

# Second-Generation Effects of Unresolved Trauma in Nonmaltreating Parents: Dissociated, Frightened, and Threatening Parental Behavior

ERIK HESSE, Ph.D.  
MARY MAIN, Ph.D.

*... it is certain that the problem of fear is the meeting point of many important questions, an enigma whose complete solution would cast a flood of light upon psychic life.*

—S. Freud, 1920, p. 340

ATTACHMENT THEORY ORIGINATED within the domain of psychoanalysis, and like much of psychoanalytic theory examines the influence of early development upon both healthy and pathological forms of psychological functioning (Bowlby, 1969). Both attachment theory and its accompanying research paradigms differ from traditional psychoanalytic perspectives, however, in (a) focusing on the evolutionary origins or the adaptive (biological) function of the child's

---

Dr. Hesse is director of the Social Development Project in the Department of Psychology at the University of California at Berkeley, and is an Adjunct Scientist at the Center for Child and Family Studies, Leiden University.

Dr. Main is a professor in developmental and biological psychology in the Department of Psychology at the University of California at Berkeley.

This paper is dedicated to the memory of our friend Joseph Sandler, whose "safety principle" is closely related to the central themes within this work. We thank Sydney Blatt, Diana Diamond, Sarah Hesse, Joseph Lichtenberg, and Marinus van IJzendoorn for remarks and suggestions which led to substantial improvements in this presentation. We are grateful to the American Psychoanalytic Foundation, the Harris Foundation of Chicago, and the Kohler-Stiftung foundation of Munich for their financial assistance in support of this project.

tie to its mother and relatedly, (b) encouraging a simultaneously ethological and experimental approach to research. Early research in attachment had perhaps rightly been criticized for placing too great an emphasis on the observation of behavior at the expense of an examination of internal processes. In recent years, however, significant progress has been made within the field of attachment, and ways of systematically approaching the study of representational processes in children and in adults have been developed (Main, Kaplan and Cassidy, 1985).

As a result, research in attachment has gained the increasing attention of adult and child clinicians. This is no doubt due in part to the creation of language-based methodologies—for example, the Adult Attachment Interview, with its emphasis upon individual differences in language usage during the discussion of past experiences—which has advanced the potential for designing and testing clinical hypotheses in adults, and more recently in latency-aged children as well<sup>1</sup> (AAI, George, Kaplan, and Main, 1984, 1985, 1996; Main and Goldwyn, 1984–1998; see Hesse, 1999a, for overview). Concurrently, fine-grained research into the behavior of parents and infants has continued to be conducted against the backdrop of the Ainsworth strange situation procedure (Ainsworth et al., 1978) and its middle-childhood equivalents (Main and Cassidy, 1988), in addition to other laboratory and home observation(s) of parent-offspring interactions. By combining these methodologies, researchers are beginning to investigate relations between representational processes in caregivers, and behavioral and (later) representational processes in their offspring. It

---

<sup>1</sup> As Hesse's (1999a) overview indicates, three studies employing the AAI with children have been successfully carried out. Maureen Gaffney at Trinity College has recently reported that interviews conducted with 11 year old children in Dublin ( $N = 22$ ) have a 77% secure vs. insecure match to those of their mothers, a finding virtually identical to the average match previously reported in a meta-analysis of mother-infant samples (van IJzendoorn, 1995). Ammaniti and his colleagues at the University of Rome have found secure vs. insecure attachment status stable from 10 to 14 years of age, while in a blind study Judith Trowell and her colleagues at the Tavistock Clinic in London have found the AAI categories sharply discriminated 42 sexually abused children (6-14 years) from their matched (20 community and 20 community mental health controls). All three research groups have used the Main and Goldwyn (1984–1998) system of interview analysis. Trowell (personal communication, 1999) finds that the full interview works well with children 9 years of age and older, but understanding queries regarding past experiences seemed difficult for those 6 to 8 year olds independently exhibiting deficits in language comprehension.

is therefore gradually becoming possible to systematize the precursors to a variety of clinical outcomes.

Using traditional attachment theory as well as some of its more recent extensions, this presentation focuses upon the confusing, disorganizing and disorienting effects which repeated experiences involving fear of the parent are likely to engender among attached infants. In some cases, of course, an infant will be fearful of the parent as a result of physical abuse. Here, however, we address the implications of interacting with a parent who is in no way physically maltreating, but—as a result of their own traumatic experiences or frightening ideation—sporadically alarms the infant via the exhibition of frightened, dissociated, or anomalous forms of threatening behavior. We suggest that spurious but ongoing interactions of this kind can occur even when a parent is normally sensitive and responsive to the infant, and can lead in turn to the infant's inability to remain organized under stress.

Many clinicians will no doubt have encountered cases in which they have determined that traumatic experiences on the part of the patient's *parents* have somehow indirectly become associated with the patient's own symptomatology, a conclusion which appears especially intriguing where it is otherwise difficult to convincingly identify more direct experiential origins of the patient's mental state. Findings that ultimately bear upon this particular kind of second-generation effect were first provided by these authors (Main and Hesse, 1990, 1992), and have been replicated in numerous investigations of other low-risk samples (see especially Ainsworth and Eichberg, 1991; van IJzendoorn, 1995; Hesse, 1999b). In these studies, the parent's unresolved/traumatized state has been identified via marked *lapses in the monitoring of reasoning or discourse* during the attempted discussion of potentially traumatic events within the Adult Attachment Interview. These lapses have repeatedly been found associated with an emerging marker of the increased likelihood of later mental difficulties, namely the infant's disorganized/disoriented behavior in Ainsworth's strange situation procedure (Ainsworth et al., 1978, discussed below). Recently, these "slips" in discourse or reasoning have been found associated with frightened and/or frightening interactions with the infant in the home or laboratory setting (Jacobvitz, Hazen and Riggs, 1997; Jacobvitz, 1998; Schuengel, van IJzendoorn

and Bakermans-Kranenburg, 1997, 1999). In turn, frightened/frightening parental behavior as identified in the home, field, or laboratory setting has been found predictive of disorganized/disoriented infant strange situation behavior (Schuengel et al., 1997, 1999; True et al., 1998; Abrams and Rifkin, 1999; Lyons-Ruth, Bronfman, and Parsons, in press).

We begin this presentation with a review of relations emerging between disorganized/disoriented infant attachment status and varying kinds of later-developing psychological difficulty. For many children disorganized with the primary caregiver in infancy, these unfavorable sequelae include role-inverting (controlling) behavior toward the parent, representational and behavioral indices of continuing experiences of fear and anxiety, and several of the traditional indices of psychopathology. We then provide an overview of attachment theory, showing how being frightened by the parent places the attached infant in an irresolvable, disorganizing and disorienting paradox in which impulses to approach the parent as the infant's "haven of safety" will inevitably conflict with impulses to flee from the parent as a source of alarm. Here, we argue that conditions of this kind place the infant in a situation involving *fright without solution*, resulting in a collapse of behavioral and attentional strategies. In the succeeding sections, we clarify the inter-connections among the central phenomena, and describe each of the phenomena in greater detail. These include (1) the nature of disorganized infant strange situation behavior, (2) the nature of parental "slips" in reasoning and discourse surrounding the discussion of potentially traumatic experiences as observed in the Adult Attachment Interview, and (3) some of the associated anomalous forms of frightened and frightening parental behavior now being observed in both the home and laboratory. In conjunction with this latter description, we elaborate upon some of the intricate ways in which, for example, a frightened or dissociated parent can (like a directly threatening parent) place an attached infant in a paradoxical conflict leading to disorganization. The observations discussed originate primarily from the study of low-risk samples.

As implied earlier, our presentation may be of special relevance to those working with individuals (a) suffering from clinical levels of distress who (b) nonetheless evidence no clear history of either emotional or physical maltreatment, or indeed any other notable

experiences of trauma. We suggest that in some such cases the patient's distress may represent a second-generation effect of their *parents'* own unresolved frightening experiences. Like their parents these patients will, however, also have been placed in confusing and frightening (albeit perhaps more subtle) situations, beginning in many cases at a far younger age.

*Disorganized Attachment Status in Infancy and Middle Childhood:  
Relations to Psychopathology, Role-Inversion, and  
Continuing Indices of Fear*

The Ainsworth strange situation is a structured observational procedure in which one-year-old infants are twice briefly separated from, and twice reunited with, the parent in a pleasant but unfamiliar laboratory environment (Ainsworth et al., 1978). Infants are categorized as disorganized/disoriented during the strange situation when they exhibit any of a wide variety of odd, inexplicable, conflicted or apprehensive behaviors in the parent's presence, such as leaning sobbing with head on wall and gaze averted, interrupting an approach to the parent by falling huddled to the floor, or freezing all movement with a trancelike expression (Main and Solomon, 1990). Despite the overtly unusual nature of many of these behaviors, a meta-analytic overview of studies of neurologically normal samples has strongly suggested that, within such samples, researchers should look to the infant's experience with the particular parent with whom the infant has been observed to be disorganized in order to provide an account for the appearance of these behaviors under stress. Thus, across studies there is to date no indication of the presence of a temperamental or constitutional component in disorganized strange situation responses (van IJzendoorn, Schuengel, and Bakermans-Kranenburg, 1999). Relatedly, infants generally exhibit disorganized behavior in the presence of only one of the two parents.

Unlike the three "organized" strange situation categories originally identified by Ainsworth (one secure and two insecure), disorganized/disoriented strange situation behavior has been found predictive of psychopathology from middle childhood to late adolescence. Disorganized attachment status has repeatedly been found associated with unusual levels of aggression (i.e., disruptive/ aggressive or

“externalizing” disorders) in both high-risk and low-risk samples (see Lyons-Ruth, 1996, for a narrative overview; see van IJzendoorn et al., in press, for a meta-analysis of these studies), and with internalizing disorders as well (for example, Moss et al., 1996; Moss et al., 1998). Additionally, using Sroufe and Egeland’s large, high-risk sample of Minnesota 17-year-olds, Carlson (1998) found *overall* psychopathology as assessed by the K-SADS-E diagnostic interview (Orvaschel et al., 1982) substantially predictable from disorganized strange situation behavior with the mother during infancy. In keeping with a proposal advanced by Liotti (1992; see also Main and Hesse, 1992, Main and Morgan, 1996), Carlson (1998) also found infant disorganization in this sample associated with dissociative behavior as observed in the elementary school and high-school setting, and with dissociative experiences as assessed in the K-SADS-E interview at 17 years. Disorganization with the mother was also related to self-reported dissociative experiences at age 19, especially in cases of intervening trauma (Ogawa et al., 1997; the self-report inventory utilized was designed by Carlson and Putnam, 1993).

Infant disorganized attachment has, then, recently been linked with specific child and adolescent diagnostic categories. In addition, in the low-risk middle-class sample of Bay Area families studied by Main and her colleagues (Main, Kaplan and Cassidy, 1985) disorganized (as opposed to secure, avoidant, or ambivalent) attachment status in infancy had already been found to predict role-inversion with the parent in many children by age six, as well as response inhibition, disorganized and dysfluent discourse, and catastrophic fantasies. For example, in conjunction with this original study, Main and Cassidy (1988) reported that, when reunited with their parents following a one-hour separation, children previously disorganized with a particular parent were now controlling of (hence, role-inverting with) that same parent. Some of these children harshly ordered the parent about (“Sit down! I said, sit down!”) or humiliated the parent by remaining silent in the face of the parent’s overtures, comments or queries—behavioral responses termed *Controlling-punitive*. Others inverted roles with the parent by being excessively solicitous or caregiving (“Did you have a nice time while you were gone? Would you like to sit down and have me bring you something?”). These responses were termed *Controlling-caregiving* (Main and Cassidy, 1988). The development of *D-*

*Controlling* behavior at age six in children judged disorganized with the same parent during infancy has been replicated in three further studies (Wartner et al., 1994; Jacobsen et al., 1997 [see also Jacobsen et al., 1992]; and Steele, Steele and Fonagy, 1996). Indeed, the development of a controlling, role-inverting response to reunion with the parent with whom the child had been disorganized during infancy is sufficiently predictable that D-Controlling behavior is now used to identify disorganization in later childhood (van IJzendoorn et al., 1999).

Viewed at the *behavioral* level, then, early disorganization could seem to have disappeared by middle childhood, being replaced by organized (albeit controlling) behavior toward the parent. However, when asked to respond to imagined child-parent separations states of fear and mental or linguistic disorganization and disorientation have been found to persist (Kaplan, 1987; see also Main et al., 1985). Using an adaptation of Hansburg's (1972) Separation Anxiety Test (Klagsbrun and Bowlby, 1976), Kaplan reported that the majority of six-year-olds who had shown disorganized/disoriented behavior in the strange situation with the mother in infancy now demonstrated signs of being "*inexplicably afraid and unable to do anything about it*" (Kaplan, 1987, p. 109). As a series of six pictures involving separations ranging from a goodnight kiss, to the parents going out for the evening, to a two-week parental leave-taking was presented, the child was asked what he or she thought the pictured child would do, and how the child might feel. Overall, Kaplan identified the previously disorganized six-year-olds as *Fearful-Disorganized/disoriented* (hereafter, *D-fearful*). The central patterns which Kaplan considered indicative of continuing states of fear, disorganization, and disorientation are presented here in synopsis:

(a) *Direct descriptions of fearful events.* These included markedly catastrophic fantasies, such as suggestions that family members might come to great bodily harm, or even that the parents or child would die. For example, asked what the pictured child would *feel* one previously disorganized child (who had had no loss experiences) said:

She's afraid.

(*Why is she afraid?*)

Her dad might die and then she'll be by herself.

*(Why is she afraid of that?)*

Because her mom died and if her mom died, she thinks that her dad might die.

Asked what the pictured child would *do*, another previously disorganized child with no personal loss experiences responded:

Probably gonna lock himself up.

*(Lock himself up?)*

Yeah, probably in his closet.

*(Then what will he do?)*

Probably kill himself.

—Kaplan, 1987, pp. 109–110.

Other investigators have also noted the chaotic, flooded, catastrophic quality seen in the responses to doll-play separations observed in some disorganized children (Solomon, George, and DeJong, 1995). A quotation from one D-Controlling six-year-old responding to a query regarding what might happen during an overnight parent-child separation may further clarify the frightening fantasies observed in some children (Solomon and George, 1999, p. 17):

“And see, and then, you know what happens? Their whole house blows up. See . . . they get destroyed and not even their bones are left. Nobody can even get their bones. Look. I'm jumping on a rock. This rock feels rocky. Aahh! Guess what? the hills are alive, the hills are shakin' and shakin'. Because the hills are alive. Uh huh. The hills are alive. Ohh! I fall smack off a hill. And got blowed up in an explosion. And then the rocks tumbled down and smashed everyone. And they all died.”

(b) *Voicelessness and resistance*. These indications of a continuing state of fear and disorientation were observed when a child suddenly fell silent, began whispering, refused the task, or appeared too distressed to complete it.

(c) *Disorganization in language or behavior*. This was observed in children who responded to the pictured parent-child separations by

suddenly using nonsense language (“yes-no-yes-no-yes-no-yes-no”), making overtly contradictory statements without acknowledging the contradiction, or becoming behaviorally disorganized. For example, asked how the pictured child would feel, one child responded:

Happy.

(*What's he happy about?*)

'Cause he likes his grandfather coming. (Child jumps on back of stuffed animal in the playroom and hits it.) Bad lion! (Hits it more). Bad lion!

—Kaplan, 1987, pp. 110–111.

The association between the *D-Fearful* responses described above and early disorganized attachment status was marked, and Kaplan suggested that, because many of the disorganized children in the Bay Area sample had parents (termed *unresolved/disorganized*) who still suffered from frightening ideation with respect to their own loss experiences, queries regarding separation might have had a particularly disorganizing effect on their children. In essence, Kaplan was proposing that the children's fearful fantasies, silences, and disorganized language or behavior regarding parent-child separations may have resulted from repeated interactions with parents who were themselves still fearful and confused regarding an important loss.

