of perspectives. An evolutionary approach can be used to understand what conditions favor the expression of aggressive behavior. The aim of a mechanistic analysis is to understand the genetic and biochemical basis of aggression. Finally, since aggression is often viewed as disruptive to human society, techniques for predicting and influencing the aggressive potential of both normal and pathologically aggressive individuals are of obvious practical value.

In general, the first volume is edited well and there are a number of recent references. The introductory chapter usefully abstracts the main points of the following twelve chapters, and all articles are accessible to the nonspecialist. Because of the extreme breadth of the material covered, it is impossible for a single reviewer to critique knowledgeably all the chapters, which range from studies of chimpanzee behavior to the role of therapy in resolving conflicts between family members. Medically oriented readers should be aware, however, that the evolutionary perspective is seriously shortchanged. Barchas's claim that the evolutionist cannot reliably predict the conditions most likely to elicit aggression is simply false; there is an extensive theoretical literature on this subject whose predictions are confirmed by numerous empirical studies. The broad usefulness of such an approach is all too obvious when one reads the review of biochemical, pharmacological, and genetic studies of aggression. Any animal behaviorist would have predicted the relatively recent physiological findings that "predatory aggression" (i.e., the capture of food) is distinct from other types of aggression involving the defense of resources or offspring. The many theoretical and field studies of parent-offspring conflict and changes in behavior associated with the onset of sexual maturity would be relevant to the two chapters on adolescent aggressive behavior. A comparative anthropological review of aggression in "primitive" societies would also have helped to place our own aggressive tendencies in better perspective.

The references found in articles published in the journal Aggressive Behavior from 1975–1979, which comprise the second volume, can be used to gain entry into a variety of areas which deal with aggression. Although once again some fields are under-represented, the fine subject index can be used to locate articles whose bibliographies will lead into subjects poorly covered by this journal. This saves the reader from having to consult directly the twenty volumes, although the price for this service is rather high.

Nancy Knowlton  
Department of Biology  
Yale University

Intracellular pH: Its Measurement, Regulation, and Utilization in Cellular Functions. Edited by Richard Nuccitelli and David W. Deamer. New York, Alan R. Liss, Inc., 1982. 594 pp. $88.00.

It has been two decades since Mitchell proposed that pH gradients are integral parts of energy transduction mechanisms in the energy-producing organelles of cells. Since that time it has become clear that proton gradients across membranes are of fundamental importance in cell function not just for energy coupling, but perhaps also for what might be called information transfer: the regulation and mediation of the response of the cell to the outside world.

This volume is an edited version of conference proceedings on this topic from the
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summer of 1981. It is a timely, informative, and, above all, useful reflection of recent advances in pH measurement and studies utilizing these methods. It suffers, as do all books of proceedings, from the narrowness of the individual reports. The editors have to some degree ameliorated this problem by including short discussions at the end of each of the three sections, comparing the various techniques and results. Much of this comparison is in table form, helpful to the scientist considering use of these techniques. These chapters were placed at the end of each section because they represent, ostensibly, a sense of the actual discussion at the conference. Since they serve the valuable function of putting the reports in perspective, however, the editors might have done us more service by placing them at the beginning of each section, affording the outsider a feel for what is to come.

The three sections of the book cover techniques of pH measurement, studies on regulation of intracellular pH, and studies on the role of pH in the control of cell physiology and development.

The technique papers cover measurements on single cells by microelectrodes and fluorescent probes and measurements on cell populations by weak electrolyte distribution, $^{31}$P nuclear magnetic resonance, and light absorption and fluorescence. The "how to" sections on pH microelectrodes are very good in description of actual apparatus, and, in general, the authors and editors have done an outstanding job in including photographs and diagrams of apparatus.

The sections on nuclear magnetic resonance are very good in indicating just how powerful this technique is and suggesting some applications for what will surely be an extremely important and also medically relevant technique.

The second and third sections, on pH regulation and the role of pH in the control of cellular functions, cover recent studies on cell systems from across the animal kingdom, from sea urchins, snails, and barnacles up to mammals, including man. They give examples of how the various techniques are utilized, and what kinds of information can be obtained. But the phylogenetic disparity seems to highlight the similarity among all cells; they appear to regulate pH carefully and are willing to expend energy in order to do so. Changes in these basal levels accompany a variety of cell functions and may in fact exert an essential part of the control of these processes. Their precise role in regulation remains to be elucidated.

Throughout this book the importance of compartmentalization in eukaryotic cells is largely ignored. When the authors speak of intracellular pH, they really mean cytoplasmic pH. Full understanding of the underlying processes in the pH response will have to account for the response at the organelle level as well as the cellular level. In a sense they must return to Mitchell: How does cytoplasmic pH regulate mitochondrial energy transduction? This book suggests some ways to look at these problems, but the answers remain in the future.

BARRY L. LEVINSON
Graduate Student
Department of Molecular Biophysics and Biochemistry
Yale University School of Medicine

Progress in Dermatoglyphic Research. Edited by Christos S. Bartsocas. New York, Alan R. Liss, Inc., 1982. 471 pp. $48.00.

This book is a collection of papers presented at an international conference held in 1981. The uniqueness of an individual's finger dermatoglyphics and the mysticism surrounding common palmar patterns draw anyone with the least shred of curiosity