

Patterns of *ATTACHMENT*

A Psychological Study of the Strange Situation

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Preface

This book is about the attachment of infants to their mother figures. In it we focus on how infant behavior is patterned. We approach this patterning in two main ways. First, we examine the way in which a baby's behavior is patterned when the attachment system is activated at varying levels of intensity through simple manipulations of his environment in a laboratory situation, which we have called the "strange situation." When examining the baby's responses to controlled environmental changes, we observe the way in which his or her attachment behavior interacts with other behavioral systems that are also activated at varying levels of intensity and that may either compete or conflict with attachment behavior or augment the intensity with which attachment behavior is manifested. Second, we identify certain important individual differences in the way in which behavior is patterned—both attachment behavior and behavior antithetical to it—and seek to understand how such differences may have arisen and how different patterns of attachment may influence development.

We undertook writing this book in order to present the information about infant-mother attachment that we had gained through the use of a standard laboratory situation and to compare the manifestations of attachment in that situation with manifestations of attachment observed at home. We also wished to review the findings of other investigations of attachment, especially those that are directly comparable with ours because of their use of our strange-situation procedure, and to compare their findings with ours, including the findings of investigations that studied children older than the 1-year-olds upon which our work focuses and those that are concerned with an infant's attachment to figures other than the mother. We report much

empirical detail, which will be of interest to all those who investigate a young child's early interpersonal relations. The empirical detail leads, however, to a discussion of theoretical issues of major significance. Implicit in both the empirical findings and in the theoretical discussions are clues both to the understanding of developmental anomalies and to ways in which such anomalies might be prevented, assuming the feasibility of early intervention in families in which new babies are expected or have recently arrived. Therefore, we believe that this volume will be of interest not only to those concerned with theory and research into early social development, but also to diverse classes of persons concerned with the practical job of providing better infant care and facilitating optimal development in young children.

It seems suitable in this preface to introduce the reader to the strange situation and to describe how we happened to use it and why we judged the findings stemming from its use to be of sufficient significance to focus a book on them. The "strange situation" was the label assigned by Ainsworth and Wittig (1969) to a standardized laboratory procedure in which several episodes, in fixed order, were intended to activate and/or intensify infants' attachment behavior. These episodes were designed to approximate situations that most infants commonly encounter in real life. The adjective "strange" denotes "unfamiliar," rather than "odd" or "peculiar"; it was used because fear of the unfamiliar is commonly referred to as "fear of the strange" (e.g., Hebb, 1946). All of the instigations to attachment behavior used in the strange situation involved unfamiliarity.

The strange situation was originally devised in 1964 for use in conjunction with an intensive longitudinal study of the development of infant-mother attachment throughout the first year of life, a naturalistic study in which infants were observed in their familiar home environments. This study of 26 mother-infant pairs living in the Baltimore area had been preceded by a comparable but less intensive study of 28 dyads living in country villages in Uganda (Ainsworth, 1967). Despite many similarities between the two samples in regard to attachment behavior, three behavioral patterns that had been highlighted in the Ganda study emerged less strikingly in the American study: the use of the mother as a secure base from which to explore; distress in brief, everyday separations from the mother; and fear when encountering a stranger. Perhaps if stronger instigation were provided, the American babies might be induced to behave in much the same ways as had the Ganda infants. In the belief that these behaviors might be evoked more incisively in an unfamiliar situation than in the familiar home environment, the strange situation was devised.