The association between infant disorganized attachment status and Kaplan's *D-Fearful* responses to separation pictures at ages six or seven has been replicated in Berlin (Jacobsen et al, 1997; Jacobsen and Hofmann, 1997; see also Jacobsen, Edelstein, and Hofmann, 1994). Similarly, using doll-play separations rather than separation pictures, Solomon, George and DeJong (1995) found that *D-Control* children fell in a response category similar to Kaplan's and termed *D-Frightened*, which included frightening stories (above), as well as response inhibition. A London study employing doll play with six-year-olds also found themes of violence, hurt, and illness significantly associated with infant disorganized attachment status with the mother during infancy (Steele et al., 1995).

Further indications of continuing fear specific to previously disorganized children in the Bay Area sample included frightening or frightened images and scratched-out figures observed in family

drawings (Kaplan and Main, 1986), and dysfluent discourse with the parent on reunion (Strage and Main, 1985; see Main, 1995 for overview). In addition, Jacobsen (Jacobsen et al., 1994) found *D-Fearful* seven-year-olds in a large Icelandic sample had negative feelings about themselves, and (perhaps due to anxiety) exhibited marked difficulties in drawing the correct deductions in response to verbally administered reasoning tasks in adolescence. Finally, a post-strange situation rise in salivary adrenocortisol (a physiological index of stress) was found in disorganized infants in two independent studies (Spangler and Grossmann, 1993; Hertzgaard et al., 1995).

The relevance of the above findings to clinicians working with infants and children is clear. However, this presentation may additionally be of special interest to those working with older individuals whose early experiences do not appear to have been notably malignant or traumatic. Thus during therapy the offspring of a traumatized but non-maltreating caregiver might be expected to exhibit difficulties consonant with the sequelae to early disorganization described above, although these difficulties (see the prologue to this volume) may be the result of cumulative trauma as opposed to overt abuse. As adult patients, then, some individuals disorganized with one or both caregivers during infancy may suffer from recurring catastrophic fantasies, cognitive confusion, and blank spells; fall inexplicably silent for long periods; or attempt to control the clinician at times by becoming punitive or inappropriately solicitous.

One highly specific but particularly interesting possible sequela to early disorganized attachment status (drawn to our attention by Blatt and Diamond, personal communication, 1998) is a "fear of breakdown" as seen in individuals who have no remembered experience of a breakdown of any kind (Winnicott, 1974). In essence, Winnicott had argued that such fears regarding the future might in fact unconsciously represent fears of the return of an "original agony" (including what Winnicott had termed an "unintegrated state"), *which had in fact already occurred*. Elsewhere we have argued that repeated entrance into disorganized/disoriented states in infancy could have represented a kind of breakdown for some patients, particularly if extreme and arising as a result of frightening interactions with the parent. Thus, early disorganized attachment status could increase the risk for fear of breakdown (Hesse and Main, in press).

The discovery of disorganized attachment is embedded in a complex theoretical and empirical background. To understand the category, its correlates, and its implications for psychopathology, therefore, an orientation to the field is a necessity. For this reason, we next provide an overview of attachment theory emphasizing the evolutionary links between attachment behavior, fear, and survival. We then discuss research into parent-infant interaction which is currently being pioneered from within this context. We describe the surprisingly alarming behaviors associated with language and reasoning slippages surrounding the attempted discussion of traumatic events within the AAI, and observed in the parents of disorganized infants.

The essential position taken here is that, so long as the infant is not directly frightened by the parent, insensitivity to infant signals and communications will lead only to an insecure-organized (avoidant or resistant/ambivalent) attachment to that parent (see Main, 1990). *Fear of the parent*, in contrast, is expected to lead to disorganized attachment, and under certain conditions to increased vulnerability to psychopathology (see also Hesse and Main, in press).

*Overview and background: Ethological-evolutionary attachment theory and the "organized" categories of attachment*

*Attachment Theory: Evolutionary Links to Fear and Survival*

The infant's gradually developing tendency to cry when selected persons depart, to attempt to follow these persons when possible, and to cling to them and otherwise show pleasure upon their return appears to be relatively universally recognized, and a number of theories have been put forward to explain these phenomena (for an overview, see Ainsworth, 1969). Initially, most such theories rested on the reasonable supposition that the infant's focus upon specific persons was acquired only as they became associated with the satisfaction of more basic instincts. Thus, it was assumed that the infant's often highly emotional expression of attachment to parental figures is a secondary outcome of the parent's role in providing for the infant's more fundamental or "primary" drives, for example, feeding and related sensual gratifications.

If it were actually the case that early affectional ties are secondary rather than primary, however, young children should readily adjust to separations from attachment figures so long as food and other satisfying experiences are provided (Ainsworth, 1969; Bowlby, 1969). Early observations seemed to indicate instead that caregiving figures are not readily exchangeable and that extended, stressful separations from primary caregivers between 18 months and 3 years could have notably unfavorable consequences (Robertson and Bowlby, 1952; later, Robertson and Robertson, 1971, reported that such consequences are most pronounced when no consistent alternative caregiving figure has been provided). These observations were compatible with several object relations theories that stressed the intrinsic import of the infant's earliest relationships independent of their association with more basic "drives" (see Fonagy, 1999, for overview). Object relations theories can, however, still be sharply differentiated from attachment theory in that these theories do not place the infant's concern with maintaining proximity to the parent within the paradigm of natural selection. It is only within this latter context that attachment can be understood to be directly tied to safety and survival, and hence to fear.

The central formulations of this new approach to understanding the nature of the child's tie to its mother—called "ethological-evolutionary attachment theory"—were developed over a period of approximately 30 years (e.g., Bowlby, 1958, 1969, 1988). In an early clinical paper Bowlby reported that many patients seen in a juvenile guidance clinic were affectionless, and that the "affectionless character" was associated with histories of parental deprivation and/or repeated parent-child separations (Bowlby, 1944). This suggested that continuity in early parenting experiences played a specific and critical role in the ability to form affectional ties, a supposition that was corroborated by the observations of numerous clinicians and social workers (see especially Spitz, 1946; Goldfarb, 1943, 1945; summarized in Bowlby, 1951).

The proposition that to thrive emotionally children need a close and continuous caregiving relationship called for a theoretical explanation apart from the then prevailing views that love of the mother is either derived from or confounded with sensuous oral gratification, or is dependent on secondary reinforcement (Bretherton, 1992). Addition-

ally, despite the fact that many object relations theorists had emphasized the import and primacy of parent-infant interaction, a consistent and well-articulated motivational model was still needed to account for this position. Perhaps in part serendipitously, it was at this time that Bowlby was alerted to recent developments in the field of ethology where it was reasoned that species' behavior patterns, like species' morphology, are the product of selection pressures and assist in individual survival (Bretherton, 1992). The work of Konrad Lorenz was of particular import in demonstrating that social bond formation need not be tied to feeding.

Following a review of evolutionary theory and the nonhuman primate literature guided in large part by the behavioral biologist Robert Hinde (Bowlby, 1986; Bretherton, 1992), Bowlby gradually came to the conclusion that crying, clinging, following and other behaviors that become focused on selected persons over the first year of life are to be attributed to the working of an attachment "behavioral system" (formerly "instinct", see Bowlby, 1969, Main, 1999, p. 847) which had, among other systems, been incorporated into the behavioral repertoire of ground-living primates in response to evolutionary selection pressures. It was further proposed that the selection pressure responsible for attachment behavior was specifically protection from predation, making the attachment behavioral system equal in import to feeding and mating in the immediacy of its implications for the individual's survival and ultimate reproductive success (Bowlby, 1969). Maintaining proximity to or contact with protective older individuals (attachment figures) would, then, decrease the likelihood that a particular infant would be targeted for predation. In addition, should an attack occur, flight to an attachment figure as a haven of safety would greatly increase the chance of infant survival. More recently, maintenance of proximity has been understood to promote survival by additionally providing protection from starvation, unfavorable temperature changes, natural disasters, attacks by conspecifics, and the risk of separation from the group (Main, 1979b, 1981; Bowlby, 1988).

In sum, attachment behavior is now viewed as the central mechanism regulating infant safety, and maintenance of proximity to attachment figures is understood to be the *sine qua non* of primate infant survival (Hinde, 1974; Hrdy, 1999). In consequence, attachment

behavior is presumed to stand first in the hierarchy of infant behavioral systems. This is because within the environment(s) in which the human primate evolved even brief separations from protective adults will often threaten infant survival in a matter of minutes, and certainly within hours. In contrast, a considerable period of time can be spent without engaging in exploration, play, or even feeding. For this reason, whether or not attachment behavior is displayed at a given time, the young attached individual must at some level continually attend to the *safety* versus threat implicit in current conditions (cf. Sandler, 1960), while simultaneously monitoring the location and accessibility of those attachment figures upon whom its survival depends.

With the above in mind it follows that, in serving to protect the individual from danger, the attachment system must necessarily be closely intertwined with the fear (or "escape") system.<sup>2</sup> The activation of either of these behavioral systems does not, however, inevitably lead to identical outcomes (Bowlby, 1969). For example, given certain conditions, fear-evoking situations may lead to a wide variety of behavioral responses, such as freezing, crouching, trembling, attacking, and taking cover. In addition, among numerous *place-dwelling* mammalian species, a den, burrow, or other fixed location—rather than the mother or another individual—is commonly sought in times of alarm.

Ground-living primates are, however, largely nomadic, and, as a result of their continuous movement do not establish a fixed location as a source of protection. Unlike those mammals for whom a special *place* provides the haven of safety, for the primate infant *the attachment figure is the single "location" which must be sought under conditions of alarm* (Bowlby, 1958, 1969). At such times, fear will most often activate attachment behavior, and hence the attachment and fear systems will operate cohesively and in tandem.

As this review indicates, then, *the attachment figure is the developing individual's primary solution to experiences of fear*, and this is of central import to our understanding of the relation between

---

<sup>2</sup>For heuristic purposes, behavioral systems are presented here as though completely separate and independent of one another. Behavioral systems are in fact inter-connected in complex ways (see Hinde, 1966; Bowlby, 1969), but discussion of this topic is beyond the scope of this presentation.

attachment, development and psychopathology. This relation rests in part upon the fact that, under some conditions, attachment behavior and fear (“escape”) behavior are incompatible, and here conflict will almost inevitably occur. As is discussed below, this is particularly likely when the attachment figure (who is the infant’s biologically channeled haven of safety) also becomes the source of its alarm.

*The “Organized” Categories of Infant Strange Situation Behavior: Patterns of Attachment Observed with Parents Who are Not Directly Frightening*

With the aim of describing the ways in which the infant comes to organize its attachment behaviors with respect to selected persons in normal circumstances, Mary Ainsworth undertook systematic home observations of infant-mother interaction in the first year of life, initially in Uganda (Ainsworth, 1967) and later in Baltimore (26 dyads, Ainsworth, Bell and Stayton, 1971; Ainsworth et al., 1978). In conjunction with these studies, Ainsworth (and other researchers; see especially Schaffer and Emerson, 1964) discovered that specific or “focused” attachments can be observed in most infants by the third quarter of the first year of life, and appear to be based upon contingent social interactions. Moreover, infants were observed to develop attachments to non-related individuals, and even to those who did not participate in their primary care. For many infants, two or more attachment figures were eventually selected.

Ainsworth, like Bowlby (1969) expected that all infants but those raised in extremely anomalous circumstances would have formed an attachment sometime near the end of the first year of life. This given, the primary question to be asked regarding a normally raised toddler’s parenting experience was not *whether* she or he had become attached, but *how the attachment to the primary caregiver(s) had become organized*. The infants of insensitive and even maltreating parents were expected to be as fully (or “strongly”) attached as were the infants of sensitive and responsive parents (see, e.g., Crittenden and Ainsworth, 1989). However, the organization of the infant’s attachment to a particular parent, and correspondingly, the circumstances in which attachment behavior would be displayed or else inhibited was expected to differ across dyads.

Although initially relying exclusively upon home observations, Ainsworth had already recognized differences in the organization of infant-mother attachment in Uganda. It was not until she combined her Baltimore home observations with a structured experimental procedure, however, that she emerged with her three final patterns or "organizations" of infant-mother attachment. In Baltimore, 26 infant-mother dyads were visited for four hours approximately every three weeks across the first year of life, and interactions were recorded in the form of extensive narrative records. At the end of the year, each dyad was seen in a 15 to 20 minute structured, laboratory-based separation and reunion procedure in which the parent twice leaves the infant (once in the company of a stranger, and once entirely alone) and twice returns. This procedure, now known as the Ainsworth strange situation, was designed to create several "natural clues to danger" (Bowlby, 1973, 1969), including (a) an unfamiliar setting (b) in which the attachment figure departs. In keeping with Bowlby's theory, Ainsworth anticipated that by the time of the second separation, all home-reared 12-month-old infants would exhibit attachment behavior such as calling and crying for the mother (Ainsworth, personal communication, 1998). Once the dyad was reunited, however, the mother's presence was expected to provide sufficient security to permit the infant to return to exploration and play.

While the first Baltimore infant observed in the strange situation behaved as Ainsworth had predicted all home-reared one-year-olds would, ultimately just 13 of the 23<sup>3</sup> responded as anticipated. These 13 infants showed signs of missing the parent on departure (usually, by crying), sought proximity or contact upon reunion (usually, seeking to be held at least briefly), and then, apparently reassured by the mother's continuing presence, returned to play. Infants who responded in this manner were termed "securely attached" (pattern B), and this behavioral pattern was found strongly related to maternal "sensitivity to infant signals and communications"<sup>4</sup> as observed independently in the home (Ainsworth et al, 1978; see DeWolff and van IJzendoorn,

---

<sup>3</sup>Due to illness and other factors, the records of only 23 of the 26 infants seen in these original strange situations were ultimately retained.

<sup>4</sup>Ainsworth's definition of sensitivity was complex, and involved (a) noting that a signal had occurred, (b) interpreting it accurately, and then (c) responding promptly and (d) appropriately.

1996 for a meta-analysis of existing studies; see also Pederson et al., 1998). In essence, the response pattern displayed by secure infants appeared related to a history of interaction with a mother who tended to be prompt and comforting in regard to infant expressions of distress. Thus, infants displaying the secure strange situation response pattern were observed to have repeatedly experienced what B. Vaughn (personal communication, 1986) has termed "distress-comfort sequences," in which the mother had promptly and competently provided solace when her infant expressed fear, pain, distress, hunger or loneliness. Not unexpectedly, these infants rarely cried during brief separations within the less stressful conditions of the home (Ainsworth et al., 1971).

Two different types of strange situation response were found in the ten remaining Baltimore infants. One group ( $N = 6$ ) showed few or no signs of missing the mother on separation, often even when left entirely alone. When reunited, they actively ignored and avoided the mother, moving away, turning away, and, if picked up, leaning out of the mother's arms, indicating a wish to be put down. These infants were termed insecure-avoidant (Pattern A), and despite a striking absence of observable affect during the strange situation, later studies would find indications of considerable distress at the physiological level (Sroufe and Waters, 1977; Spangler and Grossmann, 1993). Avoidance was associated with maternal rejection of attachment behavior, as implied by remarks indicating regret about having had the infant, and via direct observation of aversion to tactual contact (Ainsworth et al., 1978; Main and Stadtman, 1981; see Main, 1995). Intriguingly, despite the fact that neither anxiety or anger were displayed within the strange situation, avoidant infants exhibited high levels of anxiety and anger in the home (Ainsworth et al., 1978; see also Main and Stadtman, 1981, and Pederson and Moran, 1996).

