

the UK in engaging in hostilities at such a long range. There are also important accounts, with a wealth of previously inaccessible detail, concerning the progress of diplomatic relations with the United States and European nations. These were frequently tense. But throughout the whole crisis there was support from the Americans: 'truly marvellous' was how it was described by the British defence staff in Washington. However, this reviewer was surprised to be informed of the important, almost vital, support provided by the French to the British efforts. This included informing them of details of French arms supplied to Argentina, including the precise specifications of those arms. They even went so far as to send some French aircraft 'to conduct mock dogfights with British pilots.' It was observed by the then British Defence Secretary that: 'In so many ways Mitterand [the President of France] and the French were our greatest allies.'

The account dwells on the command structure adopted for the operation and especially on whether it was ideally suited for the purpose, and devotes considerable space to the acute problems of dealing with the media. The descriptions of the actual hostilities are fully detailed, and of great interest are the accounts of the sinking of *Belgrano*, the landings at San Carlos, the battle for Goose Green, and the battles in the hills surrounding Stanley.

One aspect of the land and sea actions that was of particular interest to this reviewer, who, in a previous existence, was an air defence gunner, was the poor state of the British air defence artillery. The campaign was fought at a time when missiles, fired by ships, were reasonably efficient weapons but at which those fired from land were not nearly so effective. The author comments in detail on the Rapier system, noting that some launchers had suffered damage on the voyage and required a good deal of time to get into action, that at San Carlos the launchers do not seem to have been effectively deployed, and, in particular, on the extent to which its 'kill' ratio seems to have been inflated in official reports with the implication that nothing should be done to minimise possible sales to countries that might be interested in purchasing it. An additional point is the frequency with which the British had very short notice of the arrival of attacking Argentine aircraft. One wonders how many observation posts had been deployed. Nothing is written in this volume to dispel the profound impression this reviewer had at the time that the situation would have been much better for the British at San Carlos if they had had a couple of batteries of Bofors 40mm guns, simple and robust weapons that had then been effective for almost 50 years, and still are, rather than the relatively ineffective Rapier. The ships of the fleet seem also to have been naked in the face of Argentine air and missile attack, and indeed the inability of the Royal Navy to deal with the exocet missile has led to a widespread reappraisal of the rapid firing gun as a means of defence against it. Certainly if the Royal Navy vessels, and associated vessels like *Atlantic Conveyor*, which had no defences at all, had been equipped with more Bofors, more of them might have stayed afloat.

The author is absolutely candid concerning a criticism of the first edition that 'more time (was) spent on the diplomacy, covered in minute detail, than on the various military engagements, covered with irritating brevity.' He freely admits that he had a personal preference in this, being more 'at home' discussing such matters, and indicates that many accounts of the actual fighting exist. Here is an indication of the distance that the *genre* of the official history has travelled since, for example, the First World War, in the accounts of which the balance is the exact opposite, enormous amounts of space being devoted to combat and relatively little to diplomacy. This was partially a consequence of the different authors, the accounts of 1914–1918 being written by bemedalled veterans of the fighting rather than, as at present, by an academic, who admits that he has 'no experience' of it. The author also points out with justification that the actual land battles took up little time in comparison to the often drawn out diplomatic exchanges. In these circumstances the author is to be congratulated, not for the precision and objectivity of his accounts of the diplomatic activity associated with the crisis, which, bearing in mind his background and experience, may be taken for granted, but from the way he has succeeded in making sense of battle. Eschewing any attempt to tell the story at the level of the individual, the author does manage to introduce a 'whiff of cordite' into his accounts of, for example, Goose Green, that enhances his overall straightforward and somewhat dry approach.

To sum up: this is an example of official history at its best. It is comprehensive, compelling, and convincing and will remain the standard work on the topic for the foreseeable future. The book is well presented and the maps are excellent. There are no photographs save for that on the cover. This is one of the iconic scenes of the Falklands conflict, a group of heavily laden marines 'yomping' along a remote track. All those with interests in the Falklands should read it. (Ian R. Stone, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

ARCTIC ALPINE ECOSYSTEMS AND PEOPLE IN A CHANGING ENVIRONMENT. Jon Børre Ørbæk, Roland Kallenborn, Ingunn Tømbre, Else Nøst Hegseth, Stig Falk-Petersen, and Alf Håkon Hoel (Editors). 2007. Berlin and Heidelberg: Springer Verlag. xxviii + 433 p, illustrated, hard cover. ISBN 978-3-540-48512-4. £115.50; \$US199.00; €149.95. doi:10.1017/S0032247408007547

This 21-chapter edited volume is a synthesis of papers presented at an international conference on 'Arctic Alpine Ecosystems and People in a Changing Environment,' held in Norway in early 2003. The conference, held with the support of the European Commission as a EURO-CONFERENCE, was further comprised of, in most cases concluding, meetings of several other international bodies, programmes, or collaborating

groups — ENVINET (the European Network for Arctic-Alpine Multidisciplinary Environmental Research), NARP (the Nordic Arctic Research Programme), the Ny-Ålesund Large Scale Facility, the Arctic Seas Consortium, and the EU project UVAC (the influence of UV-radiation and climate conditions on fish stocks). Having such a complex genesis is both a strength and a weakness for the volume. The material covered is strongly multidisciplinary in nature, while some of the individual chapters provide authoritative and accessible reviews or treatments of their subject matter, making the volume a valuable literature resource.

