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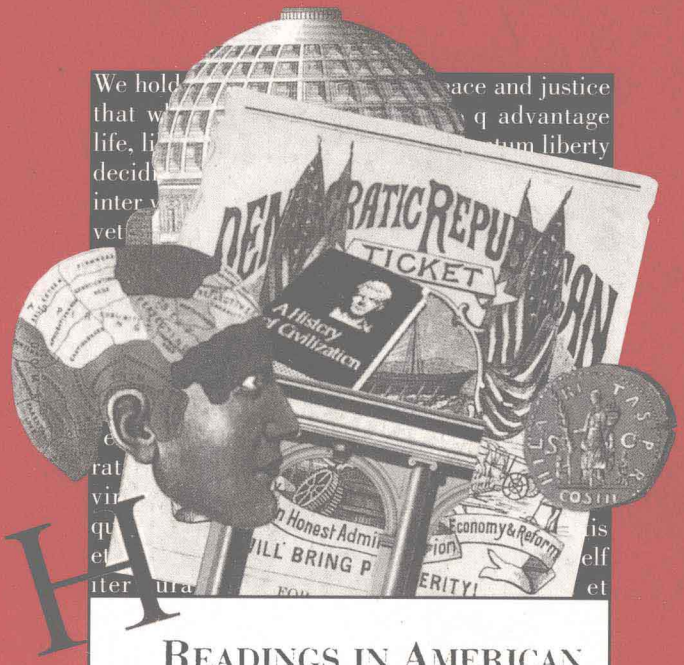

READINGS IN AMERICAN BUSINESS HISTORY

EDITED BY

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CHAPTER 1

WHY BUSINESS HISTORY?

An Interview with Professor Alfred D. Chandler, Jr.

Fredric Smoler

Alfred Chandler, the most famous business historian who has ever lived, was born in 1918 and educated at Phillips Exeter Academy, the University of North Carolina, and Harvard. His career has been spent at the Massachusetts Institute of Technology, Johns Hopkins, and, since 1971, Harvard Business School. Chandler is best known as the author of *Strategy and Structure*, *The Visible Hand*, and, most recently, *Scale and Scope*, published in 1990.

All these books won awards, *The Visible Hand* earning both the Pulitzer and Bancroft prizes, but *Strategy and Structure* won an even higher accolade: it is the one book managers read that instantly evokes the sense of "yes, that is what business is actually like." Thirty years after it was written, it is still the book of business history most widely read by corporate executives; in the words of Thomas K. McCraw, Chandler's colleague at the Harvard Business School, "it explained the sea to the fish who swam within it."

Throughout a long and varied set of research projects Chandler has always investigated, from a wonderful variety of perspectives, the same question: What made American business succeed so triumphantly from the late-nineteenth through the mid-twentieth century? His answer is that the proximate causes—the railroad, the urban market, mass-production technique, electrification, the internal-combustion engine, and intensive R&D—were in fact all directed or intelligently exploited by giant firms that had successfully made the transition from entrepreneurial enterprises to multidivisonal, vertically integrated corporations. In short, the secret of our success lay in the development of modern management.

This meant that since bureaucratic change has had the most profound effect on market performance, the study of the American economy in the period must center on the study of what management actually does and has done. This insight flew in the face of a number of tenets of orthodox neoclassical economics, which tended to ascribe to the providential working of the market things in fact painstakingly achieved by human beings. According to Chandler, corporate structure matters, and corporate strategy matters intensely, because

management's visible hand now does what the invisible hand once did: It allocates resources within a modern industrial economy.

Chandler's first two great books were written in a period of manifest American economic triumph. From the 1970s on the picture has seemed to grow more uncertain. American business began encountering serious challenges from abroad and responded largely with an ill-advised conglomerate strategy. In the eighties the development of a volatile market in corporate control seemed to smash the old rules. In this interview Alfred Chandler looks at the developments of the last thirty years from the perspective of business history and discusses how the study of the past can inform our approach to present necessities.

You teach at our premier business school, where almost none of the training of American M.B.A.s is in business history. Instead it's in neoclassical economic theory, and the business press in this country is also pretty well colonized by economic theory. Would you talk about the uses of business history for American management?

