reserve their savings for working capital. Some of these procedures allowing the industrialist to economise on the amount of capital he had locked up in long-term fixed assets are reminiscent of modern techniques of « gearing » a company, with a high ratio of debt to equity capital, or using « sale and lease-back » devices to achieve similar objectives.

(*c*) The large splendid prestige mill tended to be built out of accumulated profits after some years, once a business had become well-established; and mills were usually filled with machinery only gradually.

(*d*) Machinery was often built — and rebuilt — with direct labour to save the high and 'lumpy' capital costs of purchasing machinery. A flourishing market in second-hand machinery also quickly came into existence for capital-starved entrepreneurs.

In all these ways the need for initial capital was minimized and the reliance on short-term credit needs maximised. The current account of the business could thus shoulder by very much the greater part of the financial obligations pressing upon the firm, relieving what we would now see as the capital account from major responsibilities.

IV. The Growth of Provincial Wealth and Savings.

This asset-structure of eighteenth-century business, which implied a particular structure of credit requirements, has to be related to the sources of capital and credit available, with the developing institutions and intermediaries through which savings were being mobilised and the means of credit created.

Given the extent of aggregate savings and the dominance of short-term credit needs governing the expansion of eighteenth-century commerce and industry, the most important single development lay in the progressive efficiency, and the expansion of conduits and institutions serving the short-term end of the money markets. Much more research is needed here to complement the detailed study of Dr. P. G. M. Dickson on public credit. The expansion of financial facilities, more particularly in London, which made sugar bills and tobacco bills as freely negotiable at equivalently fine margins as government securities meant that short-term credit became the most efficient and the most mobile factor of production in the eighteenth century. During the first half of the century London dominated these financial flows, supported by satellite centres at the older provincial bases of foreign trade, such as Bristol. During the second half of the century the London money market maintained its dominance, but increasingly on the basis of the great creation

and mobilisation of provincial wealth which was an important feature of economic development in eighteenth-century England, rather than just on the expansion of London-based savings. Rising provincial wealth came partly from the diversification of foreign trade, with west coast ports such as Glasgow, Whitehaven, Liverpool and Bristol becoming main centres of long-distance trade; and partly from the great development of agricultural wealth, industry and commerce in provincial England. Banking specialized out primarily to serve foreign trade in Bristol and Glasgow after 1750, in Liverpool after 1770.

The financial revolution which spread country banks over the face of the land after 1770 was no less important for the credit-flows available to industry. Savings created from agriculture were mobilised for short-term commercial credit via bankers and merchants, both within localities and regions, and then with inter-regional flows. Long-term capital was also much involved with the mobilisation of fast-growing provincial wealth (see below). Generalisations have tended to be drawn too much from London, and from the major financial institutions. The growth of industry was primarily provincial and local, from very small-scale beginnings, with equally local, small-scale financial resources sustaining it. Long-term credits were created through wide networks of personal lending on bond (long antedating the emergence of specialized bankers) with local attorneys and scriveners as the main intermediaries. This was as important for the long-term credits required in the transatlantic trades (particularly for sugar and tobacco) as it was for industrial finance. Dr. J. R. Ward has documented the strategic importance of provincial urban wealth in the shareholding of canal companies after 1760 (conspicuously absent from the financing of river improvement schemes in earlier generations, which was dominated by London capital). The dominance of London-based investors in the national debt in the mid-century conceals the importance of the provincial savings then being generated. This also needs documentation.

V. Short-term Credit Flows.

For short-term credit transfers the provincial ' bill on London ' became a dominant financial instrument; the country bankers institutionalizing this flow as they emerged, with the bill-brokers becoming specialized intermediaries in this national market after 1800.

The direction taken by these cross-national flows of short-term credit from this time is well-known — from the agricultural areas of the East, South, and West, flush with cash after the harvest, to the industrial and commercial districts of the Midlands and the North West with credit requirements greater than locally available supplies. At what point in the eighteenth century do they become significant? The seasonal flows of short-term credit also need documenting by further research. In the months before the harvest the

