

the competitive edge necessary to at last make a move on American markets. But even more important than this was the newly vibrant Japanese industrial power. Japanese firms invested and grew on a scale similar to that undertaken by the American first-movers several decades earlier.

All of this created unprecedented challenges for managers. Competition was fierce; technological change raced ahead such that managers faced many more unknowns and risks than ever before. Management responded in at least six ways which had no historical precedent. Among the most important of these were the buying and selling of whole operating units (otherwise known as divestiture); the buying and selling of whole firms as a distinct business in its own right; the increasingly influential role played by portfolio managers in determining outcomes in capital markets around the world; and the evolution of the so-called market for corporate control, in which poorly-performing managers are disciplined by having their firm taken over by those who promise shareholders (including portfolio managers whose main goal is to maximise the value of their holdings) a better deal. With so many new developments to chronicle, one quakes at the thought of the length of the next volume in this series!

I find it somewhat unusual to conclude that a book is both encyclopaedic and stimulating. For most books, these two adjectives are generally mutually exclusive. This is not an easy book to read from cover to cover in only a few sessions, because of its sheer length and detail. But it is worth the effort. Alternatively, with a maximum investment in time taken to read the essential analytical framework contained in the first two relatively short chapters, the book becomes a browser's delight, something that can be returned to time and time again for the insights it provides into the history and growth of some of the world's leading industrial firms, and into the critical role played by the managerial team in creating long-standing competitive advantages for first-moving firms.

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**Science and Technology in History: An Approach to Industrial Development**  
*by Ian Inkster*

(Macmillan Education, Basingstoke, England, 1991), pp. xvi + 391, \$29.95, ISBN 0-333-42858-7.

Ian Inkster clearly likes a challenge. He sets out to address the changing relationships between science, technology and economic development from the 18th century to the present time. As he says in the Preface, "quite simply, the task of this book is to uncover the dynamics of industrial change" (p.xiv).

In order to deal with such an 'embracing subject', Inkster seeks to do more than simply construct an historically deep picture covering key moments from the history of industrialisation in Europe (e.g., 18th century Britain) to the emergence of the NICs in the 1970s and key elements of Japanese technology policy in the 1980s. He also presents us with a broad geographical canvas which addresses developments in a number of countries across four continents.

The first introductory chapter is largely a review of some of the key concepts and theories related to the role of science and technology in economic development, the importance and determinants of technological diffusion, transfer and adaptation. But it provides, together with the Preface, some clear guides to the concerns of the book and the author's approach. For Inkster, his subject demands that the text straddles social and economic history, cultures and markets, Europe and Asia and information (embodying ideas) and artefacts (including machines). He rejects mathematical models and any 'single causes' approach, asserting that: "a belief in the veracity of historical detail, rooted in time and place, has governed the sometimes eclectic nature of this book" (pp. xv). Thus he indicates his strong preferences for an empirical historiography, and refuses to set out any formal theory at the outset, lest it "pose a threat to the integrity of the data as we know it" (*ibid.*).

In the first chapter, Inkster stresses that a new technology may be both very simple, and organisational or procedural rather than mechanical or chemical. He also underlines the importance of the effective flows of information, the influence of interpersonal and other information networks on technology transfer and diffusion. Here Inkster also reviews the roles of markets, firms, and other institutional and geographical factors in the adoption and diffusion of innovations. The chapter also discusses how the obstacles to technology transfer to less developed economies have changed over time, the problem of underdevelopment and the importance of social and cultural institutions.

The content of the subsequent chapters is broadly organised in chronological order. Ch. 2 presents a succinct overview of the development and diffusion of a scientific culture in much of Europe in the 18th century, its characteristics and the institutions and mechanisms of technology transfer. It also discusses where and why such technologies helped transform industry in some locations and not in others. Chapters 3 and 4 are focused mainly on the processes and institutions involved in the development and transfer of scientific and technological information and skills in Britain and Germany and other industrialising countries in the 19th century. Chapters 5 and 6 address some of the more general issues related to problems of late industrialisation and 'catching up', largely in terms of European and USA experience up to World War I. The next four chapters focus on the cases of Japan, India, China and Australia. Amongst other things these indicate that imperialism and formal colonial relations prohibited appropriate institutional responses in the colonised countries.

The final chapter, entitled "Twentieth-century Aftermaths" is presumably intended to provide some indications of the implications of the mainly historical material examined in the earlier chapters. It addresses the issue of underdevelopment today and the continuing effects in many countries of relationships laid down during the period of high colonialism. Amongst other things, it proposes that a certain degree of economic sovereignty along with technology transfer is required if nations "are to secure the potentials of the international economy". It then goes on to make a rare and somewhat perplexing universal claim that " 'intellectuals' must be satisfied, for they are behind the policies and ideologies of many political movements" because "power is most truly secured or legitimised by argument and by ideas" (pp. 300).

It is difficult to understand how the universal status of this claim links up with the material addressed in the previous chapters. But its technocratic tone in relation to political strategy does serve to highlight one notable neglect amongst

the wide set of factors considered by the author throughout the book. There is relatively little attention paid to the historical role and influence of class forces or other social movements and political conflicts, (other than the military strategies and defensive policies of existing elites). This leads, for example, to a rather one-dimensional account of the effects of imperialism, a rather unsatisfactory (implicit) theory of the state and a relative neglect of studies centred on the labour-process.

For this reviewer, the concluding chapter is the most disappointing and weakest section of the book. This may be not only because Inkster appears less confident in addressing the more recent developments compared to his clear and impressive command of the more historical material. For me, it also reflects his initial exaggeration of the threat posed to the historical 'facts' by an attempt to set out some broad theoretical framework. Unfortunately this leads to some difficulties for the reader in following the precise thread and thrust of his argument in the different sections. At times it leads to the reader being unable to see the wood from the fact-filled and complex set of trees that constitute his (hi)story.

But I do not want to overemphasise these difficulties in the author's performance of his challenging task. He is largely successful in his attempt to present a massive range of historical material dealing with the connections between science, technology and economic development. The book is informed by a broad conception of the character of, and influences on, the processes of generation, diffusion and transfer of technological and other innovations and how these have changed over time. It will prove a useful source of material for undergraduate and postgraduate students.

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**Universities and The Future of America** by *Derek Bok*

(Duke University Press, Durham and London, 1990), pp. vii + 136, \$US14.95, ISBN 0-8223-1036-8.

In 1982, Derek Bok, President of Harvard University, published *Beyond the Ivory Tower*, sub-titled "Social responsibilities of the modern university". In this book he examined the ethical and social issues facing universities of the day and suggested approaches that would allow the institution both to serve society and to continue its primary mission of teaching and research. In a contemporary review of the book, the Washington Post Book World commented that Derek Bok had presented an extremely well written, thoughtful and cogent analysis of some of the most complex and emotional issues before higher education.

*Universities and the Future of America* published eight years later is based on the Terry Sanford Distinguished Lectures delivered by President Bok at Duke University in 1988. This volume continues his theme stressing the social and ethical responsibilities of universities in society.

Bok notes that America's system of higher education is widely perceived as unusually successful. He points out that American scientists, most of them professors in major universities, have won a majority of Nobel Prizes awarded