teaching population? Strober questions that assumption explicitly; other chapters offer implicit criticisms of it.

Patricia Roos and Barbara Reskin hold that formal and informal processes outside a given workplace constrain the options available to women. To these analysts, one must study work-related institutions, not just employers and employees, to understand occupational segregation. They have in mind the institutions that provide job training. Apprenticeship programs, they show, often are advertised only within a plant, sometimes in areas—men's restrooms, for example—to which women have no access. They have in mind, too, the informal networks through which information about job openings flows. The evidence shows that women are more likely than men to rely on formal job search methods. Yet the greatest returns go to those individuals who can rely on contacts. Women and men do not have the same possibilities for learning about and pursuing job openings. Roos and Reskin do not regard studies of employers as unimportant, nor do the critics of human capital theories maintain that such theories should be discarded entirely. Instead, the contributors see occupational segregation as the result of forces in individuals and institutions, forces that are contemporary and historical. They contend that policies for reducing segregation and the wage inequities that accompany it must rest on a careful understanding of the complexities that are involved.

The final section of the volume looks at efforts to provide wider options to women. Brigid O'Farrell has published over the past few years a number of analyses on the consequences of affirmative action and equal employment programs. In collaboration with Sharon Harlan she provides here an overview of strategies that companies have used to broaden opportunities. Under court order, American Telephone and Telegraph Company (AT&T) agreed to promote members of a protected group over more senior white men in order to meet affirmative action goals. A midwestern steel company, again under court order, established a training school for motor inspectors in order to increase the numbers of women and minorities in that occupation. According to the authors, intervention efforts are most likely to succeed if there is a structure for administering them and support for their purposes from the highest level of the organization. O'Farrell and Harlan share with Beller the view that equal employment policies can reduce occupational segregation. But whereas Beller assumes that the changes she has found stem from the policies, O'Farrell and Harlan provide a more direct link between federal policies and outcomes for women.

The volume probes issues that are of interest to both researchers and policy-makers. At the research level, one would hope to see as a result of the publication greater consensus concerning the measurement of occupational segregation. Beller defines a "male occupation" as one in which 70 percent or more of the workers are men; Rosenfeld means by "male dominant" those occupations in which men hold at least 51 percent of the jobs; for Corcoran, Duncan, and Ponza, if fewer than half of the workers are female, then the occupation is a male occupation. The differences in cut-off points, even though they sometimes are slight, matter if one attempts to compare trends in segregation over time and over different data bases. There is yet another advance on the research front that could issue from this publication. It is quite apparent from the chapters and the commentaries on them that the extent of segregation is best captured by refined occupational categories, such as those in the Bielby and Baron analysis. The use of quite broad classes blurs the degree to which men and women hold the same jobs and hence complicates both analyses and policy development.

Undoubtedly, change has taken place, but there is still considerable work to be done before analysts and policy-makers will understand fully the breadth of the change. Nonetheless, one should not overlook the findings from O'Farrell and Harlan: vigorous and concerted action to reduce occupational segregation can have identifiable effects.

CORA BAGLEY MARRETT
Department of Sociology,
University of Wisconsin,
Madison 53706

Nonlinear Dynamics

Statistical Physics and Chaos in Fusion Plasmas. C. W. HORTON, JR., and L. E. REICHL, Eds. Wiley-Interscience, New York, 1984. xvi, 361 pp., illus. $85. Nonequilibrium Problems in the Physical Sciences and Biology, vol. 3. From a workshop, Austin, Tex., Dec. 1982.

In the past decade a number of exciting new tools and concepts concerning nonlinear dynamical systems have been developed. An ideal proving ground for their application is the field of fusion plasma physics, for it offers a broad range of problems to challenge the practitioner. Though the idea of magnetically confined plasma invites the image of order, the experimental actuality offers a rich variety of chaotic and ordered phenomena. The need to understand, predict, and design has led to the adoption of these new approaches, which greatly extend the power of more traditional methods.

