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ENTREPRENEURSHIP AND CAPITAL FORMATION IN FRANCE AND BRITAIN SINCE 1700

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1. *Introduction*

FROM THE END OF the seventeenth to the end of the nineteenth century the economic structure of Western Europe underwent a profound change. Gross national income grew at an accelerated rate, and the center of gravity of the economy shifted from primary to secondary and later to tertiary industries. The Industrial Revolution reached its peak in the first quarter of the nineteenth century in England and in the third quarter in France. After that, rates of growth declined in both countries, but the trend proceeded along paths whose basic contours had been traced in the decades preceding the turning point. In order to understand fully the role of entrepreneurship in Britain and France, and its relationship to capital formation and economic development, its place and function must be examined in the period when modern industrialism was ushered into these two countries.[1]

Unfortunately, we lack reliable data which describe precisely the magnitude of growth rates and concomitant changes in the economic structure of the two countries during the period in which modern industrialism was born. We are fortunate, however, that there were several acute observers who had a predilection for "political arithmetic" and who have left us computations of national

[1] Although the approach in this paper is "genetic" in the sense that emphasis will be placed upon tracing the evolution of entrepreneurship and its relation to capital formation over time, I shall not discuss the wider problem of the "origin" of capitalism, or its earlier roots in late medieval and early modern economies. Also, I am aware that some writers, among them notably John U. Nef (e.g. "The Industrial Revolution Reconsidered," *Journal of Economic History*, May 1943, pp. 1-31), have stressed the development of industry in Britain and France in the period preceding the middle of the seventeenth century. The facts cited by this group of scholars are, of course, not disputed. But as I shall try to show, in spite of the presence of quite sizable industrial and commercial enterprises in this period, the economic center of gravity was still very firmly in agriculture and the techniques and organization of agricultural production underwent far-reaching changes only after the middle of the eighteenth century.

income and wealth at different crucial periods in the growth process. Recognizing the many shortcomings of even the best and most reliable of these estimates, we may, nevertheless, use them as bench marks which indicate (within tolerable limits) the order of magnitude of over-all output and the shifting composition of national gross product.

For Britain a very useful series marking the historical trend of national income and its composition has been published by Colin Clark. His figures for France, especially for the earlier years, are derived from less trustworthy estimates and he has subjected them to less rigorous analysis. However, some fairly reliable recomputations of French national income in the period from the end of the *ancien régime* to the end of the Napoleonic period have been published by A. Chabert, and these data, together with figures derived from Simiand's *Le Salaire*, and Clark's data for the more recent years also yield a useful and tolerably accurate series ranging over a long period of time.[2] On the basis of these sources Table 1 has been constructed to provide a general survey of the long-run growth of British and French national income and to indicate the gradual shift of the economic center of gravity from primary to secondary and tertiary industries. This shift may be measured either by the share of the national product due to primary as against nonprimary production, or by the distribution of the labor force among different branches of economic activity.

The most striking difference in the growth patterns of the two countries is in the over-all rate and the timing. In Britain the level of income began to grow noticeably during the eighteenth century and made rapid strides forward during the early nineteenth century. In France it remained fairly level from the end of the *ancien régime* to the end of the Napoleonic period, then advanced slowly during the next thirty years until it entered a period of more rapid growth in the second half of the nineteenth century.[3]

[2] For specific references see the Sources to Table 1.

[3] This point is confirmed also by a new "preliminary" analysis of the historical development of French national income by members of the Institut de Science Economique Appliquée, "La croissance économique française," in *Income and Wealth, Series III*, Milton Gilbert, editor, Cambridge, Eng., Bowes & Bowes for International Association for Research in Income and Wealth, 1953, pp. 45-100. According to this analysis the annual growth rate of French national income in the period from 1780 to 1914 was 1.81 per cent, but the estimates of Dutens and Dupin for the period before 1840 yield rates between 1.20 and 1.61 per cent, whereas those of Simiand, Froment, and Pupin for the second half of the century show rates between 1.56 and 2.01 per cent.

TABLE 1

National Income and Its Distribution in France and Britain, Selected Years
(for Great Britain all absolute figures are in millions of pounds; for France in billions of francs)

YEAR	NATIONAL INCOME		PROPORTION OF INCOME EARNED IN PRIMARY INDUSTRY	PERCENTAGE DISTRIBUTION OF LABOR FORCE IN:			INDEX
	In Current Prices (1)	*In Constant Prices* (2)	(3)	*Primary Industry* (4)	*Secondary Industry* (5)	*Tertiary Industry* (6)	(7)
			Great Britain				
1688	50.8	56.4	48 (41)				90
1770	127.8	126.5	(46)				101
1797/1800	217.5	171.3	(46)				126.9
1812	290.0	177.2	37	46			163.7
1847	370.0	381.2		21.9	47.9	30.2	96.8
1868	753.0	767.7	20	14.8	48.8	36.4	98.1
1883	1,120.0	953.0		12.8	49.8	37.4	117.5
1913	2,013.0	2,013.0		8.0	46.0	46.0	100
			France				
1789/1790	4.65	7.05	68.1				66
1810	6.27	8.47					74
1820	7.86	9.83	64.9	63			80
1850	9.7	11.35		43	38	19	85.5
1880	22.7	20.64					110.0
1910	33.5	32.21		33.0	46.6	20.3	104
1930	243.0	30.42		24.5	40.0	35.4	711

Figures for Great Britain for 1688 and 1770 are for England and Wales only; figures for all other years include Scotland.

Figures for France in columns 1 and 2 pertain to national income less indirect taxes.

Figures in columns 4, 5, and 6 do not refer in all cases to the year listed but sometimes to the year closest to it.

Source: All data are taken from Colin Clark, *The Conditions of Economic Progress*, 2nd ed., London, Macmillan, 1951, except as indicated below:

For Great Britain: Data in parentheses in column 3 were computed by the writer. Clark's estimate of the proportion of national income earned in primary industry in 1688 seems too high, and recomputation of Gregory King's data yields the lower figure in parentheses. All data for 1770 were computed from the following three works of Arthur Young: *A Six Months Tour through the North of England*, London, Strahan, 1770, Vol. IV; *The Farmer's Tour through the East of England*, London, Strahan, 1771, Vol. IV; and *Political Arithmetic, Part II*, London, Cadell, 1779. The figures in columns 2 and 7 for 1770-1847 were recomputed according to the data in Arthur D. Gayer, W. W. Rostow, and Anna Jacobson Schwartz, *The Growth and Fluctuation of the British Economy, 1790-1850*, Oxford, Clarendon Press, 1953, Vol. I, pp. 468-470.

For France: The data in columns 1 and 3 were obtained chiefly from Alexandre Chabert, *Essai sur le mouvement des revenus et de l'activité économique en France de 1789 à 1820*, Paris, Librairie de Médicis, 1949, and François Simiand, *Le Salaire*, Paris, F. Alcan, 1932, Vol. III. Some alterations were made in index numbers for the early part of the nineteenth century on the basis of the discussion by Chabert.

These differential rates of growth are also correlated with the movement among industrial branches. In Britain, agriculture was the predominant form of economic activity until the late eighteenth century. After 1800 its relative importance declined and by the middle of the nineteenth century only about a fifth of the total national product was due to primary production. In France a similar process occurred, but the shift from primary production to manufacturing and service industries occurred only during the reign of Louis Philippe and proceeded from then on at an accelerated rate. While Britain's secondary and tertiary industries made up a large part of the national product by the middle of the nineteenth century, France attained a similar position only shortly before the outbreak of World War I.

Compared with Britain, France exhibits a pattern of retarded economic growth and industrialization. Yet in the history of the two countries there was a time when there were few apparent differences in the over-all productivity of the various factors, and when technological procedures and general economic organization appear to have been on a fairly even level. In fact, in the sixteenth century, France probably was slightly ahead of England in the distribution of technical skills, and perhaps even in the general level of welfare. It is important, therefore, to look for explanations which account for these differences in the growth rates of the two countries, whose over-all cultural, political, and economic situation did not differ very profoundly in the early sixteenth century; and to explore the lasting effects of the differential rates and timing of economic growth and the special features of the present economic conditions which can be attributed to the differences in the time lag of the main economic advances.

Among the explanations of Britain's forging ahead of the rest of Europe has been one which has stressed her natural endowments, notably her position as an outpost of Europe in the North Atlantic and her favorable balance of raw materials. This theory has commonly been associated with Henry Thomas Buckle, but parts of it have appeared in later accounts of British commercial and economic supremacy.[4] Although it is plausible that these environmental factors played a significant role, the theory cannot be taken as a full explanation of the differential growth of national outputs. The

[4] See, for example, William Cunningham, *Outlines of English Industrial History*, Macmillan, 1895, pp. 17-27, and Abbott Payson Usher, *Industrial History of England*, Houghton Mifflin, 1920, pp. 262 ff.

voyage from the North Atlantic coast of France to the New World is not much longer than that from England. Moreover, the two countries have fairly similar endowments of basic resources, which, considering the magnitudes of output of various industries in the eighteenth century, were ample in both countries. Britain attained its early industrial growth in the production of woolen textiles and of iron products and hardware. Even though Britain rather than France was the homeland of sheep herding, France had access to sufficient quantities of the raw material from domestic sources and, if necessary, from imports from Spain. France's iron ores were as rich and as abundant as England's, and for a significant period in the development of this industry Britain was dependent on importing large quantities of Swedish and Russian iron and even some American iron.[5]

Neither geographical position nor the endowment of agricultural or mineral resources can thus fully account for the differences in economic advancement in the two countries during the eighteenth and early nineteenth centuries. In my opinion, the decisive factors have to be sought rather in their respective social environments. Here again, explanations for England's primacy have not been lacking. Max Weber's thesis of the influence of the Protestant ethic on the spirit of capitalism and hence indirectly on economic practice is too well known to require extensive reiteration. But this thesis provides only an explanation of the general framework for these differential growth processes rather than an analysis of the detailed mechanisms involved. In order to obtain clearer insight it is necessary to study the groups of persons who were the chief instrumentalities

[5] According to the statistics on the British foreign trade in iron published by Harry Scrivenor (*History of the Iron Trade*, London, Longman, Brown, Green & Longmans, 1854, pp. 58 and 137), imports of bar iron rose from an average of 15,642 tons annually in the period 1711-1718 to an annual average of 51,716 tons in 1786-1792 and 48,780 tons in 1793-1799. By the end of the Napoleonic wars annual imports of bar iron had fallen to an average of 13,995 tons. British iron exports showed a steady increase from an annual average of 4,365 tons in 1711-1718 to one of 29,446 tons in 1796-1805, and to one of 91,772 tons in 1815-1822. Hence, the net import surplus of bar iron amounted to 11,277 tons annually in 1711-1718, and 19,334 tons annually in the last years of the eighteenth century. By about 1805-1810 Britain became a net exporter of bar iron and in the period 1815-1822 showed an annual export surplus of 77,777 tons. Most of the British iron imports came from the Baltic area, and some allegedly even from Siberia (see the anonymous pamphlet *The Interest of Great Britain in Supplying Herself with Iron Impartially Considered*, London, ca. 1750; see also the discussion of British iron imports in Ephraim Lipson, *The Economic History of England*, London, A. & C. Black, 1931, Vol. II, pp. 160-162).

of this growth process, whose economic decisions were crucial to it, and who bore the major risks of the advances and deserve the major credit for them. Since the process of accelerated growth was associated with a gradual transformation of the economy from dependence chiefly on agriculture to dependence on industry, mining, transportation, and commerce, we must look to these groups as the main agencies of economic change. Furthermore, we should expect that the role performed by such persons included not merely the accumulation of capital and redirection of economic activity, but also the introduction of technological and organizational innovations. The innovating function is associated with entrepreneurial behavior, and considerable light may be shed on our problem by a careful examination of entrepreneurship and its relation to capital mobilization in Britain and France in the crucial two centuries from about 1700 to 1900. The question may also be stated in another form: What were the significant aspects of entrepreneurship in the two countries? What impact did entrepreneurs (i.e. innovators) exert on the general growth process of the economy? Finally, what traditions of entrepreneurship which continued to affect innovation and economic advancement even after the peak growth rates had been passed were evolved in the two countries?

