
Attachment Theory: Retrospect and Prospect

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I. ATTACHMENT THEORY: RETROSPECT AND PROSPECT

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This chapter has several major aims. The first is to provide an overview of attachment theory as presented by John Bowlby in the three volumes of *Attachment and Loss* (1969/1982b, 1973, 1980), giving special emphasis to two major ideas: (1) attachment as grounded in a motivational-behavioral control system that is preferentially responsive to a small number of familiar caregiving figures and (2) the construction of complementary internal working models of attachment figures and of the self through which the history of specific attachment relationships is integrated into the personality structure. These two concepts, but especially the notion of internal working models, will be used in the second section of the chapter to interpret refinements and elaborations of the theory that have been primarily the result of the work and influence of Mary Ainsworth. Topics discussed are maternal and infant contributions to the quality of attachment relationships, stability and change in the quality of attachment relationships, carryover effects from earlier to later relationships, and intergenerational transmission of attachment patterns as an intracultural and cross-cultural phenomenon. An attempt is made to clarify a variety of theoretical points and to discuss others that remain to be clarified. Finally, I consider how recent insights into the development of socioemotional understanding and the development of event representation can be integrated into attachment theory to shed new light on the origins of individual differences in personality development. In doing so, I have also attempted to provide a framework for the studies presented in this volume.

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THE ONTOGENESIS OF ATTACHMENT THEORY

Attachment in the Narrow Sense

The impetus that moved Bowlby (1958, 1969/1982b, 1973, 1980) to formulate attachment theory came from findings demonstrating pervasive ill effects of institutional and hospital care on infants and young children (e.g., Bender & Yarnell, 1941; Goldfarb, 1943; Skodak & Skeels, 1949; Spitz, 1946), findings that could not be explained in terms of the then prevailing secondary drive theories (see Maccoby & Masters, 1970, for a summary of the social learning and psychoanalytic versions of this point of view). The theoretical underpinnings of the new theory came from ethology, control systems theory, and cognitive science, but the influence of psychoanalytic principles is pervasive, especially in the later volumes of the attachment trilogy (Bowlby, 1969/1982b, 1973, 1980).

Historically, attachment theory was developed as an alternative to psychoanalytic theories of object relations (Bowlby, 1982a) in order to explain (1) why mere separation should cause anxiety; (2) the similarities between adult and childhood mourning; and (3) defensive processes (selective exclusion of signals from within and without that would normally be implicated in the activation of attachment behavior).

“Attachment,” as conceptualized by Bowlby, was not meant to be taken as a simple synonym for the term “social bond,” nor was it meant to apply to all aspects of child-parent relationships. It is often overlooked that Bowlby believed that the roles of attachment figure and playmate were conceptually distinct (Bowlby, 1969/1982b, p. 307). A child is said to seek the attachment figure when under stress but to seek a playmate when in good spirits. Because the two roles are not incompatible, it is possible for one person (e.g., the caregiver) to fill both.

With respect to the formulation of attachment theory, this position has a number of implications. First, it is now clear that the term “attachment” used in this narrower, technical sense does not cover the playful interactions studied by Brazelton (e.g., Brazelton, Koslowski, & Main, 1974) and Stern (e.g., Stern, 1977), even though these play an important role in mother-infant relationships. This point is treated at much greater length in Bretherton (1980). Second, it becomes evident that one useful way of describing relationships is in terms of the variety of the partners’ shared interaction plans or programs. For example, a person may be a child’s principal attachment figure but not the child’s most important or preferred playmate. Conversely, it is quite conceivable for a preferred playmate to have only a very minimal role as an attachment figure. Such an approach to the study of relationships has been proposed by several authors (Bretherton, 1980;

Hinde, 1976, 1982a; Parkes, 1982) and is espoused by Bowlby in the revised edition of *Attachment* (1969/1982b).

In his influential article "On Describing Relationships," Hinde (1976) suggested that relationships can be characterized along the following dimensions: (1) content of component interactions; (2) diversity of component interactions; (3) reciprocity versus complementarity of interactions; (4) qualities of the component interactions (meshing, mutual goal alignment); (5) relative frequency and patterning of component interactions; (6) multi-dimensional qualities such as "affectionateness" that cannot be described in terms of any one dimension such as warmth or possessiveness; (7) each partner's level of moral and cognitive functioning; and (8) penetration or degree of mutual disclosure, openness, and intimacy.

Hinde's first three points have to do with the content of relationships, points 4, 6, 7, and 8 with qualitative aspects of relationships. Point 5 relates to both. In applying this framework to attachment, the following may be claimed. The content of attachment relationships (point 1) is concerned with security regulation where the attached person seeks and the attachment figure provides security (and protection, soothing, comfort, and help). The attachment partnership is thus an asymmetrical or complementary one (point 3) except in circumstances in which both partners play the role of attachment figure vis-à-vis one another. Additional plans shared by attachment partners may involve the reciprocal roles of playmate and the complementary roles of teacher-pupil, to mention just two examples (point 2). The parent-child relationship is therefore neither exclusively reciprocal nor exclusively complementary (point 3). It would be reasonable to assume that the attachment component and the play component of a relationship would show qualitative consistency (see Ainsworth, Blehar, Waters, & Wall, 1978; Bates, Maslin, & Frankel, in this vol., for supportive evidence). To throw more light on this question, it might be fruitful to describe how frequently, warmly, and deeply attachment partners interact with one another across the full range of their shared plans (points 4, 6, 7, 8). It will be especially important to do this for both parents. Although neither father nor mother tends to play an exclusive role as attachment figure or playmate, the relative predominance of the attachment and play components may vary (point 5). Several authors have documented that in Western cultures mother tends to become the preferred attachment figure whereas father tends to become the preferred playmate (e.g., Lamb, 1976, 1977, 1978; Lytton, 1980). There is also evidence that in some cultures reciprocal play does *not* play an important role in the early mother-infant relationship. For example, in a study of Mayan Indians in Mexico, Brazelton (1977) observed few maternal attempts at eliciting social responses from infants by talking or face-to-face interaction, although mothers were quite solicitous in response to infant distress.

The Attachment System

Having discussed the place of attachment within the more general framework of relationships, we can now consider Bowlby's conceptualization of attachment as a goal-corrected control system (see Waters & Deane, 1982, for an excellent summary of the properties of systems). The term "attachment behavioral system" (I prefer "attachment system") refers to a psychological organization hypothesized to exist within a person. This system is so constituted that feelings of security and actual conditions of safety are highly correlated, although the correlation is by no means perfect. Seen from an outside observer's viewpoint the system's set-goal is to regulate behaviors designed to maintain or obtain proximity to and contact with a discriminated person or persons referred to as the attachment figure(s). From the psychological vantage point of the attached person, however, the system's set-goal is felt security (Bischof, 1975). Both the external and the internal perspectives are useful and necessary, but the distinction should be kept clearly in mind. Attachment behavior tends to be most obvious when the attached person is frightened, fatigued, or sick and is assuaged when the attachment figure provides protection, help, and soothing. The mere knowledge that an attachment figure is available and responsive provides a strong and pervasive feeling of security and so encourages the person to value and continue the relationship (Bowlby, 1982a, p. 668). Finally, although attachment behavior is most noticeable in early childhood, it can be observed throughout the life cycle, especially in stressful situations.

Because attachment behaviors closely resemble behaviors that had been described as dependent in the context of social learning theory, the new attachment construct was initially assimilated to the well-established concept of dependency (see Sroufe, Fox, & Pancake, 1983, for an extensive discussion). However, despite superficial similarities, there are substantial differences between the two theoretical approaches. Dependency had been conceptualized as a personality trait. Attachment, by contrast, refers to a relationship with a discriminated person or persons. No biological function had been attributed to dependent behaviors. Attachment behaviors, on the other hand, are believed to have the biological function of protecting the attached individual from physical and psychological harm. Indeed, Bowlby (1982a) proposed that attachment behavior rivals mating and feeding behavior in biological importance and that the attachment system has its own distinct internal motivation. It is in claiming that the attachment system is a distinct motivational system that Bowlby most profoundly diverges from traditional psychoanalytic theory.

In an even more general sense, attachment to persons and places and fear of the novel and strange may—in Bowlby's view—be interpreted as part of a group of behavioral systems whose function it is to maintain a

relatively steady state between an individual and his or her environment (Bowlby, 1973). Such homeostatic systems may be regarded as an "outer ring" of life-maintaining systems complementary to the "inner ring" of systems that maintain physiological homeostasis. As long as the outer ring (the behavioral-motivational) systems successfully maintain an individual within a familiar environment, the load placed on the systems maintaining physiological homeostasis is lessened (see Bowlby, 1973, pp. 149–150).

This notion has received strong support from recent studies of nonhuman primates by Reite and his colleagues (Reite, Short, Seiler, & Pauley, 1981). These investigators showed that pigtail macaque infants whose mother was removed from the social group underwent profound physiological changes suggestive of a general impairment of autonomic homeostatic functioning (decreases in heart rate and body temperature, sleep disturbances, and changes in EEG power spectra).

