independence and autonomy of herders and the tendencies of capitalist economies to generate individualism. The focus on change comes easily to the study of non-indigenous groups, the descendants of immigrants who settled in uninhabited areas or eliminated native populations, as in the chapters by Pinson, Berleant-Schiller, Bergmann, Kluck, Smith, and Maloney.

This historical approach challenges some functionalist themes in the study of herding populations, with respect to which other researchers have adopted a synchronic adaptationist stance. Various chapters attack this functionalism by examining other aspects of herding populations, inequality and differentiation (West, Bergmann), ecological degradation (Bergmann), and links to the world-system (Pinson, Berleant-Schiller, Kluck, Smith, Maloney). Some of these aspects have been studied previously by anthropologists such as Salzmann, Barth, Beck, Irons, and Shahrani in areas of more classical pastoralism.

Few of the studies are problem-oriented. Kluck's chapter is a successful exception. She explains several economic practices that would appear to be inefficient or unprofitable, including the retention of draft animals (they require less investment of time and money in repair and maintenance than do more efficient machines); the presence, despite low returns to capital and labor, of labor-intensive dairying (it shows a positive, though small, net profit and helps reduce risk by maintaining diversity); and the production of unimproved swine varieties (they are used to dispose of maize and manioc surpluses; improved varieties require more care). Like several other authors, Kluck uses quantitative data successfully.

Kluck's chapter is also one of the longest in the volume. Some of the others seem too short. They have adopted a difficult task, the presentation of regional histories in under 20 pages. The lack of space also limits comparisons between chapters. In one particularly glaring example, both Maloney and Smith offer explanations for the shift from sheep-herding to cattle ranching in adjacent portions of northern New Mexico differently, the former attributing it to the decline in wool prices and the latter to the scarcity of labor. They do not attempt to resolve this difference.

The introduction to the book ends by presenting it "not as a set of answers, but as a preliminary exploration of . . . issues and themes . . . worthy of further study." This description is accurate. With fewer but longer chapters, with a closer integration of mentalist and materialist orientations, with a chapter of conclusions that drew out comparisons and contrasts of the particular studies, the exploration would not have been so preliminary. The book, nonetheless, is of value for the study of livestock-raising populations and, more generally, for the anthropological study of change.

BENJAMIN S. ORLOVE
Division of Environmental Studies, University of California, Davis 95616

Relationships Among Children

Peer Relationships and Social Skills in Childhood. KENNETH H. RUBIN and HILDY S. ROSS, Eds. Springer-Verlag, New York, 1982. xvi, 414 pp. $28.90.

Siblings. Love, Envy, and Understanding. JUDY DUNN and CAROL KENDRICK. Harvard University Press, Cambridge, Mass., 1982. xii, 290 pp. $18.50.

These two books underscore the recent shift from exclusive focus on parent-child relationships in early childhood to a consideration of the broader and more diverse social context in which children develop. Both books illustrate the validity of this new perspective by describing important research and identifying promising areas for future investigation.

The contributors to the volume edited by Rubin and Ross describe a variety of studies concerned with peer relationships from infancy to early adolescence. As with most collections, the quality of chapters is somewhat uneven. The editors must be faulted for the sketchiness of their introduction and the absence of either a concluding chapter or interstitial material designed to integrate the diverse and conceptually disparate material presented by the contributors. They can also be faulted for neither asking several of the contributors to elaborate the theoretical implications of their findings nor ensuring that sufficient methodological detail was included to allow evaluation of the empirical studies described here for the first time. The absence of a thorough introduction, conclusion, and theoretical elaboration is especially troubling, for a number of the contributors limit themselves to purely descriptive accounts.

There are, however, a number of chapters that avoid these problems, focusing on the theoretical integration of previous findings or on the presentation of new data gathered to address crucial issues in the area. Krasnor's review of research on social problem-solving focuses on a sophisticated and interesting model that is likely to stimulate research on this underexplored topic. The definition of problem-solving in terms of "personal goals" may be unnecessarily egoistic in orientation, as it appears to preclude altruistically motivated behavior, but this is a minor criticism when viewed in light of the advance represented by the model. Berndt's chapter on the conception of justice is also exemplary, not for the presentation of a new model but for a thorough and persuasive attempt to place empirical findings (including several from some of Berndt's prior studies) in the context of major theoretical issues. A similarly useful review is provided by Renshaw and Asher, whose focus is on social competence and peer status. The evidence presented is not new, but the conceptual framework is novel, systematically described, and thoughtfully evaluated. The chapter is certain to be of major heuristic value.

Of the chapters built around single studies, Rubin's is perhaps the best because the selection of measures and the focus of the study were so clearly and explicitly anchored in theoretical issues of central importance today—identifying "the social, cognitive, and social-cognitive correlates of social withdrawal in early childhood." Surprisingly, however, Rubin did not include any measures of emotionality or affectivity in his study, when these would seem likely to distinguish isolated and sociable children. The chapters by Eckerman and Stein and by Ross, Lollis, and Elliott both suffer from a failure to explore the implications of their findings, but the studies reported are certainly among the most interesting descriptive accounts in the area.

For the most part, the remaining ten chapters are not as impressive, largely because they involve unexciting and redundant reviews of the literature in areas that would have benefited from an attempt to move beyond description to conceptual analysis and integration. (The chapter by Stone and Selman, however, is conceptually rich.) It is a pity that the authors, all of whom are at the forefront of research in their areas, did not take advantage of the opportunity to go beyond what is permitted in journal articles and provide what the study of social skills and peer relationships most needs—conceptual clarity and theoretical integration.