The behavior of Ainsworth's four remaining infants provided a mirror image to those termed insecure-avoidant. Throughout most or all of the procedure, these infants were distressed and appeared highly preoccupied with the mother, with many showing little or no interest in the toys or other aspects of the environment. Often exhibiting anger toward the mother, these infants were unable to settle upon reunion, and were termed insecure-resistant or, alternatively, insecure-ambivalent (Pattern C). Like avoidance, resistance was found related

to maternal insensitivity to infant signals, and specifically to a tendency either to pervasively ignore the infant, or to interfere with the infant's activities. However, rather than rejecting infant attachment behavior, and hence seemingly attempting to encourage the development of a precocious independence, the mothers of Group C infants were observed to discourage the development of autonomy (see Cassidy and Berlin, 1994; see also Solomon, George, and Ivins, 1987). Each of the resistant/ambivalent infants exhibited considerable anxiety within the home.

In sum, all of the infants in Ainsworth's Baltimore study had unquestionably developed an attachment to the mother which was readily observable within the home (Ainsworth et al., 1978). However, the organization of that attachment had been found to (a) differ among infants (b) in systematic accordance with the way in which the mother had responded to the infant during the first year of life (Ainsworth, 1991; see also Main, 1995). For the majority of infants, as expected, the strange situation elicited *only* attachment and exploratory behavior. Among those placed under the long-term strain imposed by varying forms of maternal insensitivity, however, new response patterns had appeared, interfering either with the expression of attachment (avoidance) or with the infant's ability to free its attention from the parent and engage with the environment (resistance). In our view, nonetheless, simple insensitivity to infant signals—whether displayed in persistent rejection of attachment behavior or in neglect, interference, or a failure to encourage the development of autonomy—is unlikely in itself to be alarming (see also Main, 1990).

In later years, the world-wide proportions of infants judged secure, avoidant or resistant in strange situation studies have been found to be highly similar to those established in Ainsworth's original sample (van IJzendoorn and Kroonenberg, 1988), and strange situation response appears to be independent of sex and birth-order. Additionally, in several investigations of low-risk samples, attachment to the mother has been found stable to at least six years of age (Main and Cassidy, 1988; Jacobsen et al., 1992, 1997; Wartner et al., 1994; Ammaniti, Speranza and Candelori, 1996).

Simple stability of response to the same person, even if indicative of continuing emotional security with respect to that person, does not, however, tell us whether security of attachment to the mother

influences emotional well-being in settings in which she is absent. Fortunately, this critical question has been addressed in a series of studies of a large, high-risk poverty sample pioneered by Sroufe, Egeland and their colleagues, which include extensive longitudinal observations of children in school and camp settings. Here, children who had been judged secure with mother during infancy were judged more ego-resilient, more popular with peers, more competent, and happier than formerly insecure children (Weinfield et al., 1999; see also Main, 1973, and Troy and Sroufe, 1987). In many samples, the individual infant's attachments to its mother and father were found independent (i.e., the same infant was secure with one parent, but insecure with the other), and a series of critical investigations have provided little support for the otherwise reasonable supposition that genetic factors might contribute substantially to the organization of the infant's attachment to the parent (Sroufe, 1985; van IJzendoorn et al., 1992; Vaughn and Bost, 1999; Main, in press; van IJzendoorn et al., in press).

Additionally, each of the organized categories of infant strange situation behavior has repeatedly been found predictable from parental discourse within the Adult Attachment Interview, a structured, hour-long procedure in which individuals are asked to describe and evaluate early attachment-related experiences and their effects upon personality and current functioning (George et al., 1984, 1985, 1996; Main, Kaplan and Cassidy, 1985; see Hesse, 1999a, for overview). The interview is transcribed verbatim and, utilizing a system developed by Main and Goldwyn (e.g., Main and Goldwyn, 1984, 1998), most transcripts in low-risk samples can be assigned to one of three "organized" categories or "states of mind with respect to attachment"—secure-autonomous, insecure-dismissing, and insecure-preoccupied.<sup>5</sup> These adult attachment categories appear to provide

---

<sup>5</sup>Transcripts are assigned to the secure-autonomous category when the speaker remains coherent, consistent, and collaborative throughout the interview, whether early life experiences were favorable or unfavorable. Dismissing and preoccupied speakers lack the attentional flexibility and coherence evidenced in secure speakers, with dismissing speakers being especially striking for their failure to provide adequate support for positive descriptions of early experience, and preoccupied speakers seeming so excessively involved in early experiences with parents as to fail to simultaneously monitor the discourse context (Hesse, 1996).

**Table 1** AAI classifications and corresponding patterns of infant Strange Situation behavior.

ADULT STATE OF MIND WITH RESPECT TO ATTACHMENT	INFANT STRANGE SITUATION BEHAVIOR
<p><i>Secure/Autonomous (F)</i> Coherent, collaborative discourse. Valuing of attachment, but seems objective regarding any particular event/relationship. Description and evaluation of attachment-related experiences is consistent, whether experiences are favorable or unfavorable. Discourse does not notably violate any of Grice's maxims.</p>	<p><i>Secure (B)</i> Explores room and toys with interest in pre-separation episodes. Shows signs of missing parent on separation, often crying by the second separation. Obvious preference for parent over stranger. Greets parent actively, usually initiating physical contact. Usually some contact-maintaining by second reunion, but then settles and returns to play.</p>
<p><i>Dismissing (Ds)</i> Not coherent. Dismissing of attachment-related experiences and relationships. Normalizing ("excellent, very normal mother"), with generalized representations of history unsupported or actively contradicted by episodes recounted. Thus, violating of Grice's maxim of quality. Transcripts also tend to be excessively brief, violating the maxim of quantity.</p>	<p><i>Avoidant (A)</i> Fails to cry on separation from parent. Actively avoids and ignores parent on reunion, i.e., by moving away, turning away, or leaning out of arms when picked up. Little or no proximity or contact seeking, no distress, and no anger. Response to parent appears unemotional. Focuses on toys or environment throughout procedure.</p>
<p><i>Preoccupied (E)</i> Not coherent. Preoccupied with or by past attachment relationships/experiences, speaker appears angry, passive, or fearful. Sentences often long, grammatically entangled or filled with vague usages ("dadadada", "and that"). Thus, violating of Grice's maxims of manner and relevance. Transcripts often excessively long, violating quantity.</p>	<p><i>Resistant (C)</i> May be wary or distressed even prior to separation, with little exploration. Preoccupied with parent throughout procedure, may seem angry or passive. Fails to settle and take comfort in parent on reunion, and usually continues to focus on parent and cry. Fails to return to exploration after reunion.</p>
<p><i>Unresolved/disorganized (U/d)</i> During discussions of loss or abuse, individual shows striking lapse in the monitoring of reasoning or discourse. For example, individual may briefly indicate a dead person is believed still alive in the physical sense, or was killed by a childhood thought. Individual may lapse into prolonged</p>	<p><i>Disorganized/disoriented (D)</i> The infant displays disorganized and/or disoriented behaviors in the parent's presence, suggesting a temporary collapse of behavioral strategy. For example, the infant may freeze with a trancelike expression, hands in air; may rise at parent's entrance, then fall prone and huddled on the</p>

Table 1 Continued

ADULT STATE OF MIND WITH RESPECT TO ATTACHMENT	INFANT STRANGE SITUATION BEHAVIOR
<i>Unresolved/disorganized (U/d)</i> (cont.) silence, or eulogistic speech. The speaker will ordinarily otherwise fit to Ds, E or F categories.	<i>Disorganized/disoriented (D)</i> (cont.) floor; or may cling while crying hard and leaning away with gaze averted. Infant will ordinarily otherwise fit to A, B or C categories.

Two-week training institutes in the analysis of both the organized and disorganized categories of infant strange situation behavior are taught yearly by Alan Sroufe and Elizabeth Carlson of the Institute of Child Development, University of Minnesota, Minneapolis, Minnesota, 55455.

Two-week training institutes in the analysis of the Adult Attachment Interview are held regularly by several certified trainers (Nino Dazzi, Deborah Jacobvitz, David Pederson and June Sroufe). A list of available AAI institutes can be obtained from the first author at address listed at the end of this article.

Note. Permission to reprint this table, taken from Hesse (1999a) has been obtained from The Guilford Press. Descriptions of the Adult Attachment Classification System are taken from Main, Kaplan and Cassidy (1985) and from Main and Goldwyn (1984–1998). Descriptions of infant ABC categories are taken from Ainsworth et al. (1978), and description of the infant D category is taken from Main and Solomon (1990). Information regarding a fifth, “cannot classify” category not described here but prominent in clinically distressed and violent samples is available in Hesse (1996).

discourse parallels to the three “organized” infant categories<sup>6</sup> of strange situation response, and an overview is provided in Table 1. Secure-autonomous parents have repeatedly been found highly likely to have secure infants, dismissing parents to have avoidant infants, and preoccupied parents to have ambivalent/resistant infants (see Hesse, 1999a and Main, in press; see also van IJzendoorn, 1995). As noted earlier, however, some speakers—while usually appearing to be acceptably organized elsewhere within the interview—manifest disorganization and/or disorientation in reasoning or discourse specifically in response to queries regarding potentially traumatic events. Remarkably, these linguistic “slippages” are predictive of disorganized/disoriented infant attachment status.

<sup>6</sup>In direct parallel to “unclassifiable” infant attachment status as identified by Main and Weston (1981), a few transcripts have insufficient overall organization to permit assignment to the dismissing, secure, or preoccupied categories. These are currently termed “cannot classify” (see Hesse, 1996).

*Disorganized Infant Strange Situation Behavior*

In 1986, Main and Solomon first published their directions for identifying a fourth, disorganized/disoriented category of infant strange situation behavior (Main and Solomon, 1986). This category emerged through the meeting of two branches of inquiry which involved (a) the direct observation of conflict behaviors in infants and toddlers (Main, 1973, 1979a; Main and Stadtman, 1981) and (b) the recognition that some infants seen in the strange situation were difficult or impossible to classify (e.g., Main and Weston, 1981; Egeland and Sroufe, 1981; Crittenden, 1985; Radke-Yarrow et al., 1985).

Drawing on descriptions of what ethologists term *conflict behaviors*—that is, behaviors believed to result from the simultaneous activation of incompatible systems (see, e.g., Hinde, 1966; Tinbergen, 1951)—the second author had begun to code conflict behaviors in the toddlers observed in her doctoral thesis by 1972, and by 1974 undertook a second investigation of conflict behaviors, this time focusing upon the narrative records from Ainsworth's Baltimore sample (see Main, 1973; Main and Stadtman, 1981). Finally, utilizing yet a third (Bay Area) sample, a scale assessing "disordered/disoriented" behaviors was developed (Main, 1979a; see Main and Solomon, 1990, pp. 154–155). This scale was used applied to a videotaped procedure in which one-year-old infants are exposed to an initially silent, unmoving masked "clown" in the parent's presence (Main, and Weston, 1981; see Grossmann, 1997, for a description of some unfavorable sequelae to "disordered/disoriented" behavior observed in the Clown Session in a South German sample).

In conjunction with Main and Weston's (1981) study, it was also reported that approximately 13% of infants in their large Bay Area sample were *unclassifiable* within Ainsworth's traditional, tri-partite system. A comparison of infant response to the "clown session" and strange situation behavior involving the same parent one week following revealed that conflict behavior was rare among secure infants, and was most pronounced among infants judged unclassifiable (Main and Weston, 1981). Thus a notable albeit preliminary association between the exhibition of conflict behavior in a stressful situation and unclassifiability with respect to the strange situation procedure had been established.

With the aim of better understanding unclassifiable attachment status, Mary Main and Judith Solomon (formerly a biological graduate student specializing in the study of animal behavior) undertook a review of these anomalous strange situation videotapes (Main and Solomon, 1986, 1990). Rather than revealing any new organized patternings across the course of the strange situation, unclassifiable infants were again found to display a diverse array of inexplicable, odd, or overtly conflicted behaviors, this time within the strange situation procedure itself. One unclassifiable infant, for example, cried loudly while attempting to gain her mother's lap, then suddenly fell silent and stopped moving for several seconds. Others were observed, for example, approaching the parent with head averted; rocking on hands and knees following an abortive approach; moving away from the parent to the wall when apparently frightened by the stranger; screaming for the parent by the door upon separation, then moving silently away at reunion; raising hand to mouth in an apprehensive gesture immediately upon seeing the parent at the door when reunited; and while in an apparently good mood slowly swiping at the parent's face with a trancelike expression.

The most striking theme running through the behaviors observed in these infants was that of *disorganization*, or an observed contradiction in movement pattern corresponding to an inferred contradiction in intention or plan (Main and Solomon, 1990). The term *disorientation* was also used to describe behavior which, while not overtly disorganized, nonetheless indicated a lack of orientation to the present environment (such as immobilized behavior accompanied by a dazed expression).<sup>7</sup> Seven thematic headings were identified, as presented in Table 2.

Bouts of disorganized/disoriented behavior sufficient for assignment to the D (disorganized/disoriented) category are often surprisingly brief (not infrequently consisting in just one episode lasting 10 to 30 seconds). For example, an infant who froze inexplicably in a posture which required physical effort to maintain (e.g., with one hand partially extended) for 20 seconds or more would be placed in the

---

<sup>7</sup>Directions for judging infants as disorganized were developed and refined through repeated study of 200 infant strange situation videotapes designated "unclassifiable" within the original three-part system—half drawn from low-risk and half from high-risk and/or maltreatment samples.

**Table 2** Disorganized/disoriented behavior observed during the strange situation.

Strange situation behavior is judged disorganized when it fits to one of the following thematic headings:

(1) *Sequential display of contradictory behavior patterns.* For example, the infant may dash crying to the door at parent entrance, then fall silent and turn away to the wall.

(2) *Simultaneous display of contradictory behavior patterns.* For example, the infant may approach with head averted, or lean sharply away while clinging and crying. Also, while smiling and in an apparent good mood the infant suddenly strike or claw at the parent's face.

(3) *Undirected, misdirected, incomplete and interrupted movements and expressions.* For example, the infant may turn and brightly greet the stranger at parent entrance, or move sobbing to the wall rather than the parent when distressed.

(4) *Stereotypies, asymmetrical movements, mis-timed movements and anomalous postures.* For example, the infant may rock hard on hands and knees immediately on reunion, greet the parent with a one-sided smile, or repeatedly raise arms straight forward at shoulder height, eyes closed.

(5) *Freezing, stilling, and slowed movements and expressions.* For example, the infant may move very slowly towards the parent, as though moving under water or against physical resistance. Or, the infant may freeze all movement for 20 seconds, hands in air.

(6) *Direct indices of apprehension regarding the parent.* For example, the infant may place hands to mouth at parent entrance with a frightened expression, or may back against the wall with a fearful smile.

(7) *Direct indices of disorganization and disorientation.* For example, the infant may wander about the room in a disorganized fashion, turning in circles. Or, immediately upon parent entrance the infant may turn and brightly greet the stranger, raising arms.

---

Note: The above descriptions of disorganized/disoriented infant strange situation behavior are adapted from Main and Solomon (1990). Disorganized/disoriented behavior is scored by instance on a 9-point scale, and infants scoring above a 5 are placed in the disorganized category.

disorganized category. In addition, the disorganized category is always assigned together with a best-fitting, alternate avoidant, secure, or resistant category (e.g., disorganized/avoidant or disorganized/secure).<sup>8,9</sup> This is because the second best-fitting category may

---

<sup>8</sup> Also, some infants are alternately unclassifiable or cannot classify.

<sup>9</sup> Acceptable levels of reliability and stability were established for the disorganized strange situation category in this and succeeding independent investigations, and, additionally, across studies no significant sex differences have been found (van IJzendoorn, Schuengel and Bakermans-Kranenburg, in press).

ultimately be related to differing sequelae—that is, disorganized/secure infants may differ markedly from those who are disorganized/insecure, as Lyons-Ruth in particular has demonstrated (see Lyons-Ruth, Alpern, and Repacholi, 1993; Lyons-Ruth, 1996; see Lyons-Ruth and Jacobvitz, 1999 for overview).