tide of credit swung towards the farmers, running short of cash, needing to buy stock and seed and facing their heaviest wage bills in hay-time and harvest. Because the products of the harvest made up the largest single sector of commercial transactions in the economy during the eighteenth century — one third of the national income deriving from agriculture in 1800 — the credit flows responding to the harvest and its processing probably dominated the seasonal swings. As farmers received money in the early autumn from their sales of crops (usually for cash), and this credit reached their country bankers during the winter months, so those next in line purchasing the crops for cash would go to their bankers for accommodation — the grain merchants and factors, the malt factors and maltsters, the millers, mealmen and bakers, who were having to lay in stock at this time of year for the bulk of their year's work, and to pass on credit to their own customers over the next months. The brewers bought on two or three months' credit from malt and hops merchants and factors in October, by December they were facing their peak demands for credit, to cover these bills, their heaviest annual outlays. Sales were spread over the year, but production expenses were concentrated between October and May and purchasing expenses peaked in the autumn and winter. Equivalent credit tides swung to and fro following the sales of beasts and the chains of transactions in the leather and wool markets in subsequent months. In the sugar trade the planters would be drawing on merchants in advance of the sale of crops in the spring and the merchants be looking to their bankers. Between May and September most sugar cargoes were being landed and sold in Britain, so that the demands for credit from merchants and refiners were at their maximum. The seasonality of shipping, which was not active during the winter months from November to March, as well as that of the harvest, concentrated these demands for credit within certain months of the year. In the main transatlantic trades, such as tobacco and sugar, the heaviest pressures came in the autumn, as with the credit needs arising from the domestic harvest. An equivalent seasonal fluctuation followed the Newcastle to London coal trade, where very few shipments took place over the winter months until the last decade of the century. More research would doubtless produce a much more detailed time-table of these seasonal tides of short-term credit flowing across the face of the economy. Undoubtedly the autumn saw the peak demand for credit — more particularly in years when agricultural prices were high — and the greatest financial pressures. Balance of payments crises, like internal commercial and financial stringencies, commonly fell at this time of the year.

VI. Long-term Credit Supplies.

The long-term credit available for enterprise also appears surprisingly responsive to demand, and from very diverse sources, despite constraints upon the legal forms of enterprise which might be thought, at first sight, to have

severely restricted the supply of long-term risk capital in England. Because of the modest size of initial requirements, the absence of formal, institutional mechanisms for mobilising capital was not inhibiting. Indeed, contemporaries were correct in assuming that these constraints prevented waste, by reducing the opportunities for fraud and speculation, more than they denied capital to viable enterprise.

(*a*) Short-term capital supplied by banks and merchants for the main credit requirements released the accumulating surplus of the enterprise for the creation of fixed assets.

(*b*) Personal borrowing on bond (or even note of hand) was a most important means of acquiring modest amounts of money — counted in amounts of a few hundred pounds — at a modest rate of interest. Five percent per annum seems to have been the near universal cost of such personal borrowing throughout the century and after: borrowed in pounds, repaid in guineas. Where the lender took security for the loan this was usually in the form of free-hold property, so that a flourishing local mortgage market developed round the supply of capital for industrial and commercial purposes.

The legal instruments covering mortgages, like those covering bills of exchange, were well-established, effective and cheap, developed upon land and urban property transactions in the seventeenth century more than for business purposes, but this made the mortgage market in the eighteenth century one of the most efficient and widely used instruments of business borrowing. The rate of interest on first-class security here usualy lay between that on government stocks (3½-4% in peace time) and the 5% legal maximum — surprisingly modest.

(*c*) Regional studies are showing how extensive were the local networks of such borrowing on bond, passing outside the banks, and how central the local attorney was as the intermediary between borrower and lender. It was advisable for the lender to have the details of the loan drawn up in a legal document, and his attorney was therefore the natural professional to act as intermediary. In addition much money often lay with the attorney as trustee or executor for an estate, or of a minor. The lender had as great an interest in a secure, remunerative transaction as the borrower — and such loans on bond, if secured, were not subject to the hazards of changing capital values, which investments in government stock involved.

(*d*) From the borrower's point of view, this flourishing informal local capital market made the crucial demand — as did the request for credit from merchants — that he be trusted, that his local « credit » was good, that he be a respected member of the local community. Eighteenth-century business in Britain operated in as uninstitutionalised a way as eighteenth-century politics. It was a ' face-to-face ' society of personal, family and kinship links. In no set of business relationship were the implications of this more important than in the search for credit.

VII. Kinship Links.

(*a*) The ' personal ' world of the entrepreneur — his immediate family and friends — could also prove critical ' external ' sources for long-term borrowing, given the modest initial requirements for such capital. The dowry brought by a wife; the property of one's wife, be it never so modest (in the days before married women's property acts); access to the saving of a cousin, a father-in-law, the family solicitor or banker who had become a personal friend, or the local gentleman who had accepted an informal patron-client responsibility might all prove strategic. This ' personal ' kinship world was usually the first resort for cash, whether to establish a firm in the first place, or to save it from a crisis. Such borrowing was usually upon the security of property, where the entrepreneur had any title which might be pledged.