I think it's much more useful than most economics; in fact, some of today's fashions in economics can be rather dangerous. For example, if you think—as from the 1960s on many people have—that a company can be run strictly by the numbers, there's going to be trouble. This idolatry of the numbers can certainly be traced back to the way many managers have been trained, using methods derived from theory and not experience.

Compare what has worked in American business with what hasn't, and you'll see what I mean. The great successes in modern American business—Pierre S. du Pont, for example, or Alfred P. Sloan of General Motors—have been innovators in corporate strategy and structure.

Now the Du Pont corporation did develop what is known as Return on Investment analysis, which is a statistical tool, early in the century. The company used very sophisticated calculations to determine which businesses it should be in and how well it was doing in those it was in. The division managers would come in and talk about performance and the capital budget with the executive committee.

But the point was that the figures were intended to be only the beginning of the conversation. You asked, "Why are you doing this and that, and how come this isn't going up, and why is this going up?" In the last generation of American management that has changed: In too many firms the figures became and remain targets. You're told to come back with this rate of return; if you do, your bonus will go up, and if you don't, it will go down.

The hegemony of theory and numbers has had a lot to do with some of our present difficulties. It leads inevitably to short-term focus, and some historical sense of how corporations have successfully expanded in the era of oligopolistic competition can temper this focus.

But I'm not saying all good business history can actually help a manager do his or her job. Few business historians have done much with the sorts of

problems currently afflicting American management because a lot of the best business history has been a study of entrepreneurship, which is not enormously relevant to the problems facing a mature corporation. From the very good histories—such as Allan Nevins's biographies of Henry Ford and John D. Rockefeller and so on—you can learn a lot. But even Nevins wasn't that involved with what the businessman does.

My interest has been more in how a company runs. Pierre du Pont, for example, was not a great entrepreneur, but he was a very great businessman, superb at putting together in modern form not only Du Pont but subsequently General Motors. You can't beat that in terms of organizational genius. It's a very different talent from Ford's or Carnegie's.

Strategy and Structure *and* The Visible Hand *dealt with very large firms and showed how they often behave in ways economic theory says firms are not supposed to. How were the books received?*

Strategy and Structure didn't make much of an impression on economists, but the businesspeople picked it up; Mitsubishi translated it almost immediately. There was great interest, which astonished me. Economists did notice *The Visible Hand.*

To mainline sociologists and economists, what I've been writing about is a contradiction in terms: growth and transformation carried out by bureaucratic organizations competing oligopolistically. I do think that economics today is moving very much in the right direction; a lot of economists are looking seriously at organization capabilities and at organizational learning. The resistance comes from the traditional quarters: the neoclassical school and the equilibrium theorists.

It sometimes seems to me that, with a few famous exceptions, nobody screws up in your books.

That's because in the industries I've studied, many of the smaller firms tend to lose out absolutely, so nobody accumulates a long record of individual failure. I write about the few that survive, which necessarily means a chronicle of good decisions, and until recently I didn't write about the modern period. That's why managerial performance looks so good in some of my work. Look at the case studies again, and you'll see that a lot of people weren't approaching business problems the way the du Ponts did, and they paid for it. If you watch industries for a while, you see market share and profits change all the time. These changes are as much the result of companies screwing up as of companies doing well.

Now I'm writing about the present. In the sixties firms began to go into industries that they didn't have much competence in or knowledge about. If you were to look at Germany and Japan, you would not find the same pattern; their companies rarely move into unrelated businesses. I'd put some of the blame for

the mistaken American policy on the business schools—an institution, by the way, that neither Germany nor Japan has developed.

Are Japanese managers better trained in technology, science, and engineering than Americans?

No, they're well trained in their own businesses, but they're not well trained across the board; that's one of our great hopes. The extraordinary Japanese achievement lay in taking a feudal society and transforming it in a few years at the end of the nineteenth century. Japanese students were sent to look at what the Americans were doing, decided that it was often on too big a scale, looked at the Germans, pooled their efforts, and all worked together for ten years. Those Japanese managers all started working on the shop floor, where they had to be able to read German or English. Theirs is a very different tradition, and an impressive one. What the Japanese and the Germans didn't have was much training in economics.

How do you account for the fact that the Japanese traditionally directed so much more energy into engineering and development than into research?