Although in the further course of this paper primary emphasis will be laid on the role of entrepreneurs, the conditions under which they acted, and the influences to which they were subjected, this should not be interpreted to mean that entrepreneurship *is* to be regarded as the sole significant variable in capital formation. Certainly, in the face of the economic advance of the Soviet Union and of governmental attempts at induced development in many so-called backward countries, it cannot be maintained that economic growth without entrepreneurs is impossible or that the main impetus to economic progress always comes from private profit-seeking individuals. The experience of Britain and France is, therefore, not universally applicable. It is not a part of the general social theory but a description of particular historical processes.

Nevertheless, the stress on entrepreneurship and the comparison of the processes and results of entrepreneurial activity in France and Britain are valid because, within the capitalist society of Western Europe, private entrepreneurs were regarded as the main carriers of innovations in productive techniques and forms of business organization and the chief determinants in the use and allocation of investment. Especially in the nineteenth century, when the greatest

forward steps were taken in both countries, the position of entrepreneurs as an economic elite was undisputed.

The attempt to deal with these questions stresses the appearance in the unfolding industries of "new men" whose outlook and actions were decisive in determining the nature of economic progress in England and France. But the men themselves were influenced by already existing traditions. They were born into a social order in which behavior patterns in the economic field, as in others, were relatively fixed, and, above all, in which considerations of social prestige and even economic advantages were dependent upon specific political and legal institutions. These traditions, shaped especially in France by the impact of government, provide an important clue to the relative backwardness of France in comparison with England. They appear to explain why French entrepreneurship in the eighteenth and even the early nineteenth century did not develop as rapidly and as freely as in Britain, and why in the late nineteenth century, when rapid strides forward were made in gross national output, there evolved in France forms of entrepreneurship different from those in Britain.

2. *The Development of French Entrepreneurship up to the End of the* Ancien Régime

In a short but brilliant article Henri Hauser has tried to interpret the conditions which influenced French economic development under the *ancien régime*.[6] Although he does not explicitly discuss entrepreneurship, his essay not only presents an explanation of the patterns of French business behavior under the *ancien régime* but also points to the sources of some of the rigidities which have persisted in French entrepreneurial practice. Hauser thinks the financial crisis of 1559, in which the Lyons credit market collapsed, was profoundly important. The consequences of the crisis were aggravated because price stability did not follow it. This resulted partly from the impact of American specie which for the first time exerted a strong influence on France and partly from the outbreak of the religious wars which flared up and lasted for thirty years. A period of unrest, monetary instability, and internal devastation ensued which lasted three or four decades and which seriously unsettled the French economy; it was probably of a magnitude comparable with

[6] "The Characteristic Features of French Economic History from the Middle of the Sixteenth to the Middle of the Eighteenth Century," *The Economic History Review*, October 1933, pp. 257-272.

that of the period in modern Germany comprising the inflation, the Hitler regime, and the war. Entire social classes were deprived of their substance; the small nobility witnessed the disappearance of its money rents, on which it lived; the peasants, whose debt burden would have been lightened in real terms by the inflation, were the heaviest losers from the often wholesale destruction of fields, flocks, and even villages. Such workers as there were fell victim to the inflation, since money wages proved to be sticky and trade union organization was absent. Many emigrated to escape their misery.

In view of the terrible economic devastation which occurred, it is no wonder that when peace was finally made during the reign of Henry IV the institutions then created were influenced by the recent violence. They also proved to be extremely hardy and durable—most of them persisted all through the *ancien régime*, and some even beyond. They were based on the assumption that France needed not only a strong central government with the political function of maintaining internal peace and securing the nation against the outside, but also a strong and thriving economy, necessary for internal stability and external power.

However, if the government was to fulfill its role adequately it had to replenish the badly depleted exchequer and to assure an efficient and flexible system of collecting revenues. Since almost all of the taxes in force were excise and other indirect taxes (a situation not uncommon in underdeveloped countries), the farming out of taxes was considered, in the short run, to be the most effective way of filling and periodically replenishing the exchequer. Thus the financiers who advanced money to the government and recouped their advances by collecting taxes on their own account formed an important group in the country. Their political and economic significance began to increase when municipalities adopted the same system of tax collection. Extraordinary impositions by the crown and other taxing bodies were continually growing; as a result, the financiers increased in number, prestige, and power. They acquired wealth in order to buy government posts for their descendants. In this way not only would they become lenders to the state and recoup their loans from tax revenue, but if they could acquire a title of nobility they would be exempt from most or all of the most onerous taxes.

Thus tax farming became a very remunerative and desired business career, which attracted a good part of the available entrepreneurial talent. But since the net profits from this profession were

constantly reinvested in titles of nobility or the purchase of government posts, or spent in conspicuous consumption, bribes, and other forms of nonproductive outlays, considerable portions of the national savings which flowed through the hands of the tax farmers were never converted into productive investment. That part which reached the government was spent for maintenance of the monarch, for war, or for the many favorites in the royal bureaucracy. Only a small part was actually put into schemes of amelioration, notably transportation facilities, some land reclamation, and encouragement and general subsidization of industry.

But not all Frenchmen could choose this relatively safe and remunerative way of making money through public service. Although the Edict of Nantes gave Protestants theoretically equal rights in government service, they were actually discriminated against and were only reluctantly, and often with difficulty, admitted to government positions. Moreover, after 1661 they were formally excluded from admission to public service. Thus the large families in the Protestant centers had no incentive to invest their capital in public posts. For this reason Protestant rather than Catholic families tended to build family businesses, to train their sons for business careers, and to expand their business interests by prudent intermarriage. Since the Huguenots formed the leading elite in French business, it can easily be understood what a terrible blow was dealt to French economic growth and to French entrepreneurship by the revocation of the Edict of Nantes and the accompanying mass emigration of French Protestants.

By the time of the Glorious Revolution, which in Britain saw the mercantile class firmly seated in the saddle, the flower of French entrepreneurship was destroyed. In the subsequent crisis Louis XIV had to apply to foreigners or emigrated Protestants for many of the financial and entrepreneurial services he needed.

Although the French Protestants formed the main group from which the entrepreneurial class was drawn before their exile, the political insecurity in which they lived made them look with favor on certain types of investment and disparage and even avoid others. They preferred investment in financial and commercial enterprises to investment in manufacturing, especially in those industries—like mining or iron smelting—in which capital requirements were high. However, this does not mean that Protestants shied away from manufacturing altogether. It was well known that they excelled in several industries and that, with emigration, their industrial talents

were transferred to Britain, Holland, and other countries where they were eagerly accepted. But the insecurity of their position and the likelihood that without notice they might lose the product of many years of saving and work made them invest their capital in the most mobile and most liquid forms. Thus where large capital accumulated in French Protestant hands it was usually invested in financial and commercial enterprises. Most of the Huguenot manufacturing enterprises were small artisanlike shops.[7]

These conditions account for the fact that private sources supplied capital for industrial development only in small quantities. They help to explain why the government, in true mercantilist fashion, stimulated industrial development indirectly by subsidies and directly by the establishment of royal manufactures. The groundwork for this policy had also been laid under Henry IV, whose councilor Barthélemy de Laffemas was the paragon of a mercantilist statesman. Although Sully and even Richelieu favored a greater degree of freedom of enterprise, Colbert was firmly convinced that the promotion of industry and the provision of employment were properly within the province of royal power. Thus the system of royal manufactures was supplemented by a policy of public subsidization of industry; this was an important avenue by which a portion of the nation's savings found its way into industrial investment. The intervention of the government in economic affairs in general, and in the development of industry in particular, was so prominent that the system has been called one of "state socialism."[8]

The interrelations of these factors account for the characteristics of French entrepreneurship that appeared toward the end of the *ancien régime*. The emigration of the Huguenots in the late seventeenth century and the many fateful wars of Louis XIV had been blows which the country did not overcome until well after the middle of the eighteenth century. Industrial development doubtless picked up and grew at a more rapid pace afterward. But the sociopolitical system remained fixed. Most of the accumulated capital

[7] The excellence of the Huguenots in certain industrial fields and the benefits derived by the countries to which they migrated have already been commented upon by Samuel Smiles (*The Huguenots*, Harper, 1868, pp. 132-133). See also Henry Sée, *L'évolution commerciale et industrielle de la France sous l'ancien régime*, Paris, M. Giard, 1925, pp. 148-150.

[8] See Prosper Boissonade, *Le socialisme d'état*, Paris, H. Champion, 1927, which contains copious examples of public subsidization and guidance of industry. There exist several monographs on various royal manufactures and privileged industries in France under the *ancien régime*. A good bibliography is contained in *ibid.*, pp. 337 ff.

was concentrated in the hands of financiers or merchants who invested it, if at all, in the expansion of their own enterprises and in land. Enterprising individuals who might have struck out on their own were seriously impeded, partly by the restrictions imposed and tenaciously enforced by the artisans' corporations, and partly by insufficient capital. Thus even after 1750, industrial development depended to a large extent on securing government subsidies in the form of loans, exemption from certain kinds of taxation, or a guaranteed income for the entrepreneur, all of them expedients which had been practiced under Colbert.

Henri Sée sums up the privileges which were extended to these entrepreneurs by saying that "manufacturers were conferred titles of nobility sometimes" but that "most often they were granted interest-free loans for their first plant, or even given workshops, or the construction of machines was paid for." Similarly, workers in privileged industries were exempted from certain taxes and other burdens; in this way their living costs were reduced and entrepreneurs were permitted to pay them lower wages.[9] With varying emphasis this remained the pattern all through the *ancien régime*. An interesting example of it is afforded by the introduction of spinning and carding machines in France by the English Milne family. Not only were the Milnes enabled by a royal grant to establish their textile machinery factory, but after it had been in operation for four years the Duke of Orleans contracted with them to supply him exclusively with their machines and put John Milne in charge of his spinning factory at Montargis and the Englishman Foxlow in charge of his other factory, at Orleans. This laid the groundwork for the prosperity of the Milnes, who after the outbreak of the revolution became large entrepreneurs in the French spinning industry.[10]

In the iron industry royal subsidies played a similar role. The establishment of the foundry at Indret, near Nantes, where cannon were produced for the French navy, began through the collaboration of La Houlière and the English ironmaster John Wilkinson. Wilkinson's original gratuity from the crown was 12,000 livres per year, which later was raised to 50,000. His real rise began after he came to know Ignace de Wendel, the founder of Le Creusot. Wendel had

[9] Sée, *op. cit.*, p. 134.

[10] Charles Ballot, *L'introduction du machinisme dans l'industrie française*, Paris, F. Rieder, 1923, pp. 64-75. The royal subsidy to the Milnes consisted of a lump sum of 60,000 livres (part of which was destined to repay the advances made by their French sponsor), an annual gratuity of 6,000 livres, and a premium of 1,200 livres for each device which they turned out.

already obtained 600,000 livres for the construction of a large smelter and foundry; when this establishment was finally built through the joint planning of Wilkinson and Wendel in 1787, the stock company of Le Creusot was formed. It had a total capital of 10 million livres, and the king participated in it.[11]

This pattern of industrial development was quite usual during the second half of the eighteenth century in France. In southern France the provincial estates and some members of the clerical hierarchy were especially energetic in fostering industrialization, and even small quasi-artisan workshops were not beneath their benevolent notice. For example, in 1751 in the Provence the king granted an annual subsidy of 12,000 livres for six years for the encouragement of silk-spinners. At the end of this period, in 1757, an *Arrêt du conseil d'état* ordered the imposition of an annual sum of 6,000 livres, for six years, on the towns of Marseille and Arles and surrounding communities for the subsidization of silk-throwers. After another six years, in 1763, this *Arrêt* was renewed.[12] Royal encouragement was apparently contagious; the pressure of silk workers who came to depend on these subsidies supported local authorities in a movement to extend subsidization. In 1756 on the initiative of the Diocese of Lavour and the Estates of Languedoc a factory producing silk stuffs was erected and the Avignon merchant Jacques Reboul put in charge. This activity of the provincial government tended to grow. A commission of manufactures was set up which annually screened large numbers of applications for subsidies. In 1759, for example, 3,000 livres was given to a manufacturer of Nîmes, another 3,000 livres to the dyer Eyman, 800 livres to the Sieur Gily "for having set an example in using coal in the burning of lime," etc.[13]

These examples could be multiplied in great number. Whether the field is surveyed by industries or by geographical areas, the crown's subsidization of industry was imitated by provincial estates and sometimes by local aristocrats and members of the high clergy. At the same time there was a growing acknowledgment of the tech-

[11] See Bertrand Gille, *Les origines de la grande industrie métallurgique en France*, Paris, Editions Domat Montchrestien, 1947, pp. 193-199, and Sée, *op. cit.*, p. 292.