(*b*) Eighteenth-century business operated in a context of high managerial risks; and the higher the risks the greater the premium on kinship links in business. Quite apart from the requirements of the law, which forbade joint-stock enterprise in manufacturing and commercial functions, great pressures existed to identify ownership with management — and also to consolidate these connections with a kin-ship tie. Where a woman had inherited (or would foreseeably inherit) a business, if she wanted to maintain the ownership of it, she had a great incentive to marry its would-be new manager, and he her, if he wanted to enjoy the profits. The traditional success story of the industrious clerk or apprentice who married his master's daughter (or sometimes — even more strategically — his master's widow) is, more properly considered, the traditional tragedy of a family firm without a male heir.

(*c*) Undoubtedly the first rule for a successful entrepreneur in the the eighteenth-century, as today, was to choose his parents wisely — or at least the rest of his family. His initial capital usually came from prior family savings. The diversity of eighteenth-century business was often associated with the kin-ship ramifications of families. Recruitment to enterprise so often came as nephew was sent to learn a trade with uncle, cousin with cousin, or the cadets of one family joined with the businesses of their wives' families. Often entry into a new, but related, trade would come as the generations changed. A brewer would put a younger son into malting or grain merchanting, and *vice versa*. This diversification was very natural; one son would take on the family business, which might be too small to absorb his brothers, if the catchment area was a small town, or the unit of entreprise kept small for other reasons. Where other sons were put into related trades the family had some capital to start them off; but also knowledge of these trades and friends as principals in them, customers and suppliers, who might take in a son as junior partner. So much of eighteenth-century business was multiple enterprise on a small scale, which provided the base for growing diversity and specialisation. A person might be a manufacturer on a small scale; he might

trade in the raw materials he purchased, do a little financial business on the side when he had spare funds or was involved in transfering money to London; he might invest in land and become involved in farming. Such diversity easily accomodated new entrants when sons, or sons in law, or cousins needed to set up in a trade. It is therefore no accident that much capital for establishing new entrants in an industry came from neighbouring trades or branches of the same trade: merchants established manufacturing capacity from a stake in the ' putting-out ' system; stationers moved back into paper making; brewers into malting; iron masters had often moved back from being manufacturers of final products in the iron industry.

VIII. Partnerships.

For the new entrant to business looking for the minimum amount of capital to get himself launched there were other possibilities apart from borrowing within the ' face to face ' circle of family and friends.

(*a*) Despite a law more hostile in England than in France or some other European countries, to sleeping partnerships (*sociétés en commandite*) business histories reveal very wide diversity of practical arrangements which flourished within the strict laws governing partnership whereby each partner became personally liable in his private estate for the debts of any concern from which he received a share of the profits. (i.e. as distinct from making a loan to the principals of a firms at a fixed rate of interest as a separate transaction). Examples abound of young men, without much capital, taking wealthier men as partners who remained relatively inactive — to the point of sleeping — and collecting further capital by being personally backed by other creditors. As they became wealthy over the years from accumulated profits so they would build up their proportion of the partnership capital and, not uncommonly, terminate the partnership at an appropriate moment when a set of articles terminated (partnership agreements commonly ran for seven years). They could then go it alone until the time when their own sons would wish to come in or other arrangements had to be made to provide a succession to higher management.

(*b*) Where very large capitals were required, demanding multi-partnered enterprise, these operated formally under the standard partnership law, but they sometimes had very elaborate sets of articles indeed, creating contractual arrangements between the parties, which provided for a detailed institutional division of responsibility between those contributing capital and those ' managing partners ' bearing managerial responsibility. Provision for detailed accounts, independent auditing, and elections of managing partners by annual meetings of the entire partnership brought an approximation to the *de facto* operating conditions of incorporated enterprise, splitting off the supply of

equity capital from the provision of managerial skills, even though, *de lege*, all partners were on an equal footing towards creditors of the firm. Enterprise requiring such vast capitals as to have induced such a pattern were quite exceptional in manufacturing and commercial business in the eighteenth century, approximating more closely to the style of financing mines, the incorporated trading companies, canal and dock companies and the few insurance companies.

IX. Long-term Capital and Bank Lending.

The role of the banks in supplying long-term capital to business needs separate consideration. The older generalisation that English banks lent 'short' rather than 'long' — that they financed trade rather than supplied the long-term capital for financing the fixed assets of industry — misleads as much as it illumines.

(*a*) It is true that by far the greatest source of finance for capital investment in industry was retained profit, or 'plough back'. On a quantitative basis, at any one time, or as the main trend over the years, the overwhelming source of industrial capital investment lay in firms pulling themselves up by their own bootstraps in this way.