In Bowlby's view the essentially "conservative" homeostatic systems are antithetical to systems mediating exploratory and other forms of information- and stimulation-seeking behaviors. A child's behavior may then be seen as the outcome of the interplay of such systems (Bischof, 1975; Bretherton & Ainsworth, 1974). Although the propensity for exploration may take the child away from the attachment figure, the experience of fear and stress takes the child toward the attachment figure. The joint operation of these antithetical propensities facilitates exploration under reasonably safe conditions. When no apparent danger threatens, the child can (but need not necessarily) explore at a fair distance from the caregiver, but when stress-arousing stimuli are present, the attachment system pulls the child closer to available protection. A cautionary note may be in order here. Although the function of attachment in an evolutionary sense may be homeostasis with regard to the environment, it is experienced by the attached person as a psychological bond to the attachment figure who plays the part of secure base and haven.

The attachment system envisaged by Bowlby (1969/1982b, 1973) does not become organized until sometime during the second half of the first year, although it builds on component systems that are operative earlier. Even at birth human infants show behaviors that appear to have the function of bringing them into closer proximity and interaction with a caregiver. In the course of the first few months these behaviors come to be preferentially directed toward discriminated persons (e.g., crying when mother but not a visitor leaves the room or lifting the arms toward the mother but not a visitor in greeting; see Stayton, Ainsworth, & Main, 1973). However, it is only during the second 6 months that these proximity and interaction promoting behaviors are integrated into a coherent system, organized around a particular figure or figures. It is to the focusing (preferential activation) of this system with respect to a small hierarchy of familiar figures and its

resistance to “reprogramming” that the term “attachment,” as formulated by Bowlby (1969/1982b) and Ainsworth (1973), is properly applied.

Support for the hypothesis that earlier signaling behaviors come, around 9 months of age, to be incorporated into a goal-corrected system of proximity/security regulation, which now also includes locomotion, is largely indirect. One such indirect piece of information is Yarrow's (1967) finding that a child moved from a foster home to a permanent adoptive home before the age of 6 months tends to show only transitory distress. By contrast, a change in primary caregivers between the ages of 7 and 12 months invariably entailed much more pervasive disturbance (increased crying and clinginess, apathy, and eating and sleeping disturbance). The fact that this change is roughly associated with the onset of locomotion makes evolutionary sense (Freedman, 1974; Stayton, Hogan, & Ainsworth, 1971). Independent locomotion enables the child to leave the mother. A system that ensures that a child's explorations do not take it too far from a protective figure can thus plausibly be viewed as having survival value.

In some precocial birds such a system is ready to become organized around a discriminated object shortly after hatching by a process known as imprinting. Bowlby compared attachment to, but did not equate it with, imprinting in precocial avian species as described by Lorenz (1935/1957) in an influential paper entitled “Companionship in Bird Life.” Although much attention has been paid to imprinting in precocial birds such as geese and ducks, Lorenz's article also contains a description of delayed filial attachment that resembles the human situation somewhat more closely. Jackdaws are altricial. Immediately on hatching, they are capable of neither independent locomotion nor independent feeding. During this period, young jackdaws shy away from a human intruder who takes them from the nest but soon come to beg for food from their new foster parent. However, after about 20 days, when jackdaws begin to follow their parents in flight, filial behavior can no longer be redirected to a human caregiver (Lorenz, 1935/1957, pp. 106–107 [in the 1957 ed.]).

Although the description of filial imprinting in jackdaws offers a better analogy to human attachment than filial imprinting in precocial birds does, it is of course unlikely that attachment processes in birds and humans are based on homologous brain structures and processes, despite the fact that behavioral indicators are strikingly similar in avian and mammalian species (following, distress on separation). Nevertheless, insights gained from the study of one species can be instrumental in formulating new questions about the development of similar behavior in another. At the very least the comparison shows that filial attachments can exist in the absence of all the complexities of primate cognition. Whereas there is more justification for a direct comparison of filial attachment across primate species, species-specific affective-cognitive differences between human and nonhuman primates are

likely to have a pervasive effect on how attachment operates and comes to be experienced. I will return to this point after a more detailed discussion of the functioning of the attachment system as conceptualized by Bowlby (1969/1982b, 1973, 1980).

In order to clarify the complexity of the system Bowlby envisaged, I have constructed a diagram (see Fig. 1, adapted from Bretherton, 1980). This diagram attempts to spell out the interrelationships among the subsystems constituting and serving the attachment system. It may look unnecessarily intricate, but it is in fact a gross oversimplification of what a complete specification of the system would have to look like. My primary objective is to show interrelations (informational flow between subsystems) rather than to elaborate on the functioning of the separate subsystems.

Several important features of the hypothesized system should be noted. First, although an attachment relationship exists dyadically between two individuals, the system described by Bowlby concerns the organization of a system within the attached person (see also Hinde, 1982a; Sroufe & Fleeson, *in press*). This system, like filial attachment in birds, is preferentially organized around discriminated partners. In some species such a focused system exists in only one of the partners (the parent of the infant). In human and nonhuman primates the attachment relationship is best conceptualized as based on the joint functioning of a filial and a parental attachment system. So far it is largely the human filial system that has been studied, for reasons that will be considered later. Nevertheless, as we shall see shortly, the system within the individual represents the dyadic relationship.

The attachment system requires, uses, and seeks several types of information that are taken in through the sensory systems: clues to danger (physical and psychological) and the availability of an attachment figure (physical and psychological). Bowlby (1969/1982b) originally suggested that the system functioned episodically or was activated by perceived danger and deactivated (terminated) by perceived safety. I strongly believe (Bretherton, 1980) that much is to be gained by thinking of the system as continuously active. To do so clarifies and simplifies the relationship between two phenomena that had previously been regarded as distinct: the so-called secure base phenomenon (a concept contributed to attachment theory by Ainsworth) and security seeking (seeking proximity, contact, and protection/comfort). When the child feels secure (the system has assessed the environment as nonthreatening), the "pull" of the attachment figure becomes weaker, but there are limits on how far away from the attachment figure the child will explore (see, e.g., Anderson, 1972). In this case the child is using the attachment figure as a secure base. However, when the child perceives the environment as mildly alarming, the system's proximity set-goal will change, pulling the child closer to the attachment figure. Anticipated non-responsiveness on the part of the attachment figure will have a similar, but

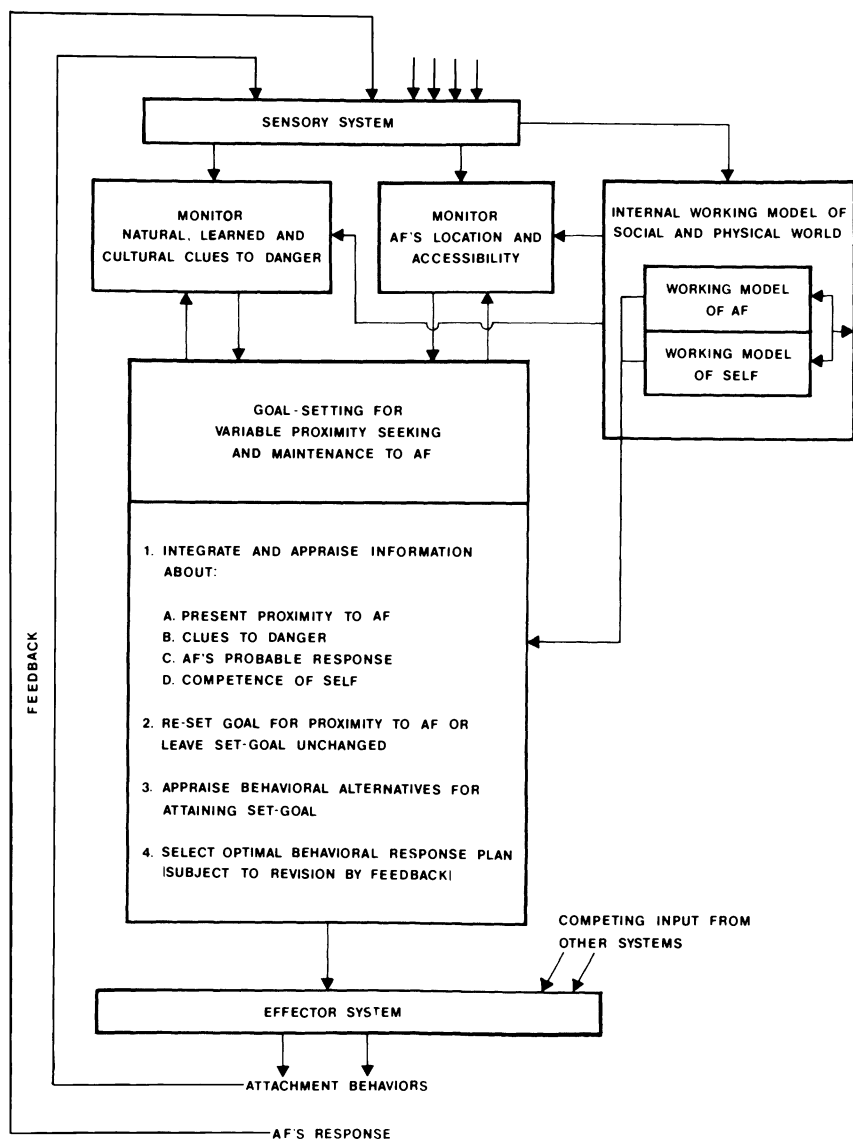


FIG. 1.—The attachment system: a simplified model of a control system for the regulation of proximity to and contact with an attachment figure.