[12] See Emile Isnard, "L'industrie de la soie en Provence au XVIIIe siècle," in *Mémoires et documents pour servir à l'histoire du commerce et de l'industrie en France*, Julien Hayem, editor, Paris, Hachette, 1917, Vol. II, p. 21.

[13] See Leon Dutil, *L'état économique du Languedoc à la fin de l'ancien régime*, Paris, Hachette, 1911, pp. 331-332 and 469.

nological superiority of Britain. Prizes were given to those who either succeeded in imitating British methods of production or surpassed British skill by better methods, and British engineers and technicians found France a fruitful and profitable field for their talents. In addition to John and James Milne and John Wilkinson, other English entrepreneurs, especially technicians, were attracted to France by special favors bestowed on them by the king's ministers. The jenny for the spinning of wool was introduced principally by English mechanics.[14] Englishmen like Michael Alcock were active in the metal trades; he set up a plant producing small metalware at Charité-sur-Loire. Another Englishman, Terry, founded an engraving plant at Paris, and two Sheffield silver-platers, Rothelham and Drellat, set up a plant in Paris in 1790. Even John Kay, the inventor of the flying shuttle, spent several years in France, where he attempted to sell his inventions of a lace-making machine and a leather-stamping machine to the government. His efforts failed and he returned home disappointed.[15]

But the traffic in men also went on in the opposite direction. Frenchmen went to England to learn secrets of many trades and brought innovations back with them. One of them was the "projector" Leturc who was sent to England virtually under government orders as an industrial spy. He took a false name and carried on his correspondence in code. Another was Gabriel Jars, who traveled openly and collected and published a series of valuable accounts of mining and metal production[16] In addition, there were many small artisans and workmen who spent some time in England studying the new techniques in engineering, the metal trades, and textile-manufacturing.[17]

The general picture of French entrepreneurship and capital formation under the *ancien régime* may therefore be summarized in these terms: Industrial development, to a large extent, was under the tutelage of the state. While British mercantilism consisted primarily of the regulation of foreign trade and shipping, and the control of

[14] Ballot, *op. cit.*, p. 178.

[15] *Ibid.*, pp. 480-487.

[16] On Leturc see *ibid.*, pp. 273-277; also Gabriel Jars, *Voyages métallurgiques*, 3 vols., Lyon, G. Regnault, 1774-1781.

[17] For example, a certain Gaulard-Desaudray visited Boulton and Watt in Birmingham, a certain Lecour also spent some time at Birmingham to learn the manufacture of polished steel objects, and there were many others. Ballot (*op. cit., passim*) lists many engineers and workmen who traveled in both directions to impart the more advanced techniques of Britain to France.

foreign exchanges, in France the general supervision and control of technological and industrial development were added to these other features. In addition to the king and his ministers, a number of aristocrats and high functionaries of the church showed their interest in industrial development either by subsidizing existing firms or by participating in newly established enterprises. Although a certain amount of private initiative was evident, the role of the government always remained paramount, and even continued in influence after 1789, especially under Napoleon. The government not only initiated new projects and imported engineering talent from abroad, but also stood ready on many occasions to bail out enterprises which had incurred losses and to subsidize by various means (e.g. exemption from certain types of taxation) enterprises which could not otherwise have survived. French entrepreneurs came to look upon the government as a force of central importance in the national economy. The government and its appendages thus became the most important institution through which the savings of the nation were collected and mobilized for new investment.

This central role of the government doubtless enhanced the feeling of dependence on government service and government subsidies for new enterprises and contributed to the well-known aspiration to attain a *rentier* status, which was, and still is, so typical of the French middle class. The role of the government had yet another fateful consequence. Since it tended to encourage industries whose products found a relatively good market in France, and since in the royal manufactures it placed primary emphasis on output which was distinguished by superior quality and taste, it encouraged two other traditions which still play an important part in France. Instead of looking for large but yet unknown markets and instead of maximizing total profits by mass sales with little unit profit, French entrepreneurs came to seek earlier and more assiduously than British or American entrepreneurs the relatively safe shelter of monopoly.

3. *More Recent Developments in Entrepreneurship and Capital Formation in France*

At the end of the *ancien régime*, when French industrial development was profoundly affected by government regulation and subsidization and by importation of foreign technologies, the first steps toward the evolution of factory organization were taken. Under Napoleon these trends continued, on the whole, unabated. Napoleon's reign may be regarded as the last stage in French mercantilism. The

radical individualism proclaimed by the Revolution was repudiated, and protectionism, even a species of bullionism, was the basic principle on which the economy was built.[18] Although the First Empire formed an ideological anticlimax to the democratic radicalism of the First Republic, the middle classes had freed themselves from many of the oppressive fetters with which they had been burdened in the *ancien régime*. Thus they found a potentially more profitable field open for their economic activity. Nevertheless, we should not be misled into believing that Jean Baptiste Say, who translated the principles of Adam Smith to accord with French conditions, correctly represented the dominant ideology of the French industrial entrepreneurial class. Now as before, the latter submitted willingly to the guidance and general supervision of the government, which accepted these "responsibilities" as a matter of course. The crowning act in this policy was the decree of June 26, 1810, in which a Council of Factories and Manufactures was established and a large inquiry into the state of French manufactures ordered. To be sure, many of the members of the Council were large manufacturers—in fact, its membership was a roster of the largest and most successful entrepreneurs of that day. But apart from producers of textiles, chiefly cotton textiles, and a few metallurgical entrepreneurs, most of the big business leaders were merchants and financiers. Industrialists continued to look to the government to bail them out in periods of difficulty, and after the crises of 1806 and 1810-1812 the government responded fully to these expectations. In both instances Napoleon tried to meet the crisis by more stringently enforced protectionist measures, by loans or gift-loans of several millions of francs to manufacturers, a large portion of which went to the largest firms, and by the establishment of preferential market outlays for French industry.[19]

After the downfall of Napoleon the situation changed profoundly. The governments of the Restoration were politically much weaker than those of the *ancien régime* and of Napoleon. This is clearly

[18] Alexandre Chabert, *Essai sur le mouvement des revenus et de l'activité économique en France de 1789 à 1820*, Paris, Librairie de Médicis, 1949. On the bullionist inclinations of Napoleon see Eli Heckscher, *The Continental System*, Oxford, Clarendon Press, 1922, pp. 71-73.

[19] Chabert, *op. cit.*, pp. 333-342 and 361-384. One of the sales privileges established for French industry was, for example, the decree of December 28, 1807, which prohibited the importation of cotton goods of other than French origin into Italy (*ibid.*, p. 368).

shown by their sensitivity to the revolutionary movements of 1830 and 1848. Moreover, industrialism in France had reached a stage at which it could not be expected to submit passively to government regulation. Entrepreneurs were still willing to accept bounties and subsidies from the state, but they wished to receive these benefits in a form similar to that demanded by their British counterparts. Low wages, government prohibition of labor unions, and a system of taxation which interfered as little as possible with the development of industry and yet provided sufficient protection for the domestic market were the desiderata of the entrepreneurial class. But although the government tried to meet these demands, French industry, which was at an awkward stage of development, could not make much use of the results. It had grown too big to be placed under the full tutelage of the state, and at the same time it had not developed sufficient traditions of independent initiative to forge ahead rapidly and vigorously. Moreover, it was at this stage that the disadvantages of industrial backwardness were felt most strongly. Industrial technology in Britain had advanced to such a degree that in many industries transfer of the most up-to-date technology required the mobilization of relatively large sums of capital. This was a task to which French entrepreneurs had never been accustomed and which they were unable to meet. While in Britain the initial stages in the development of the iron and cotton industries had preceded the railway boom, in France the building up of the entire complex of basic industries in metallurgy, textiles, food-processing, and chemicals and the provision of more modern transportation facilities had to be accomplished simultaneously.

At this point, only an innovation of grandiose proportions could have met the challenge, and by a strange accident, or perhaps by the logic of historical necessity, the men to make this innovation were found. Grounded in the field of entrepreneurship with the longest and most deeply rooted traditions in France, that of financial manipulations, and inspired by a philosophy which extolled the advantages and progressive character of a system of capitalist industrialism, a new form of banking was evolved; this, more than any other event, cut the Gordian knot binding the forces of industrial progress. I refer to the formation by the brothers Péreire of the Crédit Mobilier, the first industrial investment bank in France and in the world. This epoch-making innovation and its meaning for French

economic development has recently been brilliantly described by Gerschenkron, and all I can do here is paraphrase his words.[20]

The investment bank of the Crédit Mobilier type circumvented several bottlenecks simultaneously. Above all, it succeeded in mobilizing large amounts of capital for industrial development in a form acceptable to French savers. Second, it overcame the shortage of creative entrepreneurs, by undertaking the entrepreneurial functions itself and reducing many of the actual managers of industrial firms to executors of policies. Third, it introduced a method of mobilizing investment which fitted smoothly into the prevailing patterns of economic organization in France: it permitted the persons who were supplying capital for the financing of industrial development to perform *rentier* roles to which they were accustomed. Fourth, it maintained the symbol of financial supremacy over the growing power of industrial entrepreneurship by placing a credit institution in the position of industrial planner and developer and reducing the industrialists to a rank of secondary importance. Finally, it filled a painfully felt vacuum which had developed since the fall of Napoleon by performing a function which before had been performed by government. In doing all this it came into harsh conflict with the representatives of "old wealth," the Rothschilds and the Lafittes, who had followed on the whole the traditional financial policies of being bankers to the government and profiting from the financing of commercial and exchange transactions. Although, as Gerschenkron points out, this conflict probably caused the ultimate downfall of the Crédit Mobilier, the victory for the representatives of "old wealth" was worse than Pyrrhic. They gained because they became converted and adopted the methods of industrial investment financing which the Crédit Mobilier had introduced.[21]

The formula discovered by the brothers Péreire provided the solution to the chief problems which had prevented more rapid economic development not merely in France, but on the entire continent of Europe. In order to explore the consequences which an institution like the Crédit Mobilier had for the further development of entrepreneurship in France, let us look at the general views on industrialization and its relation to credit operations which the founders of the Crédit Mobilier held.

[20] See Alexander Gerschenkron, "Economic Backwardness in Historical Perspective," in *The Progress of Underdeveloped Areas*, Bert F. Hoselitz, editor, University of Chicago Press, 1952, pp. 10 ff.

[21] *Ibid.*, p. 11.

Emile and Isaac Péreire were Saint-Simonians, and their intellectual membership in this school of social thought is, I believe, of fundamental importance for the understanding not only of their own life work, but also of the nature of the impact which the Crédit Mobilier exerted on industrial entrepreneurship in France.

Saint-Simon is commonly regarded as a "socialist forerunner," an interpretation which is too simple and ambiguous and does not explain his position in the intellectual history of France. Nevertheless, it is a bitterly ironical trait of French intellectual history—and perhaps an additional symptom of France's economic backwardness, as compared with her intellectual maturity—that the Physiocrats, the group of thinkers who extolled the sole productivity of agriculture, were to become the apostles of capitalism, and that a man who is generally typed as a "socialist forerunner" should have inspired ideas which led to the development of institutions making possible the realization of industrial capitalism in France.