This volume, which results from a workshop, supplements the earlier collection *Long-Time Prediction in Dynamics* in the same series. Most of the papers are clearly written, and all are stimulating. The organization of the volume is sensible, and the layout is attractive.

Not only is a magnetized plasma both ordered and chaotic, it is simultaneously Hamiltonian and dissipative. Thus the first part of the volume is devoted to Hamiltonian systems, which conserve phase-space. The structure of a magnetic field is a beautiful paradigm of such a system, with its family of field lines replacing the family of orbits in the traditional concept of a phase-space flow generated by a Hamiltonian. In a toroidal volume, the successive intersection of field lines with a cross-section displays the rich picture of regular regions of KAM (Kolmogorov-Arnold-Moser) surfaces and islands, with intermingled chaotic layers and regions. The underlying Hamiltonian nature of the magnetic field, freed of the need for canonical pairs, is discussed in a paper by Littlejohn, and the systematic search for order to which it gives rise is analyzed by Cary. The transition between order and chaos is amenable to renormalization-group methods, which are presented in a paper by Greene. The chaotic regions are complex, with a hierarchy of islands; the long-time correlation that results is studied in a paper by Karney. Collisional diffusion of particles across this complex structure is discussed in a paper by White.

Solitons are remarkable entities that paradoxically display coherence and chaos simultaneously. In plasmas they appear in many guises, and here they are studied analytically and numerically by Meiss, by Doolen, DuBois, Rose, and Hafizi, and by Ichikawa and Yajima and experimentally by Wong, Cheung, and Tanikawa. Their appearance is a hallmark of nonlinearity. More ephemeral and more mysterious are the clumps, particle correlations that are created by waves, act as wave sources, and are then destroyed. Their role in turbulence is studied by Balescu and Misguich, by Kono, and by Terry and Diamond.

Fractal analysis is a powerful tool for quantitatively analyzing the effects of self-similar scaling properties. Its diversity is represented in the book by the work of Grebogi, McDonald, Ott, and Yorke on the boundary between chaotic attractors, by a study by Mori of turbulence, and by an analysis by Suzuki of phase transitions.

The challenge of incorporating these new concepts into statistical turbulence theory is taken up and clearly discussed by Krommes and by Horton.

Nonlinear dynamics continues to grow, revitalizing classical mechanics and providing rewarding resources for plasma physics. This volume and its predecessor are an up-to-date compendium on the subject.

ALLAN KAUFMAN
Department of Physics, University of California, Berkeley 94720

Quaternary Environments

Quaternary Stratigraphy of Canada. A Canadian Contribution to IGCP Project 24. R. J. FULTON, Ed. Geological Survey of Canada, Ottawa, 1984 (available from Canadian Government Publishing Centre, Ottawa). vi, 210 pp., illus., + map. Paper, C$12. Geological Survey of Canada Paper 84-10. From a symposium, Winnipeg, 1982.

This book is a collection of informative, well-edited papers on the Quaternary (mostly glacial and post-Sangamonian) stratigraphy of Canada. The papers were specifically designed for this volume, which constitutes the final report of the Canadian Working Group of IGCP (International Geological Correlation Program) Project 73/1/24, Quaternary Glaciations in the Northern Hemisphere.

Introductory papers by Fulton and Dreimanis set the stratigraphic and institutional contexts that governed the writing of the papers. Another introductory paper, by Prest, provides background and descriptive information about a map of the Late Wisconsinan glacier complex that is provided in a pocket at the back of the book. This map shows the limits of the North American ice sheets during the Late Wisconsinan. Prest has tried to show the direction of ice flow, flow centers, and controversial maximum and minimum boundaries for the ice sheet, with approximate dates of maximum ice cover. The map is very useful for reference as one reads the papers that discuss controversial topics, such as the relationships between Keewatin and Labradorean centers of flow and the lack of a Hudson Bay center, the extent of ice in other parts of the Arctic, and the extent and timing of advances in eastern Canada.