(*b*) Indeed, the stream of profits provided much more than capital accumulation by *autofinancement*. After the early days of privation and restraint on personal spending to allow the enterprise to grow as fast as possible, its owners usually drew out enough profits to live according to their station when a firm was well established, and this usually involved buying enough landed property to satisfy the demands of gentility. Richard Arkwright paid £240,000 for a landed estate in 1811 which, as Dr. E. L. Jones has pointed out, was the equivalent of 60 per cent of the annual fixed investment in the entire cotton industry at the time. (This could act as security, in its turn, if the business required external funds which had to be raised by borrowing). Very often, too, profits in excess of the requirements of investment in expansion would be invested in government securities, transport stock or other non-industrial assets.

(*c*) The fact that retained profits (the term 'plough back' gives the wrong impression because the profits were not taken out of the business in the first place) provided the main source of long-term funds for established businesses does not mean that external sources were not important at certain times strategic for business success — when a business was being established for the first time; when cash and longer-term credits were needed to enable it to survive a depression; when a major step forward was required in expansion which was beyond the scope of current profits or accumulated reserves.

(*d*) Short-term lending, whether from banks or elsewhere, as we have been above (pp. 127) provided the major credit requirements and released internally-generated funds for creating fixed assets. Few, if any, eighteenth-century businesses seem to have distinguished their current spending from what we would now identify as their 'capital' account; and accounting methods in use were not sophisticated enough to distinguish these categories conceptually or operationally.

(*e*) Longer term bank lending occurred, at these strategic times for expansion or survival of a business, often enough for the generalisation that English bankers « never lent long » and « always knew a bill from a mortgage » to be challenged. Much evidence, and explanation for this has accumulated from the side of the banks and their customers. Over 50 individual instances are quoted in the documentation of this section — from recent publications alone. It is still difficult to draw any firm conclusion from such a long list of individual cases, which is not endowed with statistical significance in any formal sense.

(i) English country banks were very unstable: in severe depression years, such as 1816, 1825, 1847, there were many bankruptcies. Although a banker can be forced into liquidation for a wide variety of mistakes this suggests that banks were lending long — by default, if not by design — much more than they professed to do. Many rural banks went down in the depression of 1815-16, with the collapse of war-time agricultural prices. Loans to farmers which could not be recalled quickly — which had been used for long-term rather than seasonal credit — played their part in these bankruptcies. Mining banks in Cornwall were notoriously unstable for similar reasons.

(ii) Banks, and the partnership of banks, throughout the country showed a very intimate connection with wealth made in trade and industry. Rich industrialists not uncommonly became partners in banks. Two quite opposite explanations can account for this — and both were true at different times. Wealth made in an industrial or commercial enterprise could become the basis for setting up as a banker, or buying a partnership in a bank. But, on occasions thereafter (if not more continuously) the working capital, or the deposits, of the bank — or its distributed profits — might sustain the other business with longer term credit. Where a merchant or an industrialist or a mineowner was a partner in a bank he felt he had special claims for accommodation. This has been widely documented. Brewing enterprise became associated with banking enterprise in over 50 cases.

(iii) Where bankers became wealthy men on the profits of banking they were highly desirable candidates for partnerships, or as creditors of businessment — and insofar as they supplied capital from their private resources, and not from the funds of the bank, this lending (which in aggregate

economic terms would be designated from the banking sector) would not be identifiable in the account books of the bank.

(iv) Bankers could also be involved indirectly in longer-term lending to industry, without the name of the banker appearing in the books of the firm as creditor, or the name of the industrial borrower in the books of the bank. Where merchant credit was propping up a business — and borrowing which had originated in the normal credit period of a commercial transaction had been ' funded ' into a longer term loan bearing interest — then banking credit could be standing behind the merchant creditor. Similarly, personal borrowing on bond from individuals who can be identified in the books of the firm as independent men of wealth — be they members of the professions or landowners — may conceivably be themselves indebted to bankers, or have mortgages outstanding on their estates. Acknowledging the indirect, as distinct from the direct, one-to-one, links, between bank lending and long-term business borrowing is to recognise a very complex interrelated ' circle of credit ' indeed.

(v) A special case of bank lending lies with the financing of turnpike trusts and canals. The treasurers of these undertakings were usually bankers and the attraction lay in the financial business which would pass through the banker's hands — apart from a credit balance in the account which he might enjoy. But when a canal company or turnpike trust needed to borrow, as they so often did when costs ran ahead of estimates, the Treasurer was usually seen as the natural — perhaps the inevitable — source of accommodation. And if the enterprise was essentially sound (he was in the best position to know) the banker could find it an attractive home for his surplus money.