In 1900 or 1910 or so, as they moved into full industrialism, they knew they had to grow by exporting local products—tea, silk, copper and so forth—into the international market. Until 1911 they weren't even allowed to have tariffs. Then they imported technologically advanced products and processes from abroad and reverse-engineered them. The resulting transfer of technology put a premium on development as opposed to research. What they knew and most people knew, and we once knew, was that development engineering can be as innovative as research.

That changed over here. After the war the idea of a scientist's going down to work for IBM or Du Pont became considerably less attractive; scientists wanted to run their own shops in pure-research labs, probably in a university. Development became a less interesting and admired career. That was a considerable cultural reversal: Back in the 1920s, the research lab at Du Pont was known as the "purity hall."

Some of the most interesting ideas about restoring American manufacturing competitiveness come from business historians with whom you have serious arguments. I'm thinking of Michael Piore and Charles Sabel, at MIT, who believe that while you remain fixed on the economies of scale and scope that mass production provides, mass production is in many sectors an outmoded strategy. They tout specialized niche production and flexible specialization.

Well, the core of this MIT argument is that big American firms have failed to develop flexible specialization because they were too hierarchical and bureaucratic. Now obviously some did fail, but equally obviously others succeeded. The

secret of flexible specialization is computer-assisted design; computer-assisted manufacturing; computerized, numerically controlled machine-tools; robotics; and other electronic devices that don't come cheap. That is the reason existing big firms have a great advantage, because they have the money to do this. Now if they don't do so, they will lose out to big foreign companies or to large American companies in related industries, not to much smaller firms.

A word about niches. Nearly all major industries—those at the core of modern industrial economies, including motor vehicles, aircraft, computers, electrical equipment, agricultural and construction equipment, office equipment, oil, glass, paper, rubber, steel, aluminum, copper, several foods, chemicals, and pharmaceuticals—have been dominated almost from their start by a small number of large firms. This is true not only in the United States but worldwide. These enterprises at the core of their industries produced relatively standardized products in large quantities for global markets. But no company can meet the demands of specialized and particular markets in any major industry. So profitable niches abound. Moreover, as the core firms grew, they created thousands of opportunities for smaller businesses such as dealers, retailers, suppliers, producers of replacement products, and providers of maintenance and service. Throughout the twentieth century all these core industries have included a multitude of small businesses. This symbiosis between small and large has been an essential ingredient to economic growth and strength throughout the century.

As you see it, the mature marketplace is dominated by surviving first movers, companies whose critical early investments allowed them to accumulate an almost insurmountable advantage against later challengers. If that's true, no small and clever newcomer should be able to break in, but the last thirty years have in fact seen extraordinarily successful foreign challenges to a number of American first movers; automobiles and consumer electronics are the most famous.

And what were the names of those challengers? Let's take consumer electronics: Hitachi and Toshiba, both very big companies going back as far as ours do. The argument that the bureaucratized, multidivisional American firm is too unwieldy to survive competition from new, small, flexible producers is nonsense. When these firms lose market share, it is to foreign bureaucratized, multidivisional firms, usually those that are playing the old game better, not inventing a new one.

Nissan, Toyota, Honda, Mazda, and Mitsubishi are well up on Fortune's lists of the world's one hundred largest companies. All but Honda were in production in the 1920s. Honda, the youngest, was formed in 1946. In Japan the "Big Five" produce roughly 80 percent of their nation's cars and compete oligopolistically as much as do our "Big Three." But now there is a global oligopoly where once there were several national ones.

How did the Japanese automobile industry, which I believe was producing fifty-five hundred cars or so in 1950, manage to compete successfully in the face of the advantages that by your account should have been with the American first movers?

Remember that in the 1930s and 1940s the Japanese equipped a powerful modern army that moved on wheels. In automobile production they took over the techniques of the American first movers, while the Americans made a series of gross errors. Labor was often intransigent—too unwilling to stop almost-automatic increases in wages and benefits—but there were managerial failures as well that can't be shifted onto American labor. Japanese industrial strategy was clever and flexible; it went far beyond the exporting of automobiles.

The strategy went something like this: Until the Japanese had secured a mature and protected domestic market, they wouldn't do anything dramatic in the way of exports. Then they would adopt a state-of-the-art technology and exploit it effectively. Steel is a good example. The Japanese moved into the new Basic Oxygen Furnace, built huge "greenfield" plants larger than any in the United States and with greater scale economies and lower costs, and then moved into the American markets. The large Japanese electrical companies did much the same in consumer electronics and semiconductors.

