prior to 1989, he played an important part in guiding the transition to the unique variety of responsible government that prevails today. Mary Simon's political career began at senior levels of the Makivik Corporation during the early implementation years of the James Bay and Northern Quebec Agreement. This led to two terms as President of the Inuit Circumpolar Conference in the late 1980s, and her subsequent appointment as Canadian Ambassador for Circumpolar Affairs.

Their provenance as public lectures necessarily shapes a reader's expectations of these books. They are better measured by their success in offering interpretive themes, novel insights, or revealing asides, than for full-blown analytical treatments. By such standards each volume has something significant to say.

Parker's book is somewhat misleadingly titled. Despite claiming the subject of 'Arctic power,' he offers a narrower treatment of the march from colonial to responsible government in the Northwest Territories. In this he joins several existing accounts of institutional change in the 1960–1990 period. In constructing a narrative of major events, Parker offers a readable chronology of a period that saw bureaucratic authority pass largely from federal to territorial hands, the seat of government pass from Ottawa to Yellowknife and the regions, and legislative authority vested in a fully elected Assembly from which a Cabinet executive emerged.

Parker offers an insider's perspective on the Carrothers inquiry of 1965, which found itself squeezed between a federal department reluctant to surrender its administrative prerogatives over the northern hinterland and an embryonic territorial government pressing vigorously for expanded powers. Students of the period will be interested in his intriguing comments on a last-ditch attempt by the Department of Indian Affairs and Northern Development to head off Carrothers' proposed agenda with an eleventh-hour white paper (abandoned at the draft stage).

While the office-holders of the Territorial Councils (later Legislative Assemblies) were certainly part of the political equation of 'Arctic power,' it is arguable whether they were as central to its practice as this book implies. No mention is made of the resource businesses that drove so much of the policy agenda in this period. Only passing reference is made to Thomas Berger's pipeline inquiry, which was such a signal event in mobilizing northern opinion and setting policy agendas. Similarly, despite the overarching significance of aboriginal claims negotiations after 1973, they do not make an entry until the concluding five pages of the volume. The resulting problem could be solved by alternate titling, borrowing perhaps from L.H. Thomas' celebrated 'struggle for responsible government,' although this time in the 'new' Northwest.

If Parker's domain is the Territorial Government in Yellowknife, Simon's is that of the Inuit political organizations on a circumpolar scale. Her lectures are a forceful reminder of the international dimensions of Inuit politics. This book is strongest in its discussion of the ICC years, together with the initiative to establish the Arctic Environmental Protection Strategy. Simon provides a helpful survey of the milestones in the development of the ICC as an Inuit voice in a field otherwise dominated by state actors. We are reminded that the Inuit Arctic Policy (1983–) and the Inuit Regional Conservation Strategy (1986–) advanced comprehensive proposals for international action in the same years that the GNWT was struggling with Ottawa over domestic constitutional issues.

The subtitle of Simon's volume is 'one future – one Arctic.' This holistic frame of reference extends in several directions — asserting the universality of indigenous political rights across the polar region, insisting on coordinate status for indigenous systems of knowledge on environmental policy matters, and treating protection regimes as a joint challenge of physical landscapes, living resources, and peoples of the north. By contrast, two chapters dealing with Canadian experiences with Inuit education and constitutional self-government are both more stretched and less incisively argued. In the end, it is a measure of the increasing complexity of northern politics and power relations that these two small books can chart such different contours. (Peter Clancy, Department of Political Science, St Francis Xavier University, Antigonish, Nova Scotia B2G 1C0, Canada.)

THE GLOBAL WARMING DEBATE: REPORT OF THE EUROPEAN SCIENCE AND ENVIRONMENT FORUM. John Emsley (Editor). 1996. London: European Science and Environment Forum. 288 p, soft cover. ISBN 0-95277-340-6. £15.00; $US25.00; DM35.00.