more permanent, effect on the proximity set-goal as the perception of danger. In the first case, attachment behavior seems prudent, in the second anxious (the child has to take more than optimal responsibility for maintaining proximity). Conflicted behavior emerges when the exploratory system evaluates a stimulus as highly attractive while the fear system evaluates the same stimulus as threatening. Under such circumstances, the child may exhibit oscillating intention movements toward the stimulus and the attachment figure (Bretherton & Ainsworth, 1974). Finally, if the environment is appraised as highly threatening or stressful, mere proximity no longer suffices. Contact seeking is instituted, with a number of important consequences. If the attachment figure does not perceive the situation as dangerous, he or she can comfort the child but also attempt to teach coping behaviors. If the attachment figure perceives danger, the couple can leave the situation together. The latter situation is not usually tested in laboratory studies of attachment. In situations where the child is uncertain about how to appraise a stimulus, he or she may seek information about its meaning by referencing the mother's face. This behavior, known as social referencing (Campos & Stenberg, 1981; Emde, 1983; Klinnert, Campos, Sorce, Emde, & Svejda, 1983), can, in my view, be understood as a special form of attachment behavior.

Internal Working Models of Attachment Figures and the Self

The relative safety or danger of a situation and an attachment figure's availability and responsiveness are, according to Bowlby (1969/1982b), not appraised completely afresh every time. Through continual transactions with the world of persons and objects, the child constructs increasingly complex internal working models of that world and of the significant persons in it, including the self (Bowlby, 1969/1982b, 1973, 1980). These models are useful in appraising and guiding behavior in new situations. For example, if the child's experience had led him or her to construct a model of the attachment figure as a person likely to provide support when needed, close monitoring of the figure's whereabouts may be less necessary than when such responsiveness cannot be counted on.

Although Bowlby's notion of internal working models is compatible with Piaget's (1954) theory of representation, it was not inspired by Piaget's work but derives from an influential book by Craik, who states: "If the organism carries a small-scale model of external reality and of its own possible actions within its head, it is able to try out various alternatives, conclude which is the best of them, react to future situations before they arise, utilize the knowledge of past events in dealing with the present and future, and in every way to react in a much fuller, safer and more competent manner to the emergencies which face it" (1943, p. 61).

As a conceptual metaphor, the term “internal working model” has several advantages. First, the adjective “working” draws attention to the dynamic aspects of representation. By operating on mental models, an individual can generate interpretations of the present and evaluate alternative courses of future action. Second, the word “model” implies construction, and hence development, with later, more complex working models coming to replace earlier and simpler versions.

Internal working models of attachment figures and self, once organized, tend to operate outside conscious awareness. For this reason, and because new information is assimilated to existing models, the models tend to be resistant to dramatic change (Bowlby, 1980). However, to remain serviceable, internal working models of attachment figures *must* be revised, especially in childhood, when development is rapid. As the child’s affective-cognitive understanding grows, internal models of self, social partners, and the physical world increase in sophistication. Hence, behaviors regulated by the attachment system may change substantially over age, even though the basic interrelationships among the component subsystems remain unaltered. As children become better able to assess the intentions and motives of attachment figures, as they acquire improved coping skills and learn to make better appraisals of what is dangerous, attachment behavior becomes more subtle. In older children the power of the attachment system is therefore highly visible only in stressful situations. The waning of attachment behavior does not, however, imply the waning of the attachment system. Loss of a principal attachment figure and attachment to new principal figures is perhaps more difficult in the later preschool years than in infancy even though attachment behavior is much more conspicuous at the earlier ages.

Because the internal working models of self and attachment figures are constructed out of dyadic experiences, they may at first be closely intertwined. Indeed, in early development it may be preferable to speak of an internal working model of the relationship (Main, Kaplan, & Cassidy, in this vol.). However, even when the models of self and other have become distinct, they represent obverse aspects of the same relationship and cannot be understood without reference to each other. For example, if an attachment figure frequently rejects or ridicules the child’s bids for comfort in stressful situations, the child may come to develop not only an internal working model of the parent as rejecting but also one of himself or herself as not worthy of help and comfort. Conversely, if the attachment figure gives help and comfort when needed, the child will tend to develop a working model of the parent as loving and of himself or herself as a person worthy of such support (Bowlby, 1973). Similar ideas, but clothed in somewhat different terminology, have been proposed by a number of other investigators. For example, Sroufe and Fleeson (in press) have recently postulated that, in the course of continuous interaction, individuals learn or internalize both sides

of a relationship. Thus, a child who trusts the parents to give needed emotional support will also learn the complementary parental role and be able to enact it later when he or she becomes a parent. Epstein (1980) also sees the construction of the self system as based on dyadic processes (see Ricks, in this vol., for a review). Indeed, the general idea that concepts of self and other are developed interdependently is not new (e.g., Baldwin, 1911; Cooley, 1902; Mead, 1934; Sullivan, 1953). What is new are the constructivist-developmental and interpersonal connotations inherent in the metaphor of internal working models. I believe that this approach will also throw new light on the psychoanalytic concepts of introjection, projection, identification, and superego formation to which the notion of internal working models of self and attachment figures is closely related (see Barkow, 1977, for a discussion of internal models and superego).

The picture I have just drawn is still too simple, however. Bowlby (1973) notes that some clinical data can best be explained by supposing that individuals sometimes operate with two or more working models of the same attachment figure and two or more models of self:

When multiple models of a single figure are operative they are likely to differ in regard to their origin, their dominance and the extent to which the subject is aware of them. In a person suffering from emotional disturbance it is common to find that the model that has greatest influence on his perceptions and forecasts, and therefore on his feelings and behavior, is one that developed during his early years and is constructed along fairly primitive lines, but that the person may be relatively unaware of; while simultaneously there is operating within him a second, and perhaps radically incompatible, model, that developed later, that is much more sophisticated, and that the person is more clearly aware of and that he may mistakenly assume to be dominant. [Bowlby, 1973, p. 205]

This position is related to a theory of defensive processes (developed more fully in Bowlby, 1980) wherein incompatible models of attachment figures are understood as the product of incompatible interpretations of experience that may become defensively dissociated. Such dissociations are especially likely when the child cannot cope with viewing rejecting parents in an unfavorable light or when parents attempt to persuade the child to interpret their rejecting behavior as loving. Representational homeostasis, based on defensive exclusion of representations that cause painful feelings, may provide emotional relief. However, it also forces a person to work with an inadequate model of reality, leading to inappropriate, perhaps even pathological, behavior. Yet because the material is defensively excluded from awareness, it cannot be restructured or updated as a serviceable model should be (Bowlby, 1973, 1980).

In summary, Bowlby's most significant conceptual contributions to attachment theory are (1) that the attachment system may be regarded as a behavioral—and, I would add, ideational—control system with its own distinct motivation (distinct from systems regulating sexual and feeding behavior) and (2) that individual differences in the functioning of that system appear to be closely tied to an individual's working model of self, others, and the world. The manner in which early patterns of interaction with attachment figures come to be organized into more traitlike interactional styles is not yet completely clear. That attachment patterns established in infancy play a significant role in the patterning of the personality was proposed not only by Bowlby (1973) but also by Ainsworth (1967), Hinde (1982a), Main et al. (in this vol.), Ricks (in this vol.), and Sroufe and Fleeson (in press). Recent advances in attachment research will now be reviewed with this point of view in mind.

INDIVIDUAL DIFFERENCES IN ATTACHMENT AND PERSONALITY DEVELOPMENT

In his later years Freud described the child's relationship to the mother in very powerful terms, calling it "unique, without parallel, established unalterably for a whole lifetime as the first and strongest love-object and as the prototype of all later love relations—for both sexes" (Freud, 1940, p. 188).

This statement is silent about the respective contributions of infant and mother to the developing relationship. It claims merely that a pattern, established during the early years, will remain stable and be perpetuated in other relationships. What is the evidence for maternal and infant contributions to the organization of attachment patterns and for the stability of such patterns once established?

Direction of Effects

Effects of maternal behavior.—Perhaps because attachment theory is rooted in findings on maternal deprivation, investigators initially focused on maternal influences. A second major reason for this emphasis was the belief that what the mother brings to an interaction with her neonate is far more complex than what the infant brings. The mother's contribution to the new relationship "derives not only from her biological make-up, but from a long history of interpersonal relations with her family of origin and from absorbing the values and practices of her culture" (Bowlby, 1969/1982b, p. 342). Attachment research provides fairly solid support for this position.