The editors describe this as a "state of the art" volume, and the label is apt. Together with Asher and Gottman's collection *The Development of Children's*

Friendships (Cambridge University Press, 1981), this book is one of the most important in the study of peer relationships and social skills. All of the topics in this burgeoning—if not sprawling—area are dealt with, and at least some of the contributors suggest by the sophistication of their discussions that this area is about to come of age. An initial descriptive phase often provides the basis for hypothesis generation and evaluation, but all too frequently psychologists stop short of theory construction and assessment, either because fashions change or because the work becomes too difficult. Fortunately, it is clear that some prominent scholars are already grappling, in estimable fashion, with these challenging but crucial tasks in the study of peer relationships and social skills.

Dunn and Kendrick's book also represents a heartening advance in the study of children's relationships with other children. Theirs is a monograph, rather than a collection, and whereas Rubin and Ross's volume will be of greatest value to advanced researchers (graduate students and professors), Dunn and Kendrick's will be accessible and of value to teachers, clinicians, advanced undergraduates, and even concerned parents. (It is, however, more demanding, and more valuable, than all but a handful of the books in the series The Developing Child, also published by Harvard University Press.)

Dunn and Kendrick describe their research on 40 English families—or more accurately, mother-child-child triads, for the fathers in these families receive little more than an occasional mention. Mother and first-born were observed and interviewed before the second child was born as well as on several occasions post partum. Using data derived from their observations and interviews, Dunn and Kendrick explore the effects of the second-born on the relationship between mother and first-born, the development of sibling relationships, the factors associated with individual differences in the quality of child-mother and sibling relationships, and the emergence of social (empathic) understanding as manifest in the utterances and behavior of the older children. Dunn and Kendrick's was a remarkably rich study—by far the best yet undertaken on the development of sibling relationships. The study is also praiseworthy for its recognition that the sibling relationship must be viewed in the context of other relationships within the family—even though the authors fail to address the father's role in the social systems studied.

Unfortunately, the findings are so interesting and so provocative that the authors sometimes appear to forget that this was an exploratory, hypothesis-generating study. All the findings must consequently be viewed cautiously until replicated in other studies. Some of the more straightforward findings are likely to be robust, but the more unexpected and complex relationships (for example, those concerning the sex composition of the sibling dyads) are unlikely to be replicable in their entirety, given the small number of subjects in each of the relevant cells. An attempt to look for consistency and replication across studies is especially important in the case of exploratory studies like this one, and the failure to do so is disappointing. The most striking omission is a discussion of related research and relevant theory.

All the findings reported in this book have been reported previously in the professional literature. The authors do not take advantage of the opportunity to integrate findings presented in different papers, but many readers will probably be grateful to find all the findings brought together in one report. To facilitate discussion of the findings, most of the tables of data are placed in an appendix, which also includes most important details of the methodology. This organization, supplemented by the inclusion of illustrative anecdotes, helps to make the book accessible to non-professionals without negating its value to researchers and scholars. This is a readable account of an important and interesting study. It should thus receive a great deal of attention.

MICHAEL E. LAMB
LYNNE ZARBATANY
Department of Psychology,
University of Utah,
Salt Lake City, 84112

The Jovian System

Satellites of Jupiter. DAVID MORRISON, Ed. University of Arizona Press, Tucson, 1982. x, 972 pp., illus. $49.50. Space Science Series.

Io, Europa, Callisto, and Ganymede once excited only the pederastic god Jupiter. However, since the 17th century, when the names of the Roman deity's youthful lovers were given to the four major moons about the planet Jupiter, Io and cohorts have been delighting planetary scientists. Prior to the space age, astronomers could ponder only a few facts about the moons: all four had been studied photometrically, and the orbits of the inner three were known to be interlocked in a complex dynamical way. However, in the last decade, our information base exploded as planetary satellites were scrutinized by sophisticated ground-based instruments and Jupiter's system was surveyed closely by two Voyager spacecraft in 1979. This new knowledge has demonstrated that the Galilean moons are extraordinarily interesting objects capable of revealing much about the nature of the solar system.

Callisto, a dust-mantled ball of ice and rock, is perhaps the most heavily cratered object in the solar system. Ganymede, the largest moon about any planet, displays incredible tectonic variety. Europa, encased by a smooth thin crust of ice, is unusually free of craters and is instead crisscrossed by long arcuate markings of unknown origin. Io, covered by the most youthful, bright, and variegated surface of all, has numerous active volcanoes that apparently provide it with a palette of brilliant sulfur allotropes. This odd satellite also significantly interacts with its magnetospheric environment: it lies at the core of tori containing sodium, potassium, and sulfur; it supplies many heavy magnetospheric components, but is simultaneously an absorber as are its compatriot moons; and somehow it helps trigger Jupiter's sporadic decametric radiation.

In addition to the major satellites, other objects circle Jupiter. Two clusters of tiny, presumably captured, satellites orbit well beyond the Galilean satellites. Three other craggy moons, even smaller than the previously known Amalthea, were discovered by Voyager to lie just a few planetary radii from Jupiter. A faint ethereal ring girds the planet near two of the small satellites.

This book emphasizes the Galilean satellites, especially bizarre Io. Geological descriptions of Ganymede, Europa, and Io by Shoemaker and co-workers, Lucchitta and Soderblom, and Schaber, respectively, will be widely cited. Four discussions of impacts into the Galilean satellites provide valuable extensions of earlier work on cratering in the inner solar system. In addition, Ostro uses the anomalous radar returns to suggest the small-scale surface structure of the satellites. Our understanding of terrestrial volcanism will be broadened substantially by Kieffer's important contribution on the dynamics and thermodynamics of Io's volcanoes. Six additional significant chapters address various aspects of plumes of these volcanoes, and two others consider the associated Io torus. A study by Cassen and co-workers of the interiors of the satellites is a nice treatment of a difficult subject, as is Green-