But we are concerned here with Saint-Simon's ideas on industrialism and on the relation of credit to industry. The industrial system, which was a somewhat idealized description of industrial capitalism, was in his view the only one which would lead at the same time to the physical and spiritual happiness of the masses of the people. At the very center of this new industrial system stood the institutions which provided credit. Money or money's worth was the measure of all things, and, depending upon whose interests were served by the existing monetary and credit institutions, Saint-Simon stipulated two opposing systems: the old system in which credit was in the service of a centralized arbitrary anti-industrialist government, and the new system in which credit was fully and exclusively used to support the productive forces of society. However ambiguous Saint-Simon may have been on many points—and there are harsh contradictions even in some of his most fundamental definitions—his doctrine of the place of credit was sharply and clearly defined.[22] And Saint-Simon knew what he was talking about. His acquaintances included the banker Lafitte, and his close friends included Lafitte's associate Perregaux. Among his chief disciples were Enfantin, son of a banker; Olinde Rodrigues, the director of the Caisse Hypothécaire; Duveyrier, son of a bank director and later editor of the

[22] A convenient summary of the relevant theories of Saint-Simon on the two systems and on the place of credit in relation to each may be found in *L'oeuvre d'Henri de Saint-Simon*, Célestin Bouglé, editor, Paris, F. Alcan, 1925, pp. 136-173.

journal *Crédit*; and d'Eichthal, who also came from a prominent banking family. These were the men with whom the brothers Péreire associated in their youth and with whom they discussed the role of banking and credit institutions in the new society.[23]

Here, then, must be sought the origin of the conceptions which the Péreires formed about the place of an industrial investment bank, and which they later realized in the Crédit Mobilier. But it is important to note that in the Saint-Simonian system the superiority and very central position of the banker are emphasized. Although the professions of the merchant and manufacturer were older, after the "banking industry" appeared in the plans it soon took on the unquestioned role of leader. These ideas were also reflected in the procedures developed by the Péreires for their investment bank. Industrial and commercial entrepreneurship were subordinate so long as the unquestioned leadership of the captains of industry who controlled the banks was assured. From the tutelage of the crown, French industry—after an uneasy interval—had passed into the tutelage of credit institutions. Again the financier was on top and again the industrial entrepreneur was subordinate; again the latter was looking for stimulation and, when things went badly, for support from someone else. Again industry was made dependent upon an organization which was more powerful and controlled more wealth, which was more flexible and, because of its varied investments, more farsighted than the industrial entrepreneur.

And just as in Britain the early joint stock companies had been favored by the trend of the time into which they had been born, and hence could fulfill the expectations held for them, the new system of investment banking in France fulfilled the promises its inventors had made. It was the new type of banking which made possible the construction of a railway network not only in France, but also in Spain, Austria, and Russia; it facilitated the urban redevelopment of cities and the grandiose replanning of Paris under Haussman; it helped domesticate industries in France which had languished before or been beset by shortages of capital; it contributed to make the fifty years in which it flowered the period of the most rapid economic development which France ever witnessed.

But the fact that the brothers Péreire and the Crédit Mobilier lost out to the representatives of "old wealth," even though the

[23] For Saint-Simon's associations with bankers and members of bankers' families see Johann Plenge, *Die erste Anlagebank: Gründung und Geschichte des Crédit Mobilier*, Essen, Baldeker, 1921, pp. 16-17.

latter adopted their principles of banking, had an important influence on the future development of French entrepreneurship. The experiment in banking represented by the Crédit Mobilier may be regarded as having exerted a double impact. On the one hand, it was an innovation in the field of organization; on the other, it was the carrier of a new expansionist ideology. Whereas the financiers of long standing—Rothschild, Lafitte, and their ilk—adopted the organizational form ushered in by the Crédit Mobilier, they did not also adopt its spirit, which still had a strong Saint-Simonian flavor. It was inevitable that the new form of credit organization should demand the extension of investment in industry, transportation facilities, public utilities, and urban construction. The very momentum imparted by the new banking organization carried its reformatory effects beyond its own existence. But although the new practice of investment banking demanded a constant accumulation of real capital financed through the agency of the banks, the conservative spirit of the representatives of "old wealth" gradually led to a reduction in the rate of capital formation and to an increasing prevalence of portfolio investments. For example, the French banks participated in the financing of Russian railway expansion, but they did this by lending money to the Russian government, which in turn built the railways.

As a result, during the last 350 years French industrial entrepreneurship, except in special cases, has never escaped entirely the tutelage of either the state or large finance. I do not mean that French industrialists developed no initiative on their own—a few French industrial entrepreneurs could be cited who displayed a spirit of venturesomeness which compares not unfavorably with that of British businessmen of the Industrial Revolution or American businessmen of the last three generations, who are customarily believed to represent the best traditions of entrepreneurship. But not only were these men exceptional; they also had to operate in a social environment in which imaginative venturesomeness was not supported by general tradition and by institutions facilitating this type of social action. These factors seem to explain quite adequately the rather stagnant situation of French entrepreneurship in the nineteenth and twentieth centuries, which David Landes has so brilliantly described.[24]

[24] See the following of his works: "French Entrepreneurship and Industrial Growth in the Nineteenth Century," *Journal of Economic History*, May 1949, pp. 45-61; "Business and Businessmen in France," in *Modern France*, Edward

More recent evidence of this attitude is reflected in the complaint of American observers about the relative lack of success of the Mutual Security Administration in France. American cost-saving techniques are freely adopted by French industrialists, but often output is not expanded and the savings not passed on to consumers. The lowering of costs through the adoption of new techniques, on the contrary, often results in the layoff of workers and the maintenance of a given, relatively rigidly limited output, with an accompanying increase in unit profits. At the same time, inventiveness and technical ingenuity are concentrated on the production of qualitatively better and artistically more tasteful products rather than on the lowering of costs and the development of sales methods which will insure mass sales.

In his analysis of the decline of classical capitalism, Sombart has drawn attention to what he considers to be the paramount tension in the economic ethic characteristic of the "spirit of capitalism." This tension consists in the contrast between "rationalism and irrationalism, between calculation and speculation, between the bourgeois spirit and the robber spirit, between prudence and venturesomeness."[25] France, beginning with the *ancien régime*, abounded in entrepreneurs who exhibited the first of these contrasting pairs of attitudes. The French middle classes were rational, calculating, and prudent, and they still form the archetype of the bourgeois. However soaring may have been French imagination in the fields of literature and the arts, it remained close to earth in the field of entrepreneurship. By contrast, however pedestrian the British, especially the Victorians, in the more exalted realms of human culture, in economic matters they exhibited an astoundingly vigorous spirit of venturesomeness, daring, and "irrationality" in Sombart's sense. I will not judge whether these differences are the cause, or merely symptoms, of the more rapid and farther-reaching economic advance in Britain. But whichever they are, these differences are part of general attitudes toward entrepreneurship and capital formation which have deep traditional roots in the histories of the two countries, and which continued for a long time to impinge upon the speed and direction of their economic development.

M. Earle, editor, Princeton University Press, 1951; and "Entrepreneurial Research in France," *Explorations in Entrepreneurial History*, October 1950, pp. 35-43. See also John McDonald, "French Business Talks Back," *Fortune*, April 1952, pp. 120-121 and 178-188.

[25] Werner Sombart, *Die Zukunft des Kapitalismus*, Berlin, Buchholz & Weisswange, 1932, p. 8.

4. *Characteristics of British Entrepreneurship and Capital Formation*

In Great Britain the 200 years from the Glorious Revolution to the end of the nineteenth century saw the formation of entrepreneurial traditions and attitudes which were in sharp contrast to those of France. Not only did genuine private entrepreneurship develop in Britain on a large scale, but the mobilization of capital for industrial development was channeled through private rather than public institutions. This should not be interpreted to imply that the British government in the seventeenth and eighteenth centuries was not mercantilistic and jealous of its right to regulate economic life. But regulation in Britain was confined chiefly to international trade and those branches of the national economy which were of overwhelming importance for the political fate of the country, notably shipping and the provision of armaments and other war material.

While the British government closely supervised and participated in industrial development only in rare and specially selected circumstances, perferring to guide the economy by indirect means, the general socio-economic situation in Britain also differed from that of France in two other aspects. British guilds and corporations were relatively weaker than their French counterparts, and the internal mobility of the population was much higher than in France. Moreover, the crown depended for its fiscal needs less on internal excises and more on revenue from international trade and the granting of commercial and industrial monopolies. The institution of tax-farming did not develop in Britain. One of the chief factors which prevented such a development was the growing power of the middle class in the British Parliament. It is a difficult historical task to disentangle the reciprocal causal chains between the forms of taxation and methods of tax collection, on the one hand, and the growth of middle class wealth and political power, on the other. British merchants and industrialists could control the forms and burden of taxation to which they were subject through their parliamentary institutions. At the same time they could maintain the supremacy of Parliament, and its right to control the revenue demands of the government, because they occupied positions of economic power and the crown therefore could not dispense with their collaboration or acquiesence with impunity. The English revolutions of the 1640's and 1688 conclusively established the stability of this internal balance of power.

The role of the British government, however, took another direction. As in many countries with a young and growing industry, entrepreneurs relied chiefly on two markets where an effective demand, backed by readily available cash, appeared to exist. One of these was the export market, the other the government's need for supplies. The large companies selling British products abroad were organizations through which British producers could readily dispose of all or part of their output. The knowledge of the availability of such (monopsonistic or oligopsonistic) demand conditions was conducive, at least in part, to the development of certain industries, notably textiles, certain chemical and metal products, and those producing commodities demanded by the government. For example, some of the most successful iron enterprises achieved their important position in the industry because of contacts which they, or certain partners in these firms, maintained with government officials engaged in the purchase of cannon and other war material.

These influences, which are generally similar to tendencies existing in currently underdeveloped countries, had an important bearing on the industrial development of England chiefly because they favored the development of certain industries as against others. They account in large part for the relatively early development of the textile and iron industries in Britain, and of "luxury" industries in France. But this industrial development in Britain led to geographical decentralization and a shift of the center of gravity of the population from the South and East of England to the North and Northwest. One aspect of British economic development in the eighteenth century was an extension of the internal geographical frontier into new areas of settlement and the growth of new agglomerations of population. The process was not merely one of progressive growth of already existing urban centers. The towns which at the end of the seventeenth century had been largest and most important grew also, but at a much smaller rate than the new towns.

The movement and geographical redistribution of the British population before and during the Industrial Revolution have often been described and need no repetition here.[26] The point I wish to stress, however, is that this internal reallocation of population meant that industrial development proceeded on two fronts. In part, in-

[26] See esp. Arthur Redford, *Labour Migration in England, 1800-50*, Manchester, The University Press, 1926, pp. 8-17, 32-37, 48-53, and 175 ff., and maps in Appendix.

dustry expanded in the old centers, where it built on already existing capital markets, on families already entrenched in certain trades and on traditions of production and marketing, not to speak of the guilds. At the same time industry developed in new areas, into which entrepreneurs and workers poured from various parts of Britain: these were areas into which large quantities of capital had to be brought from the outside, and where new forms of enterprise and new marketing relations could develop more easily and with fewer impediments from traditional patterns and vested interests.

The development of the British iron industry is a good example in point. The main center of iron production in the early eighteenth century was the Black Country in the Midlands. The Weald (Sussex and Kent) and the Forest of Dean (Gloucestershire) had already passed their peak period. The forests were exhausted, and the furnaces in these counties were smaller than the newer ones which had been constructed in Staffordshire and Shropshire. In 1717, of a total production of about 18,600 tons of iron, roughly 6,000 tons were produced in the Midlands region (including North Wales), about 5,500 tons in the Weald and the Forest of Dean combined, 2,100 tons in the East of England (notably Yorkshire and Derbyshire), and 1,900 tons in South Wales. The remainder was produced in scattered furnaces located in various parts of the country. Scotland produced only negligible amounts of iron.[27]

The three regions which showed the greatest advance in iron production in the following 120 years were the Midlands, South Wales, and Scotland. The industrial weight of the Midlands as a center of the iron industry was founded on their importance as a fabricating rather than a raw materials center. During most of the eighteenth century, Britain was a net importer of raw iron, and only around 1805 did she become a net exporter of the crude product. The chief consuming region of imported iron—most of which came from the Baltic area—was the Black Country. For example, much of the activity of Sir Ambrose Crowley, one of the pioneers of the iron industry, consisted in trading raw iron to the Midlands area, and Knight, one of the members of the Stour partnership, imported American raw iron into the region as early as 1728.[28]

[27] This distribution is based on the information listed in E. W. Hulme, "Statistical History of the Iron Trade of England and Wales, 1717-1750," *Transactions of the Newcomen Society*, Vol. IX (1928-1929), p. 13.