Ainsworth's Baltimore study, based on prolonged monthly observations of mothers and infants in the home, revealed that maternal sensitivity to the infant's signals during feeding, face-to-face play, physical contact, and distress episodes in the course of the first 3 months was predictive of the quality of the relationship during the fourth quarter of the first year. Maternal responsiveness to infant crying during the first quarter bore no relationship to concurrent infant crying. However, by the fourth quarter, infants whose mothers had responded promptly and appropriately to their crying early on now cried less. Maternal sensitivity to infants' signals during feeding, play, and episodes of close bodily contact in the course of the first 3 months also turned out to be correlated with the infant's behavior at 12 months in a naturalistic laboratory procedure known as the Strange Situation (See Ainsworth et al., 1978, for an overview; see also Ainsworth & Bell, 1969; Blehar, Lieberman, & Ainsworth, 1977; Stayton & Ainsworth, 1973; Tracy & Ainsworth, 1981).

The Strange Situation consists of a standard series of eight episodes. Infants are observed in an unfamiliar playroom, where they are given an opportunity to explore toys as well as to interact with an unfamiliar adult in the presence and in the absence of the mother. Although Ainsworth originally devised this situation to assess the effect of maternal absence on infant exploration (see Ainsworth & Wittig, 1969), the infants' behavior during reunion with the mother turned out to be of unexpected interest. Some infants behaved as anticipated. They approached the mother and sought physical contact with her if they had been overtly distressed by the separation, or if they had not become distressed, they greeted her and sought interaction (group B). Other infants, however, snubbed or avoided the mother on her return (group A), and yet others (group C) showed angry, resistant behavior interspersed with attachment behavior (see Ainsworth, Bell, & Stayton, 1971, 1972).

Ainsworth was alerted to the avoidant (group A) and resistant (group C) reunion patterns in the Strange Situation because they resembled reunion behaviors typically observed in children after longer, more traumatic separations (e.g., Robertson, 1953; see also Main et al., in this vol., for a detailed discussion). The Strange Situation derives its validity as an assessment of attachment quality not from this direct resemblance, however, but rather from the systematic and extensive correlations of infant behavior in this situation with maternal and infant behavior in the home throughout the first year of life.

Avoidance of the mother during the two reunion episodes of the Strange Situation was predictable not only from maternal insensitivity to infant signals in a variety of contexts during the first 3 months of life but also from the mother's verbally and behaviorally stated dislike of physical contact with the infant during the first quarter (Ainsworth et al., 1978), an attitude

that remained stable over the first year (Main & Weston, 1982). Main and Weston also report that infants from the Baltimore study who avoided their mothers on reunion during the Strange Situation showed unpredictable episodes of aggression toward her at home. These results were corroborated in laboratory studies at Berkeley by Main, Tomasini, and Tolan (1979) and by Main and Stadtman (1981). These authors also report that mothers of infants classified as avoidant in the Strange Situation were generally low in emotional expressiveness, even in response to the sometimes highly aggressive behavior of their infants. In a more recent analysis of the Berkeley data, Main (in press) further showed that observed parental dislike of physical contact with the infant could be predicted from ratings of parental reports regarding rejection in childhood. The resistant reunion pattern (group C) in the Strange Situation involves a combination of contact-seeking and tantrumy behavior toward the mother. In the Baltimore data, this pattern was related not to maternal rejection of the infant's bids for physical contact but to maternal inconsistency in responding throughout the first year (Ainsworth et al., 1978).

Because of their correlations with infant and maternal behaviors in the home, avoidant or resistant reunion patterns in the Strange Situation are interpreted by Ainsworth et al. (1978) as distortions of the optimal functioning of the attachment system. Nonoptimal functioning of a system is, of course, preferable to complete malfunction. Hence many biological systems are evolutionarily adapted to permit ontogenetic adaptation to a range of environmental circumstances, even though the likelihood of survival may not be equally good throughout that range (Lorenz, 1965; see Main, 1981, for an extensive theoretical discussion of this point with respect to avoidance). Avoidant behavior in attachment relationships may represent the infant's adaptation to specific caregiver styles. Yet such patterns are not regarded as one of a variety of equally desirable patterns by attachment theorists (Ainsworth, 1984). This can perhaps be clarified by taking a more extreme example. Abused children may engage in a number of behavioral adaptations that lessen the likelihood of further abuse, but to have to make such an adaptation may foreclose optimal adaptation in other social relationships (see Ainsworth, 1984; Schneider-Rosen, Braunwald, Carlson, & Cicchetti, in this vol.).

The original finding that particular infant patterns of proximity, contact, and interaction regulation in the Strange Situation tend to be associated with the quality of maternal caregiving earlier in the first year came from Ainsworth's sample of 23 Baltimore infants (see Ainsworth et al., 1978). More recently, additional corroborating evidence has become available. Grossmann, Grossmann, Spangler, Suess, and Unzner (in this vol.) found that maternal sensitivity to infant signals at 2 and 6 months was related to later secure attachment classifications in a sample of 49 North German

infants, although the differences failed to reach significance at 10 months. For a U.S. sample, Maslin (1983) reported that composite scores of maternal warmth and affectionate behavior during two 3-hour home observations at 6 months predicted secure attachment classifications in the Strange Situation at 12 months. In addition, Belsky, Rovine, and Taylor (1984) found that a measure that they interpret as an index of maternal sensitivity (obtained during mother-infant interaction in the home) was predictive of secure attachment assessed in the Strange Situation. Although these findings certainly do not rule out the possibility that the mother herself was influenced by the infant, they strongly suggest a consistent and therefore measurable influence by the mother on the organization of the emerging attachment relationship.

Infant effects.—Efforts to investigate infant effects on the quality of later infant-mother attachment were, in part, precipitated by the results reported in the section on maternal effects. Findings are mixed, with some studies showing effects and others not. In fact, Ainsworth (1983) speculates that an infant's influence on the mother may be masked by maternal responsiveness to signals because such behavior is individually attuned to particular infants.

In a poverty sample studied in Minnesota no relationships were found among early Apgar scores, the Neonatal Behavioral Assessment Scale (NBAS; see Brazelton, 1973), nurses' ratings of the neonate at the hospital, and secure (group B) versus avoidant (group A) patterns as assessed in the Ainsworth Strange Situation (Egeland & Farber, 1984; Waters, Vaughn, & Egeland, 1980), although Waters et al. did uncover links between neonatal behavior (Apgar scores, motor maturity, and state regulation) and resistant patterns (group C). Miyake, Chen, and Campos (in this vol.), using observational measures, found that Japanese infants who later showed resistant reunion patterns in the Strange Situation with their mothers had been more prone to cry as neonates.

Belsky et al. (1984) found no correlations between secure attachment to the mother at 12 months and maternal ratings of infant temperament at 3 and 9 months. Egeland and Farber (1984) also failed to find associations between assessments of attachment security at 12 months and temperament measures derived from behavioral observations at 3 months and Carey temperament scores at 6 months. Miyake et al. (in this vol.) were able to predict resistant reunion patterns in the Strange Situation at 1 year of age from measures of irritability (fussing and crying) in home observations at 3 months. These authors are the only investigators so far to have noted consistent irritability from the neonatal period to 3 months. Other reports of significant correlations between temperament beyond the neonatal period and attachment assessments at 12 months cannot unambiguously be interpreted in terms of infant constitution. For example, Bates et al. (in this vol.) report correlations between a small number of their many temperament

ratings at 6 and 13 months and Strange Situation classifications at 12 months. As these authors point out, however, temperament ratings at later ages may already be the product of mutually negotiated patterns of interaction. For the same reason a study by Bretherton, O'Connell, and Tracy (1980) that found relationships between Strange Situation classifications and the mother's rating of her own and her infant's temperament cannot be interpreted in terms of infant constitution alone. In that study infants classified in subgroups B₁ and B₂ during the Strange Situation were judged by their mothers to be significantly more sociable with strangers (the mothers in turn rated themselves as more extraverted).

Most interesting to me are studies documenting interactive effects of neonatal temperament assessments and maternal behavior. Such an approach is most closely in accord with Bowlby's epigenetic view of developing attachment patterns: "Thus at conception development turns on interaction between the newly formed genome and the intrauterine environment; at birth it turns on interaction between the physiological constitution, including germinal mental structure, of the neonate and the family, or non-family, into which he is born; and at each age successively it turns on the personality structure then present and the family and, later, the wider social environments then current" (1973, chap. 22, p. 364).

Thus, Crockenberg (1981) was able to predict insecure attachment patterns at 12 months from neonatal irritability as assessed during the NBAS (Brazelton, 1973), but only for infants whose mothers were relatively unresponsive to their infant's crying at 3 months and who had little social support available to them. Grossmann et al. (in this vol.) found that a high score for neonatal orienting and/or a high maternal sensitivity rating at 6 months accounted for 94% of children classified as group B with their mothers at 12 months. This suggests that there may be two pathways to a secure attachment, a mistaken conclusion. About half the infants classified as insecurely attached (groups A and C) would be misidentified by this procedure. Hence other variables must also contribute substantially to quality of attachment as assessed by the Strange Situation. In the Miyake et al. (in this vol.) study, early irritability identified almost all the infants later classified as resistant (group C). However, a substantial number (33%) of infants judged securely attached (group B) at 1 year had also been irritable earlier. Irritability did not ipso facto lead to insecure attachments. Finally, Minde (personal communication, March 1984) reports that infants rated as having an easy temperament at 6 months but a difficult temperament at 12 months had mothers who were rated as highly insensitive at 6 months. In contrast, infants rated as difficult at 6 months, but easy at 12 months, had mothers who were rated as highly sensitive at 6 months.