The Americans didn't respond. They got tied in. Fat and happy in the sixties, they had well-trained financial people running things who preferred to preserve the status quo and not to innovate; it was cheaper and less risky. Also, labor costs were high and the labor unions did not want to give back their earlier gains. This was not universal. In the agricultural and construction machinery industries some firms, such as International Harvester, made mistakes; but management at Deere and Caterpillar did not.

There are also particular twists to the story in automobiles. I'll give you one example: I was working with Alfred Sloan, and he was absolutely livid when he heard that Charlie Wilson, who was president of General Motors in the 1940s and early 1950s, had allowed the dealers to go to Congress and get a ruling that there would be no more exclusive dealerships. That was extremely important; it permitted the Europeans and the Japanese to come in with lower costs and immediately acquire a dealer network in the best, biggest market in the world. But again, this is not a story about a little guy beating a big guy. There's no way a small Japanese automobile company could have done it any more successfully than small American companies such as Kaiser or Tucker could have. This is a story of an advantage accruing to big, not small, flexible firms.

Does your experience of the primacy of first movers discourage you about our chances of getting back into consumer electronics?

Probably, but when you go through the industries where we're doing badly, the list of the usual suspects comes up: consumer electronics, automobiles, semiconductors, and machine tools—impressive, but only a small portion of all U.S. industry. If you restrict the discussion to examples of this kind, the situation may

look hopeless, so it's very important to look at American successes as well. We should consider the chemical and pharmaceutical industries, which are powerful, enormous, and worldwide, and in which the Americans are doing damn well. No Japanese around. We should also look at the computer, aircraft, telecommunications, oil, paper, and food industries, where U.S. companies are world leaders. Go back to where we did well, and I think you can find the reasons why.

Economies of scale and scope really matter. In semiconductors it's what Silicon Valley didn't do. Their entrepreneurial firms rarely invested enough to exploit economies of scale. It's clear that Americans can make semiconductors; IBM does it for itself, and it remains the biggest producer of semiconductors. If you ever had a place where external economies were attainable, it was Silicon Valley, but it did not make the essential investment in D-RAM-memory fabricating plants and lost out to the Japanese companies that did. But thanks to Intel, Texas Instruments, and IBM, the United States is holding its own in microprocessors.

So, in the main, you're hopeful about the future of American competitiveness?

Yes. Right now I'm looking at how a lot of firms are coming back; they're much smaller and much more focused. I have watched Dow and other chemical companies sell off their commodity petrochemicals to oil companies and move into profitable specialty chemicals and biotechnology products. These programs have been carried out as they should have been—worked out carefully, with no fees and no leveraged buyouts with 14 percent interest. In the mechanical industries the restructured firms are beginning to do well with automation and with fewer, better trained, and better placed workers to run the new machines. In the near term, I think there's a good deal of progress being made in smaller, more specialized industries such as machine tools and scientific instruments. That will certainly continue.

And you think that a knowledge of business history can help in this rebuilding?

I do. History tells us that business enterprise in the industries we've been talking about is much more than just spinning off dividends. Until recently most people knew this, but for the last ten years you heard it less and less. Executives now get up there and say, "We have the shareholders first in mind." Fine. But they should also be mindful of workers, customers, and the economy as a whole. This is a cliché, but it is a cliché that needs constantly to be emphasized.

History tells us we used to train our managers more the way the Japanese and Germans do today. When managers started, they started in a plant or sales office. Then they would move up the ladder, managing a variety of activities in different locations before moving into the top executive office.

I believe the greatest danger of the recent American managerial practice is the separation of operating management from top management. And that's

something new. It's not an inheritance from the classical American managerial structures I've described in my work. That separation was not part of Sloan's General Motors; Sloan knew what was going on in the operating divisions. So did the du Ponts. Look at Deere. The company had a traditional American managerial hierarchy, but it made the transformation to the new flexible techniques, while International Harvester and Allis Chalmers broke down. This is what we should study: Why does one leader adapt and not another?

The first page of *Strategy and Structure* tells why I got interested: Given the propensities of administrators to protect the status quo, why do companies change? Indeed, how can they change? And that's the theme of the book: what happens when the market forces change. Business history lets us look at what we did right, and it can help us be right the next time.