First, let us consider the use by an infant of his mother as a secure base from which to explore the world. One of us (Salter, 1940) had long been interested

in the hypothesis, originally formulated by Blatz,¹ that a young child who had gained security in his relationship with his parents was emboldened thereby to strike out to explore the world, willing to risk the insecurity initially implicit in a learning situation because he could rely on his parents to be available, responsive, protective, and reassuring. If his adventure evoked undue anxiety, the child could easily return to "home base," in the expectation that his parents would provide the reassurance he needed. If, on the other hand, his relationship with his parents was insecure, then he might not dare to leave them to explore, not trusting them to remain available to him if he left or to be responsive when he needed them. Lacking trust, he would stick close to his base, fearing to risk the anxiety implicit in exploration and learning. This hypothesis was confirmed in the Ganda study (Ainsworth, 1963, 1967). Infants who were judged to be securely attached to their mothers explored actively while their mothers conversed with the observers, and indeed they might well leave the room or even the house in order to extend their exploratory activities. Yet most of these same infants were acutely distressed and ceased exploration if it were the mother who left them. By contrast, infants who were judged to be anxiously attached tended to remain close to the mother, perhaps clinging to her and exploring little or not at all.

In the course of the longitudinal study of Baltimore infants, however, nearly all babies left their mothers to explore the familiar home environment (Ainsworth, Bell, & Stayton, 1971), whether or not they were judged to be secure in their attachments to their mothers (Stayton & Ainsworth, 1973). Perhaps individual differences could be discriminated in an unfamiliar environment that might hence be expected to provide stronger instigation to attachment behavior.² Perhaps those who were anxiously attached to their mothers might be unwilling to explore when placed in an unfamiliar situation, whereas those who were securely attached would explore even a strange situation with the mother present.

Antedating our strange situation was Arsenian's study (1943) of young children in an "insecure" situation and Harlow's (1961) work with rhesus infants in an open-field situation. Both studies showed the effectiveness of the mother or mother surrogate in providing security for exploration. Subse-

¹MDSA first heard William Blatz speak of a child using his parents as a secure base from which to venture forth to learn when she was a student in his course at the University of Toronto in 1934-35. It was not until 30 years later (Blatz, 1966) that he explicitly published his "security theory."

²It now seems likely to us that the Ganda infants, being more afraid of strangers than the Baltimore infants were, found even the familiar home environment more stressful because of the presence of the visitor-observers, and that this highlighted individual differences in their use of the mother as a secure base from which to explore.

quently, several studies of infants with and without their mothers in unfamiliar situations have provided clear-cut confirmation of the hypothesis that infants and young children tend to explore an unfamiliar environment in the mother's presence, but slow down or cease exploration in her absence (e.g., Cox & Campbell, 1968; Rheingold, 1969), although infants will indeed leave their mothers *on their own initiative* in order to explore (Rheingold & Eckerman, 1970). The present study not only adds further evidence of these normative tendencies, but also throws light on individual differences in maintaining exploration under conditions that also activate attachment behavior.

Second, distress upon being separated from the mother has long been conceived as an indication that an infant has become attached to her (e.g., Schaffer & Emerson, 1964). Our longitudinal study of Baltimore infants showed, however, that the average baby did not consistently protest his mother's departure in the familiar home environment (Stayton, Ainsworth, & Main, 1973). Indeed some babies, who, by other behavioral criteria, were clearly attached to their mothers, showed very infrequent separation distress. The same finding had been noted in the case of Ganda infants (Ainsworth, 1963, 1967), but nevertheless the latter more frequently protested separation in a familiar environment than did the Baltimore babies. On the other hand, it is well known that, once attached to a mother figure, infants and young children tend strongly to protest being separated against their will and placed in an unfamiliar environment for any substantial length of time (e.g., Bowlby, 1953; Heinicke & Westheimer, 1966; Schaffer & Callender, 1959; Yarrow, 1967). Therefore it was of interest to subject the infants in the longitudinal sample to very brief separation experiences in an unfamiliar environment in order to compare their responses with similar minor separations in the home environment. It was expected that most would be distressed by separation in the strange situation, even though they might be infrequently distressed by little separations at home.

Third, it was of interest to observe infants' responses to a stranger in an unfamiliar environment. Although Spitz (e.g., 1965) maintained that fear of strangers (i.e., 8-month anxiety) was a milestone in normal development and a criterion that an infant had achieved "true object relations," and although Ganda infants (Ainsworth, 1967) had been observed to be conspicuously afraid of strangers toward the end of the first year, the Baltimore babies did not consistently show such fear in the familiar environment of the home. Therefore it was of interest to see whether the context of an unfamiliar environment would heighten their fear of strangers.