(vi) As the number of business histories accumulate so grows the list of entrepreneurs who received long-term credit from their bankers at certain times. With the Carron Company this indebtedness ran on for forty years or more, to no pleasure of a succession of bankers in Scotland and London. This increasing number of known instances of banks lending long cannot be given a statistical significance — individual business histories present a biased, and very tiny, sample of the total population of businesses and flows of credit. But the list is extensive enough to cast doubt on the generalisation about banks not lending long, which was based mainly on affirmations made by bankers. The explanation is partly that such lending came by default rather than by design; that it was made in terms of short-term lending by the banker (and identifiable as such in his balance sheets) but received, in the result, as long-term borrowing by the business man.

(vii) The short-term loan by the banker could be conceived by both parties as the initiation of a longer term, ' rolling plan ', commitment, provided that both parties had no objections. This was, in result, not dis-

similar from the granting of overdraft facilities, which was a regular feature of Scottish bank lending. The banker had regular opportunities of recalling his money as the loans came up for renewal every few months; the entrepreneur might rely on their continuance if his banker was not faced with stringency. Only a long run of surviving ledgers in the bank or the borrowing firms can identify these short-term credit instruments as the means of long-term borrowing. The example of Barclay Perkins' brewery borrowing regularly in this way from their Quaker banker cousins is surely a representative example of such transactions.

(viii) Such long-term borrowing could happen by default rather than by design. If, when the banker tried to recall his short-term loan, or the merchant sought payment after the customary credit period, the borrower found that he could not pay, then what were the alternatives facing the creditor? He could take the case to law and seek to recover his money through the courts. If a firm was forced into declaring bankruptcy, with the case falling into the hands of the Court of Chancery, the creditor might well find that the remedy was more disadvantageous to him than the original difficulty. Such cases involved inordinate delays, with the lawyers and the court making first claims upon the assets of the business for their fees and expenses. The legal costs falling upon the creditor alone might make the process unprofitable, if the case was protracted. Moreover, the capital value of a business as a going concern (based upon its earning capacity as well as its tangible assets) could be several times greater than the amount of money which could be realised by selling up the concern and auctioning off its assets — the probable result of going into liquidation, if no alternative buyer came forward. In such an eventuality the creditors could look forward to receiving only a few shillings in the pound of their loan, unless there were undervalued assets in property revealed by the liquidation (but these would almost certainly have been identified and mortgaged to raise money by a firm *in extremis*).

(ix) Thus, provided the business was essentially sound, it was in the interests of the creditor to 'fund' his short-term loan into a longer credit (at five per cent interest) and hang on for better times. The bigger the amount then the more certainly a demand for instant repayment, at the term of the initial short period for which the loan had been granted, would cause the bankruptcy of the borrower — and the greater hesitation the creditor would therefore have about foreclosing. Where the safety of his own business might be threatened by such a loss (and bankers needed to be sensitive to public reactions to such knowledge, if it got about) the banker would be even more reluctant to demand his rights by invoking the law. Besides, provided the banker could survive the pressures for liquidity on himself and presume on the recovery of profitability by his debtor such lending could be profitable business.

(x) Where the lender was a merchant supplier rather than a banker then such a long-term credit tie had a further advantage. While it existed the customer was not free to drive an independent bargain in buying raw materials or services elsewhere at keener prices. The merchant might hope to look fro some return on his loan from the more advantageous terms upon which he could conduct his normal commercial business with this client.

X. Explanations.

The assertion that English banks did not lend long came more from the bankers than their customers, and have been accepted at their face value by many later historians.

(*a*) What was a general rule, governing normal lending to most customers has masked the existence of unrepresentative long-term lending, even though this could be very strategic for the commercial customers who received it on the occasions when it was vital.

(*b*) What was affirmed as a guiding principle which should govern practice was accepted as a statement of results — of what banking practice, in fact, was. When bankers explained the rules which should govern their lending policy to parliamentary committees, or wrote books about banking, these conservative principles were affirmed. A natural bias conditioned this selection of evidence: the successful, well-established, conservative bankers tended to be called as witnesses, put forward as spokesmen for the profession, or believed most widely as authors.

(*c*) The London city banking community was more conservative and cautious in lending than many country bankers (or even the West End private bankers who became involved with longer term lending to private clients on mortgage). Generalisations appropriate to the activities of the City bankers have been taken to characterise English banking as a whole.

(*d*) There has been a shortage of certain kinds of evidence, particularly long runs of balance sheets, which would have identified short-term lending which became the instrument of long-term credit.

