familiar chronological periodization of space affairs to tell his story. Through Chapters and the subsequent extension and elaboration of the range of design services and customer expectation which to some extent counteract the raw efficiency gains. Such findings contrast with the interpretation of the more aggregated studies underpinning the discussion of Chapter 2. However, Landauer concludes with a statement that human mental capacity reflects not simply the capability of the individual, but also the wealth of stored human knowledge, and the power of shared mental tools. In ending with this statement he calls to mind the emerging body of work utilising a Vygotskian frame of reference[9] and provides a necessary connection from this wider context to the technical core of information systems.

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The Politics of Space: A History of US-Soviet/Russian Competition

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This book is hailed as the first post-Cold War political history of US–Soviet/Russian space relations. As such it offers a post mortem on the rise and fall (and rise again) of 'the intersections of the world's two biggest space programs' (p. 2). Though it works with new historical evidence that has only become available since the disintegration of the USSR, *The Politics of Space* really only contributes to the refining of established themes in the history of space and astronautics rather than presenting enormously original historical thoughts. This is not a shortcoming of the book, however, as it maintains a good standard of argument throughout most of the pages of its eight main chapters.

Moving from chapter to chapter the reader finds that Von Bencke chooses the familiar chronological periodization of space affairs to tell his story. Through chapters 1 to 3 he describes how US space development in the 1950s was part of Eisenhower's 'new look' national security policy which had the dual purpose of countering Soviet military threats and reducing the vast amount of money spent within the federal military budget. The way to do this, according to the Eisenhower policy advisers, was through concentrating on high technology instead of the formation and growth of immense armies. The atomic bomb, radar development and advanced technological espionage were all a part of this military/budgetary strategy, and so were rockets. Kruschev had similar ideas. He wished to develop a closer parity between Soviet and American Military might while decreasing the overall cost of Soviet military expenditure. Kruschev, too, says Von Bencke, saw rocketry, or ballistic missile technology, as an avenue to effect both these aims. Having established their respective rocketry programmes it was Kruschev who was able to cement a civil use for the rockets before Eisenhower by allowing valuable Soviet military time and resources to be spent on developing the Sputnik satellite programme. While Eisenhower was not convinced of any military or political necessity to speed forth a satellite launching programme, Kruschev was. The public maelstrom within the USA following Sputnik 1's launch seemed to prove Kruschev right on this account and he milked Sputnik, and the following Soviet astronautical successes, for all the political honour and ideological advantage that he could. None of this is new to space historians but Von Bencke does develop the story in sufficient depth to add strength to the position that the early space programme was intimately linked to the development of ballistic missile technology and the desire for the two fledgling space nations to be seen as technologically advanced.

While all this competition was going on there was also another battle going on in the field of international public relations. Both the USA and the USSR not only wanted to develop the biggest and best intercontinental ballistic missiles (ICBMs) and be seen as the technologically superior space power, they also wanted to be seen by the international community as morally superior in the field of international cooperation. Both Kruschev and Eisenhower (and Kennedy following him) sought to represent their nations as the ones most willing to promote space for the benefit of all mankind. This is the context that led to the development of policies of (superficial) cooperation exhibited by both the US and Soviet Union during the first years of the space age. Agreements were reached pertaining to the sharing of general scientific knowledge, the nonappropriation of planets, and the drawing up of a variety of projects to cooperate in specific space endeavors (most of which were never undertaken).

The author does not always make it clear to whom Kruschev, Eisenhower and Kennedy wanted to promote themselves as humanitarian space explorers: to their respective political allies and foes, to the general public of their respective nations, to the UN assembly or to the general public of the whole world? However, he at least gets the point across that a humanitarian image of some sort or another played a part in international space relations of the 1950s and 1960s and, as we learn later, right up to the present.

Chapter 4 details the rise and fall of the Apollo–Soyuz Test Project (ASTP), a project aimed at docking US and Soviet spacecraft in orbit. It is in this chapter that Von Bencke most successfully argues that space cooperation is dependent upon wider political relations. With the coming of detente an agreement was signed between Nixon and Premier Kosygin to implement the ASTP which was at that time a completely unparalleled project of space cooperation between the two nations. Without this wider warming in political relations between the USA and the USSR it is unlikely that ASTP would have taken place. According to Von Bencke one of the reasons the USSR so

willingly signed up to ASTP was because they still nursed wounded pride from being beaten to the moon and the ASTP project enabled them to convey the message to the world that the Soviets were equal space powers.

Also in Chapter 4 Von Bencke briefly examines the souring of good international relations between the USA and the Soviet Union, the return to Cold War rhetoric and practice and the associated return to an era with little or no cooperation in space. Beginning with Carter's resolutions over Soviet–Afghanistan events and continuing with Reagan's crusade against the Evil Empire, the political context of the dying years of the 1970s and most of the 1980s made it so that little positive interaction between the American and Soviet space programmes occurred.