The structure of the strange situation followed from these lines of hypothesis and interest. Exploratory behavior was to be observed both in the mother's presence and in her absence. The infant's response to a stranger was likewise to be observed both in the mother's presence and in her absence. His

response to his mother's absence was to be seen both when he was alone and when he was left with a stranger. His response to his mother's return after an absence was to be compared with his response to the return of the stranger after an absence. The episodes of the strange situation, which are described in detail in Chapter 2, followed from these considerations.

The 1-year-old, accompanied by his mother, was introduced to an unfamiliar but otherwise unalarming playroom where massive instigation to exploratory behavior was provided by a large array of toys. In the next episode, an adult stranger entered, who was tactful but nevertheless unfamiliar. Then came a brief separation episode in which the mother left the baby with the stranger. Then after an episode of reunion with the mother, there was a second separation in which the baby was first alone in the unfamiliar environment and then again with the stranger, who returned before the mother reentered. Because it was anticipated that experience in each episode would affect behavior in the next episode, the instigation to attachment behavior expected to be the weakest was placed at the beginning and that expected to be strongest toward the end. The expectations that these mild instigations would be cumulative in their effect were fulfilled.

It must be emphasized that the strange situation does not constitute an experiment in the literal meaning of this term. Different groups of subjects were not assigned to different treatments in order to ascertain the relative effect of these treatments on some dependent behavioral variable. Nor was it our intent to assess the relative effects of the different kinds of instigation upon intensity of attachment behavior—an intent that would have demanded control of order effects. On the contrary, the strange situation was designed as a controlled laboratory procedure in which individual differences among infants could be highlighted, precisely because they were exposed to the same situation with the same episodes in the same order.

The findings that have emerged from the use of this procedure have indeed highlighted individual differences in the way infants respond to an accumulation of instigations to attachment behavior. Different patterns of strange-situation behavior, we propose, indicate differences in the way infant-mother attachment has become organized. We have observed the same patterns in four separate samples of 1-year-olds, and other investigators who have used our techniques for the identification of patterns of attachment have confirmed our findings. Just because the procedure provides increasingly strong instigation to attachment behavior through its cumulative nature, one may observe in a relatively short span of time attachment behavior under conditions of activation from relatively weak to very strong. In the familiar home environment, occasions for strong activation of attachment behavior are infrequent, so that it requires many hours of observation to encompass a similar range, especially in the case of a healthy infant reared in a social environment that is sensitively responsive to him.

Nevertheless, in our longitudinal study that provided for approximately 72 hours of observation of each infant throughout the first year, it was possible to observe patterns of attachment and, further, to relate these to patterns of maternal behavior. For the sample of infants thus longitudinally observed, it was possible to examine continuities and discontinuities of specific behaviors between the home and laboratory environments; more important, these two sets of data enable one to perceive the patterning or organization of behaviors that reflects continuity of an attachment of a distinctive nature, despite discontinuities in specific behaviors.

Consequently, the findings reported in this volume go far beyond the specific issues that the strange situation was initially designed to investigate. They throw light upon qualitative differences in the nature of the attachment relationship itself, and, in conjunction with longitudinal data provided both by ourselves and by other investigators, they also yield hypotheses of how such qualitative differences arose and how they exert an influence on subsequent development.