[28] See Michael W. Flinn, "Sir Ambrose Crowley, Ironmonger, 1658-1713," *Explorations in Entrepreneurial History*, March 1953, p. 169, and R. L. Downes,

Britain's dependence on imported iron was regarded with alarm by many mercantilist writers, who proposed a series of remedies. Although early in the eighteenth century Abraham Darby of Colebrookdale had invented a process by means of which coke rather than charcoal could be used in the production of pig iron, this process spread slowly and did not gain general acceptance until the third quarter of the century. Even before that time the main remedy for the dependence on imported iron, and for the need to extend the production of domestic raw iron, consisted in the construction of new furnaces in relatively underdeveloped ore-rich areas where there was also an abundance of water and forests. The early movement of the iron industry to South Wales was motivated chiefly by the relative lack of industrialization in the region, supported by its favorable location and resource endowment.

Later, when the main problem of the iron industry was to have coal readily available, the abundance of rich coal seams in South Wales enhanced its value as an iron-producing region. Since further technological development emphasized even more the need for coal, the rise of the Welsh iron industry was assured. The abundance of coal in the Midlands had similar effects. It is not surprising that by 1823 South Wales and the Midlands together produced 374,000 tons of pig iron out of a total production in all of Great Britain of 455,000 tons.[29]

The great upsurge of British iron production began in the last quarter of the eighteenth century. In the nine years between 1788 and 1796 the total output of pig iron almost doubled (from 68,300 tons to 125,100 tons); in the succeeding decade it doubled again (to 252,800 tons); in the next nineteen years it almost doubled once more; and by 1839 it amounted to 1,248,800 tons, almost twenty times the output of fifty years earlier. This great increase in iron production was due to the rapid development of iron-producing facilities in South Wales and the Midlands, and only toward the end of this period did Scotland and Northeast England contribute significant portions of the total production.

Although the general trends of growth of productive facilities for the raw material were parallel in South Wales and the Midlands, they exhibited one significant difference: the production of raw iron

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"The Stour Partnership, 1726-36: A Note on Landed Capital in the Iron Industry," *Economic History Review*, New Series, Vol. III (1950-1951), No. 1, p. 93.

[29] See Scrivenor, *op. cit.*, p. 135.

in the Midlands was largely an appendage of the already established fabricating plants. Productive facilities for the turning out of pig iron were established and owned by individuals or partnerships whose main interest lay in their control of iron-fabricating establishments. It was the engineering and hardware firms and the owners of foundries and wire, nail, and plate factories who acquired control over pig-iron-producing facilities. In South Wales, on the other hand, fabricating was much less important. Its convenient location permitted the easy transportation of the bulky raw product, and the relative scarcity of skilled labor made the establishment of fabricating plants unattractive. To be sure, there were quite a few forges and other plants there, but the major portion of investment in South Wales was in production of the raw iron.

If we may use an analogy from the present, South Wales—a region which, during this period at least, depended upon the exportation of one or two raw, or at best semifinished, products—may be regarded as a "one-crop economy," and because of the relative recency of its development, as compared with the older manufacturing centers of Britain, it exhibited some of the characteristics of a newly developed country. It depended upon the rest of Britain for a part of its manpower and for most of its capital and entrepreneurship. Although there was mobility also into the Midlands, Yorkshire, and elsewhere, the economic history of South Wales in the 100 years between 1750 and 1850 may be regarded as typical of the process of extending the internal frontier to new and relatively virgin territories within Great Britain.

Another factor, the magnitude of the initial investment required, makes the development of pig iron production in the period of the Industrial Revolution a good example of the forms of capital formation and entrepreneurial recruitment in Britain. The English iron industry was organized along capitalistic lines rather early, certainly beginning with the quite general adoption in the sixteenth century of Continental techniques of blast furnaces and water-powered machinery by English ironmasters. This was true of all stages of the production process prior to fabrication.[30] Even before the adoption of Cort's techniques, the production of raw iron required relatively large capital investments. The introduction of Cort's process was of great importance to the growth of the industry because it reduced costs markedly and permitted the substitution of coke-smelted iron

[30] T. S. Ashton, *Iron and Steel in the Industrial Revolution*, London, Longmans, 1924, p. 4.

for the charcoal product. But this new process required the erection of puddling furnaces and rolling mills and the use of more powerful and complex engines, which in turn required more reliable sources of power than could be afforded by waterwheels. Thus the most up-to-date production methods of bar iron in the late eighteenth century called for steam engines which found an ever-widening acceptance in the industry.[31]

In addition to the increase in capital requirements necessary for an efficient plant using the then most recent available technology, the cost of mineral leases rose considerably. Since South Wales had been a relatively unexploited region in the early eighteenth century, the price rises for leases over time were especially great there. But the rapid increase of iron production in other parts of Britain produced similar effects everywhere.[32]

Because the capital needs of the iron industry were relatively large, its growth shows perhaps better than that of any other industry the methods of capital accumulation and especially its concentrated mobilization for the economic development of a relatively underdeveloped area, such as South Wales. Some of the figures of the capital needs of the iron industry even in its very early stages show the magnitude of the capitalization required. The most important partnership of the Midlands iron industry in 1692, composed of five men, owned four active and one defunct furnace, six forges, three slitting mills, and a storehouse at Bedley. The total capital contributed to the partnership was £36,277. In 1700 another partnership, associated with it, operated two furnaces, three forges, and a plating mill. The partners were credited on the books of the company with a "stock" of £21,426.[33]

[31] Between 1775 and 1800 Boulton and Watt erected 325 steam engines, of which 37 were in foundries and forges. The engines in iron works were larger, on the average, than those in other types of production. While the average horsepower of all machines erected by Boulton and Watt in this period was slightly above 16.5, those in the iron industry had an average of 28 horsepower. Some of the largest among them had close to 50 horsepower. Cf. John Lord, *Capital and Steam Power*, London, P. S. King, 1923, pp. 172-175.

[32] For example, the annual rent of the lands on which the Plymouth furnace (in South Wales) was eventually to be established was £60 in 1765. In 1786 this rental had risen to £268 for a slightly larger piece of land. Similarly, the rent for the land at Ynyscedwyn on which a furnace and two forges had been established in 1723 amounted to £7 per annum. Thirty years later the leases were renewed at an annual rent of £30. Cf. John Lloyd, *The Early History of the Old South Wales Iron Works, 1760-1840*, London, Bedford Press, 1906, pp. 5-6 and 75.

[33] See B. L. C. Johnson, "The Foley Partnerships: The Iron Industry at the

But during the ensuing fifty years the costs of erecting and putting an iron works into operation with furnaces, smelters, and forges increased considerably. In 1812 Thomas Attwood testified that a complete iron works could not be constructed for less than £50,000. In 1789 the Bleanavon iron works were established in South Wales with three furnaces at an actual cost of £40,000, and the two furnaces which were erected in 1794 at the Nantyglo works (South Wales) cost £27,316.[34]

If we consider that the number of furnaces in South Wales increased from 14 in 1788 to 197 in 1852 and that the number in the Midlands in the same period rose from 33 to 220, we can gauge the magnitude of the capital accumulation process concentrated in this short period. Furnaces were not all. They had to be supplemented by forges, by slitting and rolling mills; and costly mineral rights and leases on land had to be acquired. To this should be added investment in transport facilities such as canals and roads, a portion of which was borne by the entrepreneurs in the iron industry.

These considerations raise two important questions. How was such a vast amount of capital mobilized and what people were entrusted, or found themselves, with its control? Mechanisms for the raising of large quantities of capital were, of course, not unknown in Britain at that time. The overdrafts allowed to the East India Co. by the Bank of England at the beginning of the eighteenth century amounted to £20,000; by the 1760's they had risen to £200,000 and even £300,000. Similarly, the South Sea Co. was allowed an overdraft of £150,000 in 1726, and even in the 1750's when its mercantile activities had declined to a shadow and the company had become a "mere handler of annuities" its drawing right with the Bank of England amounted to £50,000.[35] These credits were given, it should be noted, only to companies, and even among these only to the strongest and most powerful ones. At the time the East India Co. obtained the right of overdraft exceeding £200,000 it had gained political supremacy in India, and for all practical purposes performed the functions of political government as well as trade.

End of the Charcoal Era," *Economic History Review*, New Series, Vol. IV (1951-1952), No. 3, pp. 326 and 329.

[34] See Ashton, *op. cit.*, p. 163; Lloyd, *op. cit.*, p. 160; and A. H. John, *The Industrial Development of South Wales, 1750-1850*, Cardiff, University of Wales Press, 1950, p. 25.

[35] See J. H. Clapham, *The Bank of England: A History*, Cambridge, Eng., The University Press, 1945, Vol. I, pp. 117-121.

But apart from the experience of the great and powerful companies, the credit market for merchants was, on the whole, much better developed than that for fixed investment in industry. In part this was due to the fact that as long as most industrial investment was rather small, the actual demand of merchants for capital to finance their inventories was larger than the demand of small industrialists for fixed capital. This appears quite clearly in many sources originating in the eighteenth century. For example, in an anonymous little book which appeared in 1747 describing the various trades, the differences in the requirements of capital between a working jeweler and a trading jeweler is indicated in the following words: "To set up a Master, who only works for others, will want no more than £20, but a Dealer in Diamonds, etc. must have Cash in proportion to his stock."[36] This observation of our anonymous author appears to hold for the majority of industries of the time. Heaton explains the rarity of factories in the earlier stages of the Yorkshire woolen industry, in part, by the absence of large sums of capital available for industry, and by the fact that whatever capital was available in northern England usually would be invested in commerce.[37]

During this period a large part of English industry was still in a quasi-artisan stage. If we scan the list of occupations and the capital investment needed which the anonymous author of *A General Description of All Trades* gives, we find that in many industries between £50 and £200 is all that is required to set a person up in business. In some exceptional cases as much as £500 may be required. However, the writer of the booklet points out that "those who keep Forges or Foundries, deal in Bar-iron, and export and import much, employ thousands [of pounds]."[38]

[36] *A General Description of All Trades Digested in Alphabetical Order, Etc.*, London, T. Waller, 1747, pp. 122-123. Similar differences in capital requirements are also indicated for button-makers and button-sellers (p. 48), upholsterers who only fabricate and those who also engage in trade (p. 215), and many other trades. That the capital requirements of traders as compared with manufacturers were generally much larger is confirmed also by R. Campbell, *The London Tradesman*, London, T. Gardner, 1747, and by R. B. Westerfield, "Middlemen in English Business, 1660-1760," *Transactions of the Connecticut Academy of Arts and Sciences*, Vol. 19 (1915), pp. 111-445.

[37] Herbert Heaton, *The Yorkshire Woollen and Worsted Industries*, Oxford, Clarendon Press, 1920, p. 90.

[38] *A General Description . . .*, as cited, p. 126. Apart from persons engaged in trade, who usually are considered to need a minimum of £500 and more often £1,000 to set themselves up in business, the only industries with capital requirements of a magnitude comparable to that of the iron industry and other forms of the metal trades are brewing ("many Thousands"), distilling ("£500 at least"), printing ("from £1000 to £5000"), dyeing ("from £500 to

Thus only few manufactures at that time had passed from an artisan-type scale of organization to a factory scale. The iron industry and, closely following it; the manufacture of cotton textiles were paving the way for the advance of large-scale industrialism in Britain. In fact, the very extension of the internal economic frontier, coupled with the development of capital-intensive industries at the geographical margin (iron in Wales, Scotland, and North England; cotton in Lancashire and later in Scotland), seems to have facilitated the introduction of factory production. Here industrial production was so undeveloped that no local traditions, local guilds, and craft groups stood in the way of the factory. Here experimentation with large-scale production was easier than in the older industrial centers, where traditional industrial techniques were more firmly established.

