Book Reviews

Ontogeny and Phylogeny: A Behavioral Integration

Development and Evolution of Behavior. Essays in Memory of T. C. Schneirla. LESTER R. ARONSON, ETHEL TOBACH, DANIEL S. LEHRMAN, and JAY S. ROSENBLATT, Eds. Freeman, San Francisco, 1970. xviii, 856 pp., illus. $12. A Series of Books in Psychology.

T. C. Schneirla, the distinguished comparative psychologist whose work and concepts this volume celebrates, considered the study of behavioral evolution and the study of behavioral development to be mutually dependent. His view was that the key to understanding species and individual adaptations lay in the detailed analysis of how behavior patterns are organized at successive levels of ontogenesis by the fusion of biological and experiential processes. This orientation is well illustrated in Schneirla's own studies of the social behavior of army ants. His now-classic field and laboratory investigations of the *Eciton* demonstrated that their complex raiding and bivouac patterns are synchronized with, and dependent upon, the maturational status of the young. Schneirla found that the "queen's pattern of reproductive function depends, as does that of worker behavior, upon a complex mosaic of changing functional conditions in the colony, and it centers on the stimulative and trophic properties of the brood and their developmental changes." In contrast to such *biosocial* organization in insects, social behaviors at the mammalian level are responsive to a wide range of individual experience factors. A *psychosocial* organization is typical in mammals.

This theoretical stance, along with his appointment as curator in the American Museum of Natural History and his research focus on psychobiological interactions in social behavior, effectively removed Schneirla from the mainstream of American psychology. This occurred despite the fact that he had early coauthored a leading text in comparative psychology and was a respected though not compulsive contributor to the professional literature. But being outside the *Zeitgeist* is not always bad—especially if, as in Schneirla's case, you happen to be in front of it. This collection of essays should help to consolidate the progress that Schneirla and his colleagues have made over the past quarter century toward establishing a solid foundation for the comparative analysis of behavior.

The book is divided into five major sections. Each contains a set of original essays—28 in all—written by former students or associates of the late scientist. Most of them extend or apply Schneirla's concepts of comparative analysis and ontogeny. To make sure that the reader knows what these concepts are, the editors have included an informative foreword and have enlisted a sometime Schneirla collaborator, G. Piel of the *Scientific American*, to provide a highly readable introduction to Schneirla's holistic developmental theory.

The contributions in the first section charge head-on into the main conceptual issues evoked by the rubric "evolution of behavior." Animal behaviorists must hold some kind of record for remaining mired in semantic traps. The grandest and most bitter one of all—the nature-nurture problem—is revisited by D. S. Lehrman in an admirable analysis which could defuse the controversy. But there may be no way. So long as the concept "instinctual" serves as a magic blanket to cover generalizations from fish to man on such matters as "aggressiveness," it will be hard to put down. In another thoughtful essay, ichthyologist J. W. Atz considers whether the concept of homology can be applied to behavior in any meaningful or "nontrite" way. His answer is no. The basic problem that Atz identifies is that "homology is essentially a morphological concept" and "the difficulties in homologizing behavior that have arisen are almost all the result of the lack of morphological correlates in behavior." He therefore proposes a moratorium on applications of the idea until reliable behavioral-structural correlates are identified. L. R. Aronson's chapter, on the functional evolution of the forebrain in lower vertebrates, provides a good model for how the search for such correlates might proceed. One message implicit in Aronson's essay is that evolution-behavior generalizations should be framed in terms of the particular mechanisms or structures involved, not in terms of the outcomes achieved or species classification.

The section on the development of behavior is a worthy candidate for required reading in animal behavior or comparative seminars. In his discussion of the conceptions of prenatal behavior, G. Gottlieb further examines the Kuo-Schneirla thesis on the bidirectionality of early experience and structure. A major issue is whether endogenous and exogenous stimulation in the prenatal environment can be "essential for the initiation and maintenance of normal (typically observed) maturation changes." The evidence suggests it can: not only does structure help to determine behavior, but prior stimulation helps to determine structure. In a useful but regrettably brief essay, J. P. Hailman reviews the several sensory and experiential processes involved in "perceptual coding," a problem intimately related to the ethological concept of innate releaser mechanism. Neurophysiological studies of the past decade have demonstrated that stimulus filtering (or focusing) can take place at several intermediate, as well as peripheral and central, stages of afferent input. As in the other contributions that appear in the volume, the multiple roles that ontogenetic events can play in modifying the sensory encoding process are delineated.

The essays described above appear at the beginning of the book, but they are representative of the level at which the rest of the chapters are written. The breadth of coverage in the substantive sections makes for interesting and, frequently, compelling reading. The issues raised range from astute inquiries into the ontogeny and phylogeny of orientation (H. E. Adler), schooling in fishes (E. Shaw), and communication (W. N. Tavolga) to the maternal behavior of rats (H. Moltz, J. S. Rosenblatt) and the evolution of social behavior in primitive ants (C. P. Haskins). In view of the range of topics covered, it is not surprising to find that the well-credentialed contributors have an equally broad range of discipline identifications, from entomology to psychiatry. What *is* surprising is the degree to which holistic developmental concepts have provided a common ground for analysis and communication.