The individual chapters are grouped into four major sections. The first of these provides general introductory background and includes two chapters, the first giving an overview of the major aspects of environmental change and pollutant transport, and the second placing change in the context of Arctic indigenous peoples. Both provide useful and necessary background information, while also implicitly bringing to the reader's attention a challenge that is often shelved in the scientific community — that of integrating what might be seen as the remote and objective treatment of purely scientific questions with the more sociobiological approach to the actual or potential societal impacts of the problems addressed. To this reviewer — admittedly a member of the former community — while the challenge is there, this volume largely fails to bring the two communities closer together, as their approaches remain very different and their conclusions appear to be based on very different evidential foundations.

The second section comprises eight chapters grouped under the heading 'Climate change and ecosystem response.' The individual chapter subjects range from climate description, through impacts on lake ecosystems, growing seasons, plant distributions and responses to local scale variability, to marine oceanic currents and food web impacts and, finally, social responses. Chapter 3 opens the section with a clear general overview of observed and model predictions of climate variation in the European Arctic. However, it ducks acknowledging a general weakness of the current generation of models in that they fail to recreate the 'known' climate record without the use of forcing, and includes an example (Fig. 3.5) of what would seem a logically somewhat dubious approach of averaging different model outputs — the picture produced can be attractive in terms of confirming expectation, but the justification of treating the different model outputs as completely independent data points is far from clear. The section contains some weaker chapters. For instance, Chapter 5 does not seem to be well balanced with many of the other volume chapters, essentially being a short data analysis paper based on only a maximum 17-year time series (in some cases much less) — a real constraint faced by many climate-change researchers, but that must weaken both any evidence found and the conclusions drawn. Chapter 10, looking at the societal responses to climate change in Greenland, lacks depth and draws conclusions on the causes of historical biological

trends in certain target-species numbers that appear to fail to be based on full objective consideration, largely ignoring the impacts of humans themselves on these species. Overall, however, the chapters within this section do provide much useful overview information.

The third section of six chapters covers 'UV radiation and biological effects.' The section opens with a somewhat disappointing treatment of physical factors underlying the transmission of UV radiation through the atmosphere. In particular, this chapter has insufficient linkage to the much larger body of literature existing on this subject, while also missing the opportunity to at least introduce the extensive and sometimes controversial subject of biological weighting functions. Although mentioning 'scenarios' in its title, this subject (probably the most pertinent for the general reader) is given only four short and superficial sentences in the chapter's conclusions. This section, and chapters 12–15 in particular, most clearly illustrate the problem of excessive overlap between chapters. The background information given in these chapters, while valuable, with stronger editorial control could have been given once. Chapter 14 is particularly well written in this respect, and is one of the few chapters in the volume that illustrates the benefits of drawing in relevant studies from wider geographic areas (particularly from both polar regions) and timescales. Had this chapter been placed first in the section, much of the text of the remaining chapters could have been edited down. The final chapter in the section seems somewhat out of place in this volume. It is again repetitive in parts of the physical information already given, while also including little explicit attempt to draw relevance to the health of Arctic or Alpine human populations.

The final set of five chapters addresses 'Long range pollutants transport and ecological impacts.' This is, again, an important subject, but the reader is left with a feeling that the individual chapter treatments are rather more 'patchy' than their titles would suggest. Thus, the 'contaminants' of Chapter 17 turn out to be mostly 'semi-volatile organic contaminants,' while Chapter 18, which appears to promise a general treatment of long-range transport in the Arctic, focuses on specific sources in the former Soviet Union, while also making little effort to place its discussion within the volume's 'changing environment' remit. Chapters 19 and 20 provide another example of a missed opportunity for editorial combination — in essence the former provides little more than an extended introduction for the latter, while the chapters completely fail to cross reference each other. If concisely edited together, the single resulting chapter would have provided a very useful overview. Contaminant-monitoring provides another area where integration of available material from both polar regions would be advantageous — while the Antarctic is at least mentioned in passing, it seems surprising that one of the more up-to-date and comprehensive literature sources relating to environmental contamination at the 'other' pole (Bargagli 2005) does not merit a single mention here. The final chapter, as earlier

with chapter 10, attempts to provide a human dimension within this section, but again does not sit comfortably, lacking the same objectivity and in places reading as little more than a series of polemical opinions. Again, I feel the editors have missed the chance to integrate effectively the work presented in the volume. In terms of scientific content, part of chapter 21 really belongs as a short subsection within the preceding chapter while, if the remainder were combined with the current chapter 10, and much more attention paid to objectivity, the result would have been a far more credible text relating to the societal consequences of environmental change.