The technological innovations in the iron and cotton industries also made necessary the introduction of factory methods in establishments located in the older industrial centers. While the transition from small-scale handicraft and the putting-out system to the factory system was slower in these older areas, the new form of industrial organization was gradually transmitted from the geographically marginal parts, where the Industrial Revolution took place more abruptly, to the older industrial areas around London, Birmingham, Sheffield, Bristol, Nottingham, Coventry, and elsewhere.

Simultaneously with the development of large-scale investment in the geographically marginal areas there occurred an innovation in the financing of industry. The partnership had been an early form of mobilizing large amounts of capital in the iron industry and of minimizing the risk of any one participator. Elaborate descriptions of the Stour partnership, the Foley partnerships, and the partnership operating iron works in the Furness district show that this form was applied early in the iron industry, primarily because of the vertical organization prevailing there. Although some of these early partnerships owned and operated more than one works, the typical arrangement of assets was the ownership of furnaces, smelters, forges, warehouses, and often various types of fabricating plants.[39] This

£2000"), shipbuilding ("generally a large Undertaking, for which Reason it is fittest for Money's men to engage in"), soap-boiling (£2,000), and one or two others (from *ibid.*, pp. 35, 80, 29, 83, 189, and 196, respectively). On capital required in industry see also J. H. Clapham, *An Economic History of Modern Britain*, Cambridge, Eng., The University Press, 1926, Vol. I, p. 68.

[39] See Johnson, *op. cit.*; Downes, *op. cit.*; A. Fell, *The Early Iron Industry of Furness and District*, Ulverston, H. Kitchin, 1908; Arthur Raistrick and E.

pattern of establishing partnerships was extended to South Wales. But since there was little opportunity for vertical organization of the industry, partnerships soon acquired several works located near one another, and some had holdings comprising works not merely in the South Wales area, but also in the Midlands, Yorkshire, and elsewhere. The development of this type of control is exhibited by the fact that in 1788 there were 14 works with 17 furnaces and with 25 persons in entrepreneurial positions in South Wales. In 1806 there were 24 works with 48 furnaces and with 47 persons in entrepreneurial roles, and in 1823, 19 works with 72 furnaces and with 35 entrepreneurs. After 1823, joint stock companies were organized in the iron industry and the old pattern of partnerships receded. By the middle of the nineteenth century the partnership in this industry was, on the whole, a thing of the past.

The development of partnerships and horizontal combination in the industry facilitated and indeed suggested the formation of joint stock companies, which up to 1825 had been absent from the iron industry and had prevailed chiefly in commercial, canal, and other transportation companies. Today a primary distinguishing feature of joint stock companies is the limited liability of their shareholders. But this was not always the case in Britain. In fact, the right of limited liability of registered stock companies was established universally only by an act of 1885. The main differences between the partnership and stock company were the greater number of partners in a stock company and the fact that the members of a partnership were usually more actively engaged in administering the business of their firm than were the members of a stock company. The stock company permitted the accumulation of larger amounts of capital and drew moneys into fixed industrial investment from persons who had neither the interest nor the inclination to engage actively in managerial roles, but who sought chiefly a profitable return on their capital.[40]

The industrial joint stock company in its pre-1885 form in Britain represented, therefore, an organization appropriate to a system in

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Allen, "The South Yorkshire Ironmasters, 1690-1750," *Economic History Review*, May 1939, pp. 168-185; and, summarizing this trend, Ashton, *op. cit.*, pp. 48 ff. and Chap. VII, *passim*.

[40] A good short description of the nature of stock companies in the nineteenth century in Britain and the trends leading to the further development of a joint stock company structure is given by Geoffrey Todd, "Some Aspects of Joint Stock Companies, 1844-1900," *Economic History Review*, October 1932, pp. 46-71.

which risk-taking as a social function had become institutionalized. The earlier partnerships, made up entirely of private individuals and financed by the capital of these same individuals, were the first institutions in this process which necessitated the concentration of relatively large amounts of capital.

The mobilization of large quantities of capital in the form of fixed assets in industry differs profoundly from an accumulation of capital of similar magnitude in trade or finance. In the latter much of the capital is invested in assets with a relatively quick turnover, and although the total risk may be high, the degree of liquidity is also relatively high. Moreover, the economic horizon of persons investing in commerce or finance usually is narrower than that of persons who sink large sums into the construction of such relatively durable assets as furnaces, forges, puddling and rolling mills, and mines. The large-scale industrial entrepreneur and later the industrial stock company committed themselves more fully to an uncertainty-bearing function than did the investor in a commercial partnership or company.

It is no wonder, therefore, that the great entrepreneurs of the Welsh iron industry of the late eighteenth century—the period when rapid development on a vast scale occurred in that part of Britain—were individuals who possessed most clearly the characteristics of the risk-taking, innovating entrepreneur of the textbooks. Although as prudent men they avoided overly great gambles—a factor which accounts, for example, for their preference for lease rights to coal- and ore-bearing land as against outright purchase of the land—they were obviously taking immense risks, and they understood, and apparently were fully conscious of, this role. The absence of local financial institutions which could have supplied the necessary loan funds for industrial development and the apparent unwillingness of metropolitan bankers to venture their funds in the risky iron enterprises in South Wales enhanced the sentiment of self-reliance and individualism of these pioneers. How else can we interpret the statement of one of the most successful South Wales ironmasters, Richard Crawshay, the "Iron King," when he said, "I shall not take any partners as long as I live."[41] Samuel Homfray, another pioneer in the South Wales iron industry, apparently was a gambler on occasion; after having helped finance the locomotive of the Cornish engineer and investor Trevithick, he bet Crawshay £1,000 that it

[41] John, *op. cit.*, p. 57. Similar statements of individualist confidence and optimism are cited there.

could convey a load of iron by steam power from the Pennydarren iron works to the Glamorganshire Canal, nine miles away. He won the bet.[42] The career of Samuel Homfray's brother, who was knighted in 1810, bankrupt in 1813, and a coal magnate prior to his death, bespeaks no risk shyness.[43] But not only were these entrepreneurs willing to take financial risks; they constantly adopted technical innovations and were prepared to reinvest profits. Scrivenor wrote of the extension of the South Wales industry in the first half of the nineteenth century that the speculative mania and extravagant establishment and extension of plant, notably by the joint stock companies, would bring about the ruin of the industry.[44]

The most successful and at the same time the most typical of all these men was Anthony Bacon, who began as a coal merchant in Whitehaven, emigrated to Maryland, returned to London to become a merchant, contracted with the government to supply British garrisons in Africa, entered Parliament when American affairs were under discussion, furnished African Negroes to the government in the West Indies, acquired a small fleet of ships, and started coal-mining in South Wales. The outbreak of the American Revolution gave him an opportunity to supply cannon to the British army, which in turn spurred on his efforts to establish himself more firmly in the iron industry. His business interests included grants of coal mines in Cape Breton, estates and fisheries in the colonies, and a series of partnerships and other connections with politically influential people, which made it possible for him to obtain repeated orders from the government for supplies of food, war material, coal, and other things. Bacon was a captain of industry *par excellence*. He, more than anyone, must be credited with having opened the Rhondda Valley to economic exploitation.[45]

Men like Bacon, Crawshay, and the Homfrays set the pace. They formed the backbone of the industrial partnerships which developed the iron industry in an outlying, relatively undeveloped region. They were the people who were willing to take great risks, but whose expectations of profit were self-confirming in an age in which the

[42] See Lloyd, *op. cit.*, p. 88, and C. Wilkens, *The History of the Iron, Steel, Tinplate, and Other Trades of Wales*, Merthyr Tydfil, J. Williams, 1903.

[43] See John, *op. cit.*, p. 34.

[44] Scrivenor, *op. cit.*, pp. 280-283.

[45] See the stimulating sketch of Bacon's life by L. B. Namier, "Anthony Bacon, M.P., an Eighteenth-Century Merchant," *Journal of Economic and Business History*, November 1929, pp. 20-70.

entire economy experienced rapid growth. There were setbacks and occasional bankruptcies; but, on the whole, the expectations of large profits materialized, and this encouraged others—lawyers, merchants, and even clergymen—to entrust their funds to these industrial pioneers. The supply of capital funds became so great after the first important successes in the Welsh iron industry that the result was the development of the joint stock companies and lavish extension of plant, which, as we have seen, was regarded with some misgivings by Scrivenor.

The most adequate characterization of the shifts in the type of entrepreneurship developed in this industry can be gauged by a comparison of the occupational backgrounds and geographical origins of Welsh ironmasters at different periods of time. As long as the industry was small, local people—landlords and artisans—predominated. When the merchants from the old commercial centers became attracted to the industry it started its period of phenomenal growth. Of seven persons who were known to have held entrepreneurial positions in the Welsh iron industry in 1723, four were landowners, one a merchant, and two ironmasters. Of the twenty-five persons in entrepreneurial positions in 1788, nine were merchants, thirteen ironmasters, two entrepreneurs in other industries, and one a manager in iron works. Not one was a landlord. The occupational characteristics of 1788 remained fairly stable throughout the rest of the eighteenth and the first half of the nineteenth century. Half of the entrepreneurs had started as merchants, and the other half as engineers, small masters, or managers in the iron industry or related industries (such as copper, brass, tin plate manufacture, or engineering).

As to their geographical origin, five of the seven entrepreneurs in South Wales iron works in 1723 were natives of South Wales, one came from London, and one from the Midlands. Of the thirty-five entrepreneurs in the South Wales iron industry in 1796, ten were natives of South Wales, four came from Bristol, six from London, ten from the Midlands, and five from elsewhere. If we combine the two classifications we find that most of the local entrepreneurs in the early period were landlords, but that by the end of the eighteenth century most of the South Wales natives were ironmasters. Of the persons coming from outside the area, most of the immigrants from London and Bristol were merchants, and so were a few from the Midlands. But the bulk of the persons originating in the Midlands were

ironmasters who transferred their field of activity to the newly developing region.[46]

This provides a fairly clear clue to the origin of the capital which flowed into the industry. The land was supplied by local landlords, who also contributed capital for the construction of canals and other means of transportation to make the region more accessible. Since little fabricating was carried on in South Wales, and since it developed into one of the major exporting areas of coal and of bar iron, facilities for out-shipment were of the utmost importance. Most of the capital for investment in furnaces, forges, and other plant equipment was supplied by merchants (many of them iron or coal merchants, but some cloth merchants and others) from London and Bristol. Of special importance were some Bristol Quakers whose business connections reached not only into the South Wales iron industry, but also into the Midlands and North Wales iron industry. The famous Darby family which set up the works at Coalbrookdale originated in Bristol, and many other well-known Midlands Quakers in the iron trade had close connections with their coreligionists among the Bristol merchants.[47] As the eighteenth century drew to an end, the Bristol merchants began to be eclipsed by London merchants who eventually came to dominate the industry financially. Technical and engineering talent was supplied chiefly from the Midlands, but after the industry had been domiciled for some time in South Wales, native engineers and ironmasters tended to reach entrepreneurial positions in it.

What general conclusions can be drawn from this account of the development of the iron industry in a region which early in the eighteenth century was "underdeveloped" and which in the course of some 120 years became one of the most highly capitalized manufacturing regions of Britain? Most of the capital—apart from land—which was needed to develop the industrial complex had to be supplied from the outside, and by the nature of the factory type of enterprise, large individual chunks of capital were needed. These could only come from the government, the aristocracy, or already wealthy merchants. It was the latter who provided the bulk of the needed

[46] These data, as well as other information contained in this essay on entrepreneurship in the South Wales iron industry, are drawn from an as yet unpublished paper, "The Geographical and Occupational Origin of South Wales Ironmasters, 1717-1839," which is being prepared by Marshall Kolin.

