

of attitudes to promote acceptance of individuals at face value. Our obsession with intelligence and intellectual achievement has created a one-dimensional grading of social fitness, and recognition that other deeply rooted human qualities are equally to be valued is long overdue.

The limitations of the book may be briefly noted. The extensive review of studies and theories bearing on each subject comes at the expense of a clear flow and unifying theme in the writing, and at times the reader may feel his or her comprehension more swamped than sharpened. The chapter on theories of intelligence is a case in point—Willerman touches on all the major theorists and the recurring brush-fire arguments between them, plus the difficulties faced by each theory, but even the reader experienced in this area may sense a lack of anchoring and information overload in trying to come to grips with the material.

Further, a personal opinion of this reviewer is that heritability coefficients are more frequently misleading than informative and for this reason should generally be omitted from the analysis of human abilities. Willerman mentions their limitations (p. 110) but then routinely uses them for comparison and interpretation of different studies. The coefficient gives an artificial sense of precision that is rarely justified by the underlying data; heritability coefficients may be nominally high or low for reasons that have more to do with the reliability of the data than with the presence or absence of genetic effects.

On balance, this is a book to be received appreciatively and recommended. The coverage is very extensive—indeed, at times the book reads like the *Annual Review of Psychology*—and some vexing topics are dealt with in straightforward fashion. The book has the virtue of a coherent framework afforded by the author's behavior-genetic orientation, and it helps to revitalize differential psychology as a cogent subject of inquiry. The writing is comprehensible and the interpretations circumspect—indeed, the occasional temporizing about results may be attributed to a special caution in drawing conclusions about presumptive genetic influences. The book is basically an excellent one, and we can be indebted to Willerman for bringing into the open several thorny issues concerning human abilities that demand thoughtful and informed attention.

RONALD S. WILSON

*Child Development Unit,
University of Louisville Medical School,
Louisville, Kentucky 40232*

Origins of the Sense of Security

Patterns of Attachment. A Psychological Study of the Strange Situation. MARY D. SALTER AINSWORTH, MARY C. BLEHAR, EVERETT WATERS, and SALLY WALL. Erlbaum, Hillsdale, N.J., 1978 (distributor, Halsted [Wiley], New York). xviii, 392 pp. \$24.95.

In the elaboration of the ethological perspective on social development *Patterns of Attachment: A Psychological Study of the Strange Situation* is the most important contribution since the publication of *Attachment* by John Bowlby, who introduced this perspective, in 1969. In the present volume, Ainsworth and her three coauthors describe the studies that have tested several major postulates of this approach to the study of infant social development.

Both Bowlby and Ainsworth have attempted to explain the processes of early social bonding (that is, the formation of affectionate attachments between infants and parents) by way of a theory that is more consistent with the principles of contemporary biology and psychology than is either social-learning or psychoanalytic theory. They propose that human infants are born with a genetically determined predisposition to seek the proximity of the adult figures who would, "in the environment of evolutionary adaptedness," protect and care for them. Parents, in turn, are supposedly predisposed to respond with behaviors that complement the infants' behaviors. The importance of these complementary behavioral predispositions is especially clear during the first few months, when the immobile infants can "achieve" proximity only by summoning adults (for example by vocalizing or crying). The ethologists propose that infants become attached to those persons who most consistently and extensively interact with them. The nature of the attachments formed to specific individuals depends in large part on the way in which each person has responded to the infant's behaviors and signals in the preceding months.

Despite Bowlby's background as a clinician, his presentation of the ethological attachment theory emphasized species-specific patterns and thus downplayed the emergence of individual differences. Complementing Bowlby's masterly syn-

thesis, Ainsworth has focused her attention for more than a decade on the development of individual differences in infant-parent relations. The primary contribution of the present book has to do with the assessment of such differences.

The "strange situation" referred to in the book's subtitle is an experimental procedure developed by Ainsworth and Wittig some ten years ago. Its purpose is to permit observation, in a standardized situation, of the way each infant organizes its attachment behavior around its attachment figure. In the strange situation, the infant is introduced, in a fixed sequence, to several everyday events (being in an unfamiliar room, the entrance of a strange adult, and being separated briefly from the attachment figure) that are likely to elicit fear or anxiety and thus an intensification of attachment behavior. The manner in which the infant responds to these events—especially the way in which it responds to reunion with the attachment figure following a brief separation—has been the primary focus of concern.

Drawing primarily upon four studies involving a total of 106 infant-mother dyads, Ainsworth *et al.* first document, by delineating the behavioral trends they found, that the stressors indeed affected infant attachment behavior in the predicted fashion. They then focus on the different ways in which the infants responded to stress. The normative pattern, characteristic of "securely attached" infants, involved active exploration in the mothers' presence, proximity-seeking and reduced exploration in the presence of the stranger, distress and disruption of exploration in the mothers' absence, and proximity- and contact-seeking upon reunion following the brief separations. The securely attached infants fell into one of four subgroups, all of which were characterized (more or less) by these patterns of behavior.