Even this book is not without disappointments. Most of them are conveniently grouped at the end of the volume, in the section on human behavior. The problem is that all but two of these papers have little to do with (or confuse) the major themes of the work. One noteworthy exception is provided by M. and C. W. Sherif's penetrating discussion of levels of analysis in aggression. In contrast to traditional psychological and ethological treatments, the Sherifs argue that intergroup conflicts require the analysis of the properties of groups, including the stimulational background and context of interaction. Individual motivational constructs, such as "aggressiveness" or "frustration," are not sufficient or always even relevant.

Not all of the responsibility for the shortcomings can be assigned to the essayists. Schneirla and those most directly influenced by him were not immediately involved in the analysis of developmental processes in children. However, as the progress report by A. Thomas and S. Chess indicates, such analysis is feasible. With the recent "independent" discovery by researchers in child development of some common basic concepts (among them reciprocal stimulation, behavioral synchrony, bidirectionality of psychobiological influences), the way may be open for a more systematic treatment. Both human and animal studies stand to gain. For theorists in child development to continue to use animal studies only for heuristic purposes is about as absurd as not using them at all. Partly for this reason, Z.-Y. Kuo's proposal for the establishment of a National Research Center in Developmental Studies seems worthy of serious attention (compare the AAAS 1970 symposium on the developmental sciences). Kuo, whose own work contributed significantly to Schneirla's views, points to the need for the explicit integration of the developmental disciplines on common problems. Anything less simply "will not reach the root of the problem of ontogenesis." The volume as a whole supports Kuo's contention.

Development and Evolution of Behavior is an important book. By maintaining the intellectual standards that were set by the scientist whose life and work they wished to commemorate, the contributors have served him well.

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People in a Rural Place

Social Character in a Mexican Village. A Sociopsychoanalytic Study. ERICH FROMM and MICHAEL MACCOBY. Prentice-Hall, Englewood Cliffs, N.J., 1970. xvi, 304 pp., illus. $8.95.

This is a relatively brief final report on a lengthy and intensive research project. Although Erich Fromm, the neo-Freudian psychoanalyst and humanistic philosopher–social critic, directed the research and coauthored the report, the differences between the field investigation and the book that represents it in print are so great as to require separate consideration of the two.

The investigation was perhaps the most comprehensive psychological study to date of a single community's population. Its stated purposes were to represent psychoanalytic theory in the study of a group, test Fromm's theory of social character, and gather evidence about Mexican peasants of relevance for public policy, but its data collection program was broad enough to be relevant to a wide variety of concerns in behavioral science. The village, containing some 800 persons and situated 50 miles south of Mexico City in the state of Morelos, was chosen partly because of its Rural Welfare Center, headed by an experienced Mexican physician living in the community, who worked with the investigators throughout the six years (1957–63) of the study.

For three years a husband-wife team of anthropologists, Theodore and Lola Schwartz, worked in the village, collecting not only ethnographic and socioeconomic material but also individual behavioral data (land use, participation in village affairs, husband-wife relations, drinking habits) on its adult inhabitants. They and others administered a clinical interview (not distinctively psychoanalytic in method), taking up to six hours for each person, to 406 persons (95 percent of the village population over 16 years of age). Maccoby, a psychologist, who later analyzed the adult interviews and the tests given to a smaller sample, devised a test-interview battery that was administered to 96 persons aged 6 to 16. Over the years, a boys' club and film showings and other "cultural" events were experimentally introduced into the community and the villagers' responses noted. The resultant body of data on a single village population permitted unprecedented comparisons of the social positions and observable behavior patterns of individuals with assessments of their psychological functioning.

The richness of the individual behavioral data shows through in some of the statistical findings presented in the book, notably the chapter entitled "Alcoholism," in which the drinking habits of adult men are shown to be correlated with age, community participation, cosmological beliefs, use of local curers as opposed to modern medicine, wives' character traits, and selection of crops to cultivate. In other chapters, the relations of interview responses to a variety of behavioral measures and socioeconomic indexes also suggest the soundness of the original design and of the data collection procedures. But the book is a very limited reflection of the series of investigations that was carried out.

The book is primarily intended to deliver a message: that peasants in Mexico and elsewhere have been psychologically and culturally degraded not only by traditional peonage but also by contemporary capitalism, so that even the economically successful among them have undesirable character traits; in planning for their future welfare, neither the encouragement of entrepreneurship nor any other policy ignoring social character (as conceptualized in Fromm's typologies) is likely to do anything but increase the exploitation of the many by the few. Organized around this message, the book is less a scientific report than a partisan brief in which the statistical findings from the field study appear as supporting evidence. The theoretical and policy points in this message are spelled out at length, in a rambling and doctrinaire style, whereas the village studied (unnamed even by pseudonym) is frequently obscured in an abstract discussion of peasants in general. There are no illustrative individual case histories, despite the psychoanalytic orientation, and ethnographic material is virtually excluded, so that it is difficult to assess the authors' interpretations of the bare statistical data.

In the psychological study of a population comprising one community, nothing is more important than a full description of the social and cultural environments in which its members function as children and adults, for it is only in relation to these environmental contexts that their behavior and personalities can be understood. This kind of description is almost completely absent from the book, which presents no coherent portrait of the social or-