

Earth's atmosphere to give higher world temperatures. The latter is thought to be due to partial depletion of the ozone layer over polar regions in the spring by the action of natural and man-made chlorine compounds, including CFC gases. The discussion of both these effects (global warming and ozone depletion) is balanced, due consideration being given to the many natural and anthropogenic factors involved in both these phenomena. Nowadays, a third possible atmospheric pollution effect is also recognised: the apparent increase in the incidence of noctilucent cloud. This phenomenon is observed from time to time at a height of 82 km, close to the inversion layer at the mesopause in the six-week period centred on the summer solstice, that is, around 21 June in the northern hemisphere and 21 December in the southern hemisphere. The clouds consist of a sheet of water-ice crystals that become visible when critically illuminated by the Sun from below the horizon. Their production is thought by some to be related to an increase in atmospheric methane generated by agricultural expansion in the last 200 years or so.

After these general introductory chapters, there are more detailed discussions in more specialised areas. In the first of these, which considers the Earth as a magnet, there is a brief but interesting historical introduction followed by a description of the Earth's field, a mathematical discourse on the magnetic system, and a discussion of secular variations in the magnetic field. However, the bulk of the section is devoted to a general dissertation on the motion of charged particles in a magnetic field and then to Størmer's more specific study of the motion of auroral particles in relation to the so-called forbidden and permitted regions of the Earth's field. The section ends with a consideration of the Van Allen radiation belts, which the author equates with Størmer's forbidden regions, that is, regions into which particles cannot penetrate from the outside in steady-state conditions. The protective effect of these belts against harmful solar and interstellar radiation is noted and some experimental evidence presented that suggests that this protection might be reduced by depletion of the belts following high-altitude nuclear tests.

Two further sections (chapters 5 and 7) deal with the ionosphere. The first is largely concerned with its production by photo-ionisation as a result of solar irradiation, and the second with ionospheric currents. This latter section gives a description and mathematical analysis of the Birkeland field-aligned, sheet currents; the Hall and Pedersen height-dependent, horizontal currents in the E- and F-regions, respectively; the equivalent current systems for different orientations of the B_y and B_z components of the interplanetary magnetic field; the current distributions around the Harang discontinuity; the S_q current system; and the polar-cap current distribution.

The book concludes with two chapters on the magnetosphere and the aurora. The penultimate chapter, on the magnetosphere (the magnetic cavity carved out of the solar wind by the Earth's magnetic field), gives a detailed description of its structure illustrated with some new diagrams that may give the reader some fresh insight

into the 'anatomy' of this region. This section also presents a model of the magnetic field down-tail from the Earth and considers some aspects of magnetic field merging and of convective and field-aligned currents at high latitudes.

The final chapter gives a brief historical account of the aurora followed by studies of its appearance, height, and global distribution. The section ends with a brief account of the auroral substorm process.

The book is very well produced. It is remarkably free from factual and typographical errors — but there are a few that will probably be more irritating to the author than to the reader. Only one is cited here on the ground that it may give rise to confusion. It occurs in Section 1.5, 'The sunspots,' where the heliocentric latitudes are given erroneously in some instances as percentages instead of degrees. It would have been better to record the heliocentric latitudes in °N and °S and not as ± the cited values. This would have made it quite clear that sunspots tend to appear along two lines of latitude that lie some 30°N and 30°S of the solar equator at the start of a solar cycle moving slowly equatorward over 11.5 years approximately to some 5°N and 5°S of the equator at the end of the cycle.

The book is also liberally illustrated with well-chosen photographs and diagrams. The frontispiece is a particularly spectacular example of a 'type a' auroral curtain. However, it would have been preferable to print it with the sharp, lower border of the curtain toward the bottom of the frame and the diffuse, red, upper border toward the top.

Finally, this book is a most excellent, in-depth study of the physics of the upper polar atmosphere. As such it should appeal to undergraduate, postgraduate, and research scientists working in atmospheric physics, meteorology, aeronomy, auroral physics, and related geophysical and polar disciplines. It also has the merit of bringing together under one cover, much new knowledge presently scattered throughout the literature and current texts. For all of these reasons, this book looks set to become a standard reference manual in polar atmospheric physics for many years to come. (D.A.R. Simmons, 21 Dougalston Avenue, Milngavie, Strathclyde G62 6AP.)

ARCTIC POWER: THE PATH TO RESPONSIBLE GOVERNMENT IN CANADA'S NORTH. John H. Parker. 1996. Peterborough, Ontario: The Cider Press. 85 p, illustrated, hard cover. ISBN 1-896851-00-2. \$Can 19.95.

INUIT: ONE FUTURE – ONE ARCTIC. Mary May Simon. 1996. Peterborough, Ontario: The Cider Press. 85 p, illustrated, hard cover. ISBN 1-896851-10-X. \$Can 19.95.

These two short volumes contain the Trent University Northern Chair Lectures of 1992 and 1993. Since both authors are key figures in the contemporary politics of northern Canada, their accounts can usefully be taken together. John Parker's experience is the earlier, beginning in the 1960s as mayor of Yellowknife and continuing through service on the Carrothers Commission and onto senior executive positions in the Government of the Northwest Territories. As Commissioner during the decade

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