The European Science and Environment Forum (ESEF) is described as an 'Independent non-profit-making alliance of scientists whose aim is to ensure that environmental debates are properly aired,' and the organisation purports to address issues where 'the public and their representatives are given misleading or one-sided advice.' ESEF is composed of international scientists, economists, and environmental journalists who believe that influential environmental organisations and politicians are making decisions based on premature predictions of global catastrophe. This book's foreword categorically states that 'Global warming is a political issue,' leaving the reader in no doubt that the current intention is to influence the formulation of environmental policy. The book suggests that decisions about environmental action are made by governments, cognisant of political expediency and international diplomacy, and that, as such, those decisions will be influenced by those with least to gain from environmental control.

The book's introduction states three reasons for its publication: 1) to introduce some scientific debate into the issue of the Earth's climate and potential future global warming; 2) to show that carbon dioxide is not the threat that it is purported to be, and that to speak of this as a pollutant and as the major greenhouse gas is misleading; and 3) to undo the damage that continued alarms about

global warming have done to the credibility of scientists and to the public understanding of science. These are major criticisms of the activities of the International Panel for Climate Change (IPCC), which has apparently based its recommendations to governments on the incorrect predictions of imperfect computer simulations. The introduction also suggests that the IPCC excludes scientists who question its findings, believing this will restrict research funding, and that '10 years of crying wolf' have resulted in public apathy. While I have sympathy for the notion that public debate is healthy and that all opinions should be considered, I wonder if the basic tenets of the ESEF do not, in effect, make them guilty of the same limitations they suggest are imposed by the IPCC.

The remainder of the book seeks to examine the reliability of evidence about issues that have been reported in the media. It is divided into five sections, the first of which is 'The role of carbon dioxide in the global greenhouse.' The section's first paper, by Sherwood Idso, argues that rising CO_2 concentrations are likely to promote the growth of plants and reduce their demand for water, leading to a 'greening' of the surface of the Earth. This is in stark contrast to the generally held view that limitations to natural resources will negate the beneficial effects of CO_2 enhancement, leaving growth rates largely unchanged. In addition, climate warming is expected to lead to the northward migration of species from warmer habitats, and the view has been expressed that these species will not migrate quickly enough to keep pace with a changing climate. This paper suggests that CO_2 enrichment protects plants from extremes of hot or cold, raising their optimum temperature for growth and thus ensuring species survival. The general theme of the paper is that plant species can only benefit from anthropogenic increases in CO_2, plants not 'needing' to migrate northwards and flourishing in situ. This seems to be a somewhat simplistic view that does not consider the implications of a warmer climate to weather patterns in northern Europe or desertification further south.

The premise of the second paper, by the book's editor, John Emsley, is that CO_2 is an important industrial resource. It predicts that waste CO_2 may well be recycled in the future as the basic source material for chemical synthesis and speculates on the sources and uses of the gas both now and in the future. The paper admits that the reduction in CO_2 levels is likely to be trivial, but argues that the gains in more efficient and safe chemical synthesis, along with more luxuriant growth of crops, far outweigh the disadvantages. This is, I believe, a dangerous precedent; even taking the long-term view that de novo synthesis is ultimately desirable and that an expanding population will require ever increasing food resources, it is too early to predict the long-term significance of higher global CO_2 concentrations, even if their effect on world temperatures is trivial.

The paper by Tom V. Segalstad suggests that because global climate is controlled by heat energy in the oceans and latent heat of the ice caps, the small amount of heat absorbed as a result of increased CO_2 in the atmosphere will be within natural climatic variability. Further, the paper states boldly that the oceans will be able to absorb the 'larger part' of the increase and that the IPCC global warming model is not supported by scientific data; thus there will be no climatic catastrophe. This assertion does not consider the changes that are likely to occur in the ocean ecosystem and the knock-on effect on terrestrial systems.