The findings obtained so far suggest that it might be fruitful to conduct longitudinal studies specifically designed to go beyond the search for gen-

eral maternal or infant effects and to chart in more detail the epigenetic pathways that produce the patterning of attachment relationships. There is at present no justification for supposing that the quality of future attachment relationships is fully determined by an infant's temperamental disposition at birth.

The next question to be addressed is the extent to which the relationship once patterned remains, as Freud predicted, unalterable and prototypical of other relationships.

Stability in the Quality of Attachment Patterns

In studies of middle-class families there is indeed evidence for stability of attachment patterns, at least from 12 to 18 months. Children who exhibit a particular nonoptimal (A or C) pattern of reunion behavior in the Strange Situation at 12 months tend to show a similar nonoptimal pattern at 18 months. The same is true for the optimal (B) pattern, which also tends to be consistent at both ages (Connell, 1976; Main & Weston, 1981; Waters, 1978). Moreover, Main et al. (in this vol.) were able to document considerable stability from 12 months to 6 years of age when infants in their original sample were seen again in a Strange Situation-like setting (an additional disorganized/disoriented classification of Strange Situation behavior was used in that study; see Main & Solomon, in press).

On the other hand, we have no evidence that the quality of a relationship once formed is necessarily unalterable. Changing life circumstances can make a substantial difference. One study (Vaughn, Egeland, Sroufe, & Waters, 1979) discovered an association between stressful events in the child's family during the 12–18-months period and changes to a nonoptimal attachment pattern in the Strange Situation; another (Thompson, Lamb, & Estes, 1982) reported findings suggesting that life stresses may lead to beneficial *or* detrimental reorganizations of an attachment relationship. In maltreating families the quality of the mother-infant relationship tends to deteriorate from 12 to 18 months (Egeland & Sroufe, 1981a, 1981b; Schneider-Rosen et al., in this vol.). This is particularly true where the mother is depressed and psychologically unavailable. Egeland and Sroufe compared the effects of (1) physical abuse and hostility, (2) psychological unavailability or depression, and (3) neglect or failure to provide proper care. In comparison with a control group, children in all three maltreatment groups were more likely to be classified as insecurely attached at 18 months. The strongest effect, however, was obtained for psychological unavailability. At 12 months 43%, but at 18 months 86%, of children with psychologically unavailable mothers were classified as avoidant (group A) in the Strange Situation; the remainder were placed in the resistant category (group C). Paradoxically, psychological unavailability alone appeared to be more

damaging than psychological unavailability paired with physical abuse. Egeland and Sroufe speculate that any form of contact (and I would say response) may be better than no contact or response. It is especially noteworthy that children of psychologically unavailable mothers were lively babies at 3 months but that their functioning had begun to decline markedly even by 6 months.

Not all changes in the patterning of attachment relations are necessarily permanent. In addition to more long-term changes in the quality of relationships, there seem to be temporary perturbations, such as increased clinginess after separations (see Robertson & Robertson, 1971). However, the distinction between temporary fluctuations and more enduring changes in the quality of a relationship is difficult to make without longitudinal data and needs further study. Moreover, even if apparently permanent changes from insecure to secure attachment relationships are found, this does not necessarily imply that earlier experiences are erased (see Erickson, Sroufe, & Egeland, in this vol.). Studies of increased vulnerability, despite apparent changes for the better, are required.

Predictive Validity of Early Attachment Patterns

If the Strange Situation assesses (as is claimed) the child's trust in the physical and emotional availability of an attachment figure, one ought to find that attachment classifications are related to the child's functioning in other areas. A considerable body of research has largely supported the claim that mastery motivation is associated with secure attachment. Some studies also report correlations of attachment security with cognitive development, though—surprisingly—hardly ever with language acquisition (for reviews, see Ainsworth et al., 1978; Bates, Bretherton, Beeghly-Smith, & McNew, 1983; Bretherton, Bates, Benigni, Camaioni, & Volterra, 1979). Particularly interesting in this regard are studies by Main (1973) and Matas, Arend, and Sroufe (1978). Main found that toddlers earlier classified as securely attached had longer attention spans and displayed more positive affect during free play. Matas et al. found that children judged securely attached at 12 and/or 18 months confidently attempted solutions to easy tool-using tasks. When challenged with more difficult tool-using tasks, the same children enlisted their mothers' support in order to achieve a solution. This was not the case for insecure 2-year-olds, who were frustrated, whiney, and negativistic, whether trying to solve the easy or the difficult problems. Those classified as avoidant in the Strange Situation sought little help from their mothers, even when unable to achieve a solution on their own. Mothers of avoidant children, conversely, showed little affective investment in their children's activities, offering only minimal support even with hard tasks (see

also Arend, Gove, & Sroufe, 1979; Bates et al., in this vol.). Confidence in the mother's physical and psychological availability appears to lay the groundwork for autonomous exploration and problem solving, coupled with the expectation that help will be forthcoming when needed. Thus attention span and persistence, which have often been regarded as traitlike, perhaps constitutionally based, qualities, may be at least in part a product of particular relationship patterns.

Fairly strong evidence for carryover effects from early attachments to later social relationships has also been obtained. Bowlby's epigenetic perspective offers several reasons why this might be the case. Because family environments tend to be relatively stable, the pressures that lead a child to adopt a particular developmental pathway are likely to persist. Internal models of self and significant figures, once constructed, tend to have an additional stabilizing influence because they influence construal of present experience. Finally, environmental and intrapersonal processes do not work independently. Structures residing in the personality tend to determine the relationships and situations that an individual actively seeks or actively avoids. Thus the environment should be viewed not as a purely external influence but as partially created by the individual (Bowlby, 1973, pp. 368–369).

Several studies published by Sroufe, Egeland, and their colleagues have found classifications in the Strange Situation to predict social functioning in the preschool with teachers and peers. Children classified as securely attached to their mothers at 12 and/or 18 months were rated higher on positive affect and lower on negative affect by their preschool teachers (Sroufe, Schork, Motti, Lawroski, & LaFreniere, 1984). They were also judged more empathic and compliant (LaFreniere & Sroufe, in press; Waters, Wippman, & Sroufe, 1979; see also Londerville & Main, 1981; and Main & Weston, 1981, for independent corroboration).

More recently, findings concerning play between peers who exhibited optimal or nonoptimal attachment patterns at 12 and 18 months have been reported by the Minnesota group (Sroufe, 1983). Children classified as resistant on the basis of their reunion behavior in the Strange Situation showed ineptness in their transactions with peers, whereas the children classified as avoidant tended to be hostile or distant. Moreover, children classified as avoidant at 12 and/or 18 months frequently did not seek teachers when injured, disappointed, or otherwise stressed. The resistant group showed more chronic low-level dependency, being constantly near or oriented to the teachers. Erickson et al. (in this vol.) report that children classified as resistant or avoidant in the Strange Situation at 12 and 18 months are more likely to present behavior problems in the preschool later. Bates et al. (in this vol.) report correlations of attachment classifications at 12 months with mother-infant interaction and the Matas et al. (1978) problem-solving tasks at 24

months but could not predict preschool-age behavior problems (perceived by the mother and a secondary caregiver). One explanation for these discrepant results is the fact that the mothers in the Erickson et al. study came from a poverty sample, where life stresses were more frequent and familial support less available than was presumably the case in the middle-class two-parent sample studied by Bates et al. In addition, the children in the Erickson et al. study were a special subsample who had been assigned the same attachment classification at 12 and 18 months, a factor that leads one to expect more continuity.

George and Main (1979) also present evidence suggesting carryover effects from early attachments to later relationships. From research showing correlations between physical rejection by the mother and nonoptimal attachment patterns in the Strange Situation, they predicted that physically abused children should show avoidant behavior to secondary caregivers and peers, a prediction for which they found partial confirmation. Abused toddlers observed with peers and caregivers in a day-care center avoided friendly overtures significantly more often than a contrast group of nonabused children. The abused children were also more likely to threaten and assault their companions and to show unpredictable aggressive behavior toward them.

I interpret the above findings as generally supporting Bowlby's notion that internal working models of attachment figures come to govern behavior in new relationships. His corollary, that the internal working models of self and of attachment figures are interdependent, is also in accord with present findings. Children who were judged to have secure attachments to their mothers in the second year tended to show more ego resilience and to be rated as more socially competent in the preschool (Arend et al., 1979; Waters et al., 1979). The same children also obtained significantly higher scores on a self-esteem Q-sort devised by Waters.

Social Transmission

In view of the fact that children seem to repeat early relationship patterns in their later relationships, the question naturally arises whether parents are reenacting patterns they themselves experienced as children. This question can be asked about individuals within cultures (intergenerational effects) and societies (cross-cultural effects). I will consider the transmission of individual patterns first.