[47] See two works by Arthur Raistrick: *Dynasty of Iron Founders: The Darbys and Coalbrookdale*, London, Longmans, 1953, pp. vii-viii and 83-85, and *Quakers in Science and Industry*, London, Bannisdale Press, 1950, *passim*.

funds, in a surge of innovating and enterprising spirit whose origins are somewhat of a mystery. Once the early ventures proved successful, the flood of capital offered for investment increased, and at times even led to perhaps untimely expansion of the industry. But, on the whole, the steadily increasing demand for iron and steel products created by the railway age confirmed the expectations of the profitability of such investment and produced recurring waves of new capital.

Most of the early entrepreneurial talent also came from outside the region. The merchants stepped into financial, organizational, and managerial positions, and the ironmasters who had gained their early experience elsewhere filled the leading technical and supervisory posts. Although many of these men started from fairly small beginnings, few actually rose from the very bottom of the social scale. Most of the Welsh ironmasters came from merchant families or were sons of small manufacturers; only a few had yeoman or peasant parents, and hardly any came from working class families. Nevertheless, the recruitment of entrepreneurial talent for the industry suggests the persistence of a degree of geographical and social mobility of a substantially higher order than was the case in France at that time and even later.

This picture of the development of entrepreneurship and formation of capital in the South Wales iron industry resembles analogous contemporary processes elsewhere in the industrially undeveloped parts of Britain. The growth of the Scotch iron industry, which did not start on a significant scale until after the middle of the eighteenth century, followed similar lines, and a superficial survey of the evolution of cotton-spinning and -weaving in Lancashire and elsewhere in North Britain appears to show similar characteristics.

In the other industrial centers economic development showed some contrast to this pattern notably with respect to the source of capital and the rapidity of factory development. In 1926 Sir John Clapham wrote of London that "to this day [it] is the home of small businesses," and of Birmingham it was said in 1799 that, comparing its manufactures with those of Leeds and Manchester, "there are very few that may be called large capitals. There are many manufactories in Birmingham which do not employ £100; some about £1,000, and, speaking in general of the higher descriptions of manufactures, about 6 or £7,000."[48] Similar observations can be made about other older

[48] Clapham, *An Economic History of Modern Britain*, as cited, Vol. I, p. 68; and *Reports from Committees of the House of Commons*, London, 1803, Vol. X, Miscellaneous Subjects: 1785-1801, p. 663.

centers of industrial production, such as Sheffield, Bristol, Coventry, and Norwich. In these places a substantial portion of industry developed more or less gradually out of the earlier artisan-type organizations. The capital needs for enterprises on such a relatively small scale could often be met out of the earnings of the masters themselves. This facilitated upward movement in the social scale, and since the rigid social structure characteristic of medieval society had broken down in Britain long before the Reformation, a large amount of vertical social movement actually occurred. Hence, in the early stages of British industrial development many factory masters started as artisans or workmen and in the course of their lives changed from that status to one of industrialists or masters. For example, William Hutton says of Birmingham that in 1793 there were 94 persons in that town who possessed more than £5,000, 80 who had £10,000, 17 with £20,000, 8 with £30,000, 7 with £50,000 and 3 with upwards of £100,000. He adds that out of these 209, "103 began the world with nothing but their own prudence; 35 more had fortunes added to their prudence, but too small to be brought into account; and 71 persons were favoured with a larger, which, in many instances, is much improved."[49] Similarly, Boulton said that "all the great manufacturers that I have ever known have begun the world with very little capitals."[50]

The life histories of most of these entrepreneurs are, of course, very difficult to reconstruct in sufficient detail to account for the degree of vertical mobility that existed. The South Wales ironmasters, whose early origins I have tried to ascertain, started from somewhat more affluent circumstances than was often believed or granted. That myth sometimes intervenes to make a dramatic story even more dramatic is evidenced by the way some of the most distinguished historians treat the career of some spectacular figure who has risen decisively in the social scale. The career of Ambrose Crowley may serve as an illustration. Lipson writes of Crowley that he "began his career as a working blacksmith and ended it as a knight, an alderman and sheriff of London, and a member of Parliament."[51] The implication of this statement is clear. We are presented

[49] *History of Birmingham*, 4th ed., 1809, pp. 136-137, cited in Henry Hamilton, *The English Brass and Copper Industries to 1800*, London, Longmans, 1926, p. 271.

[50] Cited in Hamilton, *op. cit.*, p. 271, note. Hamilton lists still other opinions in the same vein and some further evidence on both the smallness of many of the Birmingham enterprises around 1800 and the fact that their owners had risen from lowly status and accumulated all or most of the capital by their own thrift.

[51] Lipson, *op. cit.*, Vol. II, p. 176.

with a man who started as a simple small artisan and became one of the greatest merchants and ironmasters of his day. But Michael W. Flinn, who has more recently studied the career of Crowley, contradicts Lipson's statement about Crowley's origins. In fact, he explicitly says that Crowley's "origins were by no means as obscure as has been suggested; he did not began his working life as a common smith. He was born . . . the son of a prosperous ironmonger of the same name."[52] We would find, I trust, many other life histories which have been somewhat overdrawn in a similar manner, and I believe it would not be too far wrong to regard the statements of Hutton and Boulton as somewhat exaggerated. They were expressing as fact what in their day was widely believed. Even if these accounts of the lowly beginnings of many men who became captains of industry are perhaps not fully accurate in all details, they nevertheless provide evidence that the rise of men from poverty to great riches was considered quite possible and indeed a not infrequent occurrence, and that vertical social mobility was common and accepted without question.

Vertical mobility in the recruitment of entrepreneurs seems to have been a characteristic of British industry which never fully died out and which to this day has been an essential force in providing industry with vigorous new blood. In an investigation undertaken shortly before the outbreak of World War I on the social origins of directors and managers in the cotton industry, Chapman found that a large percentage of entrepreneurial and managerial personnel both in manufacturing and spinning establishments rose from the position of operative or clerk. In about 1911 he sent out 248 questionnaires asking for the occupational origin of entrepreneurial personnel in the cotton-manufacturing, cotton-spinning, and doubling industry. He received 179 replies. Among those replying, 141, or 79 per cent, indicated that they had risen from low positions to those of manager, owner, or member of the board of directors. This study exhibits such an astounding degree of vertical mobility that its findings must be accepted with great caution.[53]

Chapman's study is more important for its ideology than for its facts. This same belief in the necessity of an open social order is revealed in a recent account of British entrepreneurship by

[52] Flinn, *op. cit.*, p. 163.

[53] See S. J. Chapman and F. J. Marquis, "The Recruitment of the Employing Classes from the Ranks of the Wage-Earners in the Cotton Industry," *Journal of the Royal Statistical Society*, February 1912, pp. 293-313.

Richard Fry, financial editor of the *Manchester Guardian.* Fry may certainly be regarded as a witness who expresses the predominant sentiment of British entrepreneurs about their own social role, their function, and the ladder of ascent leading to positions occupied by business leaders. Although he did not make a statistical study, as Chapman did, providing us instead with impressionistic glimpses of the social milieu of modern British entrepreneurs, he appears to be a strong adherent of the rags-to-riches story. He begins his account by picking out four "typical" successes of the interwar period. These four are Lord Nuffield, who before World War I "had a bicycle shop in Oxford"; Bernard Westfall, "a parson's son" who studied at Cambridge on a scholarship and "in 1922 went as a factory clerk" to a printing firm; William Butlin, who at fifteen went to Canada as a drummer boy and when he was twenty-one "worked his way across, arriving with £5 in his pocket"; and Jack Billmeir, who "started work at 14 (in 1914) in a shipbroker's office at 8 s. a week." Elsewhere in his article he mentions other "typical" cases, such as that of Arthur John White, whose life story also falls in the rags-to-riches class.[54]

I do not imply that Fry's facts are wrong. I wish to stress, however, that since the stories he relates are regarded by him as "typical," it appears that there is widespread unquestioning acceptance of the tradition that many of the most successful entrepreneurs were boot-blacks, newsboys, or close to that status at some time early in their careers and that they rose from the very bottom of the social scale to the very top. I am not aware that a careful study of the social and occupational origins of British entrepreneurs has ever been undertaken. Chapman's essay, although conceived in the true scientific spirit, is too limited in scope and is methodologically too defective to count. Haxey's book[55] provides some interesting source material of a gossipy kind, but cannot be regarded as a serious study of the social characteristics of British entrepreneurs as a class. In any case, from the works of Taussig and Joslyn, William Miller,[56] and others on the characteristics of the American business elite, we have reason

[54] See Richard Fry, "The British Business Man: 1900-1949," *Explorations in Entrepreneurial History,* November 1949, pp. 35-43.

[55] See Simon Haxey, *Tory M.P.*, London, Gollancz, 1939.

[56] F. W. Taussig and C. S. Joslyn, *American Business Leaders: A Study in Social Origins and Social Stratification,* Macmillan, 1932, and William Miller, "American Historians and the Business Elite," *Journal of Economic History,* November 1949, pp. 184-208.

to doubt that the instances that Fry reports are "typical" of British entrepreneurs as a whole.

Nevertheless, as long as enterprises were small, mobility upward from the position of operative or journeyman to that of master or even owner-entrepreneur meant mobility for a relatively short distance, and was encountered probably not infrequently. This degree of mobility was sufficient to create the belief in the power and in the possibilities of ascent; its importance was overstressed and its prevalence exaggerated. It became and remains an important myth of British entrepreneurial circles. A piece of social reality from the days when industrial enterprises were scarcely larger than handicraft shops has lived on to become perhaps the most powerful buttress of independent entrepreneurship in contemporary Britain.[57]

5. *Recent Changes in Entrepreneurship in Britain*

Bank credit played an increasingly important role in Britain as the nineteenth century wore on, but it was chiefly used for working capital. Most of the fixed capital in British industry was supplied out of savings of private individuals and reinvested profits and earnings of going enterprises. Perhaps the best summary of this situation is provided by Sir John Clapham, who writes that the London money market "was important mainly as a furnisher and economiser of circulating capital. . . . It was of more immediate importance to the merchant than to the manufacturer, because the circulating element dominates commerce. . . . The provincial banker gave every assistance to men he trusted, allowing them ample overdrafts at all times; but even he regarded plant, machinery 'or works of any description' as ideally bad security for loans. Almost all the fixed capital of manufacturing industry, as it existed in 1850, and the overwhelmingly greater part of the additions and renewals made during the next thirty-six years, came from what the economists of the age called—with more reason than their critics have sometimes allowed—the abstinence of those steady manufacturers whom the provincial bankers trusted."[58]

Here was a characteristic mode of supplying industry with capital

[57] A book-length study on the role of the rags-to-riches story in the United States, which shows how important was and is the belief in the possibilities of social mobility upward over often large distances, will, I hope, soon be published by my colleague and friend R. Richard Wohl. Its tentative title is *Onward and Upward: American Ideologies of Success.*

[58] Clapham, *An Economic History of Modern Britain*, as cited, Vol. II, pp. 355-356.

for its fixed assets which differed profoundly from the pattern which developed in France and other parts of the Continent.

These methods of supplying industrial fixed capital contributed in Britain to the prevalence, even today, of small and medium-sized plants in many industries which in the United States, and even Germany, are normally considered to require large corporate organization. In part this explains why in many branches of engineering, food-processing, construction, and other fields, British industry is less productive than German or American industry. In part it also appears to confirm Schumpeter's thesis that most conspicuous economic progress is made not in those industries in which competition by many small firms prevails, but in those in which large concerns abound. If the problem is looked at from Schumpeter's viewpoint that economic progress is served by what he calls "creative destruction" of capital, it is easy to see that in a small enterprise, in which the horizon of the owner is circumscribed by considerations of his nearest of kin, destruction of capital, even if it be creative destruction, will be engaged in at best hesitatingly and gingerly.[59] The very smallness of enterprise militates against grand and widespread introduction of innovations in either technology or industrial organization.

Moreover, the very fact that Britain became an industrial country earlier than her main competitors now imposes a serious disadvantage on her. Her capital equipment is older and more obsolete as is her form of industrial organization. Gerschenkron has reminded us that for long France and Germany bore the burden of backwardness. We can turn his observation around and find that Britain is weighed down by the burden of too early industrialization.[60] This situation

[59] Joseph A. Schumpeter, *Capitalism, Socialism, and Democracy*, Harper, 1942, Chap. VII.