Disorganized behavior has also been observed in infants and older individuals who are neurologically atypical (Main and Solomon, 1990; see also Pipp-Siegel, Siegel, and Dean, in press), isolated, or simply overwhelmed or over-stimulated by repeated or extended separations (Heinecke and Westheimer, 1966; Robertson and Robertson, 1971; Main and Solomon, 1990; Solomon and George, 1999; see Hesse, 1999b for overview). In addition, disorganized behavior (particularly, stereotypies and “freezing”) can result from pharmacological interventions (see Hesse, 1999b).

However, since—in keeping with the theorizing put forward within this presentation—disorganization can also arise as the product of conflicting behavioral tendencies (Hinde, 1966), it is not surprising that disorganized behavior has been observed in experimental settings in which toddlers are deliberately given conflicting signals (Volkmar and Siegel, 1979; Volkmar, Hoder and Siegel, 1980), subjected to abrupt and confusing changes in interactional behavior, or else exposed to “inescapable” situations involving, for example, shame or embarrassment (see Main and Solomon, 1990 and Hesse, 1999b). Disorganized behavior in the presence of a particular parent may also result from circumstances in the parent’s life which lead to frightened behavior only temporarily (a case of this kind in which an otherwise secure parent had just had a life-threatening experience is discussed extensively by Ainsworth and Eichberg, 1991). Since conflict arising in these latter situations is, however, either the product of experimental procedures or presumed to be transient, a search for ongoing and potentially disorganizing aspects of parental behavior was undertaken.

As noted earlier, we have hypothesized that behavioral and attentional organization can normally be maintained within the strange situation only so long as the attachment figure—whether sensitive or insensitive to infant signals and communications—has not been a direct source of fright (Main and Hesse, 1990, 1992; Hesse and Main, in press). The capacity to remain organized should, however, ordinarily break down in the face of repeated exposure to the inherently

highly conflictual situation in which the attachment figure has become alarming.

In keeping with this proposal, disorganized behavior has now been observed in the great majority (77%) of maltreated infants studied in the strange situation in two relatively large independent samples (Carlson et al., 1989; Lyons-Ruth et al., 1991; see van IJzendoorn, Schuengel, and Bakermans-Kranenburg, 1999, Table 5). It is nevertheless still necessary to provide an account for the fact that 15% of infants observed in low-risk samples ( $N = 2104$ ; van IJzendoorn et al., in press) are disorganized, and that in several studies the proportion of middle-class toddlers judged disorganized has ranged above 30% (e.g., Ainsworth and Eichberg, 1991). Further, direct maltreatment is unlikely to provide the predominant explanation for the fact that in a study of children of mothers suffering from anxiety disorders, 65% of offspring were found disorganized (Manassis, Bradley, Goldberg, Hood, and Swinson, 1994). While of course no one would argue that maltreatment is absent in low-risk samples, or that it might not occur in some parents with anxiety disorders, it would be highly unlikely that, for example, 65% of mothers suffering from anxiety disorders would also be maltreating.

These findings, then, leave open the question of what the parental correlates of disorganized attachment might ordinarily be in non-maltreating populations, and indeed how disorganization can arise under circumstances that do not involve directly threatening or maltreating parental behavior. Ultimately, we theorized that *frightened* and *dissociated* parental behavior could place the infant in a paradox similar to directly threatening parental behavior, and that behavior of this kind could be expected in individuals in low-risk samples who were still frightened, unresolved, and disoriented with respect to their own experiences of loss or abuse.

*Unresolved/Disorganized Adult Attachment Status:  
Discourse/Reasoning Lapses Occurring During the Discussion  
of Potentially Traumatic Experiences*

Initial albeit indirect support for the above line of reasoning was provided by our early investigation of the Bay Area upper-middle-class sample (Main and Hesse, 1990). Here we found a strong associ-

ation between the infant's disorganized/ disoriented behavior during the strange situation as conducted with a given parent and *linguistic slippages* observed in that same parent's discussion of potentially traumatic events sufficient to warrant placement in the *unresolved/ disorganized* Adult Attachment Interview category (Main and Goldwyn, 1984, 1998; see Hesse, 1999a and Hesse and Main, in press, for overview). In this study, we reported that 91% of mothers identified as substantially unresolved on the basis of discourse/reasoning lapses during discussions of loss within the AAI had had disorganized infants five years earlier, while only 16% of mothers who had *experienced* a loss, but showed little or no indication of disorganized mental processes in discussing the loss, had had disorganized infants.

The first replication study was conducted by Ainsworth and Eichberg (1991), who established that, in a sample of 50 Charlottesville mothers, those who had simply *experienced* a loss were no more likely than other mothers to have disorganized infants. However, *all eight* mothers whose lapses in reasoning or discourse identified them as unresolved/disorganized with respect to loss had infants judged disorganized with them during the strange situation.

The Ainsworth and Eichberg study provided a particularly dramatic example of a lapse in the monitoring of reasoning in a high-functioning mother. Immediately upon being queried regarding loss experiences, she responded "Yes, there was a little man" and then began to cry. The person lost was an elderly man who had worked briefly for her parents when she was eight years old. Jokingly, he had asked her to marry him when she grew up, and she had replied "No, you'd be dead." Not long after this exchange, he had died unexpectedly of a brain hemorrhage. Crying, this mother told the interviewer that it was she who had killed him—"with one sentence" (Ainsworth and Eichberg, 1991, p. 175). This lapse in reasoning was left unmonitored, leading to placement in the unresolved/disorganized adult attachment category, and as expected the infant's strange situation behavior was highly disorganized. The reader should note

- (a) the existence of frightening ideation (having killed someone with a thought) in this mother,
- (b) whose loss experience would not normally otherwise have been considered traumatic.

By 1994, unresolved/disorganized parental attachment status had been found predictive of infant disorganized attachment in five further samples (summarized in van IJzendoorn, 1995). In four of these samples, the Adult Attachment Interview was administered *prior to the birth of the first child* and compared to infant strange situation response to the same parent 15 months later (Benoit and Parker, 1994; Fonagy, Steele, and Steele, 1991; Radojevic, 1992, 1994; Ward and Carlson, 1995; the latter is a high-risk sample).<sup>10</sup> Since then, six additional investigations of the relations between unresolved parental attachment status and disorganized infant attachment status have been conducted, with highly significant linkages being reported for a majority of these studies (Hesse, 1999b).

In sum, then, researchers have repeatedly observed that (1) isolated, brief *linguistic* indices of disorganization and disorientation in the parent's AAI occurring specifically in response to queries regarding loss or abuse experiences (the majority of *unresolved* AAI's are otherwise globally well organized), predict (2) usually brief bouts of *behavioral* disorganization and disorientation in the infant. An overview of this system of linguistic analysis is provided in Table 3.

#### *Frightened/Frightening Behavior in Non-Maltreating Parents*

The first step toward deriving the conclusion that disorganized behavior could result not only from direct physical abuse and maltreatment (i.e., as a *direct* effect of trauma) but also as a *second-generation effect* of more subtle forms of parental behavior mediated by a frightened mental state (Main and Hesse, 1990, 1992) consisted in a closer examination of the "unresolved" interview passages in which linguistic slippages had been identified. Here we noted that in many cases the interviewer's questions regarding a potentially traumatic event seemed to have sparked or induced a momentary but dramatic alteration in the speakers mental state.<sup>11</sup> Indeed, many of the

---

<sup>10</sup> Interestingly, the strength of the association is highly related to the amount of training researchers have had in assessing disorganized strange situation behavior (Van IJzendoorn, 1995).

<sup>11</sup> States of absorption and intrusions from secondary systems are compatible with Hilgard's analysis of hypnotic phenomena and trancelike states (Hilgard, 1977) and with Bowlby's analysis of a case of unresolved mourning in an adolescent girl ("Geraldine," see Bowlby, 1980).

**Table 3** Identifying unresolved/disorganized attachment status within the Adult Attachment Interview: Lapses in the monitoring of discourse and reasoning.

---

Lapses in the monitoring of *discourse* may take the following forms, among others:

(a) Sudden changes in speech register (e.g., shifting from normal speaking patterns into eulogistic/funereal speech, as, "She was young, she was lovely, and she was torn from us by that most dreaded of diseases, tuberculosis");

(b) Falling silent for 100 seconds mid-sentence, then continuing on unrelated topic;

(c) Giving extreme attention to details surrounding a loss or other potentially traumatic experience inappropriate to the interview context (e.g., a 10-minute discussion involving minute details of a loss including time of day, furnishings of the room, and clothing worn to the funeral by each family member).

Lapses in the monitoring of *reasoning* may take the following forms, among others:

(a) Subtle indications that a deceased individual is believed simultaneously dead and alive in the physical (not religious or metaphysical) sense (e.g., "It was almost better when she died, because then *she could get on with being dead*, and I could get on with raising my family");

(b) Placement of the timing of a death at several widely separated periods (e.g. ages 9, 11, and 15 given for same loss experience at differing places in the interview);

(c) Indications that self was responsible for the death where no material cause was present (e.g., death caused by having thought something negative about a person near the time of their death);

(d) Claims to have been absent at the time of the death, juxtaposed with claims to having been present (e.g., stating regret at having been at home when other family members were present at a drowning, then later speaking as though the self had been present: "and we tried, but none of us could swim to her").

---

Note: The above examples of lapses in the monitoring of reasoning and discourse are taken from Main and Goldwyn, 1998.

more marked slippages suggested that the speaker was experiencing either (a) high levels of absorption involving events which had as yet failed to undergo normal processing or (b) intrusions from a secondary (normally dissociated) ideational system involving those experiences, which was incompatible with an ordinarily more prominent view regarding these same events (Main and Hesse, 1990, 1992). As Table 3 indicates, examples of absorption included unusual attention to detail surrounding the discussion of a loss, or a sudden shift to eulogistic (funereal) speech. Lapses in reasoning suggestive of intrusions from a secondary, incompatible belief system were also found—for example, in statements indicating that a deceased person was believed still alive in the physical (as opposed to metaphorical,

metaphysical or religious) sense. It appeared reasonable to assume, then, that *similar state-shifts could occur in such individuals in the home as well as the interview setting*, being triggered by (a) spontaneous intrusions from alarming memories or ideation and/or (b) something in the environment idiosyncratically associated with those ideas or memories.

As early as 1990, then, a theory was evolving which could in principle explain how a parent's unintegrated or dissociated state, including any concomitant fears and fantasies, could become associated with disorganized behavior in the infant (Main and Hesse, 1990, 1992). Having entered such a state, the parent might be expected to exhibit (1) anomalous forms of frightening or threatening behavior; (2) frightened behavior; or, simply (3) overtly dissociated behavior. For reasons which we delineate shortly, each of these subcategories of parental behavior is expected to be immediately frightening. In addition, depending on the nature and intensity of their own traumatic experiences, some unresolved parents might also (4) exhibit sexualized behavior, (5) treat the infant deferentially, timidly or as a protector, or (6) exhibit disorganized/disoriented behavior of the kind more commonly observed in infancy. These latter behaviors, although not necessarily immediately frightening to the infant, would nonetheless be most likely to occur if the parent had entered an "altered" or dissociated state. In this case, the parent could well be expected to become directly frightening, frightened, or dissociative at other times.

The above considerations, of course, would require empirical testing, and this led to the development of a coding system for identifying these kinds of parental behaviors (hereafter termed FR behavior, Main and Hesse, 1992–1998). An overview of this system is presented in Table 4.

This coding system was intended to provide a systematic means for investigating the hypothesis that *frightened and dissociated* behavior, as well as certain kinds of threatening behavior would appear in unresolved/disorganized parents in low-risk samples, and, like directly abusive or maltreating behavior, would place an infant in a behavioral/attentional paradox leading to disorganization and disorientation.

The FR coding system has evolved through several editions across the past eight years and, as of this writing, a number of independent investigators have utilized varying editions or portions of this system

**Table 4** Precis of the Six Central Categories of the System for Coding FR Behaviors.

Note: Exclude from consideration simple disciplinary actions, even if somewhat harsh, insensitive, or momentarily frightening (e.g., shouting, or slapping of hand), or accidents that momentarily frighten the infant (e.g., slipping and bumping infant's head on wall), so long as parent's state does not appear dissociative or anomalous (see text, pp. ).

- I. *Direct indices of entrance into a dissociative state.* For example, parent suddenly completely "freezes" with eyes unmoving, half-lidded, despite nearby movement; parent addresses infant in an "altered" tone with simultaneous voicing and de-voicing ("haunted" sound, as is produced by elongating the sounds of "Hi", "huh" or "ah" while pulling in on diaphragm).
- II. *Threatening behavior inexplicable in origin and/or anomalous in form.* For example, in non-play contexts, stiff-legged "stalking" of infant on all fours in a hunting posture; exposure of canine tooth accompanied by hissing; deep growls directed at infant.
- III. *Frightened behavior patterns inexplicable in origin and/or anomalous in form.* Sudden frightened look (fear mouth, exposure of whites of eyes) in absence of environmental change. Also, a quick, stammering, alarmed retreat indicating that the infant must not follow, or approaching infant apprehensively as a potentially dangerous object.
- IV. *Timid/deferential (role-inverting) behavior.* For example, submissive to infant aggression, hands folded, head bowed, no effort to stop painful slapping, hitting or hair-pulling. Also, turning to the offspring as a haven of safety when alarmed.
- V. *Sexualized behavior toward infant.* For example, deep kissing of infant, exhibition or encouragement of sexualized caressing.
- VI. *Disorganized/disoriented behaviors compatible with Main and Solomon's (1990) infant system.* For example, mis-timed movements, anomalous postures, approaching infant with head averted, or any observable "collapse of behavioral (caregiving) strategy", such as becoming motionless while infant is crying.

Note: Readers interested in a more complete description of this system should write to the first author at address listed at the end of this article. Training institutes in the identification and scoring of FR behavior are being planned.

in home or laboratory observations. Two large-scale studies have investigated the relation between unresolved/disorganized (maternal) attachment status and FR behavior as observed in mothers in the home. Working at Leiden University in the Netherlands, Schuengel

and his colleagues videotaped 85 mothers and infants for approximately four hours across the course of two home visits (Schuengel, van IJzendoorn, and Bakermans-Kranenburg, 1997). Home behavior observations were made at 10.5 months, and no instructions were given to mothers to engage in any particular forms of interaction. An association between unresolved/disorganized attachment and maternal FR behavior was found, but only when the mother's alternative or "best-fitting" AAI classification (assessed when the infants were 12 months) was insecure (Schuengel et al., 1997; Schuengel et al., 1999). This suggested the possibility of a protective factor operating to inhibit the expression of FR behavior in unresolved mothers whose underlying adult attachment classification was secure (a study of couple interaction, and a study linking the AAI to assessments of psychopathology appear to provide further corroboration of this proposal, see Hesse, 1999a, for review).

In a study conducted at the University of Texas, Jacobvitz, Hazen and Riggs (1997; Jacobvitz, 1998) administered the AAI to 113 mothers prenatally. Here, mothers were required to feed their babies, play with them, and change their clothing on camera. In this more stressful procedure, *both* unresolved/secure and unresolved/insecure mothers were far more likely to exhibit FR behaviors, as compared to either secure or insecure mothers who were not unresolved (similar results are emerging in a study comparing parental AAI attachment status to frightening/frightening parental behavior in a Bay Area study, Abrams, 1999). However, there was a tendency for unresolved/secure mothers observed in the home in the Texas study to exhibit somewhat less FR behavior than did unresolved/insecure mothers (Lyons-Ruth and Jacobvitz, 1999).

Two investigators have also examined FR behavior directly within the strange situation. A first study conducted with a middle-class sample at the University of Regensburg in Germany yielded no significant association between maternal FR behavior and infant disorganized attachment. However, these mothers were described as doing very little throughout the strange situation procedure as a whole, and the coders had not had the benefit of observing videotaped examples of FR behavior (Buttner, Hieber, and Grossmann, 1997). A second strange situation study, in contrast, utilized a high-risk sample, and wider variation in maternal behavior was observed. Here, FR

behavior (as well as disrupted maternal communication and withdrawal) was found associated with infant disorganization, and the parents of disorganized infants whose alternative best-fitting classifications were secure differed in intriguing ways from those whose alternative best-fitting classification was insecure (Lyons-Ruth et al., in press).