To anticipate a more detailed report of our findings, we can note that the episodes of the strange situation that made the most significant contribution to the identification of patterns of attachment were the reunion episodes—those in which the mother rejoined the baby after having been away for some minutes. This comes as a surprise to some who may have assumed that responses during the separation episodes—the episodes during which the instigation to attachment behavior might be assumed to be strongest—would be most significant. To us it was not surprising. The entire separation literature (cf. Ainsworth, 1962) suggests that the response to reunion after separation may well yield a clearer picture of the state of attachment than did the response to separation itself. After a relatively brief separation—lasting a few days or even a few weeks—it is common to observe a great intensification of attachment behavior upon reunion. The child seeks to be in close bodily contact with his attachment figure and also seeks to maintain close proximity over much longer periods than was previously characteristic of him. It seems that separation has shaken his trust in the mother's accessibility and responsiveness, so that he scarcely dares to let her out of sight lest she disappear again. Furthermore, he may be more ambivalent toward her than previously. It seems that the angry feelings aroused during the separation, when he felt abandoned, are not altogether dissipated upon reunion, but mingle or alternate with his desire for renewed contact, so that he both rejects and seeks to be close to his attachment figure.

Furthermore, a child may respond to separation, especially to a long and depriving separation, with "detachment" behavior, which gives the impression that he is indifferent to the whereabouts and behavior of his attachment figure. In fact, however, detachment seems likely to be a product of intense conflict between attachment behavior activated at high levels of intensity and

avoidant behavior evoked by the seeming rejection implicit in the failure of the attachment figure to respond to him during the separation. This detachment behavior, like angry rejecting behavior, is not likely to vanish immediately upon reunion. On the contrary, it may be strengthened by the high-intensity activation of attachment behavior occasioned by reunion. Consequently a child may seem not to recognize his mother or may seem indifferent to her for a period of time after reunion and before intensified attachment behavior overtly reasserts itself.

Although one might expect to find these various reunion behaviors—whether they be intensified attachment behavior, angry resistance, or avoidant detachment—to be less conspicuous and/or less prolonged after the brief separations implicit in our strange situation, nevertheless it seemed reasonable to us to be alert for responses, similar in kind if not in degree, in the reunion episodes. Furthermore, because the strange-situation separations were so brief, it makes sense to suppose that individual differences in reunion behaviors reflect characteristics of the infant's attachment relationship to his mother—characteristics that were consolidated long before the strange situation was first encountered.

The final task of this preface is briefly to outline the structure of this volume. But before proceeding to that task, one further point is most suitably discussed here. The strange situation is admittedly somewhat stressful. Some have suggested that it is unjustifiably stressful. We must disagree. We would not have subjected over 100 infants to an unduly stressful procedure. We designed the situation to approximate the kind of experiences that an infant in our society commonly encounters in real life. All American mothers whom we have encountered do not hesitate to take their babies at least occasionally into unfamiliar environments—for example, to visit an adult friend unfamiliar to the baby or, less commonly, to take him to a day-care center, to a babysitter's home, or to a play group. While they are in this unfamiliar (but not otherwise alarming) environment, the mother may leave her baby for a few minutes—either alone or with a stranger—whether to accompany her hostess to another room, to go to the telephone, or to visit the bathroom. The strange situation was modeled on such common real-life experiences.

None of the mothers in any of our four samples came to the laboratory without having been informed in detail of every step in the procedure, how we expected a range of babies to respond, and why we had designed the episodes in the way that we had. Nearly all mothers that we approached agreed to participate with their babies; only one did so with any apparent misgivings, and she was the one mother in our longitudinal sample who had a full-time job and whose baby had begun to react negatively to her daily departures and returns. We emphasized that any episode could be curtailed if a baby became unduly distressed, but it was we who nearly always initiated a curtailment, while the mother showed no concern.

After the strange situation was over, we always spent substantial time with the mother and baby, giving the mother an opportunity to discuss the baby's reactions if she wished, but in any case offering an occasion for pleasant social interaction. In no case did we observe any continuing distress or any adverse effects attributable to the strange situation, and in the case of our longitudinal sample this was so in a follow-up visit three weeks later. Indeed we were soon convinced that we were far more concerned about the anxiety that might have been associated with the brief separation experiences implicit in the strange-situation procedure than were the parents—who had little or no compunction about imposing much longer separations on their babies, often under less than optimum conditions.