As can be a danger with such large syntheses from multi-organisation meetings, many of the chapters read as fragmentary or overlapping in content. This leaves the reader with an unsatisfactory perception that the structure of the volume was driven by some requirement that each meeting presentation must have its own chapter, and a feeling that stronger editorial control, including combining parts of the contents of certain chapters and even leaving some out altogether, would have resulted in a more accessible volume with much clearer logical flow and development. As the chapters are written, in several cases each has its own very limited geographical coverage, even in the context of the extent of the Arctic region. These would often have benefited from a better effort at overview, in particular in integrating evidence more widely from within the Arctic, and in several cases in drawing in comparative and highly relevant literature from the Antarctic. In terms of presentation, there are also weaknesses throughout the volume in formatting, and typographic and linguistic errors, while in places the literature cited has not been brought up to date, as should be expected for a volume with a 2007 publication date (for example, in Chapter 2, the Millenium Ecosystem Assessment, published in 2005, is cited as 'in press'). Such individually trivial weaknesses will be frustrating for the knowledgeable audience that the volume must be aimed at, and detract from the genuinely valuable information contained. (Pete Convey, British Antarctic Survey, NERC, High Cross, Madingley Road, Cambridge CB3 0ET.)

Reference

Bargagli, R. 2005. *Antarctic ecosystems: environmental contamination, climate change and human impact*. Berlin and Heidelberg: Springer Verlag.

PROTECTING THE ANTARCTIC COMMONS: PROBLEMS OF ECONOMIC EFFICIENCY.

Bernard P. Herber. 2007. Tucson: Udall Center for Studies in Public Policy, University of Arizona. vi + 73 p, illustrated, soft cover. ISBN 1-931143-31-5. doi:10.1017/S0032247408007559

The economics of Antarctica is a matter that has waxed and waned over the centuries. Whether it has been the

economics of whaling in the Southern Ocean in the nineteenth century, the potential economic gain associated with exploration in the early part of the twentieth century, or more recently the economics of fishing for krill, tourism, or development of a mining industry on the continent, there has always been an economic component to Antarctic activity. Other than the histories of the whaling industry, however, a scholarly economic analysis of Antarctica has rarely been undertaken. Bernard Herber, Professor Emeritus of Economics at the University of Arizona, has been an exception to the general rule and in a number of offerings during the past 20 years has sought to give an economist's perspective on Antarctica, particularly at it may apply to environmental protection and management. Herber's latest offering is a short monograph produced in booklet form, which traverses some familiar ground to anyone having been engaged in contemporary Antarctic affairs, but also raises some important questions for the future.

Herber's economic analysis characterises the public and private goods in Antarctica, and what may also be considered part of the commons. The principal identifiable public goods are how peace has been maintained in Antarctica, especially important given the Antarctic Treaty was concluded in the midst of the cold war, and how the treaty has promoted the freedom of scientific research. The global community has enjoyed collective benefits from these activities not only as a result of the maintenance of regional peace and security, but also through global scientific research benefits into matters such as climate change. Private goods are identified as fishing and tourism. Marine living resource extraction has a long Antarctic history, beginning with seals before moving to whales and more recently krill and other commercial fish stocks. All of these activities are now under various forms of international regulation and control, ranging from the Convention for the Conservation of Antarctic Marine Living Resources (CCAMLR) to the International Convention for the Regulation of Whaling. Likewise, Antarctic tourism, which commenced in the 1960s, has steadily grown to such an extent that sea-borne Antarctic cruises have entered the tourist mainstream. These public and private goods are contrasted with Antarctica as a commons that follows from the absence of recognised and/or enforceable property rights to natural resources or to information.

These economic characteristics are assessed against the reality of Antarctica's management framework, which increasingly has taken on a strong environmental focus, culminating in the 1991 Protocol on Environmental Protection to the Antarctic Treaty and its accompanying Annexes. Yet parallel with these developments are signs that the claimant states are perhaps positioning themselves for whatever economic benefits they may be able to enjoy in the future. Any close observer of events in the sub-Antarctic would be well aware of the lengths to which some states have gone to protect their economic interests, especially in respect of marine living resources. Australia,