Several investigators have also examined the relation between FR behavior in the home, field or laboratory, and infant disorganized attachment status as assessed in independent strange situations. In the Leiden study of 85 dyads mentioned above, FR behavior as observed in the home at 10.5 months was significantly predictive of disorganized attachment in strange situations conducted at 14 to 15 months of age (Schuengel et al, 1999). In addition, a study of village-living members of the Dogan ethnic group conducted in Mali, West Africa, found a simplified assessment of FR behavior, as recorded in the field or hut setting, significantly associated with disorganized attachment status; however, no association was found in a second sample consisting of town-living Dogan (True et al., 1998; the village mothers were generally believed to be living in high-risk circumstances, as compared to the town mothers).

Finally, a study of 50 infant-mother and 25 infant-father dyads (total  $N = 75$ ) conducted by Abrams at Berkeley was the first to use the most recent (1998) version of the coding system (Abrams and Rifkin, 1999; this study forms part of Abrams' doctoral thesis, and the full coding system is available as an appendix to Hesse, 1999b). Here, parents and infants were video-taped in the laboratory in 18 minutes of free-play, but—to create an opportunity for observing infant obedience—parents were instructed to keep the infant away from various locations and objects. Free play was followed by the 12-minute Clown Session (Main and Weston, 1981), and coders, scoring across the full 30 minutes of observation, were blind to strange situations conducted one week previously. The results comparing parental FR free play/Clown Session classifications to infant D strange situation classifications assessed one week earlier were very strong for both mother-infant dyads (82% agreement, Fisher's exact test = .0002) and father-infant dyads (88% agreement, Fisher's exact test = .002). Across the 75 dyads as a whole, there was 84% agreement between FR and D classifications ( $\phi = .61$ ). Sixty-five percent of the (17) parents of

infants assigned to D as a primary classification were judged FR, and 33% of the (6) parents of infants assigned to D as a secondary or "alternate" classification were judged FR. In contrast, only 4% of the (52) parents of non-D infants. Of the 15 out of 75 parents assigned to the FR classification, 11 had been assigned to D as a primary, and 2 as a secondary (e.g., secure/alternate disorganized) strange situation classification. Thirteen out of the 15 infants of FR parents had, then, shown substantial indices of disorganization and disorientation during the strange situation.

Considered as a whole, these studies provide preliminary (albeit correlational) evidence for the hypothesis that FR behavior frequently mediates the relation between unresolved (adult) and disorganized (infant) attachment status. It should be noted (a) that FR behavior may be most likely to appear among parents in high-risk samples, or when parents are observed in stressful settings, and consequently that (b) it may be under these conditions that stronger relations to unresolved maternal attachment status and disorganized infant attachment status are likely to be found. In addition, stronger results may be reported by researchers trained via a review of FR behavior examples, and able to utilize more recent editions of the coding system.

Below, we provide a general description of frightening and frightened parental behaviors which are *not* expected to produce disorganization. The behaviors found in the six categories of the FR system presented in Table 4 are then discussed, and illustrative case examples are given. In addition, we consider the ways in which each type of FR behavior may be directly (categories 1 to 3) or indirectly (categories 4 to 6) frightening and/or disorganizing to the offspring. It should be remembered that in all studies (other than the original study by Main and Hesse, which focused upon non-blind anecdotal observations), the observers of parental behavior have been blind to both the Adult Attachment Interview and infant strange situation behavior.

*Frightened and Threatening Parental Behaviors  
Not Expected to Produce Disorganization*

In contrast to maltreating parental behavior, which must invariably arise from pathological conditions, there are several forms of fright-

ened and threatening parental behavior that occur relatively frequently but would not normally be expected to lead to disorganization and/or disorientation. For example, Campos and his colleagues have demonstrated that infants as young as 11 months are highly alert to frightened expressions on the part of the parent which indicate danger. In Campos' studies infants have, for example, been observed to monitor and respond to parental expressions of apprehension or alarm as the infant approaches an apparently dangerous situation involving a simulated or "visual" cliff, and to inhibit movement across the cliff in response to fearful expressions (see Klinnert et al., 1983; Kermoian and Campos, 1988). Fearful parental expressions also, of course, appear outside of the laboratory setting, perhaps indicating approaching danger (e.g., the appearance of a potentially aggressive animal), or the possibility that the infant's actions may have immediately dangerous consequences (e.g., the toddler's movement towards oncoming traffic). In circumstances such as these, however, what is alarming—i.e., the source of the alarm—is *external* to the parent. The alarming stimulus will therefore ordinarily be both discernible and comprehensible, as will be made obvious in the parent's orientation, and the infant will be free to approach the parent. Moreover, it should be noted that when most parents themselves accidentally do something to frighten the infant, they are likely to immediately provide comfort, contact, or (in clinical terms) "repair" (see especially Lyons-Ruth and Jacobvitz, 1999, and Lyons-Ruth et al., in press).

Consider in addition the ordinary contexts in which threatening parental behavior arises. It is not unusual for a parent to become angry and/or threatening in disciplinary interactions—for example, when the child runs out into the street, or touches a forbidden object. At such times, the parent may not only sharply raise their voice, but also spank the child, or slap the child's hand. Here again, however, the stimulus for the parent's behavior is external and readily comprehensible. In addition, by changing its behavior via compliance, the offspring can in principle bring "frightening" parental behavior to an end. Finally, the child is often immediately able to (or even encouraged to) approach the parent, since the ultimate aim of such interactions is often protective, and this too provides an opportunity for "repair." Ordinarily, then, harsh or angry parental behavior in itself should not create an approach-flight paradox.

In sum, in the situations described above the conditions leading to parental expressions of fright or threat are discernible and comprehensible, while the expressions themselves are not anomalous. As a rule, it would therefore seem that circumstances of this kind should not interfere with the continued organized functioning of the attachment system.

*Parental Behavior Likely to be Directly and Immediately  
Frightening and Disorganizing: Dissociative Behavior,  
Anomalous Threat, and Anomalous Expressions of Fright*

Parental behaviors which are mediated primarily by internal factors related to unresolved experiences of trauma and fear will in general not allow for the regulated functioning of the child's attachment behavioral system. This will be likely because the parent's psychological state should most often be "altered" when these behaviors occur. The behaviors themselves can be delineated as follows.

*Dissociated Parental Behavior*

The phenomena of dissociation have fascinated clinicians and academicians since the early writings of Breuer and Freud (1895), as well as James (1890), Janet (1907), and Prince (1905). Especially careful descriptions and considerations of the phenomena of dissociation have recently been made available via the work of Hilgard (1977), Kihlstrom (1997), Liotti (1992, 1993, 1999), Putnam (1985), and Spiegel (1990), among others, although Ellenberger (1970) has pointed out that states of dissociation have a long history in human cultures.

Some aspects of dissociative experiences are subjective, and are therefore difficult to identify without direct query. These include depersonalization, amnesia, and the subjective sense of the existence of alternative identity states. Other arguably dissociative phenomena are, in contrast, clearly observable, such as trance states, and altered, anomalous facial and vocal expressions. As most readers are aware, the extremes of dissociative phenomena, such as dissociative identity disorder and fugue states, have frequently been associated with a history of trauma, and hence with fear (Putnam, 1985).

Dissociative parental behaviors were first found informally related to disorganized infant attachment status by Main and Hesse (1990) who, for example, described the simultaneous voicing and devoicing intonation used by some parents in greeting their (disorganized) infants. This intonation most often has a haunted or "Halloween" quality, not unlike that common to characters observed in "horror" films (as when "Hi . . . iiiii" is spoken while pulling in on the diaphragm). In a case seemingly also involving a dissociative element, a mother who had suffered abuse by her father was observed greeting her disorganized male infant with a sudden mid-sentence drop in intonation to a deep pitch more appropriate to a male. Like the devoiced "*hi . . . iii*" described above, this vocalization struck listeners as markedly frightening, seeming "disconnected" from the mother's regular voice, and suggestive of intrusion from the voice of a second speaker. In more recent observations, one mother of a disorganized infant used a de-voiced whisper ("*aaaaaa . . . ahhh*, get the blocks") in addressing her infant. This mother was also observed whispering instructions to herself just prior to speaking the same words in a normal conversational tone (Abrams and Rifkin, 1999). Remarkably, the voice heard as the mother almost inaudibly "coached" herself on how to act had the de-voiced or "haunted" quality described earlier. Another mother of a disorganized infant grunted and growled in a deep, aggressive and almost "inhuman" male voice while smiling and apparently pleasantly attempting to engage her infant in play. Each of these vocalizations was described as chilling and/or frightening when played for listeners, and suggested "possession" to one.

Another behavior pattern indicative of entrance into a dissociative state consists in "freezing" of all movement accompanied by half-closed, unblinking eyes. In such instances the parent appears completely unresponsive to, or even unaware of, the immediate external environment, including the movements and vocalizations of their infant. We have ourselves seen several unresolved/disorganized parents freeze all movement in the manner just described, while recently Jacobvitz (see Lyons-Ruth and Jacobvitz, 1999) has described her observations of one unresolved/disorganized mother who appeared to enter a trance state while being filmed in a feeding interaction in the home. Specifically, this mother sat immobilized in an uncomfortable position with hand in air, blankly staring into space

for 50 consecutive seconds. In total, she entered apparently altered states for 5 out of the 20 minutes of feeding.

Dissociative or trance-like behavior this pronounced is rare in low-risk samples, and would be expected to receive the highest possible score (9 on the 1 to 9 point scale). Of course, more moderate examples of dissociative or dissociative-like phenomena are frequently observed, and receive much lower scores. For example, a mother may simply sit comfortably, maintaining a blank "unseeing" stare for a brief period while her infant moves about in front of her, vocalizing. In addition, fleeting, moderately "eerie" facial expressions have been noted in some mothers (see for example Schuengel et al., 1997).

It appears probable, however, that at high levels of intensity and/or in stressful situations, dissociated parental behavior can in itself be sufficiently alarming to leave the infant without a strategy for maintaining behavioral and attentional organization. For example, in three separate instances in which a parent used devoicing ("haunted") tones in addressing the infant, the infant's behavior immediately became disorganized. Similarly, two infants seen in the strange situation immediately "froze" (Main and Solomon's [1990] guidelines identify freezing and stilling as forms of disorganized/disoriented behavior) as soon as the parent entered into a trancelike state. When marked, then, many types of dissociative behavior are likely to be frightening. At the same time, in leaving the infant with "nowhere to go" (since the parent is visibly "not there"), a state of fright without solution will be created.

The existence of a specific and significant association between this (dissociative) subtype of FR behavior and infant disorganization was first uncovered in the Leiden study of infant-mother interaction in the home described above (Schuengel et al., 1997). A very strong relation between FR scores assigned specifically for dissociative behavior and the degree to which the infant had shown disorganization with the same parent was also found for both mother ( $N = 50$ ,  $r = .49$ ) and fathers ( $N = 25$ ,  $r = .48$ ) in the Bay Area study (Abrams and Rifkin, 1999). Because for reasons not yet known mildly dissociative behaviors, such as trancelike stilling, seem to occur more frequently in low-risk samples than the anomalous forms of threatening and frightened behavior described directly below, it is likely that this particular

subtype of FR behavior will continue to show a strong relation to unresolved parental and disorganized infant attachment status.

### *Anomalous Forms of Threatening Parental Behavior*

As early as 1990, Main and Hesse had called attention to some unusual parental movement patterns observed during the strange situation with disorganized infants. These included startling, unpredictable invasions of "personal space"—for example, while seated behind the infant, some parents silently and suddenly slid their hands across the infant's face or throat. In addition, we informally noted non-gamelike movements or postures that resembled a hunt or chase-pursuit sequence in the parents of some disorganized infants, almost as though the infant were being stalked.

Surprisingly, since our early non-blind observations of threatening and non-game-like "hunt-pursuit" sequences in a few parents seen in the strange situation, several independent researchers utilizing home or laboratory free play observations have reported the sudden appearance of predatory and/or animal-like forms of threatening behavior in the parents of disorganized infants. In some cases, these parents have simply been observed to abruptly begin to stalk the infant on all fours, silent and stiff-legged, in the absence of all "meta-signals" of play. In the study conducted at Leiden, for example, one unresolved mother of a disorganized infant suddenly crawled silent and catlike towards her infant and then, simulating "mauling" behavior, turned her over with fingers extended like claws (see Schuengel et al., 1997). This mother also combined tickling with baring her teeth and looming over the baby's face, increasing and continuing this display as the baby became frightened. Another unresolved mother of a disorganized infant clawed repeatedly toward her infant's face, while the mother of an unclassifiable infant<sup>12</sup> tossed her toddler in the air while growling and baring her teeth.

---

<sup>12</sup>As noted earlier, the identification of disorganized infant strange situation behavior evolved out of an examination of infants whose strange situation behavior was unclassifiable. Schuengel and his colleagues describe this infant's strange situation behavior as not only failing to fully fit to the traditional A, B, and C attachment categories, but to the D category as well (Schuengel et al, 1997). Our own (still informal) ongoing analyses of strange situation behavior are continuing to suggest that unclassifiable infant strange situation attachment status has correlates similar to that of disorganized attachment status.

Recent observations in the free-play laboratory context made by Abrams and Rifkin at Berkeley (1999), and home observations by Jacobvitz at Texas (Jacobvitz, 1998; see also Lyons-Ruth and Jacobvitz, 1999) have continued to confirm the existence of "predatory" forms of threat behavior in parents independently identified as having disorganized infants. These behaviors have included not only teeth-baring but, in addition, cat-like hissing, deep threatening growls, and even one-sided lip-raising (in essence, one-sided canine exposure, a threat gesture noted by Darwin in 1872) have been observed. None of these predatory behaviors and expressions appear to be playful, and most seem to arise "out of nowhere," and then disappear. However, since the attachment behavioral system is believed to have evolved primarily to protect the infant from predation (Bowlby, 1969), behaviors of this kind may be especially frightening and be expected to arouse the attachment system at the highest level of intensity.

The approach-flight conflict leading to disorganization within the context of (anomalous) threatening parental behavior should, of course, generally be the same as that described earlier for cases of battering. Because most of the anomalous forms of threatening behavior described above appear suddenly, briefly, and without apparent context, we infer that fleeting affects—including frightening, partially dissociated memories or thoughts associated with the parent's own trauma or fearful ideation—may drive the abrupt appearance and disappearance of these behaviors. It should be noted that in the Bay Area study of 50 infant-mother dyads described earlier (Abrams and Rifkin, 1999), scores for these anomalous (predatory) forms of maternal behavior were found in themselves significantly associated with infant disorganized behavior as assessed one week previously.

#### *Anomalous Forms of Frightened Parental Behavior*

We now turn to the more subtle and initially perplexing problem of why certain anomalous expressions of *fright* are also likely to lead to disorganization in the offspring. Ultimately, we believe that in this context the operative mechanism also involves alterations in normal consciousness originating from the parent's traumatized state of mind.

Here, however, rather than resulting in readily observable dissociative states or agonistic propensities, trauma and frightening ideation seem to have led to sporadic unintegrated expressions of fright.

Unlike anomalous threat, which may eventually be found associated with an underlying insecure (e.g., unresolved/dismissing or unresolved/preoccupied) state of mind on the part of the parent, there is no reason to assume that anomalous expressions of fright might not often occur in otherwise secure, and normally sensitive, parents. It is of special import, then, that in her study of parental behavior during the strange situation Lyons-Ruth (see Lyons-Ruth and Jacobvitz, 1999, p. 531) found that mothers of disorganized infants showing an underlying or "alternate" secure AAI response differed from the mothers of disorganized infants showing an underlying insecure patterning, in that the former exhibited *fearful-inhibited* behavior. Strikingly, then, the mothers of disorganized/secure infants were characterized as manifesting subtle, *frightened* behavior in the absence of high levels of frightening, dissociated or role-inverting behavior; in addition, they were sometimes described as withdrawn, without being hostile.