The Politics of Space is a book written by someone currently employed by an aerospace company to facilitate cooperative ventures with foreign entities. This would go far in explaining the author's obviously strong interest in contemporary problems and issues in the field of space cooperation. Of the eight chapters of the book, four are dedicated to post-Cold War activities. While there is a disproportional amount of space devoted to recent history given the stated encyclopaedic aims of the book, this emphasis is nonetheless one of the strong points of the book. Rather than spending an inordinate amount of time and space appraising the already well-worked-over history of 1950s and 1960s space affairs it is somewhat refreshing to see a book on space history review the important developments so far of the 1990s.

By the time the reader arrives at Chapter 5 she or he would have passed through the first quarter of a century of space activities. Most of the rest of the book is devoted to examining the military, commercial and civil interactions between the United States' and Russian space programmes in the contemporary world. The accent of scholarship here changes and instead of developing broad historical theses Von Bencke now points out the nuanced micropolitical framework of current international space problems. As well as investigating the demise of the USSR and its implications for international space programmes Von Bencke takes the reader through a geographical (rather than a historical) journey through the respective space programmes of the former Soviet states. The burgeoning public and private space enterprises of Russia, Ukraine and Kazakhstan are explored in some depth but mostly only with respect to their interactions with other states and private aerospace companies from the USA.

In a lot of recent histories of international relations the author ends his or her work by examining the supposed victory of the free market on the world scene and the implications of this for their own particular field. Von Bencke does this for space relations. Though any one reader might be tired of seeing glib remarks about the overwhelming lack of financial infrastructure in post-Communist Russia and the supposed wretched business acumen of former Soviet nationals, Von Bencke at least explains the details of current US–Russian space endeavours in a clear and comprehensive manner. However, dealing with the micropolitics and microcultural economics that they are, the latter chapters of von Bencke's book are sure to be out of date before too long.

As a book on international relations it makes the altogether familiar point that international cooperation between nations is based upon self-interest rather than higher ideals. In space, as is common in other fields, international cooperation tends to take place only when national goals are being served. Von Bencke's other major historical theses are also sound enough, for instance that international politics in general must be studied when looking at international space policies in particular and the link between space endeavors, missile technology and what he calls 'space one-upmanship'. Most of Von Bencke's arguments convince the reader (at least this one) that these historical views are accurate. However, a few of the arguments that supposedly lead to these views are

not so impressive. For instance, throughout Chapters 1 to 4 (and to a lesser extent in the later chapters) Von Bencke continually appeals to the differential degree of openness of Russian and American societies when offering explanations of various international space policies. But it is not clear what is meant by this. Rather than elucidating any scholarly account of what an open society versus a closed society actually is, he seems to rely merely on the cultural bias of his readers to interpret the term.

The Politics of Space is rather bland in style (not withstanding the point that it does not aim to be a popular book on space history—of which there are many hundreds) but its blandness is only of a minor degree compared to some of the morbidly dry scholastic exhumations that commonly drift out of the NASA history offices and some university history departments. Though not invigorating the writing is readable enough to make the book of interest to anyone with a general interest in technology and/or international politics. As an added bonus there is a chonology of space events attached as an appendix in case you get lost with regards to where you are in the timetable of space events.

Though the audience is ill-defined (apart from the lack of its pretensions towards being a popular book) *The Politics of Space* would be a marvellous introduction to space politics for those involved in the field of international politics or those working in high technology. Beyond that, students of the social aspects of high technology (and space historians in particular) would also be edified by reading it, though not immensely.

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Economics and Biology

Geoffrey M. Hodgson (Ed.)

Aldershot, Edward Elgar, 1995, xxv + 598 pp., AU$233.75, ISBN 1 8589 8050 X

This handsomely presented book is Volume 50 in Edward Elgar's International Library of Critical Writings in Economics which, readers will know, are collections of previously published journal articles and book chapters in facsimile, with a new set of overall page numbers superimposed on the original numbers (which are retained). While this format makes for extremely useful resource material, it carries with it certain shortcomings, the most immediately noticeable being much repetition—both of previous authors' arguments and of bibliographic details. Another example of the kinds of difficulties that can arise in a book of this type occurs on page 35, where there is a footnote in square brackets which reads 'For an extended discussion of this question, see Article 13 below by Philip Morrison—Editor'. This was to help readers of the article as it *originally* appeared—as a chapter in a book published in 1958 commemorating the work of Thorstein Veblen, and is only confusing to readers of this new collection. Perhaps the new editor, Geoffrey Hodgson, could have drawn attention to the inevitability of such occurrences, and pointed out in his Introduction that the reader should ignore them.

However, this is a minor matter. One very obvious *positive* feature of volumes like this one is the range of views that can be accessed by the reader, the facsimile format preventing editorial touches aimed at bringing them into line. Of course, editors can impose *some* control in terms of which papers are chosen for inclusion, but this still has its limitations. Especially is the latter so with the subject matter of this book, biology not being within the normal purview (or training) of economists. Presumably it is for this reason that a number of the papers chosen by Hodgson (Lecturer in Economics at the