Two patterns of behavior are considered by Ainsworth *et al.* to characterize "insecure" infant-mother attachment relationships. The avoidant pattern (which included two subgroups) was notable for the manner in which infants failed to greet their mothers upon reunion or else mingled avoidant behaviors

with their greeting behaviors. Infants exhibiting the resistant or ambivalent pattern (again, there were two subgroups identified) responded to reunion by proximity- and contact-seeking alternated with displays of angry and resistant behavior.

These various patterns of behavior were first identified in a study of 23 infants undertaken by Ainsworth early in the 1960's. They provided a rubric for classifying the patterns of behaviors observed both in the three other studies reviewed in this book and in research conducted by other investigators since the strange-situation procedure was first described in 1969.

In their new monograph, Ainsworth and her coauthors describe the strange-situation procedures as a remarkably sensitive way of assessing the attachment relationships between infants and adults. Clearly aware that other scientists will be wary of such claims, they are at pains to demonstrate that the classification of infants' behavior in the strange situation is both reliable and valid. One of the authors (Waters) showed in his dissertation research that there is remarkable stability over time in the way infants behave in the strange situation, and his finding was confirmed by D. B. Connell. Several other studies, notably those conducted by Silvia Bell and Alan Sroufe, have reported that one can predict on the basis of strange-situation behavior how the infant is going to behave in other, quite different, circumstances. Essentially, "adaptive" behavior in the strange situation (that is, the secure pattern of behavior) predicts adaptive behavior in other settings, even when the actual behaviors that are adaptive in the two situations differ markedly. It is the emphasis on and emerging demonstration of continuity in the adaptedness of the organization of behavior that make the strange situation an appealing research tool.

Obviously, any investigator who seeks to add a new diagnostic and predictive tool to her or his arsenal will want to know about the antecedents of the performance it assesses as well as about the consequences (or predictiveness) of that performance. Unfortunately, the determinants of attachment security have been investigated in only one study, a longitudinal investigation of the 23 infants in Ainsworth's original sample. This study has yielded intriguing information about the determinants of behavior observed in the strange situation, and this evidence is reviewed once again in *Patterns of Attachment*. The

primary difference between the securely and the insecurely attached infants in Ainsworth's sample was that the former had mothers who were sensitively and reliably responsive to their signals, whereas the mothers of the latter were insensitive and—in the case of avoidant babies—rejecting. Several analyses have shown that the mothers of infants later classified as securely attached and the mothers of insecure infants could be differentiated as early as the first quarter-year of the infants' lives. All these analyses are based on the same small sample, however. There is a clear need for additional exploration—via longitudinal analysis—of the determinants of strange-situation behavior. Although Ainsworth *et al.* do not explicitly acknowledge this need, the reader is sure to perceive a significant gap here.

Several other investigators are currently exploring the antecedents of the patterns of behavior observed in the strange situation, and Ainsworth *et al.* review that work as well as their own. The results obtained so far make a persuasive case for further research on the predictive validity of the strange-situation procedure.

Researchers in the field will have encountered much of the material in this book before, but they will be pleased to have it brought together, especially because Ainsworth and her coauthors, freed of rigid space restrictions, have been able to provide a lucid theoretical context and to weave the findings and

theory together. Moreover, data that were presented elsewhere are reported here in greater detail, and some of the data reported have heretofore been available only in unpublished form or in documents of limited circulation. Other "old" findings have been made more impressive by increases in the sample sizes on which analyses are based. There are also several analyses that have not been discussed previously, one example being a multiple discriminant function analysis of the strange-situation data.

In short, Ainsworth and her coauthors have succeeded in providing a comprehensive and readable synthesis of research relating to the assessment of individual differences in infant-parent attachment. Their synthesis points clearly toward matters in need of further investigation, and this heuristic element adds to its value. *Patterns of Attachment* also contains all the procedural information—including instructions for the classification and rating of the patterning and organization of behavior—necessary to prepare oneself to do research in this area. I confidently predict that, stimulated by this book, many more published studies will employ the strange-situation procedure and that this will presage major advances in the understanding of infant social development.

MICHAEL E. LAMB

Department of Psychology,
Center for Human Growth and
Development, University of Michigan
Ann Arbor 48109

Independent Explorations

Children's Experience of Place. ROGER HART. Irvington, New York, 1979 (distributor, Halsted [Wiley], New York). xxvi, 518 pp., illus. \$27.50.

This is a delightful and intelligent book—delightful because it captures some of the vigor and wonderment with which children explore their environment, intelligent because the author has adopted a very flexible course allowing the children themselves to lead him in defining the major outlines of the study. The study focuses on a small New England village. For some purposes the study includes all the local children from kindergarten through the sixth grade. A sample of 20 children is the subject of more detailed study. A very wide range of methods are used: interviews with parents and child, diaries kept by the children, observation by the author,

place modeling and mapping, recognition of slides and pictures, informal trips with children, and efforts on the part of the author to empathize with the children and recapture his own subjective experience of place.

With such a range of findings it is difficult to summarize and do justice to the study. In broad outline, however, the following represent some of the more intriguing findings and generalizations. Much of the children's experience of place seems to grow directly out of their unaided explorations and is only subsequently and incompletely integrated by the shared communal language for places. Parental restriction on their children's movement is conditional, including a free range where children may go without permission, another that they may explore with companions, another for bicycling, and yet another if they pe-