(*e*) In the second half of the nineteenth century, as the country banks were swept up into the network of branches of the national joint stock banks more conservative lending policies were generalised within their organisations. Generalisations based upon the development at this time, and later, have been read back into earlier times without so much justification.

REFERENCES AND AUTHORITIES FOR SECTIONS I-X

I. Asset Structure and Credit Needs.

S. D. Chapman, *Fixed Capital Formation in the British Cotton Manufacturing Industry* in J. P. P. Higgins and S. Pollard (eds.) « Aspects of Capital Investment in Great Britain, 1750-1850 » (London, 1971), pp. 64-71, 78; P. Mathias, *The Brewing Industry in England 1700-1830* (Cambridge, 1959), pp. 253-254, 557-558; M. M. Edwards, *The Growth of the British Cotton Trade, 1780-1815* (Manchester, 1967) pp. 182-233; 255-259; S. D. Chapman, *The Early Factory Masters* (Newton Abbot, 1967), pp. 125-144; R. Boyson, *The Ashworth Cotton Enterprise* (Oxford, 1970), pp. 10-11; R. H. Campbell, *The financing of Carron Company*, « Business History » I (1958); E. Sigsworth, *Black Dyke Mills* (Liverpool, 1958), pp. 174, 223-224, 228-229; W. B. Crump (ed.), *The Leeds Woollen Industry, 1780-1820* (Leeds, 1931), p. 257; S. Shapiro, *Capital and the Cotton Industry in the Industrial Revolution* (Ithaca, 1967), p. 79. The fixed capital of Oldknow, Cowpe and Co. at Pleasley Mill (Chapman, *op. cit.*) was most unusually high, ranging from 34% to 90% of total assets between 1786 and 1799, compared with the many different firms quoted by M. M. Edwards, which range between 0.75%, 15% 20% and 35%. Other figures quoted by Dr. Chapman suggest that fixed assets in other firms were generally a lower percentage. Fixed assets in the Ashworth's New Eagley Mill in 1802 (Boyson, *op. cit.*) were less than 30% of total assets (£ 3,100 out of £ 9,800). At Black Dyke Mills (Sigsworth, *op. cit.*) machinery and buildings ranged between 20% and 40% of total assets between 1834 and 1854, but then declined to between 7% and 4% in 1859-67, as stocks and investments outside the business built up. The buildings were credited to the private account of John Foster after 1859; and machinery may have been undervalued. At Bean Ing, Benjamin Gott's assets (Crump, *op. cit.*) were £ 23,000 in buildings and machinery and £ 43,600 in stock in 1801.

All these proportions are much dependent upon the actual valuations of the assets (particularly land and buildings, which may well not have been revalued regularly); depreciation practices and the « gearing » of capital, through economising techniques of renting and leasing fixed assets.

II. Short Term Credit Supplies.

R. Boyson, *op. cit.*, pp. 19, 21, 33; W. W. Edwards, *op. cit.*, pp. 225-229; P. Mathias, *op. cit.*, pp. 458-459; E. Sigsworth, *op. cit.*, pp. 221-222; W. B. Crump, *op. cit.*, p. 225; B. W. Clapp, *John Owens, Manchester Merchant* (Manchester, 1965), pp. 14-15, 26; T. Balston, *William Balston, Paper Maker 1759-1849* (London, 1954), pp. 54 *et seq.*; D. C. Coleman, *The British Paper Industry, 1495-1860* (Oxford, 1958), pp. 252-253; A. P. Wadsworth and J. de L. Mann, *The Cotton Trade and Industrial Lancashire, 1600-1780* (Manchester, 1931), pp. 235-297; A. Raistrick, *Dynasty of Ironfounders* (London, 1953), pp. 6, 13, 277; A. H. John, *The Industrial Development of South Wales* (Cardiff, 1950), pp. 24-27, 31-34, 46; J. P. Addis, *The Crawshay Dynasty* (Cardiff, 1957), pp. 2-5, 158-159; B. L. Anderson, *Money and the Structure of Credit in the Eighteenth Century*, « Business History » XII (1970); W. E. Minchinton, *The British Tinplate Industry* (Oxford, 1957), pp. 97-99; R. S. Fitton and A. P. Wadsworth, *The Strutts and the Arkwrights* (Manchester, 1958), pp. 25-54; S. Shapiro, *op. cit.*, pp. 57-63.

III. Economies in Fixed Assets.

C. H. Lee, *A Cotton Enterprise, 1795-1840* (Manchester, 1972), pp. 101-105; W. W. Edwards, *op. cit.*, pp. 186-194, 202-204, 211-212; E. Sigsworth, *op. cit.*, pp. 155, 168-169.

