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

Judge Institute of Management, University of Cambridge) are not by economists but by biologists, mathematicians, philosophers of science and others. This is not a criticism, however. As I have stated on previous occasions,[1] economics being about human behaviour, it is remarkable how economists, usually with little or no training in even sociology or psychology, let alone biology, can pronounce so confidently on 'human nature', the most common version being *Homo economicus*—the totally self-interested 'rational' consumer. While Hodgson, as I understand it, does not have formal training in biology either, he appears to have read just about everything on *evolutionary* theory. His earlier book, *Economics and Evolution*[2] has a 95-page bibliography containing some 1500 entries, and he is certainly well enough qualified to make the selection that he has here.

The selection is, generally speaking, a judicious one, demonstrating an even-handedness rare in such an ideologically charged field of enquiry. It is a commonplace, now, since the ground-breaking work of Thomas Kuhn and others, that 'value free' science is probably an illusion, and nowhere is this more obvious than in the so-called social sciences. Late 19th and early 20th-century Social Darwinism, which justified minimalist welfare policies at home and imperialist and colonial policies abroad, is just one of the more glaring examples of the use of 'science' for ideological purposes, as Hodgson notes in his Introduction to this volume: 'biology has been grossly abused by social scientists in the past ... there has been the episode of "Social Darwinism" and lamentable associations of biological thought with pro-aristocratic, racist, or sexist ideologies and political movements.' Even today, as Hodgson goes on to point out, it is still assumed by many people that biological and evolutionary thinking 'involves the rejection of any kind of state subsidy or intervention on the basis of the ... idea of the "survival of the fittest" ' (p. xvii). Nevertheless, three of the papers chosen by Hodgson—Gary Becker's 'Altruism, Egoism and Genetic Fitness' (1976), Jack Hirshleifer's 'Economics from a Biological Viewpoint' (1977) and Gordon Tullock's 'Sociobiology and Economics' (1979), which appeared shortly after the publication of E.O. Wilson's *Sociobiology* (1975) which the authors saw as validating their strongly individualistic assumptions—would be regarded by many as perpetuating these same Social Darwinist myths.

As far as Hodgson's own preferences go, these are probably suggested in the last quote: they are fairly clearly towards a collectivist rather than an individualist understanding of economics. Hodgson is no 'vulgar Marxist' however, and in fact in his Introduction he illustrates what he considers to be the *mistaken* view that biology has only limited relevance for economics (since humans, unlike other species, are uniquely intentional and purposeful in their behaviour—an argument eloquently put in one of the papers in this volume, Edith Penrose's 'Biological Analogies in the Theory of the Firm') with the fairly well-known quote from Marx about the difference between architects and bees.[3] Hodgson's main interest, though, is not so much in the similarities or differences between humans and other species, as in what he calls 'organicist' versus 'atomistic' views of economics. And it is here that I have some problems with what Hodgson has to say, both in his Introduction and his other contribution to the book, which is a paper originally published in *World Futures* and entitled 'Why the Problem of Reductionism in Biology has Implications for Economics'.

In his Introduction, Hodgson uses the words 'metaphor' and 'analogy' a great deal. In fact, six of the seven subheadings read: 'Mechanical Analogies in Economics', 'Limitations of the Mechanistic Metaphor', 'The Post-war Re-emergence of Biological Analogies in Economics', 'Biology as an Alternative Metaphor in Economics: Some Problems', 'The Exchange of Metaphor between Biology and Economics' and 'The Value of the Biological Metaphor in Economics'. What Hodgson basically argues is that economics, at least from the time of Adam Smith, began with an 'overly mechanistic'

character (he notes Smith's appeal to Newtonian mechanics, and quotes the 19th-century economist Leon Walras as writing: 'the pure theory of economics is a science which resembles the physico-mathematical sciences in every respect'), and while this approach was questioned by a small number of economists in the late 19th century, notably Alfred Marshall and Thorstein Veblen, who had been influenced by Darwin's theories, it (the mechanical view) had been taken up again following World War II (after a reaction against biological theories of human nature with the revelation of the Nazi atrocities) eventually to be challenged again by biological analogies, especially by the Chicago School from around the time of publication of Wilson's *Sociobiology*. But the latter school's version of biological analogy, according to Hodgson, with its atomistic, individualist 'selfish gene' approach, really has more in common with earlier mechanistic views than with Darwinian biology. Hodgson concludes his Introduction with an appeal for an 'alternative metaphor' from biology, with less emphasis on 'methodical individualism and reductionism' (p. xxii); and in 'Atomism and Reductionism in Science and Economics' he returns to this need for an 'alternative approach', based on a study of the 'organizing principles of complex, hierarchical, open systems' which characterize both economics and biology (p. 535).