A paper by John McMullen discusses the disposal of excess CO_2, where the costs are described as 'not prohibitive,' except perhaps in the developing countries, where they may be significant. That there are excesses that need to be disposed of rather suggests that CO_2 emission is a problem, contradicting the general theme of this section, particularly where the emissions are likely to be at their worst, in the industrialisation of developing countries.

Jack Barrett then reiterates the assertion made by Segalstad, that the problems associated with increases in anthropogenic CO_2 have been exaggerated and that IPCC model predictions are incorrect. This is further supported by Piers Corbyn, who states that the fundamental assumption, the greenhouse theory about temperature change, is not correct. He argues that current models do not correct for volcanic activity, which brings temperature variability within natural fluctuations; this, he asserts, makes the greenhouse theory, as currently stated, untenable. The overall conclusion is that there is uncertainty in the predictions of current climate models, which no thinking research worker in the field would deny. However, although the current models do not agree on the extent of the problem, they all predict some sort of accelerated global warming; can they all be so very wrong and why are there no counter-predictions from alternative models?

The second section of the book is entitled 'Measurement problems,' and it opens with a paper by Corbyn and Manoucher Golipour, who state that problems with sampling homogeneity, with adequate spatial and time coverage of world or hemisphere temperatures, have not been resolved, and these shortcomings negate the predictions of IPCC models. In the next paper, Harry Priem argues that evidence of global climate change from the geological record from the near and remote past does not support the current theories of global warming. The IPCC is accused of paying scant attention to the opportunities for testing its models retrospectively in spite of uncertainties, because media interest influences government funding and current theories are politically expedient. Even in these difficult times for the funding of research, this is, I believe, a somewhat cynical view of the motives of climate modellers. In addition, a paper by Zbigniew Jaworowski casts doubt on a major source of information from the near and distant past, suggesting that estimates of pre-industrial levels of greenhouse gases may be invalid. This does not support the view that a reliable test for current climate models is the simulation of past changes in climate.

The fourth paper in this section, by Robert Balling, argues that the suggestions that sulphate aerosols over industrialised regions will counter the effects of global warming induced by increased CO_2 are incorrect. However, although the complexities and uncertainties introduced by sulphates and aerosols are acknowledged, there is no discussion of how they might influence climate change. Gerd-Rainer Weber then reviews the evidence for temperature fluctuations that have occurred in the past. He expresses the view that future temperature changes, based on an extrapolation from the past, suggest a smaller rise in temperature than current models predict. However, he acknowledges that European temperatures in the last decade are significantly above long-term averages, which suggests that perhaps some new set of circumstances may accelerate global warming. The last paper of this section, by Asmunn Moene, returns to a previous theme, asserting that the major factor influencing global temperatures is the thermal energy balance between ocean and atmosphere. The conclusion is that temperature perturbations resulting from natural variability far exceed any change brought about by increases in anthropogenic CO_2 and that a doubling of current levels would only bring about changes two orders of magnitude less than those induced by natural variations. However, I suspect that such an increase would have more far-reaching effects, even if the increase in temperature was more modest than current models predict.

The first paper in the section entitled 'Models, forecasts and uncertainty' is by S. Fred Singer and states that because a much-reduced temperature rise (0.5°C) is predicted during the next century, the issue should cease to be a problem. The author states that such a minor temperature change, within normal fluctuation ranges, will be 'barely detectable and certainly inconsequential.' The IPCC is accused of intentionally misleading both policy-makers and the public in its quest to maintain the present level of support for scientific research. This is clearly a serious allegation, which I believe many scientists will wish to refute. The next paper, by Patrick Michaels and Paul C. Knappenberger, reports correctly that the current prediction for temperature rise in the next century will be in the range 1–1.5°C, rather than the earlier prediction of 4°C or more. The paper goes on to suggest that the uncertainty of model predictions, based on current ground truthing and expressed as a calculated error, makes them unreliable, and that modellers are admitting as much by stating that sulphate aerosols may mitigate global warming. By their very nature, mathematical models are difficult to parameterise and calculated potential errors tend to be large, but it is only through further research that our understanding of the climatic mechanisms will improve and model predictions may be shown to be reliable. It would be short-sighted indeed to discontinue these lines of enquiry on the basis that calculated error is high; otherwise we might miss important anthropogenic signals of induced imbalance, which must be redressed.