Nevertheless we acknowledge that the strange-situation procedure might not approximate common experiences of infants who are reared differently, whether in other societies or by atypical parents in our own society; and we cast no aspersions by our term “atypical,” for these may be highly sensitive parents who avoid all unnecessary occasions for separation. It seems entirely likely that Ainsworth's (1967) Ganda infants and Konner's (1972) Bushman babies could not have tolerated the strange situation. Recently Takahashi (personal communication) informed us that the Japanese mothers of her sample would not consent to leaving their babies alone in an unfamiliar situation, although they did not object to leaving them with a stranger. The strange situation surely should not be imposed on a baby whose parents are reluctant to cooperate, especially if they have reason to expect that he would be especially disturbed either by separation or by encountering a stranger. For all but a few infants in our middle-class society, however, we are convinced that there is no uncommon stress implicit in the strange-situation procedure, and we are even more convinced that the scientific yield of the strange-situation procedure has been great indeed.

Now let us introduce the reader to the rest of this volume. Chapter 1 deals with the theoretical background that underlies our research. It is necessary in order to follow our interpretations of the findings. Those who are thoroughly conversant with ethological–evolutionary attachment theory (e.g., Ainsworth, 1969, 1972; Bowlby, 1969, 1973) will perhaps find little new in Chapter 1 and may wish to speed on to later chapters.

Part II deals with method. Chapter 2 introduces the reader to our total sample of 106 infants and presents the strange-situation procedure in the kind of detail necessary if others are to replicate it. Chapter 3 presents the behavioral measures we used in our data reduction. There are three types of assessment: (1) frequency measures of an ordinary kind, which are used chiefly to deal with “discrete” behaviors (specific behaviors considered separately from other behaviors); (2) special scoring of interactive behaviors (“categorical” measures that assume a degree of equivalence among goal-corrected behaviors with a common set-goal, and that thus themselves take

behavioral patterning into account); and (3) classification of infants according to the patterns of behavior they displayed. Although the frequency measures are almost self-explanatory, the reader will need to become familiar with the categorical measures and with the classificatory system in order to follow our presentation of findings with understanding and ease.

Part III is concerned with results, both of our own strange-situation research and that of others who have used the strange-situation procedure with little or no modification. Chapter 4 contains a descriptive account of behavior in each episode of the strange situation. This analysis is ethologically inspired. It seemed desirable to provide this detailed account of strange-situation behavior before reducing the data to more manipulable behavioral measures. This account is prerequisite to the analysis of the activation and termination of specific behaviors, of changes in behaviors as the activation of the attachment system becomes more intense, and of the ways in which different attachment behaviors are alternative to each other and hence interchangeable to some extent. Chapter 5 is a normative account of behavioral changes across episodes of the strange situation. This analysis, reported previously for a smaller sample (Ainsworth, Bell, & Stayton, 1971), deals with the variations across episodes of the various behavioral measures. In a sense, it summarizes the detailed episode-by-episode analysis of Chapter 4.

Chapters 6, 7, and 8 deal with individual differences in strange-situation behavior. Chapter 6 is devoted to a multiple discriminant function analysis, which examines the reliability of the classificatory system that is our primary method of identifying patterns of attachment. Among other things, this analysis ascertains the extent to which the specifications for classification actually contribute to discriminating one classificatory group from the others. Chapters 7 and 8 focus on individual differences in our longitudinal sample, comparing strange-situation patterns with behaviors manifested at home during both the first and fourth quarters of the first year. Chapter 7 compares infant behavior at home with behavior in the strange situation. This analysis is highly pertinent to the issue of the stability of both attachment behaviors and patterns of attachment over time and across situations. It is also essential to the interpretation of strange-situation patterns as indicative of qualitative differences in the infant-mother attachment relationship. Chapter 8 examines the relationship of maternal behavior at home to infant behavior in the strange situation—an analysis that throws light upon the influence of individual differences in maternal behavior on individual differences in the quality of the attachment of infant to mother.