Fall 1992

CHAPTER 2

DISCOVERING DEBT

Fredric Smoler

People who didn't like the 1980s have a pat description available: It was an era of looting by parasitic financiers, whose "innovations" all were glorified Ponzi schemes and whose only durable monument will be a mountain of debt, with Washington sharing the odium with Wall Street.

Both government and the financial community are very old villains in Anglo-American political culture and economic folklore, and both have been reviled at frequent intervals as sterile, predatory, and parasitic. Both, their detractors claim, make use of a particularly wicked thing: debt. Debt is essentially a sinful state in the folklore, and the financial instruments that repackage it are at best fool's gold. Oddly enough, this recurring theme is at least as common in periods of economic and political success as in depressions and panics. One vast achievement made possible only by the skillful and inventive use of debt—the British eighteenth-century triumph—offers some intriguing parallels.

While financial innovators are not, in our popular culture or in any other, considered Promethean figures, their achievement decided the titanic struggle that settled the balance of power in Europe for the nineteenth century and shaped the modern world. Financial innovation allowed the British state to prevail against its much larger French opponent, a victory that made possible the eventual hegemony of democratic political culture in Western Europe. The revolutions along the way—capitalist, industrial, and democratic—depended on victories by a small, increasingly liberal parliamentary state against a great absolutist rival. How did this victory come to pass?

Much of the credit belongs to the Royal Navy. The theorist Alfred Thayer Mahan's "far distant, storm-beaten ships, upon which the Grand Army never looked, stood between [the army] and the dominion of the world." But if that is true, who paid for the ships?

They were staggeringly expensive; an eighteenth-century ship of the line could cost twelve times as much as the largest contemporary textile mill and five times as much as the largest ironworks. In 1800 the entire physical plant of a leading industry, the 243 woolen mills of the West Riding, constituted a fixed capital of £402,651, a mere 18 percent of the £2.25 million of fixed capital represented by the fleet. Even fifty years earlier naval personnel afloat easily

outnumbered the population of any British city other than London, and this might have been perhaps a third of the military and naval manpower Britain mobilized at any one moment in the course of an eighteenth-century war. The cost was appalling, and paying for it strained eighteenth-century states to, and in some cases past, the breaking point.

In the late seventeenth and throughout the eighteenth centuries, Great Britain's national income, population, and resource base were much smaller than France's. The disparity was so obvious as to provoke grave doubts about Britain's ability to survive the contest, and the consequences of failure seemed disastrous. In the language of the political science of that age, a French triumph would mean "universal monarchy," the imagined equivalent of a totalitarian victory in our century. Yet Britain won; it was consistently able to mobilize resources the equal of those commanded by France.

The British state did this through the effective use of debt, organizing a brilliantly effective system of long- and short-term borrowing. Britons in and out of government created an internal capital market and an entirely new system of public finance. They devised a whole range of securities and made markets for them, along with new partnership banks and insurance offices. The government was able to borrow vast sums without crowding out private investment and with no serious inflationary effects, and the result was a stunning series of military and naval victories.

War finance was the root of success, and Britain's financial innovations in efficiently exploiting national

wealth are reflected in the comparative costs of borrowing: For most of the eighteenth century the British government borrowed at just over 3 percent while the French crown had to borrow at 6 percent. Over the course of the long duel the French state, crippled by its own rigidities and thus unable to modernize its financial techniques, was compelled to use debt in a vastly more inefficient, dangerous, and destabilizing fashion and was eventually destroyed by the fiscal crisis its methods produced, for the French Revolution resulted directly from the final fiscal crisis of the absolutist state.

The comparison is instructive in a number of ways. Much of the current commentary on our federal deficit seems to assume that there is an upper limit on the debt a state can handle. Regimes obviously differ in their tolerance of debt, though, and despotic regimes may be at a considerable disadvantage. British indebtedness increased fifteenfold between 1690 and 1783; in no year after 1707 were less than 30 percent of state revenues required for debt service, and between 1713 and 1785 the figure exceeded 40 percent more than half the time. For sixteen years the fraction topped 50 percent, and in 1783, at the end of the American Revolution, debt service consumed 66 percent of revenues, a greater burden than the one that toppled the French monarchy. French taxes

were lighter than British ones as well, but the fiscal crisis that paved the way for revolution in France passed Britain by.

