about the definition and the variety of health.

Yet a third diagnostic symptom is the distinction, never made fully explicit in *Raising Children in Modern America*, between children truly in jeopardy and the vast majority of American youngsters who may suffer no more than a drunken parent or a strikeout in a Little League game. We have always been a society that defines virtue by exclusion; the valued people are better than the slave, the Indian, the immigrant, the poor, the handicapped, the dumb. What Talbot and his colleagues do best is to demonstrate that we continue to set aside (in the sometime hope that they will disappear) a significant fraction of our citizens. Although they appear in different chapters, it turns out that the malnourished, the early pregnant, the abused, the accident-victimized, the desperately poor, the children "at risk" are all the same folks, the refused ones, the outsiders. Until we can devise a way to bring the excluded Americans into hope and respect, books like *Raising Children in Modern America* will remain, in large part, commentaries on injustice.

A fourth marker of now, and a bittersweet one, is the books' conflicted view of policy and politics. There were some savvy political movers among the seminarists but they did not define the whole. In the small, Kempe would apparently give up fundamental civil protections to reduce child abuse (he recommends that regular home visitors evaluate the care of children in all American families). In the large, Talbot makes the recommendation cited earlier without serious consideration of cost, political implementation, relation to other proposals, or historical precedents. A normal academic move, perhaps, to suggest grand careless solutions, but the glibness of the recommendation is surprising when one of the most incisive papers in the big book (Sugarman's) tells of the apparently irredeemable failings of the men and women who run support programs and when one of the very last lists in the little book (p. 158f) tells the excuses bureaucrats use to avoid effective action. An interesting intellectual exercise for Talbot's seminarists and a consequential contribution to the cause of American children would have been the drafting of a bill on child care to be submitted to Congress. Then, perhaps, the omissions, contradictions, and disagreements in our image of American children would be made visible.

Raising Children in Modern America is a proper product of its time and its context. Talbot and his colleagues report their data accurately, they worry about the right issues, they reach for the salvationist conclusion, and, when all is done, we are left with the sense of a society in some disarray about its children, getting them raised one way or another but not sure quite how or, lately, why.

WILLIAM KESSEN
Department of Psychology,
Yale University,
New Haven, Connecticut

The Inner Earth

The Earth's Core. J. A. JACOBS. Academic Press, New York, 1975. viii, 254 pp., illus. $22. International Geophysics Series, vol. 20.

The radius of the earth's core is more than half that of the earth, and the core is the undoubted seat of the earth's magnetic field. Almost 3000 kilometers of rock insulation effectively prevents the secrets of the core from being revealed to us. We understand the properties of the core and the processes of the production of the magnetic field only poorly. Even less well understood is the inner core, a region with a radius about one-fifth that of the earth, two-fifths that of the outer core.

The large-scale features of the outer core (radius, mean density, and mean sound velocity, as well as general fluidity) have been known for more than 40 years. From these properties it has been inferred that the outer core is probably molten iron alloyed with some unidentified lighter element or elements. The radius of the outer core and the mean compression-wave velocity of the inner core are also well known, but only recently has it been possible to measure the compressibility of the inner core. The author of the book under review was one of those who proposed more than 25 years ago that the inner core is a solid iron-nickel condensate from the outer core.

The rest is conjecture. Answers to questions regarding the thermal regime of the core, the origin of the magnetic field, and the origin and subsequent history of the core are clouded in uncertainties generated by lack of precision in knowledge of the other physical properties of the inner and outer core. There are similar uncertainties concerning the status, or even the existence, of the cores of the moon and the terrestrial planets.

Jacobs has provided an intensive summary of what is known and what is argued about the core. He presents a terse review of the methods of performing observations that relate to the core and summaries of the results of these observations. Modern conjectures regarding the core are usually based on large-scale extrapolations from laboratory data or from often unconvincing plausibility arguments. Jacobs, with an unusual sense of impartiality, presents almost all the contemporary conjectural models of the history and development of the core, as well as of its mechanical and hydromagnetic state. Only rarely does he insert his own gentle assessment of certain models.

The book is a storehouse of references to the literature as well as an encyclopedic summary. It is engagingly written. In the hands of a different author, the book might have been three times as long; it is attractive because of the significant effort made to provide the reader with references for the models described rather than detailed reviews of them. The book is valuable and stimulating for any scholar, from graduate student to senior scientist.

LEON KNOPOFF
Institute of Geophysics and
Planetary Physics,
University of California, Los Angeles

Effects of Salinity

Plants in Saline Environments. A. POLJAKOFF-MAYBER and J. GALE, Eds. Springer-Verlag, New York, 1975. viii, 216 pp., illus. $31.30. Ecological Studies, vol. 15.

This volume provides a broad view of the effects of salinity, with contributions on soils, ecology, and the quality of water used in irrigation as well as on plant physiology and biochemistry. The importance of salinity can be very much in the eye of the beholder. To ecologists, whose view of the matter is presented in this volume by V. J. Chapman, salinity problems have "till now been primarily of academic interest," but to agriculturists, represented by D. L. Carter, they are anything but academic; crop production is limited by salinity on 25 percent of the irrigated land in the western United States. Doneen presents criteria for the quality of irrigation water. These criteria are debatable, but a book review is not the place for such debate. Peck's chapter is a detailed exposition of the effects of alterations in land use on hydrology and soil salinity, an important problem in some areas. The more general causes of salination are given only cursory treatment in the book.

The second half of the book is devoted specifically to the responses of plants to salinity. The story of salt glands in halophytes is well told by Thomson, who makes it interesting even to the nonspecialist. Morphological, anatomical, and ultrastructural effects of salinity are described by Poljakoff-Mayber, who notes that generalizations are difficult because effects vary greatly with species of plant and with species of salt ion.