Fred Hoyle concludes the section with the assertion that even if there is a 'greenhouse problem,' which he states is in doubt, there is no requirement for a reduction of CO_2 production, because the environment can be manipulated to compensate. He suggests that there is no need to construct complicated computer models, because the world's oceans, forests, and swamps and marshes are all options for excess CO_2 storage, particularly the last, which has the greatest capacity. He proposes to set aside 1% of the land area north of 55°N as wetlands to absorb the excess gases, thereby returning to pre-industrial days, when the Earth's surface regulated the CO_2 level and, hence, global temperatures. I have little doubt that such a scenario would indeed control the rising CO_2 levels, but I would not like to be the arbiter who decides the location of the new wetlands.

In the first paper in the section 'The Sun's role in climate change,' Wijbörn Karlén and Johan Kuylenstierna conclude that solar variability is an important factor for climate change, having examined C^{14} dating of pine wood from the present tree line, glacial sediments, and alpine glacier moraines. Their assertion is that previous perturbations of temperature resulted from natural fluctuations in climate associated with the sunspot cycle, which were mediated by volcanic eruptions increasing the sulphate aerosol concentration. I am uncertain how much this information adds to the current global warming debate and the reliability of climate projection. However, that there will be climate variations associated with changes in solar activity is not in dispute, and further evidence of this is presented in papers by, first, Genrik Nikolsky, then, John Butler, and, finally, E. Friis-Christensen and K. Lassen. The questions are whether these variations are modified by the increase in anthropogenic CO_2 and whether the greenhouse effect exacerbates the influence of variable solar energy.

Sonja Boehmer-Christiansen's paper introducing the final section, 'The politicisation of science,' probably sums up the importance of the global warming debate more forcibly than is currently popular. Her assertion — that neither the 'green lobby' nor scientists are responsible for the current disagreements, but that 'political actors' are the driving force — is probably true. She suggests that the energy interests of international bureaucracies have found input from scientists profitable, but that this has created a requirement for consensus that places intolerable pressure on researchers. There is, then, a need to replace consensus with debate in order that alternative theories can be tested and that the findings of all parties involved in the debate be made available to policy-makers and the public. I believe she is correct in the view that 'the debate will not be resolved in the short term,' and that research needs to be concerned with the long-term examination of all the theoretical possibilities and not directed by a scramble for funding. This is a view borne out by the second contribution, by Patricia Fara, which suggests that 'alarmist predictions' are the result of the pressure from the continual search for appropriate research funding. However, the last

paper, by Frits Böttcher, states an extreme view: that there is little evidence of global warming and little need for current international treaties emphasising environmental issues. The assertion that the 'well orchestrated efforts of the inner circle of science policy makers' have manipulated governments and the public to further their own scientific aspirations is not worthy of a member of the scientific community.

This account of the global warming debate is a useful source of information for the side of the debate that has decided that the issue has been blown out of proportion, leading to a waste of scientific resources. There is, then, a real danger that the casual reader of this volume will be left with a one-sided view of the global warming issue. I would caution the reader that there is as much, if not more, evidence pointing toward a very real risk of environmental catastrophe. It is short-sighted indeed to criticise the findings of theoreticians, without whom there would be no reason to investigate the practicalities of the situation with a view to preventing any possibility of an ecological disaster. Nevertheless, the book is useful for an introduction to the political considerations of the global warming issue and as part of wider reading for the person wanting to consider all the current issues associated with this debate. (Norman Davis, Scott Polar Research Institute, University of Cambridge, Lensfield Road, Cambridge CB2 1ER.)