Below we identify and describe two anomalous forms of frightened behavior observed in the parents of disorganized infants: frightened behavior which has no evident environmental source, and behavior indicating that the parent is *frightened of* the infant. Again, as noted above, and as Lyons-Ruth's findings would suggest (Lyons-Ruth and Jacobvitz, 1999; Lyons-Ruth et al., in press), these behaviors are not necessarily incompatible with parenting which is otherwise relatively sensitive and responsive.

*Anomalous Forms of Frightened Behavior Presumed to Occur  
in Response to Environmental or Internal Events Associated  
with the Parent's Unresolved State of Mind*

Expressions of fright stemming from the parent's past experiences will most often ultimately be internal in origin, and therefore frequently unlocatable within the infant's immediate environment. Thus—whether triggered by an internal stimulus, or by some external stimulus idiosyncratically associated with the parent's history or ideation—when such expressions are perceived the infant will "sense"

impending danger, the source of which will be either indiscernible or incomprehensible.

Providing one example of behavior of this type, Main and Hesse (1990) described the parent of a disorganized toddler who responded with an immediate, frightened intake of breath as he began moving a toy car across the room, and then cried out "Uh-oh! Gonna have an *accident!* Everybody's gonna get *killed!!*" Although we had no access to this parent's history, the panic implied by the frightened intake of breath combined with the particular statement made could well suggest some connection to earlier personal or familial experiences of loss through automobile or other accidents. This is, of course, only one idiosyncratic example, while a parent who suddenly looks about or reacts to an unchanged benign environment with alarm provides a more general illustration. As another example, for no cause apparent to the offspring, a parent who had lost a family member through drowning could suddenly tighten his or her grip on the infant with an accompanying sharp intake of breath while friends discussed a trip to the seashore.

Parental behavior of this kind would almost inevitably be alarming, since it suggests an immediate (albeit indiscernible) danger. However, as in the case of dissociative states described earlier, a parent behaving in a frightened manner for these reasons is unlikely to appear sufficiently externally oriented to provide adequate protection. Indeed, although a parent engaged in an anomalous display of fright may not simultaneously appear to be in a dissociative state, the arousal of unintegrated fear will no doubt normally be the product of a somewhat altered state of consciousness. In some cases, the parent may simply sporadically enter general states of alarm, which stem from changes in unconscious factors that have no systematic relation to particular events or elements within the immediate environment. In other cases, the stimulus for the parent's alarm can be traced and defined but has no obvious or immediate link to danger (e.g., the previous reaction to discussions of trips to the seashore). As when the parent more obviously enters a dissociative state, then, the parent is likely to be both alarming and simultaneously unavailable, placing the infant in a situation involving fright without solution.

*Frightened behavior indicating that the infant itself is the source of the parent's alarm.* For a parent who remains frightened by partially

dissociated experiences, a number of complex and confusing responses to the infant may arise, some of which will involve situations where the infant becomes confused or identified with the original experience or its associated ideation. Main and Hesse (1990) described one (unresolved/disorganized) parent backing away from their infant during the separation episode of the strange situation, while stammering in an unusual and frightened voice: "D-don't follow me, d-don't." During the succeeding reunion, the infant lay stilled and flattened against the parent with eyes dazed for over one full minute, and was judged disorganized. The mother of another disorganized infant was observed jerking her head away with a fear grimace and eyes wide, when the infant reached out to pat her face in a calm and exploratory manner. Intriguingly, frightened parental head movements have now been observed in several samples as the parent responds to the approach of the infant's hand. In addition, parents have been observed stepping cautiously from place to place as though attempting to keep the offspring at the greatest possible distance, or even attempting to "escape" the infant by moving out of reach as if the infant was, for example, a pursuing and potentially dangerous animal. Finally, the unresolved/disorganized mother described earlier as having entered trance states during a feeding interaction in the Texas study was also observed suddenly moving her hand away from her infant as if fearful of being hurt (see Lyons-Ruth and Jacobvitz, 1999).

How can we account for such anomalous responses to infants, who in fact have no direct power to harm? One among many possible explanatory pathways could involve experiences which, whether inherently traumatic or simply associated with frightening ideation, occurred when the parent was a child. Consequently, in some cases the offspring may become unconsciously confused with these experiences, leading to the "unprocessed" conclusion that the child is a source of alarm. Here the reader may recall that the unresolved mother of a disorganized infant discussed by Ainsworth and Eichberg (1991, above), appeared to retain the childhood belief that, at age eight, she had killed her caretaker "with one sentence!". If at certain moments such a speaker believes that children have the power to kill through thoughts or sentences, the correlated idea *that it is possible to be killed by one's own offspring* could then well arise. "Anniversary" reactions occurring when an offspring reaches the age at which the parent lost

an important person may therefore not only be mediated by, for example, the renewed onset of depression, but also in some cases by the re-arousal of anxiety and fright. *Fear of the offspring* in traumatized parents is therefore perhaps not as unlikely an outcome as might be imagined, especially since some mothers describe their disorganized children as having supernatural powers, and special connections with deceased persons (see Solomon and George, 1999).

It should additionally be noted, however, that when the source of danger is thought by the parent to emanate specifically from within the infant, the infant's position becomes especially perplexing and disorganizing. Conceivably, it may lead the offspring to the following experiences, observations or suppositions, however inaccessible to consciousness and/or infantile in form:

- (1) Attempts to increase proximity to the parent are, paradoxically, likely to trigger parental inclinations (however subtle) to increase parent-offspring distance. Moreover, rather than appearing simply indifferent to (neglecting of) the infant, the retreating parent will often appear alarmed.
- (2) Over and above the fact that the attachment figure cannot be approached as a haven of safety (point 1), *there can be no escape from a source of danger which emanates from within the self*. More specifically, if the *offspring* is treated as an apparent source of danger, he or she is subjected to the additional frightening, paradoxical and disorganizing condition of *needing to take flight from the self*.<sup>13</sup> Main and Hesse (1992) have suggested that under extreme conditions one "solution" to the approach/flight paradox created by an alarming parent could be the "creation" of two selves or executors, one to approach, and one to take flight. Similarly, the ultimate "solution" to this even more perplexing situation (in which the self comes to be perceived as the source of danger) could involve the creation of segregated systems or multiple executors (selves, see Bowlby, 1980, Hilgard, 1977). Here, however, rather than simply needing two selves to perform contradictory actions, two selves are needed in order for one to retreat from the second. While

---

<sup>13</sup>This condition may await the development of a sense of self and cognitive abilities which appear shortly after infancy.

perhaps a rare outcome of such experiences, these circumstances provide a particularly compelling backdrop for “splitting” or dissociative sequelae in the event of future trauma.

- (3) Finally, as is known from observations of animals, flight behavior on the part of one individual can be a stimulus provoking attack or hunt-chase behavior on the part of a second (T. Johnson, personal communication, 1994). Therefore, like a cat who only arouses chase behavior in a dog if it takes flight, a parent who exhibits fear or inclinations to take flight in response to infant approach could provoke aggressive or “chase/pursuit” tendencies. Such conditions might gradually stimulate the development of inclinations to “attack” the parent, and contribute to the intensification of both frightening and aggressive ideation. Ironically, the more subtle the nature of the interaction, the more confusing and difficult the outcome might be for the offspring. Indeed, identifying the origin of intrusive, aggressive ideation resultant from interactions with a subtly frightened parent could be difficult for patient and clinician alike, unless both were alerted to investigate the patient’s responses to frightened behavior in other persons.

In summary, within the context of dissociated parental behavior in general, and more specifically in circumstances where the parent exhibits anomalous forms of threatening or frightened behavior—including the special case in which the parent appears to be alarmed by the infant—several direct pathways to disorganization can be identified.

*Other Forms of Behavior Likely to be Associated with  
Unresolved Mental States in the Parent: Timid/deferential,  
Sexualized, and Disorganized/disoriented Behavior*

The behaviors which remain to be discussed comprise the final three of the six subcategories delineated in the FR coding system, and are now briefly reviewed. While these latter behaviors may in themselves be less likely to lead directly to an approach-flight paradox for the infant, they each imply the appearance of an alteration in normal consciousness on the part of the parent, which may increase the likelihood that the anomalous behaviors capable of directly producing disorganization may appear at other times.

*Timid/deferential Behavior, and (Role-inverting) Tendencies to Utilize the Offspring as an Attachment Figure in Times of Distress or Alarm*

In our original observations of the strange situation behavior of the parents of disorganized infants, we described "extreme timidity" in one mother's handling of her infant, while a second (unresolved/disorganized) mother appeared timidly responsive to indications of infant anger (Main and Hesse, 1990). The latter observation was made during a reunion episode, in which the mother sat erect, welcoming her approaching infant with extended hands. However, when her daughter made an impatient gesture, the mother responded by slumping her shoulders, folding her hands, and assuming an humble "waiting" posture, accompanied by a pleading look. Similar timid/deferential behavior was observed in the Dutch study (Schuengel et al., 1997), in a mother assigned to the unresolved AAI category on the basis of lapses in reasoning and discourse as she described her mother's suicide. Several times, in response to infant noncompliance, this mother retracted her hands and folded them before her chest with her shoulders lowered and her gaze cast downward, as though apologizing. Her infant's strange situation behavior was anomalous, but did not quite meet the criteria for being categorized as disorganized. While these instances of timid/deferential parental behavior are moderate, we have also noted more extreme examples, such as deferential submission to obviously painful slapping, hitting or hair-pulling. In each of these more extreme cases, the infant was disorganized, or else unclassifiable.

What the examples described above have in common is that the parent appears to treat the infant as superior and/or as having greater power. This observation accords with George and Solomon's (1996) finding, noted earlier, that the parents of disorganized children sometimes consider the child to have supernatural capabilities, and that (as identified from a caregiving interview) these parents feel helpless with respect to their offspring who are, correspondingly, perceived as powerful. Despite the fact that no direct evidence is as yet available, we can also imagine that some parents who exhibit timid/deferential behavior toward the infant during videotaped interactions may at other times experience propensities *to seek the infant as a haven of safety when alarmed*.

Since an infant in fact has no capacity to protect the parent, we may well ask how behavior of this type can arise. It should be recalled, however, that in ground-living nomadic primates at least two relatively universal tendencies are aroused in conjunction with heightened states of alarm.<sup>14</sup> The first is to take flight from the perceived source of danger, and the second is to seek the proximity of an attachment figure who provides protection at such times. In consequence, not only the infant *but the parent as well* should experience a volition to seek a haven of safety if sufficiently alarmed. In most parents, of course, any propensities to seek the offspring as a haven of safety are either absent or ordinarily over-ridden, so that alarm stemming from an environmental source most often elicits a protective, as opposed to a protection-seeking, response (Cassidy, 1999).

Some parents in unresolved mental states may at times nevertheless experience a disoriented volition to seek the offspring when alarmed. This anomalous inclination would no doubt be involuntary, and in some way intended to reduce parental fear. If acted upon, however—even simply as an observable momentary inclination—the infant's immediate confusion would almost inevitably be heightened.

In this case, the infant is not faced with the problem of a frightened, retreating parent, i.e., one who responds to approach behavior with propensities to increase distance. Nonetheless, if the parent is approaching the infant as a source of safety because they are in an alarmed state, an approach-flight paradox will still be created, since the source of the infant's alarm (the frightened, approaching parent) will still activate simultaneous inclinations to increase proximity as well as distance.

### *Sexualized Behavior*

Overtly sexualized behavior towards infants is rarely observed in low-risk samples. However, mild forms of these behaviors do occur, as Abrams and Rifkin (1999) have recently observed in one parent of a disorganized infant who suddenly, but very briefly, grunted and twisted her body suggestively towards her infant with a "come-hither" expression. In a few samples, overly intimate kissing of the infant has been observed and/or the infant has been encouraged to engage in

---

<sup>14</sup>In older individuals, both the protective and agonistic systems may also become activated.

caresses that appear romantic in nature and elicit a dreamy or romantic look in the parent.

In all cases of sexualized/romanticized parental behavior noted to date, the infant's strange situation response has been either disorganized or unclassifiable. However, most of the sexualized behavior we have observed on videotape is engaged in by parents whose immediate appearance is neither frightening or frightened, nor (with some exceptions) overtly dissociated. Instead, the parent not infrequently seems gentle, affectionate, and pleasant, and the behavior appears to have no immediately frightening effect. However, it seems difficult to imagine that members of the particular westernized nations observed in these studies could (a) lack the ability to monitor their actions sufficiently to permit them to observed behaving in a markedly sexualized manner toward their infants without (b) having had experiences rendering them vulnerable to exhibiting overtly dissociated and even frightened or frightening behavior at other times.

*Disorganized/disoriented Behaviors  
Compatible with the Infant System*

From the first, the FR system for identifying frightened/frightening parental behavior has included behaviors which had originally been identified as disorganized/disoriented in the infants originally studied by Main and Solomon (1986, 1990). However, following Liotti's (1992) suggestion that disorganized infants would be more vulnerable than others to develop dissociative disorders in later life, we had earlier reviewed the indices of disorganized/ disoriented strange situation behavior, finding that many such behaviors (e.g., trancelike stilling and freezing) appeared phenotypically dissociative (see Main and Morgan, 1996). Some "disorganized/disoriented" infant behaviors were therefore placed under the FR sub-heading of directly "dissociative" (parental) behavior. However, a separate sub-heading for "any [other] disorganized/disoriented behavior fitting to the infant system" was also included, and researchers working with the FR system were encouraged to look, for example, for asymmetrical expressions and mis-timed movements (Main and Hesse, 1992-1998).

To our knowledge it is only recently, however, that disorganized parental behaviors fitting to the principles of the *infant* system have actually been noted, and connected to infant disorganization. In their study observing infant-mother interaction in the Main and Weston

(1981) free play and Clown Session procedures, Abrams and Rifkin (1999) have noted two intriguing forms of disorganized/disoriented behavior in some parents of disorganized infants. For example, in keeping with the infant disorganized coding system, two mothers of disorganized infants suddenly appeared "blind" (both facially and by changes in movement pattern), whereas previously the functioning of their eyes had appeared normal. Another suddenly moved in a stiff, asymmetrical, robot-like manner suggestive of someone with neurological impairments or who was recovering from a severe injury. Assuming no momentary neurological interference (the mother moved normally at other times) her behavior was inexplicable, suggesting a momentary "collapse of behavioral strategy".

These findings regarding the varying subtypes of frightened/frightening parental behavior, as well as the broader sets of findings and results discussed earlier (e.g., Jacobvitz, 1998; Schuengel et al., 1997, 1999; Abrams and Rifkin, 1999; Lyons-Ruth and Jacobvitz, 1999; Lyons-Ruth et al., in press) suggest that observational research using the FR system will continue to yield new and intriguing information regarding these sporadic "lapses" in parental action. A task for the future will be to explore the possibility of linkages between specific kinds of discourse/reasoning lapses in the AAI, and particular subtypes of FR behavior. For example, it could be that the subject matter involved in the linguistic lapses (e.g., physical abuse as opposed to loss) is related to the subtypes of FR behavior which are displayed (e.g., anomalous forms of threatening behavior as opposed to dissociative behavior). Additionally, lapses in reasoning may be more commonly associated with a different cluster of FR sub-types than are lapses in discourse. Any systematic differences uncovered regarding the precursors of or sequelae to different FR interactions would of course be of great interest, but an investigation of this kind will no doubt have to await the collection of data from a large number of studies.

#### *Summary and Conclusions*

In this paper, we have identified a number of circumstances which should lead to the arousal of fear in the infant and specifically, fear of the parent. We have proposed that the infant repeatedly frightened by its parent does not merely experience negative and disturbing

emotion(s), but additionally is subjected to a biologically channeled paradox in which simultaneous propensities to approach and to take flight from the parent are activated.