The critically important metabolic and biochemical aspects of salt tolerance are discussed by Kylin and Quatrano. After noting that enzymes isolated from halophytes seem no more salt-resistant than those isolated from glycophytes, they turn their attention to possible mechanisms for restricting salinity in the cytoplasm and thus protecting enzymes from inhibitory salt concentrations. Cell membrane properties that restrict ion transport and ion pumps (salt-activated adenosine triphosphatases) are considered in detail. Salinity-induced changes in metabolic pathways include a shift to the pentose phosphate pathway, induction of crassulacean acid metabolism carbon dioxide fixation, and a shift from organic acid to amino acid production. Possible relations of these changes to salt tolerance are considered.

Gale, discussing water balance and gas exchange reactions, concludes that incomplete osmotic adjustment or reduced stomatal aperture, caused perhaps by salinity-induced changes in hormone levels, together with increased respiration generally reduces net photosynthesis under saline conditions. Water balance problems are also involved in increases in damage done by salt to sensitive crops under conditions of low relative humidity or high temperature.

The authors acknowledge exceptions to the adjustments and mechanisms that may improve salt tolerance, but some additional items should perhaps be mentioned. Rootstocks that are presumed to restrict chloride uptake because of their membrane properties actually show no reduction in rate of chloride uptake (Bernstein, unpublished). Chloride transport to the shoots, rather than uptake by the roots, must therefore be restricted. Salinity markedly increases the accumulation of sugars in some sensitive crops such as carrots and cantaloupes, indicating that net photosynthesis in these species is not growth-limiting under saline conditions. The exceptions that can be found to generalizations about mechanisms of salt tolerance tend to leave us with only the near tautology that salt tolerance is the ability to adjust to salinity with minimal effect on growth.

On the whole this volume provides a good discussion of the status of research on its subject.

LEON BERNSTEIN
8475 California Avenue, Riverside, California

Catabolic Processes

The Lytic Compartment of Plant Cells. PH. MATILE. Springer-Verlag, New York, 1975. xiv, 184 pp., illus. $38.30. Cell Biology Monographs, vol. 1.

Work on the regulation of metabolism and development in plants is still predominantly concerned with anabolic processes. In this monograph (which is the first of a new series continuing the older Protoplasmologia) Matile makes the valid point that most metabolic charts lack one entire dimension, namely the integration of the usually unspecific hydrolases that are involved in the control of macromolecular turnover. His book is the first comprehensive effort to fill this gap by summarizing knowledge concerning lytic processes in higher plants and fungi and, perhaps more important, by trying to establish some unifying principles of catabolic regulation.

Matile treats the lytic compartment as two functional components: the vacuole and the space external to the plasma membrane, where digestive processes occur, and the Golgi apparatus and endoplasmic reticulum, where digestive enzymes are synthesized and processed. Considerable space is devoted to the vacuole, its ultrastructure, enzymatic contents, and ontogeny. Knowledge gained from work with higher plants is complemented with results of research on yeast and other fungi. Technical progress made recently in the isolation and analysis of yeast vacuoles may point the way to similar approaches with cells of higher plants. Autophagy and autolysis are extensively discussed, the former as a controlled degradative process during which lytic compartmentation remains intact, the latter as an indiscriminate digestive process during which cellular compartmentation breaks down and which is followed by the death of the cell. The most intriguing question concerns the selection process by which certain cytoplasmic components are preferentially autophagized and how this may lead to the observed differences in the rates of macromolecular degradation and turnover. Attention is also given to special cases of the lytic compartment and of lysis. The development of storage vacuoles and the mobilization of reserve substances are documented extensively on the biochemical and ultrastructural levels. Lytic processes during plant development, such as modification of the cell wall, are described in relation to growth, morphogenesis, and leaf abscission. Mention is also made of lysosomal activities in parasitic and pathological processes.

In addition to assembling and interpreting a wealth of data and providing the reader with an extensive list of references, Matile's book makes a significant contribution in directing future work on control mechanisms in plants toward degradative processes, both at the subcellular level of lytic compartmentation and at the biochemical level of hydrolytic enzyme activities.

HANS KENDE
MSU/ERDA Plant Research Laboratory, Michigan State University, East Lansing

Ecology of Small Mammals

Rodents in Desert Environment. I. PRAKASH and P. K. GHOSH, Eds. Junk, The Hague, 1975. xvi, 624 pp., illus. Dfl. 180. Monographiae Biologicae, vol. 28.

As a collation of information on the biology of desert rodents this book can be judged a modest success; inevitably, coverage is incomplete and uneven. The subjects treated include activity patterns, behavior, coloration, population ecology, and reproduction; the coverage of physiology is limited because adequate coverage is available elsewhere.

For most deserts there is only a natural history level of understanding of the rodents: knowledge of habitat and biotic associations and relative abundances, and sketchy information on reproduction and trophic relationships. The lacunae can be stimulating, however. M. A. Mare's account for Argentina excites one to try to explain why South America should "lack . . . true desert rodents . . . as conspicuous faunal elements." One may also wonder why the principal rodent in Old World deserts is often a diurnal gerbil, whereas in North America the dominant species is nocturnal. The most valuable regional account is that for the Soviet Union by N. P. Naumov and V. S. Lobachev, 133 pages dealing with 24 species, based on about 200 Russian articles. Here are impressive quantitative data for spans of 10 to 15 years and sometimes tens of thousands of animals. But, there are also many conclusions presented without supporting facts.