Intergenerational effects.—Several studies (reviewed in detail by Ricks, in this vol.) have shown that a parent's internal model of childhood attachments in turn governs how the parent behaves as attachment figure vis-à-vis his or her own child. This could, I propose, be explained in two ways. The

individual may be using the internal model of the parent to guide his or her own parenting behavior (identification). This identificatory explanation is also implicit in Sroufe and Fleeson's (in press) notion that a child internalizes both sides of a relationship. Alternatively, a person's parental behavior may be guided by the current self model, which has its roots in the earlier relationship with parents. I am not sure that present findings permit a choice between these two explanations. Indeed, both may be operating.

In studies investigating intergenerational transmission of attachment patterns, parents whose children are directly observed with them in the Strange Situation and other settings are interviewed about their own childhood experiences. Morris (1980) collected maternal interview histories (coded by blind judges) and compared these to the children's Strange Situation classifications. Reported lack of stable family relationships and the mother's perception of her own mother as low in nurturance and competence predicted anxious patterns. Ricks (1982, 1983) found that mothers of infants judged securely attached in relation to them had more positive recollections of childhood relationships with their mothers, fathers, and peers than did mothers of infants seen as anxious. The results concerning mother acceptance were particularly strong, with few cases of overlap between mothers of children showing the B (secure) pattern as opposed to the A (avoidant) and C (resistant) patterns in the Strange Situation. Main et al. (in this vol.) found significant correlations between a child's attachment classification with mother and with father at 12 or 18 months and the respective parent's conceptualization of his or her own early attachments. Ratings were made from detailed interviews, to reflect the parents' current thinking about the meaning of their early attachment relationships in general, that is, without considering separately the interviewed parent's reported relationship to father and to mother, a point to which I will return later. In a second, more detailed study of mothers only, Main and Goldwyn (in press) report that mothers who idealize their parents when speaking about them in very general terms, but who report quite rejecting behavior when talking about specific memories, tend to have children who avoid them during the reunion episodes of the Strange Situation. This was, however, not the case for a subsample of mothers who were able to express anger about having been rejected or who expressed forgiveness.

These findings suggest to me that it is not a person's internal working models of attachment figures per se but how the person construes these internal models in adulthood that appears to be involved in intergenerational transmission. True to Bowlby's hypothesis, the social transmission of adverse patterns appears to be more likely when the parent is using two incompatible models of his or her own attachment figures, with explicit awareness only of the idealized model. When early rejection is understood as an attribute of the parent, not as a reflection of the self, the repetition of

patterns experienced in childhood is apparently less likely. Something like counteridentification may be possible, a term I use here in analogy to the concept of counterimitation in social learning theory (Bandura, 1971). By counteridentification I mean a process whereby the person has acquired and stored an internal working model of the parental figure but is actively and deliberately resisting identification with it (see also Fraiberg, Adelson, & Shapiro's classic 1975 article on "ghosts in the nursery").

Cross-cultural data.—In studying cultural transmission we examine how groups of individuals are patterned by cultural practices and how that pattern is passed on to the next generation. Note that we are now talking about individual differences between societies, not persons.

Despite the fact that Mary Ainsworth's first insights regarding the origin of individual differences in the attachment relationship were developed in the course of her study of infancy in Uganda (1967), cross-cultural studies of attachment based on the Bowlby-Ainsworth formulations have since been rare. Grossmann et al.'s (in this vol.) recent study of North German families has begun to remedy this situation. Like Ainsworth, Grossmann et al. examined relationships between quality of mother-infant interaction during lengthy home visits and later reunion behavior in the Strange Situation. In Japan, Miyake et al. (in this vol.) have also studied infant behavior in the Strange Situation in relation to neonatal temperament and mother-infant interaction at several ages. In Israel, Sagi et al. (in this vol.) observed kibbutz-reared infants in the Strange Situation with mother, father, and substitute caregiver.

Two obvious conclusions emerge from these findings. First, the majority of infants in North Germany, Japan, and Israel could be classified into the patterns observed by Ainsworth et al. (1978) in the Strange Situation with a U.S. sample, although a sizable proportion of Israeli infants did not complete two full separations because of inordinate distress. Second, the proportion of infants classified into each group was at variance with distributions reported for the United States. In North Germany, the avoidant group (A) predominated over the secure group (B), which is most common in the United States. By contrast, in Japanese and Israeli kibbutz infants, resistant (C) infants were significantly more numerous than was expected on the basis of U.S. findings. A recent dissertation by Li-Repac (1982) on Chinese-American families is especially interesting in this regard. An unexpectedly high proportion of group C patterns was identified, but the inflated proportion of C classifications tended to be associated with nonacculturated families. In more acculturated families fewer children were classified as group C and more as group A.

Hinde (1982a), in discussing patterns of attachment, emphasized that we should think of attachment behavior as adapted not to an ideal partner but to a variety of possible partners. Animals, he claims, are evolutionarily

adapted to adapt ontogenetically, that is, to have conditional strategies that permit a range of styles and a capacity to select those that best fit specific environmental circumstances. Cultural variations engender different experiences, leading to different relationship patterns. Even within a culture the behavior of males and females is patterned differentially. For this reason, Hinde proposed, what is best must be considered against the whole background of family, social groups, and cultural beliefs. A mother-child relation that produces successful adults in one situation will not necessarily do so in another.

The findings reported in this volume support Hinde's claim, in the sense that cultural reasons may be advanced to account for differential proportions of infants classified as secure, avoidant, and resistant in the Strange Situation. Grossmann et al. (in this vol.) ascribe the high proportion of group A infants in North Germany to cultural pressures on mothers to engage in independence training. Miyake et al. (in this vol.) believe that the preponderance of group C classifications in their sample is due to the extreme stressfulness of the Strange Situation for babies who have almost no experience with nonfamilial caregivers. Sagi et al. (in this vol.) also claim that the Strange Situation is much more stressful for kibbutz infants because of extremely high levels of stranger anxiety.

Support for Hinde's thesis is not unequivocal, however. It is not the case that cross-cultural studies have uncovered completely different correlational patterns among variables. To the contrary, the relationships of maternal behavior with Strange Situation classifications are remarkably similar to those obtained for the Baltimore sample (Ainsworth et al., 1978). It has already been noted that Grossmann et al. (in this vol.) found an association between early maternal sensitivity and secure attachment classifications at 12 months. Grossmann et al. were also able to replicate several other findings. For example, they, like Bell and Ainsworth (1972), discovered that maternal responsiveness to crying was associated with less infant distress during the fourth quarter of the first year. Along the same lines, Li-Repac (1982) notes that American-Chinese parents whose infants were classified as resistant were less responsive to their infants' vocalizations, caressed and kissed them less during the home visit, and were less willing to respond to the infants' requests for support. By contrast, American-Chinese parents who fostered autonomy in a supportive context had children who had low resistance scores in the Strange Situation.

A cross-cultural survey of the effects of parental acceptance or rejection (Rohner, 1975) corroborates the correlational patterns obtained in attachment research. Studies of 101 different communities from the Human Relations Area Files were included in the survey, representing a stratified sample of the world's known and adequately described social systems. Ratings of acceptance or rejection were based on parental behavior to children between

2 and 6 years of age because insufficient material was available for infancy. Results were as follows. In societies that are highly accepting of children, the children tended to be more self-reliant and achievement motivated, although the correlation with achievement motivation does not carry through to adulthood. In societies where children are rejected, children and adults tended to be emotionally unresponsive, more dependent, less emotionally stable, and less able to become involved in affectionate relationships and to show more aggressive behavior and hostility. In such societies, adults are less likely to give sympathy to people in need and more likely to have low self-esteem (for a replication of the latter finding, see Allen, 1967).

The survey also uncovered a worldwide correlation between child acceptance and households in which fathers are significantly involved in child care and/or in which grandparents are available as substitute caregivers. These findings are consistent with an earlier cross-cultural study by Minturn and Lambert (1964) and with at least two U.S. studies. For example, Crockenberg (1981) reports that the availability of social support was significantly correlated with maternal responsiveness to the infant and with secure attachment classification at 12 months. Also in line with the cross-cultural data, Easterbrooks and Goldberg (1984) found paternal involvement to be related to patterns of secure attachment to the mother in the Strange Situation. It appears that principal attachment figures can function more supportively when they themselves receive the support of others.

Finally, Rohner's (1975) survey demonstrated a strong tendency to view the supernatural world as hostile and malevolent in societies with high ratings for parental rejection (for similar cross-cultural findings, see Lambert, Triandis, & Wolf, 1959; Spiro & D'Andrade, 1958; Whiting, 1959).

It is easy to find fault with cross-cultural surveys based on the Human Relations Area Files. It must be emphasized, however, that Rohner only chose to include ethnographies that fulfilled certain requirements (the information given was firsthand, and the ethnographer spoke the native language and stayed with the society for a prolonged period). After careful reading of his survey—including the extensive appendixes—I feel that Rohner's general conclusions regarding the deleterious effects of parental rejection on the development of intimate human relationships deserve to be taken seriously. I am particularly impressed with the fact that correlates of acceptance or rejection among societies read uncannily like the sequelae of secure and insecure attachment reported by Sroufe (1983) for a sample of preschoolers in Minnesota.

Not many ethnographies contain the detailed information needed to go beyond global questions regarding correlates of parental acceptance or rejection. The few that do suggest that cross-cultural studies more directly guided by attachment theory might be extremely productive. To illustrate

what I have in mind, I will present brief descriptions from two contrasting societies, the Tikopia (Firth, 1936) and a Balinese village community (Bateson & Mead, 1942).