Many theories focusing upon early development would of course concur that parental behaviors which frighten the offspring will have untoward effects. It is specifically attachment theory, however, which posits that the biological function of the child's tie to its primary caregiver(s) is protection, and that among ground-living primates, the attachment figure provides the infant's primary solution to situations of fear (Bowlby, 1969). Attachment theory has, then, created the framework for the proposal that parental behavior which frightens the infant will drive the infant *towards* (as well as *away from*) the parent. It is via this paradox that a conflict capable of overwhelming the young infant is produced—a conflict which in turn frequently leads to disorganization and disorientation. In addition, we have proposed that the paradoxical situation created by fear of the parent may cause a lowering of attentional capacities and relatedly, temporarily restrict or alter the child's capacity for normal conscious processing. Alterations in consciousness in the face of an approach-flight paradox may, therefore, be associated with difficulties in maintaining the capacity for normal information-processing. This proposition remains to be fully explored but may provide a useful point of entry for enhancing our understanding of the psychological vulnerabilities presently being found associated with early disorganized attachment (see Main and Hesse [1992] and Hesse [1999b] for a discussion of serial vs. parallel informational processing in this context).

Within this presentation, we have outlined a pathway from certain anomalous forms of parental behavior to a variety of unfavorable outcomes for the offspring which would otherwise have often appeared untraceable with respect to a direct experiential source. Earlier, by studying the lapses in the monitoring of discourse or reasoning which occurred as the parents of disorganized infants attempted to discuss loss or abuse experiences, we had discovered "parapraxes"<sup>15</sup> or slips in the parent's *language* which were predictive of parapraxes in the *infant's actions*. We presumed that these slips

---

<sup>15</sup>Readers outside of the analytic community may be less familiar with the term "parapraxis," indicating a "... faulty action" due to the interference of some conflict or train of thought. Freud (1901) used parapraxes (often but not always slips of the tongue or slips of the pen) to demonstrate the existence of unconscious mental processes in healthy individuals.

in language or reasoning stemmed from sources internal to the parent; that they occurred as a result of states of mental disorganization and conflict surrounding frightening experiences; and that they would eventually be found associated with the sporadic appearance of corresponding (frightened/frightening) *parental actions* which would in turn be predictive of infant disorganization (Main and Hesse, 1990). Above, we have reviewed a number of recent studies providing early corroboration for each of these hypotheses.

Here, we have introduced a coding system for identifying and scoring several kinds of parental behavior which we expect to find associated with an unresolved/disorganized mental state. In one subtype, the parent's alarm, and we propose that this may have particularly malignant consequences for the offspring. Overall, however, repeated exposure to interactions involving any of the FR subtypes described may increase the likelihood that the offspring of an unresolved/disorganized (traumatized) parent will develop a vulnerability to psychopathology.

In essence, we have advanced an extension of attachment theory which focuses upon a previously unrecognized aspect of the role of fear within the attachment relationship. Correspondingly, we have suggested a new mechanism by which the traumatic experiences of one individual can indirectly effect the development of a second. Finally, we have extended Bowlby's emphasis upon the role which direct experience plays in the development of psychopathology in the individual (Bowlby, 1969, 1980) by pointing to the powerful indirect influence of events which occurred in the previous generation and had become associated with anomalous fears, fantasies and ideation.

Thus, we have broadened the interpretation of what "real" events are to include the second-generation effects of unresolved trauma, and/or frightening ideation associated with experiences which would not necessarily have been considered inherently traumatic. From this point of view, the traumatic experience itself is of course not "real" for the second generation. What is real, however, is the developing child's interaction with a parent whose behavior at times reflects his or her original traumatic experiences, fears, and fantasies.

In sum, we have focused on the child's experiences as they are influenced by the traumatized and/or frightened parent, and have pointed to specific ways in which the second-generation effects of the parent's fears and experiences may create risk factors for psycho

pathology. In keeping with a developmental pathways model (Sroufe and Rutter, 1984), we have suggested both (1) an immediate effect of interactions with a traumatized but not necessarily otherwise insensitive caregiver (disorganized infant attachment status), and correspondingly (2) an increased risk for the later development of psychological difficulties. The development of clinical levels of identifiable disorders will of course not normally depend solely on disorganized attachment with the primary caregiver in infancy, and will no doubt involve additional factors, including existing biological vulnerabilities. Here, for example, Walsh (1978) has reported that loss on the part of the parent within two years of the offspring's birth significantly increases the chances that a particular offspring within a given family will develop schizophrenia (Walsh, 1978; citing Orfanidis, p. 461). In other words, conditions which increase the likelihood that the parent was in an unresolved/disorganized state near the time of a particular birth have been found associated with the development of schizophrenia in biologically predisposed families (these and similar studies are reviewed in Hesse and van IJzendoorn, 1998, 1999). Other factors likely to increase the risk of unfavorable outcomes in later years include intervening trauma (Liotti, 1992; Ogawa et al., 1997), and disorganized attachment status with respect to the second parent.

#### REFERENCES

- Abrams, K. Y. (1999), Unpublished data. University of California at Berkeley.
- and Rifkin, A. (1999), *Disorganized infant attachment and frightened/frightening parental behavior: Evidence for new behaviors and new contexts (working title)*. Manuscript in preparation, University of California at Berkeley.
- Ainsworth, M. D. S. (1967), *Infancy in Uganda: Infant care and the growth of love*. Baltimore: The Johns Hopkins Press.
- (1969), Object relations, dependency and attachment: A theoretical review of the infant-mother relationship. *Child Development* 40, 969–1025.
- (1991), Attachments and other affectional bonds. In P. Marris, J. Stevenson-Hinde, and C. Parkes (Eds.), *Attachment across the life cycle* (pp. 33–51). New York: Routledge.
- Bell, S. M., and Stayton, D. J. (1971), Individual differences in Strange Situation behavior of one-year-olds. In H. R. Schaffer (Ed.), *The origins of human social relations* (pp. 17–57). London: Academic Press.
- Blehar, M.C., Waters, E., and Wall, S. (1978), *Patterns of attachment: A psychological study of the Strange Situation*. Hillsdale, NJ: Erlbaum. Tavistock: London.
- and Eichberg, C.G. (1991), Effects on infant-mother attachment of mother's unresolved loss of an attachment figure or other traumatic experience. In P. Marris,

- J. Stevenson-Hinde, and C. Parkes (Eds.), *Attachment across the life cycle* (pp. 160–183). New York: Routledge.
- Ammaniti, M., Speranza, A. M., and Candelori, C. (1996), Stability of attachment in children and intergenerational transmission of attachment. *Stabilita dell'attaccamento infantile e trasmissione intergenerazionale dell'attaccamento*. *Psichiatria dell'Infanzia e dell'Adolescenza*, 63, 313–332.
- Benoit, D., and Parker, K. (1994), Stability and transmission of attachment across three generations. *Child Development* 65, 1444–1456.
- Bowlby, J. (1944), Forty-four juvenile thieves: Their characters and home life. *International Journal of Psychoanalysis* 25, 107–127.
- (1958), The nature of the child's tie to his mother. *International Journal of Psychoanalysis*, 39, 350–373.
- (1980), *Attachment and loss: Vol. 3. Loss*. New York: Basic Books.
- (1988), *A secure base: Parent-child attachment and healthy human development*. New York: Basic Books.
- (1951), *Maternal care and mental health (WHO Monograph No. 2)*. Geneva: World Health Organization.
- (1969), *Attachment and loss: Vol. 1. Attachment*. New York: Basic Books.
- (1973), *Attachment and loss: Vol 2. Separation*. New York: Basic Books.
- (1982), *Attachment and loss: Vol. 1. Attachment* (2<sup>nd</sup> ed.). New York: Basic Books.
- (1986), Videotaped autobiography given at the University of Virginia at Charlottesville. (M Main.).
- Bretherton, I. (1992), The origins of attachment theory: John Bowlby and Mary Ainsworth. *Developmental Psychology* 28, 759–775.
- Breuer, J., & Freud, S. (1960/1895), *Studies in Hysteria*. Boston: Beacon.
- Buttner, A., Hieber, P., and Grossmann, K. (1997), *Unterschieden sich Mutter von desorganisierten und nicht desorganisierten Kindern in ihrem Verhalten in der Fremden Situation?* Poster bei der 13. Tagung Entwicklungspsychologie, Wien, Sept.
- Carlson, E. A. (1998), A prospective longitudinal study of disorganized/disoriented attachment. *Child Development*, 69, 1970–1979.
- Carlson, E. B., and Putnam, F. W. (1993), An update on the Dissociative Experiences Scale. *Dissociation*, 7, 16–27.
- Carlson, V., Cicchetti, D., Barnett, D., and Braunwald, K. (1989), Disorganized/disoriented attachment relationships in maltreated infants. *Developmental Psychology* 25, 525–531.
- Cassidy, J. (1999), The nature of the child's ties. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, research and clinical applications* (pp. 3–20). New York: The Guilford Press.
- and Berlin, L. (1994), The insecure/resistant pattern of attachment: Theory and research. *Child Development* 65, 971–991.
- Crittenden, P. M. (1985), Maltreated infants: Vulnerability and resilience. *Journal of Child Psychology & Psychiatry* 26, 85–96.
- and Ainsworth, M. D. S. (1989), Child maltreatment and attachment theory. In D. Cicchetti and V. Carlson (Eds.), *Child maltreatment: Theory and research on the causes and consequences of child abuse and neglect* (pp. 432–463). New York: Cambridge University Press.
- Darwin, C. (1872), *The expression of emotions in man and animals*. London: John Murray.

- DeWolff, M. S., & van IJzendoorn, M. H. (1997), Sensitivity and attachment: A meta-analysis on parental antecedents of infant attachment. *Child Development* 68, 571–591.
- Egeland, B., & Sroufe, L. A. (1981), Developmental sequelae of maltreatment in infancy. In R. Rizley and D. Cicchetti (Eds.), *Developmental Perspectives in Child Maltreatment* (pp. 77–92), San Francisco: Jossey-Bass.
- Ellenberger, H. F. (1970), *The Discovery of the Unconscious: The History and Evolution of Dynamic Psychiatry*. New York: Basic Books.
- Fonagy, P. (1999), Psychoanalytic theory from the viewpoint of attachment theory and research. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, research and clinical applications* (pp. 595–624). New York: The Guilford Press.
- Steele, H. and Steele, M. (1991), Maternal representations of attachment during pregnancy predict the organization of infant-mother attachment at one year of age. *Child Development*, 62, 891–905.
- Freud, S. (1920), *A General Introduction to Psychoanalysis*. New York: Boni and Liveright. (Authorized translation with a preface by G. Stanley Hall.)
- (1901), *The Psychopathology of Everyday Life*. Standard Edition, Vol. 6, Hogarth Press, London, 1960.
- George, C., & Solomon, J. (1996), Representational models of relationships: Links between caregiving and attachment. *Infant Mental Health*, 17, 198–216.
- & —— (1989), Internal working models of caregiving and security of attachment at age six. *Infant Mental Health*, 10, 222–237.
- & —— (1996), Representational models of relationships: Links between caregiving and attachment. *Infant Mental Health Journal*, 17, 198–216.
- Kaplan, N., and Main, M. (1984, 1985, 1996), *Adult Attachment Interview*. Unpublished protocol, Department of Psychology, University of California, Berkeley.
- Goldfarb, W. (1943), The effects of early institutional care on adolescent personality. *Journal of Experimental Education*, 12, 106–129.
- (1945), Effects of psychological deprivation in infancy and subsequent stimulation. *American Journal of Psychiatry*, 102, 18–33.
- Grossmann, K. E. (1997), *The development of attachment and psychological adaptation from the cradle to the grave*. Invited lecture, VIII European conference on Developmental Psychology, Rennes, France. September.
- Hansburg, H. G. (1972), *Adolescent separation anxiety: A method for the study of adolescent separation problems*. Springfield, IL: Thomas.
- Heinicke, C., and Westheimer, I. (1966), *Brief separations*. New York: International Universities Press.
- Hertsgaard, L., Gunnar, M., Erickson, M. F. & Nachmias, M. (1995), Adrenocortical responses to the Strange Situation in infants with disorganized/disoriented attachment relationships. *Child Development*, 66, 1100–1106.
- Hesse, E. (1999a), The Adult Attachment Interview: Historical and current perspectives. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, research and clinical applications* (pp. 395–433). New York: The Guilford Press.
- (1996), Discourse, memory and the Adult Attachment Interview: A note with emphasis on the emerging Cannot Classify category. *Infant Mental Health Journal*, 17, 4–11.
- (1999b), *Unclassifiable and Disorganized responses in the Adult Attachment Interview and in the Infant Strange Situation Procedure: Theoretical Proposals and Empirical Findings*. Unpublished doctoral dissertation, Leiden University.

- and Main, M. (in press), Disorganization in infant and adult attachment: Descriptions, correlates and implications for developmental psychopathology. *Journal of the American Psychoanalytic Association*.
- and van IJzendoorn, M. H. (in press), Propensities towards absorption are related to lapses in the monitoring of reasoning or discourse during the Adult Attachment Interview: A preliminary investigation. *Attachment and Human Development*.
- Hesse, E., and van IJzendoorn, M. H. (1998), Parental loss of close family members and propensities towards absorption in offspring. *Developmental Science*, 1, 299–305.
- Hilgard, E. R. (1977/1986), *Divided consciousness: Multiple controls in human thought and action*. New York: Wiley.
- Hinde, R. A. (1966), *Animal behaviour: A synthesis of ethology and comparative psychology*. New York: McGraw-Hill.
- (1974), *Biological bases of human social behavior*. New York: McGraw-Hill.
- Hrды, S. (1999), *Mother nature: A history of mothers, infants and natural selection*. New York: Pantheon.
- Jacobsen, T., and Hofmann, V. (1997), Children's attachment representations: Longitudinal relations to school behavior and academic competency in middle childhood and adolescence. *Developmental Psychology*, 33, 703–710.
- Edelstein, W. and Hofmann, V. (1994), A longitudinal study of the relation between representations of attachment in childhood and cognitive functioning in childhood and adolescence. *Developmental Psychology*, 30, 112–124.
- Huss, M., Fendrich, M., Kruesi, M. P., and Ziegenhain, U. (1997), Children's ability to delay gratification: Longitudinal relations to mother-child attachment. *Journal of Genetic Psychology* 158, 411–426.
- Ziegenhain, U., Muller, B., Rottmann, U., Hofmann, V. and Edelstein, W. (1992, September). *Predicting stability of mother-child attachment patterns in day-care children from infancy to age 6*. Poster presented at the Fifth World Congress of Infant Psychiatry and Allied Disciplines, Chicago.
- Jacobvitz, D. (1998), *Frightening caregiving: Links with mother's loss and trauma*. Paper presented at the biennial meeting of the Southwestern Society for Research in Human Development. Galveston, Texas.
- Hazen, N. L., and Riggs, S. (1997), *Disorganized mental processes in mothers, frightened/frightening behavior in caregivers, and disoriented, disorganized behavior in infancy*. Paper presented at the biennial meeting of the SRCD, Washington, D. C.
- James, W. (1983), *The principles of psychology*. Cambridge: Harvard University Press. (Original work published in 1890).
- Janet, P. (1965), *The major symptoms of hysteria*. New York: Hafner. (Original work published in 1907).
- Kaplan, N. (1987), *Individual differences in six-year-old's thoughts about separation: Predicted from attachment to mother at age one*. Unpublished doctoral dissertation, University of California at Berkeley.
- and Main, M. (1984, 1986), *Assessment of attachment organization through children's family drawings*. Unpublished manuscript, Department of Psychology, University of California at Berkeley.
- Kermoian, R. and Campos, J. J. (1988), Locomotor experience: A facilitator of spatial cognitive development. *Child Development*, 59, 595–624.