[60] See Gerschenkron, *op. cit.*, pp. 4-7. Thorstein Veblen saw and evaluated clearly the "penalty" which England had to pay for "having been thrown into the lead and so having shown the way." The entire fourth chapter of his *Imperial Germany and the Industrial Revolution* (new ed., Viking, 1939) is devoted to this issue. Veblen stresses especially the fact that the earlier creation of real capital in Britain burdened her with a technology which tended to become outdated, but which was difficult to change, since this would require a complete replacement of large chunks of technologically inefficient plant by new plant. (E.g. the narrow-gauge railroads of Britain would have to be replaced by broader-gauge railroads. This would require not merely the creation of new, admittedly more efficient freight cars, but also the rebuilding of stations and shunting and switching yards—in fact, of almost the entire existing plant. This is clearly impossible.) Veblen also draws attention to the fact that "the system which the English . . . worked out into its farther consequences was the system of handicraft and petty trade, and the frame of mind native or normal

was not counteracted to any large extent by flexible adjustment to newly arising demand patterns or to the competition of the newer industrial nations. In design and general execution British products remained, on the whole, conservative, though qualitatively superior. As other countries became more and more formidable competitors in industrial products, British entrepreneurs tried to take primarily defensive measures. Control of the international financial markets, gentlemen's agreements forming quasi cartels, the buttressing of the bonds of Empire, and, finally, protective tariffs and exchange control were the chief measures taken to provide some degree of security and stability for British industry. These measures are symptomatic of the loss of much of the earlier spirit of ebullient venturesomeness and creative entrepreneurship.

But this change of heart was not confined to the small industrial entrepreneur, whose base of operations remained strictly limited in a world in which he had to compete with giant firms controlling vast arrays of sales forces, modern research laboratories, and the most up-to-date technological and organizational equipment. The spirit of prudence, caution, and conservatism was catching. Combined with Britain's political decline and the loss of many of her foreign markets to younger and more vigorous competitors, it affected all layers of British entrepreneurship. Although a portion of British industry remained relatively small, it was only a portion, and, as was shown earlier in this essay, the most spectacular advances in technology and most decisive victories in creative entrepreneurship had been won in the fields in which large-scale enterprises developed. In these fields, however, the general adoption of the joint stock company form contributed to the decline of venturesomeness.

The joint stock company became the vehicle for large-scale industrial organization soon after 1825. It experienced rapid extension in the succeeding twenty-five years, chiefly because of its use in the financing of railways. In the early stages of railway-building and of factory industry, only minute amounts of capital were supplied by banks. Just as in the earlier case of canal-building, a considerable portion of the capital needed for the construction of early railways was raised in the various localities which were connected by them. Tooke waxes quite indignant when he discusses this terrible "passion

to this industrial system is that which stands for self-help and an equal chance" (*ibid.*, pp. 99-100). This is a highly abbreviated statement of a point which is discussed at considerably greater length in the text.

for Railway Gambling [which] had penetrated the upper and middle classes. . . . In every street of every town persons were to be found who were holders of Railway Shares."[61] Now it is true that many people borrowed from the banks in order to raise capital for the purchase of railroad shares, a practice which in Tooke's view had such nefarious aspects. But the important thing is that banking capital for railway construction became available only indirectly; that is, not the banks, but private individuals, undertook to gamble. Here is another instance which shows how the early nineteenth century stock company represented a means by which the by now institutionalized roles of risk-taking could be exercised.

Joint stock company ownership made possible consolidation of railroads, and, with the general applicability of limited liability for all registered stock companies, these large organizations became by the turn of the century administrators of funds which were supplied to them by persons filled not with the "passion for Railway Gambling" or, for that matter, any other kind of gambling, but progressively more with a *rentier* outlook.[62] Thus by the beginning of the twentieth century, the evolution of entrepreneurship in Britain had come full circle. From small beginnings the British middle classes rose to become one of the chief factors contributing to making Britain the leading industrial nation in the world for some 200 years and at the same time the most important political power in Europe. With the decline of Britain's economic and political leadership came the decline in the enterprising spirit of her business leaders. The traditions of individualism and radicalism in the British middle classes were not strong enough to overcome the forces which, in the new

[61] Thomas Tooke and Henry Newmarch, *A History of Prices*, London, Longman, Orme, Brown, Green & Longmans, 1857, Vol. v, p. 234. On the financing of the earlier British railways see Leland H. Jenks, *The Migration of British Capital to 1875*, Knopf, 1927, pp. 130 ff.

[62] Unfortunately, there is little evidence available in printed sources on the prevalence of this attitude in present-day Britain. Most of the liberal economists who opposed the "socialism" of the Labor government were chiefly concerned with the evils of planning and did not discuss the shortcomings of entrepreneurs, or, if they did, they attributed the loss of entrepreneurial spirit to the increased vexations placed upon businessmen by the various forms of government regulation and interference. One factor strengthening the *rentier* outlook of British entrepreneurs, and of the British public in general, has been mentioned by Jenks. He suggests that the growth of British foreign investment in the third quarter of the nineteenth century had two concomitant effects. First, the paramount place in the investment market was secured by banks, and, second, this "fostered the growth of a rentier governing class, whose economic interests lay outside the community in which they lived and exerted influence." *Op. cit.*, p. 334.

environment, tended to exert a paralyzing influence on the old spirit of speculativeness and venturesomeness. The small man found safety in withdrawing into a hard shell of a narrow market, using time-tested procedures and technologies and serving a range of known and faithful customers. The large firms appeared to conform to that law of capitalistic development which Sombart stated when he said that in the age of corporate enterprise "even a rationalization of entrepreneurship has taken place, so to speak. We can pursue this change in detail. We see how the importance of specific entrepreneurial activity, or intuition, of a 'sixth sense' diminishes. The number of knowable, predictable circumstances increases and the inclination of business leaders grows to base their enterprises on a foundation of knowledge. *Enterprises thus attain the character of administrations, their leaders the character of bureaucrats*, and the gigantic size of the apparatus contributes to this development."[63] Sombart might have added that the people holding the stock of these enterprises progressively acquire the character of *rentiers*.

6. *Summary*

In this paper an attempt has been made to provide a partial explanation of the differences in the timing and rate of growth of the French and British economies since the coming to power of a capitalist social order in the two countries. The chief variables which were selected for study were the forms of entrepreneurship and the source and magnitude of capital supplied for fixed investment in secondary production. While the two variables are correlated with one another, they may be discussed separately. Industrial entrepreneurs may come from families which already hold positions of economic power, or they may originate in the lower social strata and succeed in moving upward to positions of business leadership. Capital may be supplied by the state, by persons holding accumulated wealth, or by the rising entrepreneurs who may come into possession of some small initial sum through luck, accident, or hard work, but who continue to increase the capital at their disposal through abstinence and "inner-worldly asceticism."

In France the chief characteristic of industrial growth under the *ancien régime* was the predominance of government as initiator of a large portion of industrial expansion and as supplier of capital for industry. Industrial entrepreneurs, as such, played a secondary role.

[63] Italics added. Sombart, *op. cit.*, pp. 8-9.

Their prestige and political power were subordinated to those of officials and large financiers, a pattern which remained characteristic of later French economic development. Reinvestment of profits, although not uncommon, never took on great significance because businesses were run on a family basis and the status and consumption needs of the family members competed with the needs of the business for new capital. Moreover, since industry developed under an umbrella of state regulation and protection, many industrial entrepreneurs tended to be overly cautious when the economy had grown to be too large for the state to take all industry under its tutelage. Hence, expansion was often kept back, new investment delayed, and a policy of risk-taking avoided. A recent indication of this attitude toward investment is provided in a book by Jacques Lacour-Gayet which appeared in the spring of 1953. Although it is devoted chiefly to a restatement of the principles of classical nineteenth century liberalism, Lacour-Gayet discusses in one chapter what French industry must do to become as successful as American industry. His main emphasis is on the expansion of sales and on technical and organizational improvement of the distributive apparatus. Only very scanty attention is given to the cheapening of production and the general improvement of company management.[64] The efficiency of the American self-service supermarket could not be overlooked, but the less obvious complements of American industrial success remained closed to this Frenchman, in spite of his penetrating mind and his attempt to see the American picture as a whole. Similarly, the accounts published of that French "maverick" entrepreneur Marcel Boussac stress his emphasis on expansion of sales. But at the same time they relate that the organization of his cotton "empire" is as centralized as that of any other French firm, his heirs apparent in the business are his son-in-law and his brother, he makes all important decisions himself, and the magnitude and structure of the managerial staff of his enterprises are quite unlike those of any American counterpart.[65]

The point I wish to stress is not that an aggressive sales policy is unimportant, but that it is a *result* rather than a *cause* of development. Sales are necessary because mass production of cheap articles has been made possible through investment. The force pushing an economy forward is not the attempt to expand sales; it is the willing-

[64] See *Nouveaux propos d'un liberal*, Paris, S.P.I.D., 1953, esp. pp. 95 ff.

[65] See John McDonald, "Marcel Boussac: Tycoon," *Fortune*, September 1952, pp. 107-109 and 198-206.

ness to risk the investment of fixed capital with the expectation, perhaps even the gamble, of conquering a market. What Lacour-Gayet preaches and what Boussac practices is an imitation not of American methods and practice, but of the methods and practice of the merchant adventurers of 400 years ago.

The crucial difference between French and British entrepreneurship is the attitude toward investment of risk-bearing fixed capital. In France the bulk of this capital was supplied first by the state and later by the investment banks. The state could and did minimize the risks by concentrating on the subsidization of those industries whose products enjoyed a well-defined effective demand, and by recouping losses from general tax revenue. The investment bank minimized risk either by spreading its investments over different industrial branches, so that losses in one would be counterbalanced by gains in another, or, if it chose to concentrate its investments in one industry alone—as tended to be the case in pre-World War I Germany—by attempting to acquire a monopoly position and to minimize risks by the monopolistic exploitation of consumers.

It is not surprising that the theory of "finance capitalism" which seemed to fit conditions of post-1871 Germany and France so well had only a very uneasy applicability to Britain and the United States. In fact, one of the criticisms leveled against Hilferding's book on the subject[66] is that he draws his examples exclusively from Continental experience and omits almost completely any reference to the "classical country of capitalism," Great Britain.

The reason for this inapplicability of an important portion of Hilferding's thesis to British conditions lies in the different nature of entrepreneurship and capital mobilization in that country. In Britain capital was supplied by individual merchants, industrialists, and, after the generalization of the joint stock company, the public at large. Investment in risk-bearing industrial fixed capital became a socially accepted function which could be exercised by anyone who had liquid funds or access to them through borrowing. In the classical period of British industrial development, from about 1775 to that triumphant symbol of British preeminence, the Great Exhibition of 1851, this was the characteristic pattern of industrial investment. That the joint stock company later came to push the individual industrial entrepreneur and even the partnership into the

[66] Rudolf Hilferding, *Das Finanzkapital*, Wien, Wiener Volksbuchhandlung, 1923, esp. Chaps. IV and V.

background is not surprising, for it could muster amounts of such magnitude as fully to overwhelm the small men.

But the patterns of social action developed in the Industrial Revolution in Great Britain had two important, lasting consequences. The social order was shaken up and movement upward became not only possible, but even a matter of quite common occurrence. This possibility of rising in the social scale became surrounded with an almost legendary aura; the belief in its importance has contributed in no small measure to the existence of greater economic opportunities in Britain for the common man even today. Second, the impetus imparted to British entrepreneurship in its most vigorous period resulted in a rapid advance of national output and productivity, so that at the present Britishers, in spite of setbacks and a gradual stagnation of the rate of economic progress, have a higher average real income than Frenchmen or other peoples on the European continent. However high or low one may estimate social equality and a more elevated level of material living standards, the "heroic" period of British economic development made these things possible. In the last analysis they belong to the characteristics which form the distinguishing marks of a nation.