Tikopia, a small coral island in the Solomon archipelago (Micronesia), was studied in the late 1920s. The Tikopia are remarkable for their very articulate beliefs about infants' relations to parents and strangers. Firth quotes a verbatim account by one of the chiefs:

The child knows its own mother and its own father also by tokens—it looks constantly on them. The infant recognizes its parents while it yet cannot speak. Faces only are recognized; therefore when it looks then on faces which are different, the infant cries. The babe which has not yet made speech [i.e., begun to speak properly], if its father be absent, be he gone to the woods or hither for a stroll, it seeks then for its father, cries, cries, cries, calling “Pa! Pa E! Pa E! Pa, pa, pa, pa!” That is, it knows the relatives, but it weeps for its father. When they listen to it, crying “pa, pa, pa, pa” thereupon someone goes out to look for him. When the father is found he asks “What?” “Come to the child who has cried and cried for you; cried Pa awfully!” Thereupon its father goes over, lifts it up on his arms, and so looking at its father it stops and does not cry. And the infant scolds its father, “You went-went-went-went!” [1936, p. 157]

Firth, who visited the Tikopia long before the formulation of attachment theory, was at first skeptical of such accounts. However, subsequent observations convinced him that young children indeed followed their parents about, cried when they were absent, were soothed when they returned, and ran to them when danger threatened. Although the Tikopia recognized the primacy of the child's attachment to parents, they were also concerned that this attachment not be too exclusive. In accord with the theory that interaction, not kinship, breeds attachment, important relatives would establish relations with the infant by engaging in a special kind of talk, called “fakasanisani.” This consisted of bending over the infant, murmuring: “You remember me. I am your father. When I go away, you come and seek for me. . . .” These same relatives later supported the child by offering physical contact in times of stress, a practice that continued into adulthood.

The Balinese village community described by Bateson and Mead (1942) made very different uses of the attachment system. Mothers employed simulated fear to control their infants' movement, crying out, “Aroh! wild-cat!” or “Aroh! Caterpillar” even when no danger threatened. Infants who did not yet understand the content of these warnings seemed to respond to

the mother's fearful tone of voice. This practice represents, I suggest, a manipulation of the attachment system for ulterior purposes.

Mothers also teased the infants in play interactions. When an infant responded to the mother's playful stimulation by becoming engaged, she reciprocated with a blank ("away") look. Although infants reacted cheerfully to this treatment in the early months, it did eventually lead to temper tantrums and sulkiness. By 2–3 years of age, children ceased to pay overt attention to it. One has the strong impression that the children were being trained not to respond to provocation, to disengage emotional expression from emotional experience, a valued ability among the Balinese.

The attitudes toward attachment held by the Tikopia and the Balinese villagers were strikingly different. The Tikopia respected attachments to primary and secondary caregivers. Supportive relationships, often involving physical contact, were highly valued throughout life, and no one was expected to sacrifice strong feelings to appearances (Firth, 1936). In the Balinese community the aesthetic form of outward behavior was regarded as more important than the person's actual feelings. Thus the functioning of the attachment system is molded by different cultural ideals and beliefs. With the proviso that the respective ethnographies give a reasonably representative account of societal practices, cultural relativism would lead one to call both patterns ontogenetically adaptive. A member of one of these two societies would probably feel ill at ease in the other. From a universalist position, and taking the quality of intimate relationships as a focus of comparison, the Tikopia pattern might be termed a more optimal ontogenetic adaptation. We are once more faced with the dilemma I considered in my earlier discussion of secure versus insecure mother-infant attachments within cultures. Avoidance of the mother may be adaptive for a child whose mother dislikes physical contact, but only in the sense of "best fit under the circumstances." Implicit in Bowlby's and Ainsworth's work is the notion that optimal ontogenetic adaptation of the attachment system occurs under circumstances in which major caregivers accept the child's needs. Although flexibly adaptive to a range of caregiver behaviors, the attachment system is postulated to have a central bias that represents an evolutionary or phylogenetic adaptation (Ainsworth, 1984).

How can we resolve the conflict between relativism and universalism? Although I feel that such conflict is unavoidable, I also believe that both approaches to the study of attachment have their place, depending on whether the research questions have to do with an individual's adaptation to a specific society or with a worldwide comparison of societal practices. Perhaps the wisest statement regarding this problem was made by Erik Erikson in *Childhood and Society* (1963): that certain basic things must happen in the parent-child relationship and that beyond these there is leeway for what may happen.

FUTURE DIRECTIONS: THE STUDY OF INTERNAL WORKING MODELS

Bowlby's (1973) original claim, that a person develops complementary working models of self and of caregivers in the context of first attachments, models that come to determine how future relations are established and maintained, receives fairly solid support from the intracultural studies conducted within the United States as well as from the cross-cultural and intergenerational studies I have just reviewed. There is, however, a serious problem with the view that early models of attachment figures become the basis of generalized working models for potential partners. This derives from findings that the quality of a child's relationship to the mother can be quite different from the quality of relationships to other attachment figures or—to phrase it in Freudian terms—that the attachment relationship with the mother is not the prototype for all others.

*The Problem of Nonconcordant Relationships
to Different Attachment Figures*

If the infant's relationship with the mother is prototypical, then the quality of infant-mother attachment should be congruent with the quality of infant-father attachment. I can recall a time when such a belief was informally held by some investigators. However, it has now been amply documented that the quality of an infant's relationship to mother and to father, at least as assessed in the Strange Situation, can be quite divergent. The first such study was conducted by Lamb (1977). The second was undertaken by Main and Weston (1981), who assessed infants with father and mother at 12 and 18 months. Main and Weston observed considerable longitudinal stability in the relationship with each parent. However, as in Lamb's study, there was no concordance of secure, resistant, and avoidant patterns with respect to mother and to father. Similar findings were obtained by Grossmann and Grossmann (1981a) in Germany, by Sagi et al. (in this vol.) in Israel, where the infant was assessed with father, mother, and metapelet, and by Krentz (1983) in the United States, where infants were seen with the day-care giver and with the mother.

How can we reconcile repeated reports that a child's history of attachment to the mother matters for later relationships with findings that quality of attachment to mother and to father is not generally concordant? To put it differently, what happens to the internal model of the self when a child feels secure in the relationship with one parent and not with the other? Which of these relationships is the one carried forward into other relationships, or are both carried forward in different types of relationships? Or are these the wrong questions to ask?

Encouraging evidence regarding the importance of relationship histories (Sroufe's term; see Sroufe & Fleeson, in press) or of internal models constructed within specific present or past relationships comes from many quarters, not only from studies of attachment. For example, psychoanalysts have long claimed that a person's relationship with the analyst (transference) is assimilated to the parent-child relationship, that is, perceived in accordance with the model the patient has constructed of the parent (Bowlby, 1973; Osofsky, 1982). Clinical material offered in the course of psychotherapy also suggests continuity in relationship patterns. Cottrell (1969; cited in Sroufe & Fleeson, in press) offers a case history describing a patient's harsh treatment of his young son, apparently carried forward from the patient's relationship with his father. This contrasted with the patient's tender treatment of his wife, carried forward from the mother-son relationship. Depending on the partner, the patient seemed to have two distinct selves.

Main et al. (in this vol.) offer some relevant insights, although these do not address the problem posed by Cottrell's case study. They found that an assessment of the child's representation of attachment at 6 years of age (in response to a family picture and to a projective test about separation) were highly predictable from attachment classification with the mother, but not with the father, 5 years earlier. These results, which were completely unexpected, suggest to me that, in the construction of the working model of the self, one parent, probably the principal attachment figure, may be much more influential than the other. Rick's intergenerational data (1983) point in the same direction. A mother's reported acceptance by her own mother was particularly strongly related to her infant's attachment security as evaluated in the Strange Situation at 12 months.

Questions Raised by Nonconcordant Attachments and Tools to Answer Them

A myriad of questions pose themselves on the basis of the findings and ambiguities reviewed here. Some of these are:

1. Is an integrated internal working model of the self built from participation in a number of nonconcordant relationships? If so, how and when? Or are self models, developed in different relationships, only partially integrated or sometimes not at all? (See Fairbairn, 1940, pp. 7–8, for similar ideas.)
2. When and how are normative working models of "father," "mother," and "person" constructed, presumably out of representations derived from a variety of experienced and observed interactions?
3. When are specific as opposed to normative models used to guide behavior in new relationships?

4. Under what circumstances can processes I have called counteridentification prevent an internal model of a major attachment figure from providing the model for the attached person's future relationships, especially with his or her own children? At what periods in the life span is such restructuring most likely?

5. Does it make sense to rate the overall quality of a relationship, or might it be more useful to assess different aspects (e.g., attachment and play) separately?

To answer such questions we need tools for studying the development of internal working models. Here, I suggest, it may be fruitful to make a concerted effort to integrate into attachment theory recent advances regarding the development of social-emotional understanding, communication, and general representational processes, a task begun by Marvin (1977; Marvin, Greenberg, & Mosler, 1976) and continued by Main et al. (in this vol.) and Cassidy (1985).