What happened? The British solution to the problems of financing a century of war centered on the conversion of short-term to longer-term debt, which was then funded by a predictable stream of public revenues collected by an efficient and honest bureaucracy and relatively fair taxation. The conversion centered on the exchange of the more onerous obligations—particularly annuities—for South Sea Company and government stock. That facilitated the establishment of the Bank of England and the creation of a securities market. The British realized that what mattered was not the nominal capital of the debt, but rather its annual charge to the state. This in turn required a stable and effective parliamentary government and the cooperation of the City of London. These methods were simply impossible in France, for both tax collection and the liability to taxation were grossly politicized, and attempts at reform were repeatedly thwarted by those interests that profited hugely from the status quo and whose wealth allowed them to become more and more deeply entrenched in the French political elite.

The perceived injustice of the French tax system was fatal. In the midst of the conflict, Neckar, a French finance minister, looked across the Channel and wistfully observed that there, at least, "the sheep were willing to be shorn." The normally truculent British were paying taxes more or less agreeably, and their doing so reflected the political legitimacy of their parliamentary government. Reform probably required parliamentarism; Tudor and Stuart absolutist governments had been no more successful than the French monarchy at reforming public finance.

The men who had colonized the French monarchy's fiscal apparatus profited hugely, intermingling with the older aristocratic elites and blocking all efforts at reform. British financial innovation made a new class of men rich, and they seemed discernibly different from traditional British elites. The reaction to these new men is reminiscent of our own cultural response to some of the new forms of wealth the Reagan years produced.

Americans pride themselves on being the people on this earth most hospitable to innovation; our foundation myth centers on a new continent to be settled and a new nation to be founded, both tasks to be accomplished by those willing to hazard everything on political innovation and subsequently to be made rich by relentless economic innovation and technological change. Our hospitality has extended to a fair degree to money itself and those newly possessed of it; *parvenue* and *nouveau riche* are foreign words and phrases, and the pejorative *new money* is another loan from the Old World. Nevertheless, some Americans have mustered a healthy distaste for new fortunes. This distaste can be particularly vivid when financial innovation has been the source of the new wealth.

In a *Wall Street Journal* editorial, Irving Kristol, a passionate supporter of the Reagan political economy, fulminated against

> the spectacular increase in leveraged buyouts of corporations (LBOs), during which some incredible amounts of money were made by incredibly young, freshly minted investment bankers who invested nothing but charged many millions for their wise advice. That investment bankers are "greedy" for profitable business opportunities should astonish no one. That their advice was almost always unwanted and unnecessary will also surprise no one who has ever sat on a corporate board. . . .
>
> Then there was the incredible spectacle of another mob of freshly minted traders in bonds and other (often also freshly minted) financial instruments making millions a year. This scene is . . . , in truth, utterly repellent even for those who favor free-market economies.

The long-standing sense of financial innovation as inauthentic, and of financial activity as at best sterile and more probably parasitic, goes along with a popular sociology of debt: The people who devise and traffic in innovative financial instruments have rarely been entirely recruited from a society's traditional elites. In both late-twentieth-century America and eighteenth-century Britain, men who embodied older forms of wealth were jealous of surrendering any of the political authority and social cachet wealth generally brings in its train. Some of the Wall Street-bashing of our era had its counterpart in the eighteenth-century landed elite's noisy distaste for the "monied men."

British elites were singularly ungrateful to the participants in the capital markets whose astonishing financial achievements laid the groundwork for Britain's brilliant military and political success, publicly doubting their benefactors' economic sense along with their taste and breeding. The new kinds of wealth were pronounced illusory: Jonathan Swift in 1711 decried

> the Style of Men at Ease, who lay the heavy Burthens upon others, which they will not touch with one of their Fingers. I have known some People such ill Computers, as to imagine so many Millions in Stocks and Annuities, are so much Real Wealth in the Nation. . . .

Some analysts read the debt finance that made military success possible as the very thing that would make the kingdom indefensible; in 1737 a pamphleteer fretted that "so long as the Nation labours under so great a load of Debt, it is impossible it should maintain its Honour and Rights, with the same vigour as formerly."

Assertions that debt instruments were only fictitious wealth alternated with anxieties that the wealth they represented was all too real, and the very profitability of the new investments was part of the alarm they aroused. As early as 1691 an anonymous pamphleteer asked, "Who that hath money by him, will have a mind to be concerned with Land, which is liable to so many