THE VANISHING ARCTIC. Bryan and Cherry Alexander. 1996. London: Blandford/Cassell. 192 p, illustrated. Hard cover: ISBN 0-7137-2530-3; £20.00. Soft cover: ISBN 0-7137-2699-7; £14.99.

The vanishing Arctic is a book every polar reader should have. The photographs, as one would expect from Bryan and Cherry Alexander, are stunning, but I was unprepared for the flow of the text. I began by scanning the book for this review, but soon found myself reading it avidly. Bryan Alexander paints word pictures of Arctic life just as well as he photographs it. All who have had the good fortune to travel to high latitudes will be transported there by this book; I could hear the swish of runners across snow and feel the wind buffeting my back as each tale progressed.

The reader is led by well-written text and beautifully composed images into the lives of five Arctic families. The Cree from the Canadian sub-Arctic and Saami from Lapland seem strange bedfellows with northwest Greenland Inuit and Siberian Nenet, but the mixture works well. All have been affected in one way or another by encroachment from the south, and much of the value of the book lies in the account of how these different groups have managed the changes. The Saami, perhaps, have changed most and have, one feels, become almost westernised. This is a path it appears the Nenet will rapidly have to tread, yet each culture manages to retain traditional practices of hunting or herding. Time and again Bryan Alexander shows that these people have far more sympathy for the Arctic environment than most 'developed nations.' Just one example: the Inughuit of northwest Greenland have always banned the use of snowmobiles for hunting.

Each chapter starts with a brief history and short description of a native group. This leads with a simple break into the story of a family from that group. How much better it would have been to start the chapter with Bryan Alexander's text — as each is clearly an account of a journey that he has made — and put the history and generic descriptions into a box. Indeed, my main criticisms of the book are about the general poor standard of design and, sad to say, very poor quality reproduction of the pictures. A token map is included at the beginning, but it is insufficient and does not even show the areas that each group occupies nor all the places mentioned in the text. This is irritating and requires the reader to find an atlas to follow some passages. The index is similarly rather shallow; for example, the Inughuit have only one entry, yet a whole chapter is devoted to them.

But these are minor deals in such a glorious book, and it is to be hoped they are corrected in future editions. This is clearly an environmental book that starts with a pictorial essay of the great northern wilderness and, after visiting the five cultures, ends on the disastrous development of oil and gas fields in the Yamal Peninsula and the personal tragedy it causes to one Nenet family. It is well worth buying for the stories Bryan Alexander weaves, and even more so for the images. (David Rootes, Poles Apart, PO Box 89, Bourn, Cambridge CB3 7TF.)

SCHWATKA'S LAST SEARCH: *THE NEW YORK LEDGER* EXPEDITION THROUGH UNKNOWN ALASKA AND BRITISH AMERICA. Arland S. Harris (Editor). 1996. Fairbanks: University of Alaska Press. xviii + 278 p, illustrated, soft cover. ISBN 0-912006-87-0. $US20.00.

Frederick Schwatka is best remembered as the leader of the American Geographical Society's Franklin search expedition of 1878–1880, an expedition made famous by the writings of the second-in-command, William Henry Gilder of *The New York Herald* (Gilder 1881). Schwatka's search,' as it became known throughout the western world, was significant for three reasons: it was an early instance of white expedition members voluntarily adopting the same diet as the Inuit and of them following Inuit practices by living off the land; the members not only completed the longest sledge journey then on record, 3251 miles, but did so without any deaths or serious illnesses; and in the spring of 1879 they found a number of relics and skeletal remains from Franklin's expedition that had not previously been discovered (see related article beginning on page 327).

Schwatka was a multi-talented, hard-driven graduate of the United States Military Academy, who was not only a lieutenant in the US Army, but a bar-certified lawyer and a qualified medical doctor from Bellevue Medical College in New York City. In 1883, at the direction of General Nelson A. Miles, then commanding the US Army's Department of the Columbia, Schwatka made a military reconnaissance of relatively unknown and uncharted parts