IV. The Growth of Provincial Wealth and Savings.

M. M. Postan, *Recent Trends in the Accumulation of Capital*, « Economic History Review » VI (1st Series) 1935; P. Deane, *Capital Formation in Britain before the Railway Age*, « Economic Development and Cultural Change » IX (1961); H. Heaton, *Financing the Industrial Revolution*, « Bulletin of the Business History Society » XI (1937); L. S. Pressnell, *The rate of interest in the Eighteenth Century*, in L. S. Pressnell (ed.), *Studies in the Industrial Revolution* (London, 1960); P. Deane and H. J. Habakkuk, *The Take-off in Britain*, in W. W. Rostow (ed.), *The Economics of Take-off into Sustained Growth* (London, 1963); A. K. Cairncross, *Factors in Economic Development* (London, 1962), p. 140; P. Deane and W. A. Cole, *British Economic Growth 1688-1959* (Cambridge, 1967), pp. 260-264, 304-305, 308-309; P. Deane, *First Industrial Revolution* (Cambridge, 1965), pp. 153-158; S. Pollard, *The Growth and Distribution of Capital in Great Britain 1770-1870*, « Third International Conference of Economic History (1965) (The Hague, 1968) pp. 335-365; S. Pollard and D. W. Crossley, *The Wealth of Britain, 1085-1966* (London, 1968), pp. 196-197; J. P. P. Higgins and S. Pollard, *op. cit.*; P. G. M. Dickson, *The Financial Revolution* (London, 1967); J. M. Price, *Capital and Credit in the British Chesapeake Trade, 1750-1775*; J. R. Ward, *'Capital Investment in Canals' Oxford D. Phil. thesis* (1971); B. L. Anderson, *The Attorney and the Early Capital Market in Lancashire*, in J. R. Harris (ed.), « Liverpool and Merseyside » (Liverpool, 1969); B. L. Anderson, *Money and the Structure of Credit in the Eighteenth Century*, « Business History » XII (1970); S. Shapiro, *op. cit.*, ch. II.

V. Short-Term Credit Flows.

P. T. Saunders, *Stuckey's Bank* (Taunton, 1928), p. 8 (quoting Select Committee on Resumption of Cash Payments, 1819); Select Committee on Banks of Issue, *Parl. Papers 1840*, QQ. 485, 498-499, 619-670, 659-660; J. M. Price, *The Tobacco Adventure to Russia*, « Trans. Am. Philosophical Society », LI (1961); R. Pares, *A West India Fortune* (London, 1950), p. 194; Select Committee on the Coal Trade, *Parl. Papers 1800*, p. 553; T. S. Ashton, *Economic Fluctuations in England, 1700-1800* (Oxford, 1959), pp. 4, 31; S. Shapiro, *op. cit.*, pp. 93-102.

VI, VII. Long-Term Credit Supplies; Kinship Links.

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VIII. Partnerships.

W. B. Crump, *op. cit.*, pp. 172-173; M. M. Edwards, *op. cit.*, pp. 194-199; P. Mathias, *op. cit.*, pp. 243-251, 261-264; 300-318; R. Owen, *Life of Robert Owen*, pp. 53-58; A. Raistrick, *op. cit.*, pp. 6-7, 13; S. Unwin, *op. cit.*, pp. 152-155; T. C. Barker, *Pil-*

kington Brothers and the Glass Industry (London, 1960), pp. 58-59; S. SHAPIRO, *op. cit.*, ch. V; E. L. JONES, *Industrial Capital and Landed Investment...*, in E. L. JONES and G. E. MINGAY (eds.), « Land, Labour and Population in the Industrial Revolution » (London, 1967).

IX. BANKS AND LONG-TERM CREDIT.

The following entrepreneurs and firms are reported as receiving long-term credit from banks: Boulton and Watt (engineers); Peter Stubs (file-maker); Richard Arkwright (cotton); John Marshall (flax); J. Foster (Worsted); Robert Peel (cotton); McConnel and Kennedy (cotton); John Ashworth (cotton); John Dumbell (cotton); Daniel Bell (cloth trade); John Owens (cloth trade); Barclay Perkins (brewers); Whitbreads (brewers); Truman, Hanbury, Buxton (brewers); Red Lion Brewery; various other London brewers; R. Austin (brewer); Carron Co. (iron); John Wilkinson (iron); Samuel Fereday (iron); Walker brothers (iron); Hanfrays (iron); Guests (iron); Clydach and Plymouth Ironworks; Gibbons (iron); Tunshill Ironworks; other S. Wales ironworks Kirkstall Forge; Parys Mines Co. (copper); Llanelly Copper Co.; Cwmavon copper works; Molesworth and Praed (Cornish copper mines and works); Jenkyns, Willyams and Co. (copper); Bristol copper Co.; Rose Copper Co.; Cornish mines; Hawkesbury Colliery; various other coal mines; Greenall-Pilkington (glass); St. Helens Crown Glass Works; W. Balston (paper); Quirk and Son (boatbuilders); Union Mill Co. (rope works); Roskills (watchmakers); Melin Crythan (chemicals); various alum works, oil and steel manufacturies.