Chapters 9 and 10 are review chapters. Chapter 9 deals with the findings of other investigations of the behavior of 1-year-olds in the strange situation, whereas Chapter 10 is concerned with the behavior of children between 2 and 4. These important chapters extend the scope of our research. In most instances the findings reported therein confirm and extend our findings,

although some studies, especially some of those dealing with older children, suggest limitations. Other studies yield apparent discrepancies between their findings and ours that seem best explained in terms of the use of different methods of appraisal.

We then return again specifically to a consideration of individual differences. Chapter 11 examines the stability of patterns of attachment and attachment behavior shown when the strange situation is repeated after varying lapses of time. Chapter 12 considers individual differences in patterns of behavior as they are more finely reflected in subgroup differences, over and above the way in which they are reflected in differences among the three main classificatory groups that were the theme of many of the findings reported in Chapters 6 through 11. These subgroups are too small for one to be able to meaningfully assess the statistical significance of the differences among them. Hence the reader who is interested in the general thrust of our argument rather than in possibly suggestive detail may wish to skip on to Part IV.

In Part IV the findings reported in Part III are discussed in the light of both theoretical considerations and other relevant findings reported in the research literature. Chapter 13 focuses on the discussion of the normative findings, which may now be better understood after our consideration of individual differences. Chapter 14 considers individual differences in the light of diverse theoretical paradigms—evolutionary–ethological attachment theory (summarized in Chapter 1) and two paradigms stemming from social-learning theory. Here we attempt to deal with some recent criticisms of attachment research and of the concept of attachment. It seems obvious to us that these criticisms are attributable to divergent paradigms, leading to research asking different questions, and conducted with procedures different from ours. Insofar as it is possible to make a bridge between divergent paradigms, we believe that the findings reported in this volume provide a definitive reply to the kind of criticisms made to date. Finally, Chapter 15 provides an interpretation of the patterns of attachment that have emerged as the most significant set of findings of our research, along with a discussion of some of the ways in which they seem likely to influence early development.

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Tied as it has been to our longitudinal research into the development of infant–mother attachment, the body of findings reported in this volume has taken many years to amass, and we are indebted to many who have played significant roles in this endeavor. Our first debt of gratitude is to the Foundations' Fund for Research in Psychiatry, which in 1962–63 awarded the grant, 62-244, that made it possible for this research to be launched. Since then, the research has been supported by USPHS grant RO1 HD 01712 and

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We are deeply indebted to the 106 mothers who, with their babies, participated in the strange situation. Most of them were motivated by a desire to support a study that aimed to extend our knowledge of early social development. We trust that their efforts will, in due course, result in some useful guidelines for mothers of young infants to facilitate the establishment of secure and harmonious attachment relationships. As for the 1-year-olds—who will probably not remember—we trust that their adventure in the strange situation and in social interaction afterwards will have been on the whole enjoyable.

Our debt to John Bowlby is great and many faceted. Not only is his formulation of attachment theory focal to the interpretation of our findings, but also his advice and encouragement have been vital throughout the several stages of this long project. In addition, although none of them can be held accountable for the final form of this volume, we were very much helped by John Bowlby, as well as by Robert Hinde and Mary Main, who read all or parts of earlier drafts and made cogent suggestions.

Finally, we wish to express our deep appreciation to those whose independent work with the strange situation has contributed to the literature reviewed in Chapters 9 and 10: Joyce Brookhart, Dante Cicchetti, David Connell, Shirley Feldman, Ellen Hock, Margaret Ingham, Michael Lamb, Alicia Lieberman, Sue Londerville, Eleanor Maccoby, Leah Matas, Saul Rosenberg, Felicissima Serafica, Lisa Tomasini, and Bill Tolan, as well as others acknowledged earlier for their contributions—Silvia Bell, Mary Main, Robert Marvin, and Thomas Pentz. We are indeed grateful for their response to our inquiries, for the unpublished material that many of them provided, and for their care in editing drafts of our review of their work.

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