agree are well summarized. Ideas with which many of us may disagree are presented with persuasive enthusiasm—the kind of enthusiasm that forces one, once and for all, to decide why one disagrees with them.

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Polar Cap Aeronomy

Exploration of the Polar Upper Atmosphere. Proceedings of an institute, Lillehammer, Norway, May 1980. C. S. DEEHR and J. A. HOLTET, Eds. Reidel, Boston, 1981 (distributor, Kluwer Boston, Hingham, Mass.). xvi, 498 pp., illus. $58. NATO Advanced Study Institutes Series C, vol. 64.

"Aeronomy" is the name coined by Sydney Chapman in 1950 to designate the study of the physics and chemistry of the upper atmosphere of the earth. Needless to say, in the last three decades this field has undergone major transformations. Progress in the aeronomy of the earth's polar region, however, has lagged far behind the work carried out for other regions such as the equator, mid-latitudes, or auroral zone. This state of affairs will change with the advent of a number of recent initiatives. These include the launching of the NASA Dynamic Explorer satellites A and B, the move to Greenland of the incoherent scatter radar currently located at Chatanika, Alaska, and the attainment of operational status by the European incoherent scatter facility, EISCAT. Thus, the review of polar cap aeronomy in this book is timely.

The book summarizes our current understanding of the subject clearly and succinctly. This has been accomplished partly through the device of tutorial papers limited to 15 pages or less that review progress on seven subjects. The book contains 36 such papers on such aspects of polar cap aeronomy as the composition of the neutral atmosphere and ionosphere, optical emissions and related applications, the coupling of the polar cap ionosphere to the magnetosphere and the solar wind, the electrodynamics of the polar cap and auroral zone ionosphere, and the wave-particle interactions in the polar cap. A closing section of four papers covers the applications of polar cap aeronomy to communications and ionospheric weather forecasting. Notable papers presenting new material are those by P. M. Banks and co-workers on the determination of the polar cap electrostatic potentials deduced from ion velocity measurements by the Atmospheric Explorer satellites, by R. W. Smith on the measurements of the neutral wind in the polar cap with a Fabry-Perot interferometer, and by R. M. Thorne and L. J. Andreoli on relativistic electron precipitation. Excellent reviews are contributed by M. A. Geller on middle atmosphere dynamics, by J.-C. Gérard on optical F-region processes, by J. G. Roederer on the solar wind-magnetosphere-ionosphere system, and by G. G. Shepherd on the remote sensing of the optical emissions of the polar cap. As this listing shows, the book is strong on optical studies and provides a representation of the other branches of aeronomy. A section of four papers on the early exploration of the polar upper atmosphere through the visual observations of auroras in Nordic countries since medieval times gives the book historical flavor.

My own interests are in optical emissions of the atmosphere, and I found the papers on this subject to be interesting and reflective of the current status of research. For any graduate student contemplating aeronomy as a specialty, and for any experienced researcher desiring a review of recent activities in polar cap aeronomy, this book is recommended. The book also serves as a useful introduction to the important work being done by European scientists, who do not often publish in the English literature.

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A Colony in Greenland

Haabetz Colonie 1721–1728. A Historical-Archaeological Investigation of the Danish-Norwegian Colonization of Greenland. H. C. GULLØV and HANS KAPEL. National Museum of Denmark, Copenhagen, 1979. 246 pp., illus. Paper, DKr 116.40. Ethnohistorical Studies of the Meeting of Eskimo and European Cultures, 1. Publications of the National Museum, Ethnographical Series, vol. 16.

In 1721 the Danish-Norwegian Moravian missionary Hans Egede, accompanied by his wife, four children, and 40 followers, established the first post-Norse European settlement in Greenland. Egede's "Hope Colony" was located on a wet, exposed island outside Godthaab Fiord in West Greenland, an area exploited by European whalers and once occupied by the Greenland Norse. The colony remained here for eight years before being shifted to a more favorable spot at Nuk (Godthaab), the present-day administrative center of the Greenland Home Rule Government. Written records of the colony survived, but knowledge of its physical location was lost until 1903.

Interest in Hope Colony revived in preparation for the 250th anniversary celebration of Egede's arrival in Greenland, and in 1969–70 the Danish National Museum and the Greenland Landsmuseum conducted excavations to document the site archeologically. In addition to its historic, cultural, and political significance, the investigation of this small early-18th-century European outpost was an interesting anthropological problem. The project was aided by the existence of extensive written records pertaining to the settlement, its demography, economic ties with Europe, and relationships with the Eskimo village located at Kangek, only four kilometers away. Subsequent to their excavation at Hope Colony, the authors turned their attention to Kangek, where they investigated, among other things, the impact of the Egede colony on a contemporary native cultural system. The paucity of such reciprocal studies of cultural relationships in North America has been a serious failure of archeological and anthropological research. The present volume, however, concerns only the work at Hope Colony. A future volume will present the Kangek data.

The first chapter describes the authors' theoretical approach, establishing an anthropological perspective through quotation of Stanley South and Robert Schuyler on the role of American historical archeology studies. A historical sketch details reasons for colonization. In particular, the authors note the growing religious zeal to locate and reconvert the "lost" Norse colonists, mercantile interests in expansion of the whaling industry into Greenland waters, and national territorial expansion. (Only the last was achieved.) The authors describe the colony as portrayed in Egede's diaries, official accounts, ledgers, and inventories. Chapter 2 presents contemporary maps, providing information on the geographic setting of the colony and the location of specific buildings. A chapter describing in detail the structures and features actually excavated confirms the identification of the main dwelling house, smithy, stable, and a warehouse. Chapter 4 (140 pages of the 250-page monograph) describes the artifacts recovered, discussing object function and provenience and relating such items to those that appear on inventory lists. The

final chapter, "Myth and symbol," places the Egede colonization in the perspective of Danish and Greenlandic political ideologies. It is followed by appendixes on animal bone identifications, trace elements in glass artifacts, the dating of clay pipes, and techniques of site restoration.