Authorities mentioning long-term bank lending — by design or default - include: PRESSNELL, *op. cit.*, pp. 294-343; F. CROUZET in F. CROUZET (ed.), pp. 180-182, 192-194; S. POLLARD in *ibid.*, pp. 154-156; P. MATHIAS, *op. cit.*, ch. IX *passim* and pp. 267, 281, 458-459, 528-529; B. W. CLAPP, op. cit., pp. 15-16; R. BOYSON, op. cit., pp. 33-34; S. D. CHAPMAN, *Early Factory Masters*, op. cit., pp. 23, 138-143; R. H. CAMPBELL, in « Business History » I (1958), *op. cit.*; W. BALSTON, *op. cit.*, pp. 53-131; E. SIGSWORTH, *op. cit.*, pp. 222-223; M. M. EDWARDS, *op. cit.*, pp. 198-199, 217-218; T. S. ASHTON, *An Eighteenth Century Industrialist* (Manchester, 1939), p. 116; T. S. ASHTON, *op. cit.*, pp. 227-232; A. P. WADSWORTH and J. DE L. MANN, *op. cit.*, p. 483; G. UNWIN, *op. cit.*, p. 156; A. H. JOHN, *op. cit.*, pp. 43-49; R. CAMERON, *Banking in the Early Stages of Industrialisation* (London, 1967), pp. 52-57; T. C. BARKER, *Pilkington Brothers and the Glass Industry* (London, 1960), p. 63; R. S. FITTON and A. P. WADSWORTH, *op. cit.*, p. 63; S. SHAPIRO, *op. cit.*, ch. III.

For the extent of links developing between industrialists and bankers in different industries see, for brewing, P. MATHIAS, *op. cit.*, pp. 322-330; for iron, T. S. ASHTON, *op. cit.*, pp. 227-232; for cotton, S. SHAPIRO, *op. cit.*, pp. 107-112.

X. EXPLANATIONS.

Rules of banking set out by Martins in 1746 included « not to lend any money without application from the borrower and upon alienable security that may be easily disposed of, and a probability of punctual payment... All loans to be repaid when due and ye rotation not to exceed six months... ' This prudence and advantage of a Goldsmith, that depend upon Credit, to endeavour as near as possible upon the yearly settling of accounts, to have the Investiture of that money in Effects that are easy to convert into money » [J. B. MARTIN, *The Grasshopper in Lombard St.* (1892), p. 46; quoted in D. M. JOSLIN, *London Bankers in War Time, 1739-84'* in L. S. PRESSNELL (ed.), « Studies in the Industrial Revolution (London, 1960)]. J. W. GILBART, *History and Principles of Banking* (1866) identified three basic theses for bank lending policy: that it was not the business of banks to supply their customers with capital to carry on their trade; that it was

contrary to all sound principles of banking for a banker to advance money in the form of permanent loans on dead securities such as collieries, mills and manufacturies, and that it was bad policy for a bank to make a very large permanent advance to any one customer. These were seen as still the « bed rock » principles of British banking in 1931 [S. E. THOMAS, *British Banks and the Finance of Industry* (London, 1931), pp. 113-114]. See also *Letters on the Internal Management of a Country Bank* (1850), Letters IX-XII (quoted PRESSNELL, p. 295); L. LLOYD to Select Committee on Manufactures, Trade and Commerce, *Parl. Papers 1833*, Q. 453; S. GURNEY to Select Committee on Usury Laws (1819), *Parl. Papers 1845*, XII, Q. 241; G. RAE, *The Country Banker* (1885 edn.), Letters XXIX, XXX. Rae acknowledges (as most bankers did) the advantage of long-term lending as long as it absorbed only a small proportion of the bankers assets, preferably being covered by partners deposits: « ...these permanent overdrafts are your most lucrative form of account; and they will always be the last which you will seek to disturb, so long as they continue within their appointed limit... » (p. 222).