Some insights into when to start looking can, I propose, be gained from studies of social understanding spanning the transition from the first to the second year. These concern the emergence of intentional communication (Bates, Camaioni, & Volterra, 1975; Bretherton & Bates, 1979; Bruner, 1975; Greenfield & Smith, 1976), of affective referencing (Campos & Stenberg, 1981; Emde, 1983; Feinman & Lewis, 1983; Klinnert et al., 1983), of shared reference (Butterworth, 1979; Scaife & Bruner, 1975), of shared interest in mutual plans (Trevvarthen & Hubley, 1979), and of the ability to entertain short-term hypotheses about the probable actions of others (Littenberg, Tulkin, & Kagan, 1971). These studies offer what I consider persuasive evidence for an emerging ability to attribute subjectivity (internal states) to others and even for a budding realization that information about subjective states can be interpersonally communicated (Bretherton, McNew, & Beeghly-Smith, 1981).

It is self-evident that the massive new findings in the area of social cognition (see Shantz, 1983, for a wide-ranging review) must be taken into account in studying the development of internal working models. It may be less obvious that insights gained from studies of memory and cognition are also highly relevant. Bowlby (1980) pointed out that the distinction between episodic and semantic memory made by Tulving (1972) may be especially helpful here. Episodic memory refers to instances where a specific, autobiographical event can be recalled. Tulving contrasted episodic with semantic memory, which is a generalized representation of world knowledge (semantic networks encode such information as, "Down" is the opposite of "up").

Although it is plausible to suppose that autobiographical memories of specific episodes play a role in the construction of internal models, I find even more suggestive the recent work on event schemas (Mandler, 1979, 1983), on active structural networks (Norman & Rumelhart, 1975), and on

scripts (Schank & Abelson, 1977). Event schemas or scripts are dynamic frameworks containing skeletal information on the who, what, when, where, why, and how of events. It is suggested that such schemas are constructed through the repeated experience of similar events. Once constructed, they can be used to predict future events, to guide decision making, and to infer unstated components of verbal narrative. The script or generalized event schema, in the words of Nelson and Gruendel (1981), is a cognitive model of experienced events, though I would prefer to speak of a mental instead of a cognitive model. Experienced events also include affective components. Hence, when a script is instantiated or called up in order to think about, predict, or guide action, affective components are represented along with perceptual/cognitive ones. It is indeed puzzling that in using the term “representation” most developmental psychologists (though not clinicians) tend, implicitly or explicitly, to restrict its meaning to cognitive processes. Much could, I propose, be gained by explicitly including the representation of affective appraisals in the study of event schemas.

Research on the development of scripts or event schemas in young children between 3 and 5 years of age (Nelson, 1981; Nelson & Gruendel, 1981) has demonstrated that they have considerable knowledge of the structure of routine events. Even the youngest children reported action sequences in the correct order, although their reports were less detailed than those of the older preschoolers. Events in which action sequences were causally connected to each other appeared to be especially salient even to 3-year-olds, and—interestingly, from the perspective of internal models—the youngest children seemed to store only extraordinary events as episodic (autobiographical) memories. The youngest children produced scripts when asked to recall a specific instance of a routine event such as eating dinner last night (Nelson & Ross, 1982). At even earlier ages than those studied by Nelson and her colleagues observation of symbolic play provides some insight into children’s developing event schemas (Bretherton, 1984).

On the basis of findings described here, Nelson and Gruendel (1981) propose that event schemas or generalized event representations are the basic modules of mental representation from which higher order understandings are derived by application of additional abstracting processes (see also Mandler, 1979). Higher-order structures mentioned by Nelson and Gruendel included such disparate things as classification hierarchies and role concepts. I submit that event schemas developed in interaction with specific persons are also the raw material from which young children construct internal (affective/cognitive) working models of the self and of significant others, including attachment figures. Therefore, students of attachment might find techniques developed in the context of event representation helpful in attempting to investigate the development of internal working models.

In addition, it may be useful to think of the internal working model of the self and of attachment figures as a multilayered hierarchical network of representations. This idea is derived from Epstein's work regarding the self theory (1980; see Ricks [in this vol.], for a more detailed discussion). Epstein proposed that an individual's self theory consists of a hierarchy of major and minor postulates, a notion that can also be conceptualized in terms of event schemas. At the bottom of the hierarchy are basic-level event schemas, derived from significant repeated experiences with specific attachment figures. From these basic-level representations ("My mother comforts me when I get hurt"), multiple levels of ever more general schemas regarding the attachment figure and the self are abstracted ("My mother cares for me when I need her"). As long as the broader, top-level generalizations correspond fairly closely to the basic level representations, the individual will have serviceable and coherent models of self and attachment figures. In this case, updating of the working models will be a relatively straightforward task.

However, should the basic level schemas become disconnected from the high-level general schemas, difficulties are likely to ensue. Schemas of rejecting parents are likely to be associated with feelings of pain and anger. At the same time, it is threatening for a young child to experience anger toward the persons from whom he or she expects protection. One way out of this dilemma is to disconnect the affect from the painful event schema (masterfully described by Fraiberg et al., 1975). In such cases, the person can recall rejecting parental behavior but without the negative feelings that had formerly been associated with it. A second way out is to banish anxiety-provoking event schemas from awareness altogether (see Main et al., in this vol.; Ricks, in this vol.). Not only the feeling but also the event itself is now inaccessible to conscious recall. Both types of representational homeostasis appear to be counterproductive because both result in the construction of inconsistent representations. When the high-level postulates that are accessible to awareness are no longer in accord with the defensively excluded lower level postulates (event schemas of everyday rejection by parents), reorganization of the internal model of self and attachment figure becomes problematic.

Up to this point, my discussion has been almost exclusively focused on the internal working models constructed by the attached person, not the attachment figure. This is not because I regard the internal working models constructed by attachment figures as unimportant. To the contrary. I consider it unfortunate that studies of attachment relations as experienced and represented by the attachment figure are almost nonexistent. Even when adults' internal working models of attachment relationships have been examined, investigators were interested in them only in terms of the adult's childhood experiences with parents. The failure to study the parental attachment system, including parents' internal working models of attachment

relationships, is a serious shortcoming of attachment research. The exclusive study of attachment from the perspective of the attached person has, I believe, led us to focus on the caregiver's physical and psychological availability, responsiveness, and sensitivity to signals. Yet it is probably wrong to conceive of the attachment figure in a purely responsive role. We can assume that the parent or caregiver adult already has constructed a generalized or normative model of infants, perhaps even a vague model of the specific infant before that infant is born (see Stern, 1977, for an example where this appeared to make a difference). We can also assume that such working models guide, from the outset, not only an attachment figure's behavior in individual circumstances but also long-term goals and planning for their attainment (Bretherton, 1980).

Some might say that we ought to study the caregiver-child relationship as one system. It is, of course, true that an attachment relationship—or any relationship, for that matter—is the joint work of two persons (achieved within the framework of a particular family and a particular culture). In this sense it is appropriate to consider the caregiver-infant relationship as a system (Sander, 1977). However, a representational view of relationships such as the one proposed here underscores that the two partners have, in another sense, two relationships: the relationships as mentally represented by the attached person and by the attachment figure.

The relevant questions therefore become still more complex. Not only must we ask whether a person constructs a separate self model within every important relationship and how these models become integrated, and not only must we discover under what circumstances individuals tend to exclude defensively from awareness affective and/or cognitive aspects of their internal working models (leading to multiple and incompatible models of the same attachment figure). We must also ask questions about the congruency of a relationship as represented by the attached person and by the attachment figure. Indeed, in caregiver-infant attachment relationships the representations cannot be congruent because the infant's symbolic capacities are much more primitive than those of the adult. What are the implications of such incongruencies, whether in terms of conceptual level alone or in terms of affective alignment as well? Although the answers to these questions will not be easy to obtain, I believe that, with the aid of new tools now available to us, we will be able to make considerable progress.

CONCLUDING REMARKS

In this chapter, I have made much of the significance of internal models of self and attachment figures. However, in conclusion, I would like to reemphasize that the development of relationships and their mental repre-

sentation rests on more than symbolic capacities. In terms of attachment theory, internal working models of self and attachment figures are constructed in the context of a motivational-behavioral control system. This system steers behavior along particular channels and leads a person to expect, within certain limits, certain types of behavioral input from the partner. The system may be adapted to function within certain ranges of input, but as one moves toward the limits of that range (too much rejection, neglect or abuse of the child by the attachment figure, or, on the other hand, overprotection and restriction of the child's exploration due to anxiety about the child's safety or a desire to retain the child as attachment figure), its functioning may become not merely suboptimal but distorted. The positive or negative affective/cognitive appraisal of a partner's behavior, according to this view, is, to a significant part, governed by built-in motivational and evaluative processes. Acceptance and emotional support by a parent are inherently evaluated as positive, rejection and nonsupport as negative. I therefore believe that a theory of human attachment relationships, indeed of human relationships in general, cannot be based on very general affective/cognitive and communicative capacities alone. Such a theory must also take into account the set-goals of relevant motivational-behavioral systems.