The remaining papers are divided into sections on western, arctic, and eastern Canada. For each region there are three detailed papers and one summary paper. The detailed papers, especially those on western Canada and the Great Lakes region, contain considerable stratigraphic information. Fulton is to be commended for seeing that the level of coverage in the detailed papers is nearly the same. This is especially difficult to achieve because different approaches (lithostratigraphic, chronostratigraphic, event stratigraphic) have been used in different parts of Canada.

There are some differences in approach in the book. Some papers are oriented toward raising questions. In particular, papers by Shilts on the Hudson Bay lowland, Fenton on the prairies, Rutter on the ice-free corridor, Grant and King on the Atlantic provinces, and LaSalle on Quebec point out controversy and expand on it. A paper by Karrow on the Great Lakes region, on the other hand, is a detailed stratigraphic description with few questions raised.

Different dating techniques have been used in different areas. Radiocarbon is, of course, fundamental for all areas, but different emphasis is placed on the importance of dates of wood, shell, and fine-grained organics. In areas where deposits older than the Late Wisconsinan are present little dating has been done. A paper by Andrews and Miller on the eastern Arctic and to a lesser extent one by Vincent on Banks and other islands of the Arctic Archipelago depend much more on amino acid stratigraphy than any of the other papers.

The papers in the book are uniformly excellent. They complement the recent volumes edited by Wright and Porter on the United States and will presumably complement a similar set of papers to be published by the U.S. Working Group of the same IGCP project. The book should be in the collection of every student of the Quaternary. Finally, I cannot think of a better preparation for the International Quaternary Association meetings to be held in Canada in 1987 than reading the book.

DAVID M. MICKELSON
Department of Geology and Geophysics, University of Wisconsin, Madison 53706

Some Other Books of Interest

Handbook of Squirrel Monkey Research. LEONARD A. ROSENBLUM and CHRISTOPHER L. COE, Eds. Plenum, New York, 1985. xxii, 501 pp., illus. $65.

This book was conceived as an updating of and companion to *The Squirrel Monkey* (L. A. Rosenblum and R. W. Cooper, Eds.), published by Academic Press in 1968. The volume opens with a discussion of the taxonomy and distribution of squirrel monkeys (genus *Saimiri*) by R. W. Thorington, Jr. There follow accounts of behavior in natural environments by John D. Baldwin, cognition by Dorothy Munkenbeck Fragaszy, and communication by John D. Newman. The remaining chapters deal with physiological consequences of maternal separation (Coe *et al.*), rearing by maternal surrogates (Hennessy), reproductive cyclicity (Dukelow), endocrinology (Coe *et al.*), thermoregulation (Adair), sneezing behavior (Schwartz and Rosenblum), vision (Jacobs), cardiovascular disorders (Strickland and Clarkson), behavioral pharmacology (Barrett), nutrition and metabolism (Ausman *et al.*), immunology and pathology (Kalter), and medical care (Abee). The book includes a 13-page subject index.—KL

Dinoflagellates. DAVID L. SPECTOR, Ed. Academic Press, Orlando, Fla., 1984. xiv, 545 pp., illus. $75.

The editor of this compendium expresses the hope that it will be of use not only to those directly concerned with dinoflagellate biology but to workers "in other areas of biology in which dinoflagellates may be used as a model system," mentioning especially studies of small nuclear RNA's and the chromosome scaffold. A brief introduction by the editor is followed by an account of dinoflagellate taxonomy by Dodge. Cell cortex (Netzel and Dürr), nuclei (Spector), the cell cycle (Triemer and Fritz), and sexual reproduction (Pfiester) are the subjects of the next four chapters. Genetics (Beam and Himes), physiology and biochemistry (A. Loeblich), circadian rhythmicity (Sweeney), "unusual inclusions" (Spector), and cysts (A. Loeblich and L. Loeblich) are then dealt with. Chapters on toxic marine dinoflagellates (Steidinger and Baden) and culture methods (Guillard and Keller) are also included. The final chapter of the volume is a discussion of dinoflagellate evolution by A. Loeblich. The work has both taxonomic and subject indexes.—KL