Hodgson's argument is well taken so far as it goes, but it is disappointing that nowhere does he quote *Darwin*—to whose influence, Hodgson says, economics owes its biological turn. Not only this, but in one of his two mentions of Darwin's name Hodgson states: '[E]ver since Darwin published his *Origin of Species* biologists have been faced with the claim that biological phenomena could be reduced to and explained in terms of classical physics and chemistry' (p. 534). It is some years since I read all of the *Origin of Species*, I admit, but I certainly do not remember anything about physics and chemistry in it; so I do not know why Hodgson says this. Hodgson knows his Darwin—that is evident from his earlier *Economics and Evolution*, but I wish he had actually cited him in this present volume. That way Hodgson could have more effectively answered some of the arguments of Becker, Hirshleifer *et. al.*—as he appears to have wanted to do—since few of the other contributors he has chosen have helped him very much here. The Marxist Robert Young, for instance, whose 'Malthus and the Evolutionists: The Common Context of Biological and Social Theory' (pp. 179–211) attempts to discredit hard-line *laissez-faire* economic interpretations of Darwin by showing that the latter's ideas were derived from economics in the first place, fails to convince, especially since another Marxist, Stephen Jay Gould, has pointed out that while Darwin *did* borrow from Malthus and others, this does not necessarily make him wrong: as Gould put it, 'the source of an idea is one thing; its truth or fruitfulness is another'.[4]

Similarly, another of Hodgson's contributors, John M. Gowdy, who, in 'Bio-Economics: Social Economy Versus the Chicago School' (pp. 149–159) argues that 'in the 1970s Becker and Hirshleifer suddenly "discovered" that one of the dominant paradigms in ecology [reductionism] had much in common with economic theory' and that '[w]hat they failed to see was that this commonality was the result of a common ideological milieu' (p. 150) can be answered in the same way.

But of course there is much more to Darwin than cut-throat, *laissez-faire* competition, as Hodgson knows. In the *Origin of Species* Darwin prefaces his discussion of the 'struggle for existence' (Malthus phrase) with the caution that he uses the phrase in a large and metaphorical sense, including dependence of one being on another,[5] and in *Economics and Evolution* Hodgson draws attention to the place of *cooperation* in Darwin's writing, and its role in natural selection at the *group* level (and thus of the individuals comprising the group). And Hodgson notes the 'many subsequent studies', beginning with Kropotkin's famous *Mutual Aid* (1902), which have tended to corroborate Darwin's argument.[6] Even

computer simulations of evolution (to which, though, I confess to giving only limited credence) are said to lead to a system 'which is more cooperative than competitive,'.[7] In this present volume, too, even Hirshleifer, one of the Chicago School economists who was quick to seize upon E.O. Wilson's arguments, is willing to acknowledge the reality of Darwin's postulated (in *Descent of Man*) 'sentiments', or social feelings, as forming the basis of altruistic behaviour (pp. 104–105). Another of Hodgson's contributors, Elliot Sober, in a paper on 'Holism, Individualism and the Units of Selection', notes on this subject of group selection: 'If some groups have properties which attract predators [for example] while others have properties which repel them, a group selection process may ensure ... Though fitness values within the group may differ, each individual encounters a predator to the degree that it does because of the property of the group it is in' (p. 417). Given all this, it is strange that Hodgson does not discuss this aspect of Darwin's writing at all in the context of 'organicist' versus 'atomist' (or individualist) versions of economics. Economics, whatever else it may be, is surely about the *group* behaviour of human beings, whom just about every important thinker since Aristotle (including Darwin[8]) has regarded as preeminently *social* animals. Moreover, a focus on this dimension of the question of 'human nature' allows a move beyond the level of mere abstraction and reliance upon metaphor which terms like 'organicism' and 'atomism' encourage.

Notes and References

1. J. Laurent, 'Evolution and organic analogy' in R.F. Irvine's 'Economics', *History of Economics Review*, 16, Summer, 1991, pp. 1–9; J. Laurent, 'Keynes and Darwin', *History of Economics Review, in press.*
2. G. Hodgson, *Economics and Evolution: Bringing Life Back into Economics*, (Polity Press, Cambridge, 1993).
3. 'What distinguishes the worst architect from the best of bees is that the architect builds the cell in his mind before he constructs it in wax' (quoted p. xvii).
4. S.J. Gould, 'Darwin's middle road,', in *The Panda's Thumb: More Reflections in Natural History*, W.W. Norton, New York, 1980, pp. 59–68, quote on p. 68.
5. C. Darwin, *On the Origin of Species*, Ward Lock, London, 1911, p. 58 ,[reprint of 1st edn.]
6. Hodgson, *op. cit.*, Ref. 2, p. 30.
7. P.M. Allen, 'Modelling the coevolution of communications and socioeconomic structure', prepared for STEP Conference, University of Queensland, (30 November–6 December 1996), p. 17.
8. C. Darwin, *The Descent of Man and Selection in Relation to Sex*, MacMillan, London, 1875, Ch. 4.

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