- Kihlstrom, J. F. (1997), Consciousness and me-ness. In J. D. Cohen and J. W. Schooler (Eds.), *Scientific approaches to consciousness* (pp. 451-468). Carnegie-Mellon symposium on cognition. New Jersey: Lawrence Erlbaum Associates, Inc.
- Klagsbrun, M., and Bowlby, J. (1976), Responses to separation from parents: A clinical test for children. *British Journal of Projective Psychology*, 21, 7-21.
- Klunnert, M. D., Campos, J. J., Sorce, J. F., Emde, R., and Svedja, M. (1983), Emotions as behavior regulators: Social referencing in infancy. In R. Plutchik and H. Kellerman (Eds.), *The emotions, Vol 2*. San Diego, CA: Academic Press.
- Liotti, G. (1992), Disorganized/disoriented attachment in the etiology of the dissociative disorders. *Dissociation* 5, 196-204.
- (1993), Disorganized attachment and dissociative experiences: An illustration of the developmental-ethological approach to cognitive therapy. In H. Rosen and K.T. Kuehlwein (Eds.), *Cognitive therapy in action* (pp. 213-239). San Francisco: Jossey-Bass.
- (1999), Disorganization of attachment as a model for understanding dissociative psychopathology. In J. Solomon and C. George (Eds.), *Attachment disorganization* (pp. 291-317). New York: The Guilford Press.
- Lyons-Ruth, K. (1996), Attachment relationships among children with aggressive behavior problems: The role of disorganized early attachment patterns. *Journal of Consulting and Clinical Psychology*, 64, 64-73.
- and Jacobvitz, D. (1999), Attachment disorganization: Unresolved loss, relationship violence, and lapses in behavioral and attentional strategies. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, research and clinical applications* (pp. 520-554). New York: The Guilford Press.
- Bronfman, E., and Parsons, E. (in press), Maternal disrupted affective communication, maternal frightened or frightening behavior, and disorganized infant attachment strategies. In J. Vondra and D. Barnett (Eds.), *Atypical patterns of infant attachment: Theory, research and current directions. Monographs of the Society for Research in Child Development*.
- Repacholi, B., McLeod, S., and Silva, E. (1991), Disorganized attachment behavior in infancy: Short-term stability, maternal and infant correlates, and risk-related sub-types. *Development and Psychopathology*, 3, 377-396.
- Main, M. (1973), *Exploration, play, and cognitive functioning as related to child-mother attachment*. Unpublished doctoral dissertation, The Johns Hopkins University.
- (1979a), *Scale for disordered/disoriented infant behavior in response to the Main and Weston Clown Session*. Unpublished manuscript, University of California at Berkeley.
- (1979b), The ultimate causation of some infant attachment phenomena: Further answers, further phenomena and further questions. *The Behavioral and Brain Sciences* 2, 640-643.
- (1981), Avoidance in the service of attachment: A working paper. In K. Immelmann, G. Barlow, L. Petrinoitch, and M. Main (Eds.), *Behavioral development: The Bielefeld interdisciplinary project* (pp. 651-693). New York: Cambridge University Press.
- (1990), Cross-cultural studies of attachment organization: Recent studies, changing methodologies and the concept of conditional strategies. *Human Development*, 33, 48-61.
- (1995), Recent studies in attachment: Overview, with implications for clinical work. In S. Goldberg, R. Muir, and J. Kerr (Eds.), *Attachment Theory: Social, developmental and clinical perspectives*. Hillsdale, NJ: Analytic Press, Inc, pp. 407-474.

- (1999), Epilogue. Attachment theory: Eighteen points with suggestions for future studies. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 845–888). New York: The Guilford Press.
- (in press), The Adult Attachment Interview: Fear, attention, safety and discourse processes. *Journal of the American Psychoanalytic Association*.
- and Stadtman, J. (1981), Infant response to rejection of physical contact by the mother: Aggression, avoidance and conflict. *Journal of the American Academy of Child Psychiatry*, 20: 2992–3007.
- & Hesse, E. (1992–1998), Frightening, frightened, dissociated, deferential, sexualized and disorganized parental behavior: A coding system for frightening parent-infant interactions. Unpublished manuscript, University of California at Berkeley.
- and Cassidy, J. (1988), Categories of response to reunion with the parent at age six: Predicted from infant attachment classifications and stable over a one-month period. *Developmental Psychology*, 24, 415–426.
- and Goldwyn, R. (1984–1998), *Adult attachment scoring and classification system*. Unpublished manuscripts, Department of Psychology, University of California at Berkeley.
- and Hesse, E. (1990), Parents' unresolved traumatic experiences are related to infant disorganized attachment status: Is frightened and/or frightening parental behavior the linking mechanism? In M. T. Greenberg, D. Cicchetti, and E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 161–182). Chicago: University of Chicago Press.
- and ——— (1992), Disorganized/disoriented infant behavior in the strange situation, lapses in the monitoring of reasoning and discourse during the parent's Adult Attachment Interview, and dissociative states. In M. Ammaniti and D. Stern (Eds.), *Attachment and psychoanalysis* (pp. 86–140). (Translated from the Italian).
- and Morgan, H. (1996), Disorganization and disorientation in infant Strange Situation behavior: Phenotypic resemblance to dissociative states? In L. Michelson and W. Ray (Eds.), *Handbook of Dissociation: Theoretical, Empirical and Clinical Perspectives*, pp. 107–138. New York: Plenum.
- and ——— (1986), Discovery of a new, insecure-disorganized/ disoriented attachment pattern. In T. B. Brazelton and M. W. Yogman (Eds.), *Affective development in infancy* (pp. 95–124). Norwood, NJ: Ablex.
- and ——— (1990), Procedures for identifying infants as disorganized/ disoriented during the Ainsworth strange situation. In M. T. Greenberg, D. Cicchetti, and E. M. Cummings (Eds.), *Attachment in the preschool years: Theory, research, and intervention* (pp. 121–160). Chicago: University of Chicago Press.
- and Weston, D. R. (1981), The quality of the toddler's relationship to mother and to father: Related to conflict behavior and the readiness to establish new relationships. *Child Development*, 52, 932–940.
- Kaplan, N., and Cassidy, J. (1985), Security in infancy, childhood, and adulthood: A move to the level of representation. In I. Bretherton and E. Waters (Eds.), *Growing points of attachment theory and research. Monographs of the Society for Research in Child Development*, 50 (Nos. 1–2, Serial No. 209), 66–104.
- Manassis, K., Bradley, S., Goldberg, S., Hood, J., and Swinson, R. P. (1994), Attachment in mothers with anxiety disorders and their children. *J. American Academy of Child and Adolescent Psychiatry*, 33, 1106–1113.
- Moss, E., Parent, S., Gosselin, C., Rousseau, D., and others (1996), Attachment and teacher-reported behavior problems during the preschool and early school-age period. *Development & Psychopathology*, 8 :511–525.

- Rousseau, D., Parent, S., St-Laurent, D., and others (1998), Correlates of attachment at school age: Maternal reported stress, mother-child interaction, and behavior problems. *Child Development*, 69:1390–1405.
- Ogawa, J. R., Sroufe, L. A., Weinfield, N. S., Carlson, E. A., and Egeland, B. (1997), Development and the fragmented self: Longitudinal study of dissociative symptomatology in a nonclinical sample. *Development and Psychopathology*, 9, 855–879.
- Orvaschel, H., Puig-Antich, J., Chambers, W., Tabrizi, M. A., and Johnson, R. (1982), Retrospective assessment of prepubertal major depression with the Kiddie-SADS-E. *Journal of the American Academy of Child Psychiatry*, 21, 695–707.
- Pederson, D. R., Gleason, K. E., Moran, G., and Bento, S. (1998), Maternal attachment representations, maternal sensitivity and the infant-mother attachment relationship. *Developmental Psychology*, 34, 925–933.
- & Moran, G. (1996), Expressions of the attachment relationship outside of the Strange Situation. *Child Development* 67, 915–927.
- Pipp-Siegel, S., Siegel, C. H., and Dean, J. (in press), Neurological aspects of the disorganized/disoriented attachment classification system: Differentiating quality of the attachment relationship from neurological impairment. In J. I. Vondra and D. Barnett (Eds.), *Atypical attachment in infancy and early childhood among children at developmental risk. Monographs of the Society for Research in Child Development*.
- Prince, M. (1978), *The dissociation of a personality*. New York: Oxford University Press. (Original work published in 1905).
- Putnam, F. W. (1985), Dissociation as a response to extreme trauma. In R. P. Kluft (Ed.), *The child antecedents of multiple personality*. Washington, D.C.: American Psychiatric Press.
- Radke-Yarrow, M., Cummings, E. M., Kuczynski, L., and Chapman, M. (1985), Patterns of attachment in two- and three-year-olds in normal families with parental depression. *Child Development*, 56, 884–893.
- Radojevic, M. (1992, July), *Predicting quality of infant attachment to father at 15 months from pre-natal paternal representations of attachment: An Australian contribution*. Paper presented at the XXV International Congress of Psychology, Brussels, Belgium, 19–25.
- (1994), Mental representations of attachment among prospective Australian fathers. *Australian & New Zealand Journal of Psychiatry*, 28:505–511.
- Robertson, J. and Robertson, J. (1971), Young children in brief separation: A fresh look. *Psychoanalytic study of the child*, 26, 264–315.
- and Bowlby, J. (1952), Responses of young children to separation from their mothers. *Courrier Centre Internationale Enfance*, 2, 131–42.
- Sandler, J. (1960), The background of safety. *International Journal of Psycho-analysis* 41, 352–365.
- Schaffer, H. R. and Emerson, P. E. (1964), The development of social attachments in infancy. *Monographs of the Society for Research in Child Development* (Serial No. 94).
- Schuengel, C., Van IJendoorn, M. H. and Bakermans-Kranenburg, M. J. (1997), Attachment and loss: Frightening maternal behavior linking unresolved loss and disorganized infant attachment. In C. Schuengel, *Attachment, loss and maternal behavior: A study on intergenerational transmission* (pp. 40–58). Unpublished doctoral dissertation, Leiden University.
- ——— ——— and Blom, M. (1997), *Frightening, frightened and/or dissociated behavior, unresolved loss and infant disorganization*. Paper presented at

- the biennial meeting of the Society for Research in Child Development, Washington, D. C.
- (1999), Frightening maternal behavior linking unresolved loss and disorganized infant attachment. *Journal of Consulting and Clinical Psychology* 67, 54–63.
- Siegel, D. (1999), *The developing mind: Towards a neurobiology of interpersonal experience*. New York: The Guilford Press.
- Solomon, J. and George, C. (1999), The place of disorganization in attachment theory: Linking classic observations with contemporary findings. In J. Solomon and C. George (Eds.), *Attachment disorganization*, pp. 3–32. New York: The Guilford Press.
- & Ivins, B. (1987, April), *Mother-child interaction in the home and security of attachment at age six*. Paper presented at the biennial meeting of the Society for Research in Child Development, Baltimore.
- and DeJong, A. (1995), Children classified as controlling at age six: Evidence for disorganized representational strategies and aggression at home and at school. *Development and Psychopathology*, 7, 447–463.
- Spangler, G. & Grossmann, K. E. (1993), Biobehavioral organization in securely and insecurely attached infant. *Child Development*, 64, 1439–1450.
- Spiegel, D. (1990), Hypnosis, dissociation and trauma: Hidden and overt observers. In J. Singer (Ed.), *Repression and dissociation: Implications for personality theory, psychopathology, and health* (pp. 121–142), Chicago: University of Chicago Press.
- Spitz, R. A. (1946), Anaclitic depression. *Psychoanalytic Study of the Child* 2, 313–342.
- Sroufe, L. A. (1985), Attachment classification from the perspective of infant-caregiver relationships and infant temperament. *Child Development*, 56, 1–14.
- & Waters, E. (1977), Heart-rate as a convergent measure in clinical and developmental research. *Merrill-Palmer Quarterly*, 23, 3–27.
- and Rutter, M. (1984), The domain of developmental psychopathology. *Child Development*, 55, 1184–1199.
- Steele, H., Steele, M. and Fonagy, P. (1996b), *Attachment in the sixth year of life*. Paper presented at the meetings of the International Congress of Psychology, Montreal.
- and ————— (1996a), Associations among attachment classifications of mothers, fathers and infants: Evidence for a relationship-specific perspective. *Child Development*, 2, 541–555.
- Steele, M., Fonagy, P., Yabsley, S., Woolgar, M., and Croft, C. (1995, March), *Maternal representations of attachment during pregnancy predict the quality of children's doll play at five years of age*. Presented at the biennial meeting of the Society for Research in Child Development, Indianapolis, Indiana.
- Strage, A., and Main, M. (1985), *Attachment and parent-child discourse patterns*. In M. Main (Chair), *Attachment: A move to the level of representation*. Paper presented at the biennial meeting of the Society for Research in Child Development, Toronto.
- Tinbergen, N. (1951), *The study of instinct*. Oxford: Clarendon Press.
- Troy, M., and Sroufe, L. A. (1987), Victimization among pre-schoolers: The role of attachment-relationship theory. *Journal of the American Academy of Child and Adolescent Psychiatry* 26, 166–172.
- True, M., Pasani, L., Ryan, R., and Oumar, F. (1998), *Maternal behaviors related to disorganized infant attachment in West Africa*. Paper presented at the annual meeting of the Western Psychological Association, Albuquerque, New Mexico.

- van IJzendoorn, M. H. (1995), Adult attachment representations, parental responsiveness and infant attachment: A meta-analysis on the predictive validity of the Adult Attachment Interview. *Psychological Bulletin*, *117*, 387-403.
- and Kroonenberg, P. M. (1988), Cross-cultural patterns of attachment: A meta-analysis of the Strange Situation. *Child Development*, *63*, 840-858.
- Moran, G., Belsky, J., Pederson, D., Bakermans-Kranenburg, M., & Fisher, K. (in press), The similarity of siblings' attachments to their mother. *Child Development*.
- and Bakermans-Kranenburg, M. (1996), Attachment representations in mothers, fathers, adolescents and clinical groups: A meta-analytic search for normative data. *Journal of Clinical and Consulting Psychology*, *64*, 8-21.
- and De Wolff, Marianne S. (1997), In search of the absent father—meta-analysis of infant-father attachment: A rejoinder to our discussants. *Child Development*, *68*, 604-609.
- Schuengel, C. and Bakermans-Kranenburg, M. J. (1999), Disorganized attachment in early childhood: Meta-analysis of precursors, concomitants and sequelae. *Development and Psychopathology*, in press.
- Vaughn, B. E., and Bost, K. K. (1999), Attachment and temperament: Redundant, independent, or interacting influences on interpersonal adaptation and personality development? In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 198-225). New York: The Guilford Press.
- Volkmar, F. R., and Siegel, A. E. (1979), Young children's responses to discrepant social communications. *Journal of Child Psychology and Psychiatry*, *20*, 139-149.
- Hoder, E. L., and Siegel, A. E. (1980), Discrepant social communications. *Developmental Psychology* *16*, 495-505.
- Walsh, F. W. (1978), Concurrent grandparent death and birth of schizophrenic offspring: An intriguing finding. *Family Process*, *17*, 457-463.
- Ward, M. J., and Carlson, E.A. (1995), The predictive validity of the adult attachment interview for adolescent mothers. *Child Development*, *66*, 69-79.
- Wartner, U. G., Grossmann, K., Fremmer-Bombik, E., and Suess, G. (1994), Attachment patterns at age six in South Germany: Predictability from infancy and implications for preschool behavior. *Child Development*, *65*, 1014-1027.
- Weinfield, S., Sroufe, L. A., Egeland, B. and Carlson, E. A. (1999), The nature of individual differences in infant-caregiver attachment. In J. Cassidy and P. R. Shaver (Eds.), *Handbook of Attachment: Theory, Research and Clinical Applications* (pp. 68-88). New York: The Guilford Press.
- Winnicott, D. W. (1974), Fear of breakdown. *International Review of Psychoanalysis*, *1*, 103-107.

*Department of Psychology*  
*University of California at Berkeley*  
*Berkeley, CA 94720*  
*(fax) 510-642-5293*