such as in Latin America, Africa and Asia. This point was clearly brought out in a number of bibliometric analyses presented at the recent (August 1991) International Conference on Informetrics by delegates from the Netherlands, Israel, Latin America, Africa and India.

The overall conclusion about Australia's position in science and innovation is a bit like the 'curate's egg', good in parts. Clear indication is given for improvements in many areas, particularly in manufacturing and production, in the export area, through adoption of new management techniques, such as JIT and TQC, and advanced manufacturing technologies. The current government inquiry into Best Practice and its House of Representatives Long Term Strategies Committee are indicators that Australia has recognised that it is slipping behind other advanced nations in many areas.

Australian Science and Innovation Impact Brief lives up to its name. It is brief. The text, tables and figures are condensations of complex information gathered into seemingly easy bites. But for many readers, this will be unsatisfactory. They will want the fuller background information to flesh out the picture sketched. This information is carried in the 1987 report mentioned earlier, and in other DITAC reports and background papers. Another useful document in this context is the 1989 ASTEC report to the Prime Minister, titled *Profile of Australian Science,*[2] which details the state of Australian science, and the part science and technological innovation can play in sustained economic growth.

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America's Struggle for Leadership in Technology *by Jean-Claude Derian* (MIT Press, Cambridge, Mass., 1990), pp. xi + 336, $29.95, ISBN 0-262-04102-2.

This book deals with issues pertaining to America's development in information technology in general and its competitive strengths and weaknesses in this field. The book opens with an overview of the US space program and how President Kennedy committed the nation to put a man on the moon. Nixon was not as supportive of the work of the National Space and Aeronautical Agency (NASA) but the development and successful deployment of the Challenger vindicated the costs of the program. President Reagan's initiative of Star Wars brought the Defence Department into the technology race and restored confidence in America's achievements.

The second chapter deals with the significance of venture capital and its role in the development of new industries. Having covered the entrepreneurship in Silicon Valley in the previous chapter, the author focuses attention on two

industries; namely, microprocessors and microcomputers. The invention of Ted Hoff led to a succession of innovations in microprocessors. US companies held the lead in microprocessors from 1960 to 1980 when Japanese competition became more acute. The author builds a concise and widely applicable model from the above examples to cover a large number of high technology industries.

The work succinctly highlights the patronage of the Pentagon in the successful growth of the electronics, space and telecommunications industries through a series of contracts. Increases in federal spending on R&D in these industries, along with equipment purchases bolstered their growth immeasurably. While it is true that often contracts were locked in on a cost plus basis the author concedes that defence-sponsored research produced some of the most advanced and viable technologies.

Derian then goes on to examine the difference between the two cultures underlying market-oriented development of high tech products versus the sheltered sector of defence electronics. In the telecommunications industry he deals exhaustively with the growth of Bell Labs and their dual operations both in the public and private sectors. In the same connection, the author compares the prowess of AT&T with that of IBM. The important difference is that IBM's innovation was market-driven while that of AT&T was technology-driven. The territories of the two cultures, i.e., the sheltered culture and the market culture are carefully developed for various industries including pharmaceuticals.

Analysing technology and politics in Chapter Five, Derian covers all bases, including the budgetary process, pork-barrel politics, federal versus local power, and concerns for national security becoming involved in technological development. He believes that the sheltered culture and the exposed culture each felt the shock of the failure of the Challenger mishap in 1986 differently but both suffered from the mirage of technology.

When American industry faced the challenge from Japan with a deteriorating balance of payments, the author evaluates at length the penetration of Japanese companies in the market for electronics and computers and the semiconductor industries. Government intervention is critically examined in light of the rapidly expanding share of Japan in American markets.

What are the questions then for the information society? The main postulate of this section is that society is now experiencing a new wave of information technology. The microcomputer and integrated circuit technology have spawned a multitude of new applications which correspond to specific needs impacting on the services sector, e.g., airlines, insurance companies, banking, to mention but a few. The White Collar Revolution and the expansion of the service economy are attributed to the advent of the Information Society.

According to the analysis in this book, the mirage of technology and the mirage of the information society have led to the vulnerability of the American economy and the stock market crash of 1987 brought a return to reality.

The same model of the dual cultures of sheltered and exposed production is applied to Japan and to Europe. The role of the Japanese Ministry of International Trade and Industry (MITI) is examined in dealing with the sheltered sectors in Japan. The electronics industry in Europe has grown out of a combination of the exposed and sheltered cultures. An in-depth look at France's sheltered industries leads to a trend for greater co-operation between European countries for the success of technology programs. The Ariane project and the Airbus are given as examples.

The biography of Seymour Cray serves as the introduction to an analysis of the supercomputer market and its transformation under the impact of Japanese

competition. This is followed by a closer look at the deregulation of AT&T and its subsequent attempts to enter the computer market. The benefits enjoyed by the consumers in consequence of deregulation were also extended to trucking and railroads.

As a consequence of integrated technology it became possible for American companies to bring back production to the domestic sector and made IBM and General Motors better equipped to compete with Japan. The author describes the organisation of Sematech as an attempt to halt the Japanese invasion of American markets. He then extols the virtues of human investment and the evolution of new management initiatives. In exploring technologies for the future Derian believes that HDTV will be a development that will need to grow within a combination of sheltered and market cultures.

On the whole the work examines a wide variety of high technology industries on the basis of a model of dual cultures and analyses the impact of the model on America's competitive advantage. European and Japanese industries have been given a fair treatment in the work and the challenges facing these countries in the future are carefully explained. The book is very readable and written in a lucid style. The political insights in the book are useful for understanding the growth of various technologies. Statistics are presented to prove some points made, without making the book too technical for the lay reader. It is a very useful work for those seeking answers to the where, why and how of technological development in America.

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Computing Studies for Australian Schools *by Ron Day and Robert Goodwin* (Addison-Wesley, Sydney, 1990), pp. xii + 304, ISBN 0-201-19571-2.

This book is one of many texts written for computer studies courses in schools. How does it rate compared to the others, and have the authors been successful in what they were trying to achieve? On the back cover the book is described in the following way:

> *Computing Studies* for Australian Schools provides secondary and tertiary students with a highly readable and thorough introduction to the world of information technology. An Australian perspective is used throughout to heighten student's awareness of the subject and help them relate it to their own experiences.

The book is designed to be an introductory textbook on the basic computer concepts and common applications of computing, and so it assumes that the students reading it have no previous knowledge of the subject matter. Because of this it presents the work to be covered in a readable and easily understood manner. The use of metaphors to illustrate the concepts that are being presented gives the students a clear and easy understanding of the material being covered. The language that the book uses is at a level that students in the target age range would not find difficult.

One interesting feature of the book is two glossaries of terms. A full glossary is presented in its usual position at the end of the book. This is over six pages in length and so covers most terms that the students are likely to need to know.