The monograph is balanced and tightly structured with the exception of the final chapter, where the authors move from a descriptive, scientific mode to a social and political one. Here they present a structural analysis of forces at work in modern Greenland society. A moderate position is represented by description of the bicultural inauguration of the annual Egede festival at the Hope Colony site. The more radical view is seen through an incident in which the statue of Hans Egede in Nuk is desecrated by a young Greenlander whose motivation is presented through anonymous accounts in the newspapers. While the changing views of the colonial era that was begun by Egede are important, particularly at the conjunction of the anniversary and Home Rule transition, presentation of these issues in place of a concluding synthesis of archeological and historical findings is out of character with the approach espoused in the monograph's introduction.

This ambivalence toward descriptive, historical, and anthropological treatment is evident also in the body of the report. Though the authors diagram the spatial distribution of some items (especially pipes, ceramics, nails, and bones) and demonstrate that certain artifact patterns within the main house differ between living quarters, they do not discuss what these patterns might indicate regarding different activity areas or socioeconomic classes present in the colony's population. Descriptions of Eskimo artifacts and raw materials are scattered through the text, but the authors do not reflect on what is or is not borrowed from the Eskimo culture. In Jeppe Møhl's excellent faunal analysis one reads, in the colonists' own words, about the Europeans' failure to hunt and fish effectively and their clumsy attempts to copy Eskimo subsistence techniques. Their failure to develop a successful local subsistence economy or an economic symbiosis with the local Eskimo community resulted in near-complete reliance on European-based support, even more than was the case in the Norse colonization effort. These historical statements, the faunal analysis, and examination of Eskimo artifacts found in the Egede house would have been material for an excellent concluding chapter that would have fulfilled the promise of an anthropological work by providing a unified account of the outpost's economic base and its adaptation to local ecological and cultural environments.

The data reported also have potential for comparative studies, given that the project takes place in a fiord system previously inhabited by Eskimos for nearly 4000 years and for several centuries by Norse. Specific comparisons can also be drawn with eastern Canada. West Greenland and the Baffin-Labrador area have the same Eskimo prehistory, have similar contact histories involving whalers, traders, and Moravian missionaries, and reflect similar patterns of geographic and resource diversity. Finally, the volume points the way toward more anthropologically oriented research on culture contact situations. When the Kangek data are published and related to the Hope Colony and historic records, the results will provide a baseline study for a badly neglected field of investigation.

The Hope Colony volume is a fine contribution toward these ends, beautifully produced and containing few errors. The style of presentation, a combination of line drawings (done by Gulløv) and photographs, accompanied by bibliographic references drawn from both sides of the Atlantic, makes it a fine reference work. We must be especially grateful that despite its European subject matter the Hope Colony volume has been published in English.

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Primate Socioecology

Malayan Forest Primates. Ten Years' Study in Tropical Rain Forest. DAVID J. CHIVERS, Ed. Plenum, New York, 1980. xxiv, 364 pp., illus. $42.50.

The Malay Peninsula supports a forest community notable for its age and species diversity, and there are major problems in evolutionary biology and ecology that will have incomplete solutions until observations of this tropical region have been taken into account. As this rich forest falls to the machines of human progress and expansion at a frightening rate, opportunities for research on the natural biology of the region diminish accordingly.

Chivers has been a prime mover of a group of students and colleagues who have worked at several Malayan sites since 1970. This volume collects contributions from most of the members of that group. Primates have been the focus of the work, but potential readers should be aware that the authors have produced a useful chapter on the structure, species diversity, and phenology of the forest itself. Another chapter, by Payne, describes characteristics of birds and mammals (primarily squirrels) that share resources with the primates. An appendix cross-tabulates tree species, plant parts, and diets of primates, squirrels, and some birds at one site (Kuala Lompat). Although the tabulation is based on a mixed bag of systematic and anecdotal observations of species studied in variable degrees of intensity, and although the results are primarily qualitative, this appendix represents a pioneering attempt to describe dietary patterns in a reasonably large segment of a tropical forest community.

Primate species described in depth are the gibbons (Hylobatidae: *Hylobates syndactylus, H. lar,* and *H. agilis*), in a chapter by Gittins and Raemakers; the leaf-eating monkeys (Colobinae: *Presbytis melalophos* and *P. obscura*), in a chapter by Curtin; and the crab-eating macaques (Cercopithecinae: *Macaca fascicularis*), in a chapter by Aldrich-Blake. These three chapters review characteristics of social organization, ranging, and feeding, with some variation in quality and depth of observation. The coexistence of closely related species presents interesting problems for analysis, and the chapters on gibbons and on leaf monkeys take note of such problems. Fleagle's chapter on comparative locomotion clearly demonstrates differentiation between sympatric gibbon species and between sympatric leaf-monkey species, although his account of locomotion of the crab-eating macaque and its congener the pig-tailed macaque (*M. nemestrina*, omitted from the rest of the text for the most part) is purely descriptive, since he has not carried out a quantitative study of these two species. The comparisons among species often suffer from being based on information collected at different times by different observers. This deficiency is partially offset by MacKinnon and MacKinnon's chapter on a short (six months) but synchronous study of five of the six primate species at Kuala Lompat.

The title of the volume raises the expectation of analysis of long-term data on the community of primates. Though one species, *H. syndactylus*, has been observed more or less continuously since 1970, most of the studies reported